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Generational differences and Fly-In-Fly-Out (FIFO) employee turnover

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ABSTRACT: Fly-in, fly-out (FIFO) mining has experienced significant growth in the past decade and is now a typical form of employment in the sector in Australia. Evidence suggests that there are relatively high turnover levels amongst these employees. Whilst there are many contributing causes to this, there may be variances between different generational cohorts at work as arguably their workplace expectation differs. This paper investigates whether turnover intentions vary between different generations of employees. Using a questionnaire, employees were asked about their turnover intentions and this was compared against the groups of Baby Boomers, Generation X and Generation Y. Findings show that Generation Y employees had a higher intention to quit than the Baby Boomers but were no different to Generation X employees.

Keywords: Generational differences, Employee turnover, Fly-In-Fly-Out, FIFO, Australia
INTRODUCTION

The estimated turnover cost for a 300 employee Fly-In-Fly-Out (FIFO) mine is $2.8 million (Beech, Brereton, & Cliff, 2003). This is composed of both real costs including recruitment and selection expenses and opportunity costs due to loss of productivity which can equate to 150% of the employees remuneration package (Schlesinger, Leonard, & Heskett, 1991). This significant cost to an organisation has been noted by some researchers such as Zheng, Rofle, Di Milia and Bretherton (2007) who explored the link between human resource management and performance of coal mining firms in Queensland. This research identified the challenge facing coal mining companies to attract and retain skilled labour whilst still managing a flexible workforce that contains core and peripheral labour (Zheng et al., 2003).

A second group of researchers, Beech et al. (2003), compared turnover levels in seven mines in Queensland and Western Australia. Five of the seven mines operated on a FIFO basis while the other two worked on a daily commuting basis. This research found that the turnover across all sites varied between 21% and 28% and was not dependent upon the time the mine had been in operation. More significantly this research found that FIFO roster structure, management commitment to employee training and focus on reducing turnover and workplace culture influenced turnover rates more than external factors such as the labour market. The researchers deduced that the level of turnover was not due to the FIFO method of operation and that organisations could influence the level of turnover through management initiatives.

Researchers have also been investigating the different characteristics of generational cohorts within the workforce and more recently the Generation Y who commenced entering the workforce in 2000 (Baldonado & Spangenburg, 2009; Lowe, Levitt, & Wilson, 2011; Twenge & Campbell, 2008; Murray, Toulson, & Legg, 2011). Understanding the needs and motivations for the various generations within a workplace is important to retain talent and achieve organisational goals. The recent growth within the West Australian mining industry has facilitated the creation of a diverse mining workforce composed of four generation cohorts; Traditionalists, Baby Boomers, Generation X and Generation Y.
Management is tasked with the creation of a work environment that equally meets the needs of the various generations within the workplace. Whilst there is much discussion and anecdotal reports on differences, there is less research which provides insights into similarities and differences between these groups.

There is scarce information related to the turnover within the West Australian mining industry for different generational cohorts. A better understanding of turnover for each generational group could identify aspects within the work environment including management approaches that would reduce turnover and thereby improve operational efficiency and profitability.

**BACKGROUND**

The growth within the West Australian mining sector largely driven by the economic growth from China has resulted in 46,800 employees within the mineral and energy sector (CMEWA, 2011). Of these employees 52 per cent are employed on a FIFO basis and it is estimated that by 2015 the number of employees will swell to 110,000 of which 57 per cent will be employed on a FIFO basis (CMEWA, 2011). This growth has attracted the attention of researchers in relation to several aspects of FIFO work arrangements such as the social consequences (Hosking & Western, 2008; Sibbel, 2001; Sibbel, 2010) and employee turnover (Beech et al., 2003).

FIFO working arrangements are extensively used in this industry due to the relative isolation of the mining sites from towns. Many are up to a two hour flight from the capital city, Perth and mining companies establish accommodation, recreation and meal facilities on site. Workers are employed on a variety of roster systems which may involve up to two weeks on and one week off or shorter cycles. Workers fly in and typically work eleven hour shifts for consecutive days while they are on site and then fly home for their rostered days off thereby coining the term ‘Fly-In-Fly-Out’. Many are attracted to the industry by the pay rates. It might be expected that turnover associated with this type of work might be influenced by rosters, pay and family circumstances and the working environment at the work site. Furthermore, different generations might see things differently and therefore be more or less inclined to be mobile.
Considerable research exists on turnover and Holtom, Mitchell, Lee and Eberly (2010) conducted a literature review of this research over the past 50 years. Most interestingly was the evident change in focus of the research over time. The early research considered organisational and individual factors affecting job satisfaction and leading to turnover. The more recent focus has been on the unfolding model which attempts to explain the process by which employees make a decision to quit also the concepts of job embeddedness and organisation commitment (Griffeth, Hom, & Gaertner, 2000; Hom & Kinicki, 2001).

The unfolding model of turnover was developed and tested by Lee and Mitchell (1994) and Mitchell, Hiltom and Lee (2001) and includes four pathways to turnover. An important component of this model is a shock or script where an employee initiates the decision to quit. The unfolding model was tested with groups of nurses and accountants and revealed that shocks or scripts (plans) rather than job satisfaction were responsible for the employee quitting (Lee, Mitchell, Wise, & Fireman, 1996; Lee, Mitchell, Holton, McDancil, & Hill, 1999). Other studies have found support for the unfolding model with nurses (Morrell, Loan-Clarke, & Wilkinson, 2004; Morrell, 2005; Lee et al., 1996), international bank employees, retail bank employees, prison guards (Holtom, Mitchell, Lee & Inderrieden, 2005) and accountants (Donnelly & Quinn, 2006).

The job embeddedness model (Mitchell et al., 2001) considered the links an employee has with their community including both with and away from their work environment. The model purports that the decision to quit is modulated by the network of bonds with their community. Quitting and moving away would jeopardise these bonds. This model has been tested on employees within the healthcare, retail and banking industries.

A turnover model was developed by Holtom et al. (2008) from an extensive literature review. The review was based on voluntary employee turnover literature spanning two decades. The model encompasses factors such as individual differences, nature of the job, traditional and newer attitudes, organisational context, person-context interface which then influence withdrawal cognitions. The available job alternatives and the withdrawal cognitions result in withdrawal behaviours and
performance changes leading to the voluntary turnover decision. As this model was developed from available literature it is not restricted to one industry.

A summary of turnover predictors were developed by Allen, Bryant and Vardeman (2010) from meta analyses by Bauer, Bodner, Erdogan, Truxillo and Tucker (2007) and Griffeth et al. (2000) and Phillips (1998) and included characteristics of the job, individual characteristics, the work environment and leadership. These predictors are important organisational or individual factors which create key attitudes to turnover. This research found that the best predictor of actual turnover was the intention to leave.

The research by Booth and Hamer (2005) within the retail industry identified two types of factors that influence turnover; uncontrollable and controllable factors. The controllable factors include fair pay, job satisfaction, management treatment of employees, morale, manageable workload, career development and trust and respects between employees. Whereas the uncontrollable factors include economic variables which related to the supply and demand for labour in a particular location.

A conceptual model also consisting of types of factors was developed by Beech et al. (2003) to explain employee turnover at Australian mine sites. The factor types were (1) factors within management control and (2) factors external to management control. The factors within management control directly affected employee satisfaction and included work roster, commute type, job design, remuneration and workplace culture. Employee satisfaction was also affected by work/home conflict while the decision to quit was affected by both availability of alternate jobs and work/home conflict.

Much discussion has taken place on different generational groups at work with four generations of workers; Traditionalists, Baby Boomers, Generation X and Generation Y. Although the birth years for each generation vary slightly between researchers (e.g. Patota, Schwartz, & Schwartz, 2007; Samola & Sutton, 2002; Wong, Gardiner, Lang, & Coulon, 2008), the shared life experiences are consistent as shown in Table 1 (Zemke, Raines, & Filipczak, 2000).

Insert Table 1 about here
Current literature has generally focused on generational differences in job satisfaction, organisation commitment and intention to leave. The majority of studies have found minimal differences across generations. A study by Cennamo and Gardner (2008) of 504 New Zealand employees across a range of industries attempted to identify generational differences in job satisfaction, organisation commitment, intention to leave and person-organisation values fit. The participants consisted of 3 per cent Traditionalists, 23 per cent Baby Boomers, 57 per cent Generation X and 17 per cent Generation Y. The research found no generational differences in relation to intention to leave.

A US study of 115,044 employees spanning a period of 18 years from a diverse range of industries similarly found no generational differences in terms of intention to leave (Kowske, Rasch, & Wiley, 2010). This study employed the Kenexa WorkTrend opinion survey and used the hierarchical age-period-cohort regression model to analyse the data. All generation groups reported similar levels of intention to leave.

A meta-analysis by Costanza, Badger, Fraser, Severt and Gade (2012) quantitatively assessed the generational differences in work-related attitudes including job satisfaction, organisational commitment and intent to turnover. This analysis used 20 studies with 19,961 subjects and covered the Traditionalist, Baby Boomer, Generation X and Generation Y. The results demonstrated minimal generational difference for the three work related attributes.

Benson and Brown (2011) conducted a study into the generational differences in relation to job satisfaction, organisational commitment and intention to leave. This research surveyed employees from a large public section research organisation in Australia. The study found that Baby Boomers were more satisfied with their jobs and less likely to quit than Generation X employees. Baby Boomers valued supervisor support whereas Generation X employees valued co-worker support.

Another two studies that identified generational differences were Lub, Bijvank, Bal, Blomme and Schalk (2012) and Takase, Oba and Yamashita (2009). The Lub et al. (2012) study consisted of 359 participants from 20 hotels in the Netherlands. This research found that Generation Y had higher turnover intention than the other generational groups. The Takase et al. (2009) research encompassed
315 registered nurses in Japan and used a survey to acquire the information. The research found generational differences amongst the four generation groups. The factor leading to the intention to leave for the Generation X group was the imbalance between work and home life. For the Generation Y group the loss of confidence to care was the reason driving the intention to quit.

Researchers have explored employee turnover in various industries although a gap exists. There is little research on employee turnover within the FIFO work environment in relation to generational groups. This study aimed to fill this void of information by acquiring and analysing data from FIFO employees within the mining industry of Western Australia. This research hopes to fill this gap in information by identifying the differences in employee turnover for FIFO employees in different generation groups.

**METHOD**

The data for this study was acquired using a self-administered questionnaire and was part of a larger study examining the causes of turnover in the FIFO mining industry. The first part of the questionnaire contained 46 questions designed to discover the participant’s feelings regarding their current position, level of job satisfaction and intention to leave the job and/or the mining industry. The participants were required to respond to each question using a Likert-type five point scale between strongly disagree (1) and strongly agree (5). These items were developed on the basis of the literature on turnover and input from focus groups of mining company representatives to ensure relevance and appropriate language for the sector. The second part of the questionnaire contained demographic and contextual questions including the birth year of the participant. Participants were required to identify their birth year in one of the five groups; pre 1955, 1955-1965, 1966-1976, 1977-1987 and 1988+. Due to the small number of participants in the pre-1955 and the 1988+ groups the generational data was reduced to three cohorts of Baby Boomers (1955-1965), Generation X (1966-1976) and Generation Y (1977-1987 and 1988+). Whilst there is no universal definition and agreement on specific years for generational groups (Smola & Sutton, 2002), these were consistent with the literature on generations at work.
The Intention To Leave (ITL) for each participant was determined from the responses to five questions from part A of the questionnaire as listed below:

Q26. I plan to move out of a FIFO job.
Q28. I frequently think about leaving.
Q29. I do not plan to leave my job.
Q31. I would leave if I had a job offer in hand.
Q39. I’m seeking a promotion/better position elsewhere in the industry.

For each participant their ITL value was derived by summing their responses to questions 26, 28, 31 and 39 and summing the reversed sense of question 29. This was achieved by reversing the response scales for question 29 where 5 denoted a stronger intention to leave than 1. The ITL spanned between 5 and 25 with 25 denoting a high intention to leave and 5 representing a low intention.

The quantitative data was analysed using one-way analysis of variance (ANOVA) to determine whether the ITL responses differed between the three age groups. The ITL value formed the dependent variable and the generational category was the independent variable or factor.

The participants for this research were FIFO employees in Western Australia. Their participation was obtained through the mining company which they worked for and in this study five different companies were involved. Convenience sampling was used to select the mining companies. Questionnaires were administered on site by company representatives and returned directly to the researchers. A total of 192 valid questionnaires formed the sample and represented a response rate of approximately sixty per cent. This sample comprised 26 per cent Baby Boomers, 27 per cent Generation X and 47 per cent Generation Y. The analysis of the data was performed using SPSS.

RESULTS

One-way ANOVA provides the means to determine differences between groups. With groups based on generational categories of Baby Boomers, Generation X and Generation Y, significant difference of the group’s ITL value will indicate generational influences. With all statistical analysis various constraints are placed on data to ensure the validity of the analysis. One-way ANOVA requires four
criteria to be satisfied; scale of measurement, independence, normality and homogeneity of variance. The scale of measurement refers to the sample values. The design of the questionnaire ensures this criteria is satisfied. The independence criteria require the data from one respondent to only appear in one group. The study’s methodology ensures this criteria is satisfied. The last two criteria ensure the data for each group is similar. Normality refers to the data samples following the normal distribution pattern and the homogeneity of variance ensures the spread of the data samples are similar for the three groups. The normality of the data is tested using either the Kolmogorov-Smirnov or Shapiro-Wilk test. As the sample size was less than 2000, the Shapiro-Wilk test was used to measure the normality of the ITL variable. The statistic of the Shapiro-Wilk test was found to be significant with a Sig. value of 0.261 for Baby Boomers, 0.259 for Generation X and 0.226 for Generation Y, all greater than the level of significance of the statistic (0.05). This result indicated that the ITL data for all three groups were normally distributed. The test for homogeneity of variance employed the Levene’s F Test for Equality of Variances. Based on Median, the significance of the Levene statistic was 0.191 and greater than the level of significance of 0.05 thereby retaining the null hypothesis that the variances are similar.

With all four criteria satisfied the one-way ANOVA was used to test the variation of ITL between the three groups. The ANOVA output table is shown in Table 2.

The ANOVA analysis revealed a statistically significant result with $F=4.451$ and significance of 0.013 being less than 0.05 indicating that not all group’s ITL were similar. Although this analysis indicate that the ITL varies between groups it does not provide information on which group’s ITL differ. This information is determined using Post-Hoc tests such as the Tukey HSD and Scheffe Multiple Comparison and Homogenous Subsets. The analysis shows that Baby Boomers ITL differed significantly from the Generation Y’s ITL. The Generation X’s ITL did not differ significantly from either Baby Boomers or Generation Y’s ITL.
The standard error graph in Figure 1 shows the ITL’s for the three groups. The distance between the Baby Boomer’s ITL and that of Generation Y’s ITL is evident with Generation Y more likely to leave.

**DISCUSSION**

The analysis demonstrated a significant difference between the Baby Boomer’s ITL and Generation Y’s ITL, which differs from the results of several previous studies including Cennamo and Gardner (2008), Kowske et al. (2010) and Costanza et al. (2012). These previous studies encompassed a range of industries unlike this study which focused on FIFO workers. In addition, the number of participants in each birth year groups also differed. The Cennamo and Gardner (2008) study had the greatest representation of Generation X with 57 per cent followed by Baby Boomers with 23 per cent, Generation Y with 17 per cent and Traditionalists with 3 per cent. This study had the greatest representation of Generation Y with 47 per cent, Generation X with 27 per cent, Baby Boomers with 26 per cent and Traditionalist with 6 per cent. This difference may partly be explained by the temporal difference between the two studies. The current study taking place approximately four years after the Cennamo and Gardner (2008) study provided the opportunity for more Generation Y to enter the work force. Also, the difference in industry and work environment between the more general study by Cennamo and Gardner (2008) and the current study focusing on the mining FIFO industry may influence the generational composition of the participants. For example, given the long distance commuting involved in FIFO mining, younger employees without family responsibilities may be attracted, along with the lure of good money. It might have been assumed that the younger generation employees may have been more mobile for these reasons.

The findings in this study also differed from the Kowske et al. (2010) and Costanza et al. (2012) studies which both used a sample size significantly larger than this study. The Kowske el al. (2010) study encompassed over 115,000 participants while the Costanza et al. (2012) used almost 20,000 participants. The participants from both studies were from a diverse range of industries unlike the
current study that focused on the resource industry. These aspects may mask particular attributes of a single industry which only a targeted study can identify.

This study does agree with several other studies that also found generational differences in the ITL including Benson and Brown (2011), Lub et al. (2012) and Takase et al. (2009). Although the Benson and Brown (2011) studied a public sector research organisation and this study focused on private sector resource industry the research findings are similar in that Baby Boomers are less likely to leave their current position than Generation X and Generation Y.

Although neither the Lub et al. (2012) or the Takase et al. (2009) study included participants from the resource industry both studies found generational differences in the ITL. This study supports the Lub et al. (2012) study in that Generation Y employees had higher ITL. Interestingly, the studies focusing on a single industry such as Benson and Brown (2011), Lub et al. (2012) and Takase et al. (2009) all found generational differences in the ITL whereas the multi-industry studies such as Cennamo and Gardner (2008), Kowske et al. (2010) and Costanza et al. (2012) all failed to find any significant generational differences. This warrants further research to see if certain generations are attracted to particular industries and that certain industries may have a higher turnover rate. Further research to explore the possible reasons why employees of different generations might leave could offer further insights into turnover. For example, are factors like pay, training and promotional and learning opportunities more important for one generation compared to another?

**IMPLICATIONS**

Current turnover research trends are focusing on the impact of decision making processes to quit, such as the unfolding model, and job embeddedness on ITL. Turnover models developed by Holtom et al. (2008), Allen et al. (2010) and Booth and Hamer (2005) have identified various predictors and factors that influence turnover. This study did find a difference between Baby Boomers and Generation Y groups and ITL indicating possible generational influences in the decision making process to quit. Further research into the reasons for this would be of academic interest.
The work by Allen et al. (2010) identified turnover predictors that included job characteristics, individual characteristics, work environment and leadership. The individual’s characteristic may potentially be affected by generational differences but are these differences sufficient to influence turnover? Similarly, future research may consider generational effects on such factors as acceptance of work rosters, job design, remuneration and changes in the work place. These are factors identified in a conceptual model developed by Beech et al. (2003) to explain turnover Australian mine sites.

The knowledge that generational difference influences the intention to leave provides employers with the information to focus on particular aspects related to Baby Boomers and Generation Ys such as work rosters and job design. Employers should still be cautious that generational difference may indirectly influence other factors which subsequently affect ITL. This research may also benefit HR practitioners who should consider the difference in needs between Baby Boomers and Generation Y employees.

CONCLUSION

Given that there is much discussion around employees of different generations having different priorities at work, the research evidence from this study supports this when it comes to turnover. Even with a group of employees who are engaged in a very different form of employment (FIFO), there is evidence that Baby Boomers are generally less inclined to leave their jobs than Generation Y’s. However, the findings here also show that there are no significant differences between Generation X and Generation Y and Baby Boomers. It might be expected that the greater the age difference in employees, the more likely the possibility of differences in turnover intentions. For those managers seeking to reduce turnover in FIFO mining, this research suggests that the focus could be directed to different strategies for different generational groups although as the Baby Boomer generation retire in forthcoming years, new differences might emerge between Generation X and Y and the very young generation. The research indicates that diversity in generations is an important factor for management.
Table 1: Generation Descriptions

<table>
<thead>
<tr>
<th>Generation</th>
<th>Birth Year</th>
<th>Shared Life Experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditionalists</td>
<td>1922-1945</td>
<td>Great Depression, World War II</td>
</tr>
<tr>
<td>Baby Boomers</td>
<td>1946-1964</td>
<td>Economic prosperity, Expansion of suburbia, Viet-Nam, Sex, drugs and rock ‘n roll</td>
</tr>
<tr>
<td>Generation X</td>
<td>1965-1980</td>
<td>Divorce, lack of faith in institutions, AIDS, Sesame Street, MTV, GameBoy, PC</td>
</tr>
<tr>
<td>Generation Y</td>
<td>1981 and after</td>
<td>Internet, September 11, War on Terror</td>
</tr>
</tbody>
</table>


Table 2: ANOVA Results

<table>
<thead>
<tr>
<th></th>
<th>Sun of Squares</th>
<th>df</th>
<th>Mean</th>
<th>F</th>
<th>Sig</th>
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</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>108.898</td>
<td>2</td>
<td>54.449</td>
<td>4.451</td>
<td>0.013</td>
</tr>
<tr>
<td>Within Groups</td>
<td>2312.180</td>
<td>189</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2421.078</td>
<td>191</td>
<td></td>
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Figure 1: Standard Error Graph
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