An Examination of the Relationship Between Cultural Adjustment, Work Locus of Control and Organisational Commitment in Fly-In Fly-Out Workers in Australia

This thesis is presented in partial fulfillment of the requirements for the degree of Bachelor of Arts (Honours), Murdoch University, 2012

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I declare that this thesis is my own account of my research and contains as its main content work which has not been previously submitted for a degree at any tertiary educational institution.

_______________________________
Alexei Behr
This study aimed to explore the relationships between Cultural Adjustment, Locus of Control and Commitment in Fly-In Fly-Out workers in Australia. Responses from 227 Fly-In Fly-Out workers indicated that high internal locus of control is related to high affective commitment and high cultural adjustment and that high cultural adjustment is related to high affective commitment. The findings also provided evidence that the Cultural Adjustment scale developed for this study is valid and measures the three factors of cultural adjustment proposed in previous research. Implications of these findings and directions for future research are also discussed.
An Examination of the Relationship Between Cultural Adjustment, Work Locus of Control and Organisational Commitment in Fly-In Fly-Out Workers in Australia

As the mining boom continues in Australia, Fly-In Fly-Out (FIFO) work is becoming more common, with the number of workers expected to double in the next three to five years (The Chamber of Minerals and Energy of WA inc, 2012). FIFO differs from traditional forms of work in that the worker is flown onto site for a short period of time, usually between one and four weeks, then home for a short period in a rotation instead of living close to where they work. There are benefits in FIFO for everyone involved; workers get higher than normal wages, their families can live anywhere they want instead of moving to remote outback locations and companies are able to attract a higher number of qualified workers by being able to offer them greater job flexibility (Carter & Kaczmarek, 2009; The Chamber of Minerals and Energy of WA inc, 2012). It also allows companies to hire a large workforce during the start-up stage of a project without having to build large amounts of accommodation that won’t be required when the project is fully operational and staff numbers are reduced saving money and preventing an oversupply of houses in small rural communities. Alongside these advantages are some disadvantages that many workers struggle to cope with, such as the large amount of time spent away from friends and family and longer than normal work hours (Colley, 2005; Taylor & Simmonds, 2009; Torkington, Larkins & Gupta, 2011). With a large number of workers in FIFO roles, especially in Western Australia and Queensland, and with numbers expected to double in the next 3 to 5 years it is vital to investigate ways to make it less stressful and more successful for workers, their families and the companies (The Chamber of Minerals and Energy of WA inc, 2012). Even if the expected expansion doesn’t occur due to the recent decrease in demand from China, approximately 8.4% of Australia’s gross domestic product and 29% of Western Australia’s gross domestic product consists of income from mining and $16.8 billion of
wages are paid to mining workers (Australian Bureau of Statistics, 2012) so strengthening this industry by improving conditions for employees is extremely important. One area that is important to investigate as plays a vital role in a worker feeling happy and comfortable in a FIFO role is adjustment.

**Cultural Adjustment to FIFO Work**

Cultural adjustment can be defined as the level of an individual’s psychological comfort with their new environment (Black & Gregersen, 1991). While early researchers hypothesised that cultural adjustment was a single factor (Torbiorn, 1982) more recent research into expatriate workers has found that it’s composed of three facets; work adjustment, interaction adjustment and general adjustment (Black, 1988; Black & Stephens, 1989). Work adjustment refers to how a worker adjusts to the demands of their position and the tasks they are required to complete for the organisation. For many FIFO roles these tasks may not be very different from other positions they’ve held, for example a truck driver who works FIFO completes many of the same tasks that a truck driver on a regular construction site would be required to complete with the main difference being that the mine site is larger and the working hours might be longer.

Interaction adjustment refers to how easily workers socialise with others on the work site, both while performing their duties and during relaxation time. Because FIFO workers come from a variety of cities all over Australia and sometimes overseas it is likely that there will be a greater degree of diversity in their values and norms than if they originated from a singular geographic location which could cause communication difficulties (Black & Gregersen, 1991). This is more of a problem on mine sites than in other workplaces as all employees are forced to spend long periods of time together due to the confined nature of the work site and often if a worker doesn’t get along with others their time on the mine is made difficult to encourage them to leave (Carter & Kaczmarek, 2009). Socialising is also made
more difficult by the fact that workers are often on different rosters so might not work with the same people long enough to form the friendships that are common in other workplaces. An inability to form close friendships, especially while spending long periods of time away from their family and friends, could cause workers to feel isolated if they can’t adjust (Torkington, Larkins & Gupta, 2011).

Generally the overall organisational culture on mine sites is considered very masculine. This is characterised by high levels of violence and aggression, risk taking behaviours, and competitiveness between workers (Carter & Kaczmarek, 2009; Wicks, 2002). In this culture emotion is often seen as weakness and physical and mental problems are ignored by the worker suffering them as much as possible (Somerville, 2005). This isn’t an unusual culture as is often seen in male-dominated industries like construction so many workers would already be used to it from previous positions if FIFO isn’t their first job (Waddick, 2002). For workers who haven’t been in a masculine industry before the different norms accepted by this culture can make socialising extremely difficult as no sympathy will be shown for individuals struggling to adjust and their loved ones are too far away to provide support (Pirotta, 2009; Wicks, 2002).

General adjustment is defined as how well an individual adjusts to the general factors of their new environment, such as housing, food and weather. Many mine sites that hire FIFO workers are located in Northern Australia where temperatures are regularly over 40 degrees Celsius in summer and are often combined with high humidity, conditions that workers may find difficult to deal with if they aren’t used to them (Maté & Oosthuizen, 2012). On top of this FIFO employees are fed meals that are cooked in bulk and eaten in a communal mess hall, have small bedrooms and minimal personal space, and are regularly exposed to pornography, excessive drinking and drug taking (Carter & Kaczmarek, 2009; Torkington,
Larkins & Gupta, 2011). The combination of these differences may increase the chance that a FIFO worker will have problems with their general adjustment.

While all new jobs require some adjustment by the employee the extreme differences between FIFO and other workplaces mean that all new employees will have a larger adjustment to deal with when they first begin than they would have for other roles. The implications of adjustment have been studied in many different groups of people, including expatriate workers, but never in a FIFO population. Not being able to adjust to the new culture is a significant problem for expatriate workers, causing 16% to 40% of American expatriates to leave before their assignment is finished (Black, 1988; Black & Gregersen, 1991; Tung, 1981). This raises the question of whether poor adjustment could be linked to employee turnover in the FIFO workforce, an issue that Beach, Brereton and Cliff (2003) suggested needed further investigation.

**Employee Turnover**

Turnover is “any departure beyond organisational boundaries” (Macy & Marvis, 1976) but generally is confined to a worker leaving and creating a vacant position that must be filled. This includes voluntary turnover through resignation or retirement and involuntary turnover due to dismissals. The turnover rates in the mining industry are significantly higher than traditional workplaces with Beach, Brereton and Cliff (2003) finding that the mines in their study had an average FIFO turnover of 21% with one mine’s turnover reaching 28.3%. While some turnover is necessary to bring new skills into a workplace 20% per year is considered the maximum acceptable amount with rates above this damaging to the organisation due to the high cost of replacing and training staff (Beach, Brereton & Cliff, 2003). Improving job stability is also vital for the mental health of workers and for their family as job uncertainty can cause excess stress and physical health problems (Ferrie & Martikainen, 2007). Very little research has been conducted into the issues that influence
turnover in FIFO with most of what has already been conducted focusing on family relationships or work rosters (Colley, 2005; Presser, 2000; Taylor & Simmonds, 2009).

**Commitment**

One factor commonly associated with voluntary employee turnover is organisational commitment (Cohen, 1993). Commitment is defined as “a psychological link between the employee and his or her organisation that makes it less likely that the employee will voluntarily leave the organisation” (Allen & Meyer, 1996). Allen and Meyer (1990) conceptualise commitment as consisting of 3 different factors: affective, normative and continuative. Affective commitment is defined as an emotional attachment to the organisation, with a strong affective commitment causing the employee to remain with the organisation because they want to. Normative commitment is a sense of obligation to the company while continuative commitment is triggered by an employee’s recognition of the costs associated with leaving (Allen & Meyer, 1990; Allen & Meyer, 1991).

While a lot of research has been done in regular work environments little has explored what influences commitment in a FIFO environment. Previous research mainly focuses on turnover and factors associated with high or low turnover but not on how these factors are related to commitment and if they could affect future turnover, therefore extending the research on commitment is vital for understanding employee turnover and trying to reduce it in the future. Measuring affective commitment is important because it not only predicts turnover but also task performance, job satisfaction and other positive outcomes (Meyer, Stanley, Herscovitch & Topolnytsky, 2002 & Randall, Fedor & Longenecker, 1990). An employee with poor task performance reduces the efficiency of a company, lowering output and costing money and time (Nadler & Tushman, 1980).

When the three subtypes of commitment are analysed it becomes clear that adjustment appears to be strongly related to affective commitment. This is because one outcome of high
employee adjustment is positive feelings towards the position and employer (Aycan, 1997). Positive emotions are associated to affective commitment as they make it less likely that an employee will decide to willingly leave the organisation as are emotionally committed to remaining. This is evident in all work places as if an employee feels that they fit in with the organisation’s culture they are very likely to be happy and committed to remaining with the organisation because they want to, not because they have to.

**Hypothesis 1: Cultural adjustment will be positively related to affective commitment.**

The relationships of continuative commitment and normative commitment with cultural adjustment have mixed results in previous research (Luthans, Baack & Taylor, 1987). While the reason behind this hasn’t been investigated in the past it could be that there is no single relationship found in every worker. In FIFO for example continuance commitment (staying because the perceived cost of leaving is high) could have a positive relationship as leaving would mean a significant decrease in pay or a negative relationship could because leaving also has the positive outcome of spending more time with family and friends. These opposites could either offset each other and result in no relationship between adjustment and continuance commitment or could be positive or negative, depending on which factor is more important for the individual worker. The same is true of normative commitment as there are multiple factors influencing its relationship with adjustment, most of which have very limited research investigating them.

**Work Locus of Control**

This raises the question of what factors affect cultural adjustment and why some workers adjust more easily than others. One possibility is work locus of control. Work locus of control refers to whether an individual believes success at work is due to internal factors (they have control) or external factors (such as luck or a powerful other) (Spector, 1988).
Having a high internal locus of control means that the worker believes they have control over what happens and as a consequence are more likely to change the external environment to better suit them and strongly link their actions with results (Ng, Sorensen & Eby, 2006). This perceived control may help them adjust better to the challenges of FIFO work as they believe they have some control over the difficulties experienced. These individuals tend to actively look for ways that they can control their environment so that they can change their work experience to be more favourable (Phares, 1976). When they do encounter problems individuals with a high internal locus of control are more likely to seek ways to solve them and tend to view stressors as more manageable than those with external locus of controls (Ng, Sorensen & Eby, 2006). They also tend to be better at establishing and maintaining positive social relationships so experience more favourable social encounters (Ng, Sorensen & Eby, 2006). This ability to manage stressors at work and maintain positive social relationships may help them adjust more quickly and with less stress than workers with an external locus of control, a relationship that has been found in expatriate workers (Black, 1990). While it has yet to be investigated in FIFO workers it is likely that the same relationship will exist as they are faced with many of the same adjustment problems as expatriates.

As many FIFO workers originated in countries other than Australia it could be questioned whether work locus of control should be considered a cultural construct or a general personality trait (Spector, et. al., 2002). The relationship between internal locus of control and affective commitment should be present in foreign FIFO workers as well as their Australian counterparts as locus of control has been shown to have intercultural generalizability in a number of studies (Spector, et.al., 2002). This intercultural generalizability means that work locus of control is a personality trait present in everyone and not just a concept present in Western society.
Hypothesis 2: Internal locus of control will be positively correlated with better cultural adjustment to FIFO work.

An employee’s locus of control could also have an impact on their level of affective commitment (Luthans, Baack & Taylor, 1987). An external locus of control could cause a worker to blame others, such as the organisation they’re employed by, for the difficulties they encounter and perceive that they have no control over fixing. An internal locus of control leads an individual to believe that they can change their work environment to reduce difficulties, leading to higher satisfaction with their position and a lower chance of blaming their employer for problems (Ng, Sorensen & Eby, 2006). Individuals with an internal locus of control are also more likely to be proactive and find a new position if they aren’t happy with their current role and can’t change the aspects that bother them so a worker with an internal locus of control is likely to have high affective commitment to towards their employer (Luthans, Baack, & Taylor, 1987). This relationship has been shown by multiple previous studies (Coleman, Irving, & Cooper, 1999; Luthans, Baack, & Taylor, 1987) but never among workers in FIFO positions although with the large number of adjustment problems they face it’s likely that locus of control will influence affective commitment.

Hypothesis 3: There will be a positive correlation between internal locus of control and affective commitment.

If there is a relationship between cultural adjustment and affective commitment then the factors influencing this relationship are also of vital importance to help reduce employee turnover. If a worker has problems adjusting to FIFO work they are less likely to have high affective commitment towards the company but whether or not they blame the company for the problems they are having adjusting could affect how much commitment is influenced. Who a worker is likely to believe has control over fixing these problems is largely due to their locus of control with a high internal locus of control causing them to believe that they
are able to solve their own problems instead of seeing it as controlled by the company (Luthans, Baack, & Taylor, 1987). While a worker is likely to feel that the company is at least partly to blame for problems faced at work it is possible that locus of control might moderate how much of an effect adjustment has. An example of this is if a worker is having problems adjusting they might be expected to have low affective commitment towards their employer but if they have a high internal locus of control the belief that they have the ability to solve problems instead of blaming their employer could decrease the negative impact these adjustment difficulties have on affective commitment.

**Hypothesis 4: Internal locus of control will act as a moderator of the relationship between cultural adjustment and affective commitment.**

**Method**

**Participants**

The participants were 229 Australian-based FIFO workers from a range of companies. There were 181 males and 42 females (6 participants didn’t answer this question) with ages ranging from 20 to 64 years old (M = 38.11, SD = 10.99). Some of the most common positions held included supervisors and managers (15%), health and safety advisors (10%), equipment operators (10%), engineers (7%), administrators (6%), electrical workers (5%), surveyors (4%), and geologists (4%).

**Procedure**

Participants were recruited in a number of different ways. Companies who agreed to participate emailed a link to the online questionnaire along with an information page to all their staff or provided staff with a hard copy of the questionnaire to complete and return. Providing a quiet room and paper copies of the questionnaire for staff who chose to participate. Participants were also recruited through advertising on Linked In, Facebook, FIFO support group websites, FIFOresearch.com, school newsletters and newspaper articles.
Information about the study and consent to participate was provided before the participant was presented with questionnaires (see Appendix A), the participant provided informed consent by completing the questionnaires and submitting their answers.

Materials

Three questionnaires were used for this study. The first questionnaire was a Cultural Adjustment Scale designed for this study (see Appendix A). It contained eight questions to be answered using a 6-point Likert scale ranging from “Not at All” to “Completely”. The questionnaire was based on the cultural adjustment scale created by Black and Stephens (1989) with the questions altered to reflect factors that previous research shows FIFO workers often find difficult to adjust to such as time away from loved ones, shared living conditions and socialising in the masculine culture (Carter & Kaczmarek, 2009, Pirotta, 2009, Taylor & Simmonds, 2009, Beach, Bereton & Cliff, 2003, and Palthe, 2004).

The second was the shortened Organisational Commitment Scale (Allen & Meyer, 1996) (see Appendix A) which measures organisational commitment on affective, normative and continuance commitment subscales. Each subscale contains 6 questions to be answered on a 7-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree”. Past use of this questionnaire has found it has good internal consistency, Cronbach’s $\alpha = 0.82$ for Affective Commitment, Cronbach’s $\alpha = 0.74$ for Continuance Commitment and Cronbach’s $\alpha = 0.83$ for Normative Commitment (Meyer, Allen & Smith, 1993).

The third questionnaire was the eight item Work Locus of Control scale created by Spector (1988) to measure internal and external locus of control (see Appendix A). This scale contains four questions that measure internal locus of control and four questions that measure external locus of control with participants were required to rate each of the 8 statements on a 6-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree”. This scale has been used in the past and found to measure two factors, internal and external locus of control,
and exhibit good internal consistency; internal locus of control Cronbach’s α = .72 and external locus of control Cronbach’s α = .85 (Macan, Trusty & Trimble, 1996).

**Procedure**

Participants accessed the questionnaire either at www.FIFOresearch.com where they clicked a link and were redirected to the information page at the start of the survey or in paper form. Before beginning participants were informed that all personal details would remain anonymous and no individual results will be provided to any company. It took participants approximately 20 minutes to complete the questionnaire as extra sections were included as part of a broader study.

The final page of questions presented to the participants contained demographic questions. A large number were asked for a broader study but only age, gender, position held, time working in FIFO (measured in years and months), and time in current position (measured in years and months) were used in this study.

**Design**

The independent variable was cultural adjustment measured on the cultural adjustment scale, the dependent variable was commitment measured on the commitment scale and work locus of control was a moderator. Commitment was broken down into its three subscales and work locus of control was divided into internal and external components. All of the variables were measured between subjects.

**Results**

All 54 cases with missing data from any of the three questionnaires were deleted and three outliers who had answered following common response patterns were removed, leaving data from 227 participants. Examination of the box plots revealed 6 other possible outliers but after further examination of the data from these participants it was decided to leave these in as appeared to represent true scores (Orr, Sackett & DuBois, 1991).
The data was checked for normality using the Shapiro-Wilk test, skewness and kurtosis (See Appendix B). Only overall commitment and affective commitment appear normally distributed based on this analysis, \( p > 0.05 \), but further examination of the histograms showed that this skew wasn’t severe for any of the scales. The worst violation of normality was cultural adjustment which was positively skewed, indicating that a majority of FIFO workers had adjusted well to the conditions.

**Factor Analysis of Locus of Control Scale**

The minimal amount of data was present for a factor analysis to be conducted with a Kaiser-Meyer-Olkin measure of 0.74, over the recommended 0.6, and sphericity wasn’t violated \( (\chi^2(28) = 589.45, p < 0.01) \) so an exploratory factor analysis was performed on locus of control to ensure that two separate factors, internal and external locus of control, were being measured. Using Principal Component Analysis with Direct Oblimin rotation it was found that all but one question loaded onto one of the two factors as predicted and the one that loaded onto both only had minimal negative loadings onto one and good loading on the other (see Table 1). These results confirm that this questionnaire is measuring two factors that explain 59.4% of the total variance not one continuous factor.

*Table 1.* Loading plot for confirmatory factor analysis of locus of control scale.

<table>
<thead>
<tr>
<th></th>
<th>External Locus of Control</th>
<th>Internal Locus of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>It takes a lot of luck to be an outstanding employee on most jobs</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>The main difference between people who make a lot of money and people who make a little money is luck</td>
<td>0.78</td>
<td></td>
</tr>
<tr>
<td>Getting the job you want is mostly a matter of luck</td>
<td>0.78</td>
<td></td>
</tr>
<tr>
<td>Promotions are usually a matter of good fortune</td>
<td>0.76 -0.11</td>
<td></td>
</tr>
</tbody>
</table>
People who perform their jobs well generally get rewarded \( 0.80 \)  
On most jobs, people can pretty much accomplish whatever they set out to accomplish \( 0.76 \)  
Promotions are given to employees who perform well on the job \( 0.75 \)  
If you know what you want out of a job, you can find a job that gives it to you \( 0.67 \)

**Factor Analysis of Cultural Adjustment Questionnaire**

A confirmatory factor analysis was performed using AMOS on the Cultural Adjustment questionnaire to investigate if the three adjustment factors found among expatriate workers were also present in the FIFO sample (Black, 1988 and Black & Stephens, 1989). The first analysis found that adjustment to the food provided loaded onto both interaction adjustment and general adjustment while socialising loaded onto interaction adjustment and work adjustment. When these were removed the three factor model was strongly supported, \( \chi^2(6) = 5.26, p = 0.51 \), see Figure 1 for a diagram of this model.

**Significant Associations**

Hindelang (1971) found that Pearson correlations are robust enough to cope with normality violations so this was used to examine the relationship between the scales. This analysis (see Table 2) found that overall commitment had a weak positive relationship with cultural adjustment. A similar relationship was found with affective commitment and normative commitment when compared to cultural adjustment, with the strongest relationship with normative commitment. This supports the prediction that overall commitment is related to cultural adjustment in FIFO, as has been found in other work types. It also supports
hypothesis one that high cultural adjustment would be linked to improved affective commitment.

Figure 1. Three factor model of cultural adjustment in FIFO workers.

As predicted there was a moderate positive relationship between cultural adjustment and internal locus of control and a weak negative relationship between cultural adjustment and external locus of control. Internal locus of control also had a moderate significant positive relationship with total commitment, affective commitment and normative commitment but no significant relationship with continuative commitment. This finding supports the relationship proposed between commitment and internal locus of control in hypothesis two.

Analysis of Cultural Adjustment Questionnaire

Further analysis was performed to examine the relationships of each aspect of cultural adjustment with commitment and locus of control (Table 3). Workers appear to find it easiest to adjust to the job requirements of FIFO but this had no significant relationship to any of the
Table 2. Correlations between cultural adjustment, commitment and locus of control.

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cultural Adjustment</td>
<td>4.31</td>
<td>1.02</td>
<td></td>
<td>0.20*</td>
<td>0.20*</td>
<td>0.22*</td>
<td>0.00</td>
<td>0.31**</td>
<td>-0.14*</td>
</tr>
<tr>
<td>2. Overall Commitment</td>
<td>3.61</td>
<td>0.98</td>
<td>-</td>
<td>(0.70)</td>
<td>0.75**</td>
<td>0.86**</td>
<td>0.55**</td>
<td>0.30**</td>
<td>0.06</td>
</tr>
<tr>
<td>3. Affective Commitment</td>
<td>3.77</td>
<td>1.22</td>
<td>-</td>
<td>-</td>
<td>(0.80)</td>
<td>0.68**</td>
<td>-0.01</td>
<td>0.35**</td>
<td>-0.13</td>
</tr>
<tr>
<td>4. Normative Commitment</td>
<td>3.59</td>
<td>1.45</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(0.87)</td>
<td>0.20**</td>
<td>0.33**</td>
<td>-0.09</td>
</tr>
<tr>
<td>5. Continuative Commitment</td>
<td>3.54</td>
<td>1.40</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(0.83)</td>
<td>-0.02</td>
<td>0.34**</td>
</tr>
<tr>
<td>6. Internal Locus of Control</td>
<td>4.05</td>
<td>0.89</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(0.73)</td>
<td>-0.33**</td>
</tr>
<tr>
<td>7. External Locus of Control</td>
<td>2.92</td>
<td>1.02</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(0.80)</td>
</tr>
</tbody>
</table>

Note: *p < .05, **p < .01
Table 3. Correlations between adjustment dimensions, commitment types and locus of control.

<table>
<thead>
<tr>
<th>Adjustment Dimensions</th>
<th>M</th>
<th>SD</th>
<th>Overall Commitment</th>
<th>Affective Commitment</th>
<th>Normative Commitment</th>
<th>Continuative Commitment</th>
<th>Internal Locus of Control</th>
<th>External Locus of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living Conditions</td>
<td>4.55</td>
<td>1.22</td>
<td>0.14*</td>
<td>0.18**</td>
<td>0.18**</td>
<td>-0.05</td>
<td>0.29**</td>
<td>-0.16*</td>
</tr>
<tr>
<td>Housing</td>
<td>4.52</td>
<td>1.32</td>
<td>0.16*</td>
<td>0.17**</td>
<td>0.18**</td>
<td>0.01</td>
<td>0.22**</td>
<td>-0.07</td>
</tr>
<tr>
<td>Food</td>
<td>4.29</td>
<td>1.44</td>
<td>0.20**</td>
<td>0.15*</td>
<td>0.20**</td>
<td>0.08</td>
<td>0.32**</td>
<td>-0.06</td>
</tr>
<tr>
<td>Entertainment and Recreation</td>
<td>4.06</td>
<td>1.49</td>
<td>0.14*</td>
<td>0.16*</td>
<td>0.14*</td>
<td>0.00</td>
<td>0.25**</td>
<td>-0.07</td>
</tr>
<tr>
<td>Socialising</td>
<td>4.02</td>
<td>1.43</td>
<td>0.14*</td>
<td>0.15*</td>
<td>0.15*</td>
<td>-0.01</td>
<td>0.21**</td>
<td>-0.13</td>
</tr>
<tr>
<td>General Interactions</td>
<td>4.30</td>
<td>1.43</td>
<td>0.15*</td>
<td>0.17*</td>
<td>0.20**</td>
<td>-0.06</td>
<td>0.19**</td>
<td>-0.16*</td>
</tr>
<tr>
<td>Living Away from Family and Friends</td>
<td>4.14</td>
<td>1.48</td>
<td>0.18**</td>
<td>0.17*</td>
<td>0.14*</td>
<td>0.06</td>
<td>0.22**</td>
<td>-0.05</td>
</tr>
<tr>
<td>Job Requirements</td>
<td>4.58</td>
<td>1.31</td>
<td>0.07</td>
<td>0.03</td>
<td>0.13</td>
<td>-0.01</td>
<td>0.13</td>
<td>-0.17**</td>
</tr>
</tbody>
</table>

Note: *p < .05, **p < .01
commitment types or internal locus of control. It did have a weak negative relationship with external locus of control.

The factor that workers were least adjusted to was socialising in the FIFO environment. This had weak positive relationships with overall commitment, affective commitment and normative commitment but not continuative commitment. Internal locus of control also had a weak positive relationship but no significant relationship was found with external locus of control.

The adjustment dimension most strongly related to overall commitment was the food provided; this also had the strongest relationship with normative commitment and had a weak positive relationship with affective commitment. The food being provided also had a moderate positive relationship with internal locus of control. None of the adjustment dimensions had a significant relationship with continuative commitment. The dimension with the strongest relationship to affective commitment was the living conditions provided, a dimension also significantly related to overall commitment and normative commitment.

The three factors of cultural adjustment were analysed using Pearson correlations to investigate how they are related to commitment and locus of control (Table 4). All three factors were significantly related to internal locus of control while only work adjustment was significantly negatively related to external locus of control. Surprisingly only interaction adjustment and general adjustment had a significant relationship to overall commitment and affective commitment with work adjustment showing no significant relationship. Normative commitment had a significant relationship with all the adjustment factors and continuative commitment had no significant relationship with adjustment.
Table 4. Correlations between the three adjustment factors, commitment and locus of control.

<table>
<thead>
<tr>
<th></th>
<th>Work Adjustment</th>
<th>Interaction Adjustment</th>
<th>General Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>4.44</td>
<td>4.10</td>
<td>4.53</td>
</tr>
<tr>
<td>SD</td>
<td>1.23</td>
<td>1.31</td>
<td>1.23</td>
</tr>
<tr>
<td>Overall Commitment</td>
<td>0.12</td>
<td>0.18**</td>
<td>0.15*</td>
</tr>
<tr>
<td>Affective Commitment</td>
<td>0.11</td>
<td>0.19**</td>
<td>0.18**</td>
</tr>
<tr>
<td>Normative Commitment</td>
<td>0.18**</td>
<td>0.16*</td>
<td>0.18**</td>
</tr>
<tr>
<td>Continuative Commitment</td>
<td>-0.04</td>
<td>0.04</td>
<td>-0.02</td>
</tr>
<tr>
<td>Internal Locus of Control</td>
<td>0.18**</td>
<td>0.27**</td>
<td>0.26**</td>
</tr>
<tr>
<td>External Locus of Control</td>
<td>-0.19**</td>
<td>-0.07</td>
<td>-0.11</td>
</tr>
</tbody>
</table>

Note: *p<.05, **p<.01

Multiple Regression to Test Hypothesis Four

Multiple regression was used to test whether internal locus of control was acting as a moderator of the relationship between cultural adjustment and affective commitment. Before this was conducted Pearson correlations were used to check if age, time in FIFO role or length of current position were significantly influencing any of the variables being examined and it was found that they weren’t (p> 0.05). Using hierarchical multiple regression with affective commitment as the outcome variable, cultural adjustment was found to account for 4% of variance, $F(1,225) = 9.48, p<0.01$ and internal locus of control accounted for a further 9%, $F(2, 224) = 17.16, p<0.01$. When the interaction term was included it explained a further 2% of the variance, $F(3, 223) = 13.35, p<0.01$. This significant increase indicates that the relationship between cultural adjustment and affective commitment is moderated by internal locus of control, supporting hypothesis three.
To determine the direction of this relationship the interaction was plotted, see figure 2 below. This interaction suggests that FIFO workers with a high internal locus of control tend to have a higher level of affective commitment even if their level of cultural adjustment is only moderate but needs further investigation for a causal relationship to be confirmed.

Figure 2. Graph of the relationship between cultural adjustment and affective commitment with internal locus of control as a moderator.

Discussion

The aim of this study was to examine the relationship between cultural adjustment, commitment and work locus of control in FIFO workers. To achieve this aim a cultural adjustment scale was created for the FIFO population. Analysis of this scale found it to have three factors; social adjustment, work adjustment and general adjustment, the same three factors that have been found in expatriate samples (Black, 1988; Parker & McEvoy, 1993). This adds an important part to the understanding of FIFO worker adjustment as shows that their adjustment is similar to that of other workers experiencing large cultural changes. It also
provides evidence that there are three aspects of adjustment, all of which must be focused on and improved for successful adjustment. This provides a base for further research into FIFO worker’s adjustment and gives employers more information about what factors need to be improved to help their employees adjust quickly and easily to their new position, possibly reducing the rate of turnover. One surprising finding among FIFO workers was that two of the areas of adjustment measured didn’t fit into a single factor. The first of these was adjustment to food which not only related to general adjustment as expected but also social adjustment, possibly because in mining camps the food is usually provided in a large hall where all the employees eat together so meals become more than just a necessity but also a time to socialise with colleagues. The other area that was related to multiple adjustment types was socialising in general, which was related to both social adjustment and work adjustment. It would be expected that socialising is part of social adjustment but in FIFO work employees aren’t able to leave their work site so are forced to socialise with the same individuals they work with, explaining why social experiences could also impact on their work adjustment (Torkington, Larks & Gupta, 2011; Wicks, 2002).

Examination of the Relationship between Cultural Adjustment and Affective Commitment

The first goal of this study was to investigate whether there was a relationship between cultural adjustment and commitment, focusing on affective commitment. The results showed that while most FIFO workers were reasonably well adjusted (as shown by a mean of 4.3 with 4 on the adjustment scale equalling reasonably well adjusted) those with lower overall commitment tended to have poorer adjustment. Both affective and normative commitment showed this same positive relationship with cultural adjustment while continuative commitment had no significant relationship with any dimensions of adjustment. The relationship between cultural adjustment and affective commitment was expected as
when a worker has problems adjusting they tend to not be as happy in their workplace and experience fewer positive emotions towards their employer. This relationship has been supported previously by research into expatriate workers (Aycan, 1997) who also experience a very different culture that they have to adjust to in order to succeed in their position.

**Examination of the Relationship between Locus of Control and Cultural Adjustment**

The second goal was to explore the relationship between internal locus of control and cultural adjustment. It was predicted that a high internal locus of control would be related to better cultural adjustment as the worker would be more likely to take responsibility for solving problems they’re faced with and ensuring that they adjust to their new situation. The results found that this relationship did exist in FIFO workers, replicating the findings present in the expatriate workforce (Black, 1990). This study also found that there was a significant negative relationship between cultural adjustment and external locus of control, probably because individuals with an external locus of control believe that they can’t control whether they adjust to FIFO work or not so don’t attempt to, resulting in poor adjustment (Ng, Sorensen & Eby, 2006; Phares, 1976).

**Examination of the Relationship between Locus of Control and Affective Commitment**

The third goal was to investigate if internal locus of control was also related to affective commitment. It was hypothesized that a high internal locus of control would be strongly correlated with high affective commitment as workers would be less likely to blame their employers for problems they face so are more likely to feel a positive emotional connection to their employer. This study found that this relationship was present in the FIFO workforce, mirroring the results found in previous studies of other worker types (Coleman, Irving & Cooper, 1999; Luthens, Baack & Taylor, 1987).

**Examination of Adjustment Dimensions**
The three factors of adjustment, general adjustment, interaction adjustment and work adjustment were investigated further as no past research has been conducted into how these relate to commitment. Both interaction adjustment and general adjustment were related to overall commitment and affective commitment. Surprisingly work adjustment showed no significant relationship with either overall commitment or affective commitment. Previous research had predicted that a relationship between work adjustment and commitment should be present in expatriate workers (Aycan, 1997). This might not have been found among FIFO workers as they might have assumed that all jobs in their field will have the same problems so didn’t associate them with the employer, resulting in work adjustment having no significant relationship with commitment. This would be possible because many roles, like truck drivers and machinery operators, have similar work demands whether the worker is in a FIFO or residential role.

The three factors of adjustment were also compared to locus of control to discover which had the strongest relationship. All three of these factors were related to internal locus of control, supporting the theory that workers who have a high internal locus of control believe they can control whether they adjust or not and take action to improve adjustment and create positive feelings towards their employer. The strongest relationship was between interaction adjustment and both overall commitment and affective commitment. This could be because how a worker interacts with others is easily influenced by the individual and workers with a high internal locus of control generally find socialising easier so will tend to be happier at work and have more positive emotions towards their employer (Ng, Sorensen & Eby, 2006).

**Examination of the Moderation Effect of Internal Locus of Control on the Relationship between Cultural Adjustment and Affective Commitment**
The final relationship proposed in this study was that cultural adjustment would positively influence affective commitment and that this relationship would be moderated by internal locus of control. This was suggested as employees who are better adjusted are more likely to enjoy their job and have positive feelings towards their employee. Internal locus of control was found to moderate this relationship as having a high internal locus of control made it less likely that an employee will blame the organisation for problems they have adjusting and more likely to still feel emotionally connected to the organisation.

**Implications**

This research has a large number of applications for organisations who hire FIFO workers. It provides a better understanding of the growing FIFO workforce, information that is currently lacking. The results from this study provides companies with details about how well adjusted their workers are as well as the dimensions they aren’t as well adjusted to so that these can be improved upon. The main factors that employers should be focusing on trying to improve are the entertainment and recreation opportunities provided and how employees socialise with each other. Results also show that housing, living conditions and job requirements for FIFO workers are most easily adjusted so fewer funds are required in a company’s budget to upgrade these, leaving more funds to improve other areas and create a dramatic improvement in overall adjustment.

The findings of this research can also help to direct hiring decisions so as to maximise the chance of the new employee committing to the organisation when a large number of qualified workers apply for the same position. Because locus of control has an impact on how well a worker adjusts to FIFO work and on how committed they are to the organisation that employs them it could prove worthwhile for employers to rule out candidates who don’t have a high internal locus of control or provide training to change a new employees locus of control if there’s limited candidates suitable for the role. If this could increase commitment
and cause the turnover rate to decrease by even a small amount it would equate to a large
saving each year as it’s estimated that every worker who leaves costs a company tens of
thousands of dollars (Beach, Brereton & Cliff, 2003). An increase in commitment also
increases job performance, increasing the organisation’s efficiency and profit.

Limitations

One limitation of this research is that the workers completing the questionnaires may
be biased due to a desire to influence their employer’s decision making, usually called self –
report bias. This is a common threat to validity in self – report measures as employees tend to
under report some behaviours and over report others as even in an anonymous survey they
believe there’s a chance their employer could access the results (Donaldson & Grant –
Vallone, 2002). This bias is especially prominent in the adjustment scale as if a worker wants
new housing or better work hours they are unlikely to answer that they are fully adjusted even
if they are. Whether this bias had a major impact on this study is impossible to determine but
it was reduced by informing workers before they started the questionnaires that individual
results wouldn’t be given back to companies so there would be no way of knowing what
company the participants were with.

Another limitation is that the specific mine site each employee worked on wasn’t
recorded so it can’t be determined what mine sites were better in certain aspects than others.
If this information had been collected it could be determined which mine sites need to change
aspects of their operations to help workers adjust better and increase worker commitment.

A third limitation is that while commitment has been found in previous research to be
strongly related to turnover (Cohen, 1993) it can’t be determined from this study whether this
relationship exists in the FIFO population. To determine this, a longitudinal study measuring
turnover rates and the other associated factors is required. A longitudinal study is also
required to determine whether any of the relationships examined in this study are causal.
further advantage is that it could provide information about whether locus of control can predict commitment levels and turnover rates. This could provide employers with more information about whether it is advantageous to test for internal locus of control in new employees and provide training to employees with a low internal locus of control in order to reduce turnover.

While a moderation analysis was hypothesised in this study there’s a possibility that a mediation relationship between internal locus of control and affective commitment with cultural adjustment as the mediator could be a better fit. This could be possible if an internal locus of control increases a worker’s affective commitment and if this causes the worker to adjust more successfully to their new situation.

**Future Research Directions**

Future research on the FIFO population is of vital importance as very little is known about this growing area. One necessity is for a longitudinal study to be conducted in order to determine how much influence cultural adjustment, commitment and locus of control have on turnover rates as this can’t be determined through a cross – sectional study. If a longitudinal study was conducted the origin of workers could also be noted to discover if foreign - born workers find it harder to adjust and are more likely to leave than Australian workers as they may have a larger cultural gap to bridge.

More research is also required into cultural adjustment of FIFO workers as this was the first study to create a questionnaire and measure it. Future research should include a qualitative study to find out if there are other dimensions that should be included in the scale and what steps workers take in an attempt to adjust. This could also be extended to examine what conditions make it more difficult for workers to adjust so that companies can take action to improve these and possibly reduce turnover and to examine the adjustment differences between FIFO workers and residential miners.
None of the factors in this study were found to account for a large amount of variance in commitment, indicating that other personality factors might be influencing the relationships. A study involving a variety of personality factors and examining their relationship with adjustment and commitment would be vital to further understanding of FIFO work.

All of the research into FIFO workers could also prove important in helping residential miners adjust to their work and remain committed to their employer. This is important as the turnover rate for residential miners is almost as high as FIFO workers (Beach, Brereton, & Cliff, 2003) but no research has investigated how they adjust to working long hours on mines that are usually very isolated. They have some challenges that are very different to FIFO workers, such as not having to spend time away from their family but instead having their family moving to an isolated mining community, so a new adjustment scale should be designed for this research.
References


Beach, R., Brereton, D. & Cliff, D. (2003). Workforce turnover in FIFO mining operations in Australia: an exploratory study. *Centre for Social Responsibility in Mining, Sustainable Minerals Institute, University of Queensland*


