

Citation for the published version:

Nicholas, C., Murphy, L., & Blackman, A. (2019). Exploring the dimensions of social capital that are effective mediators of long distance commuting impacts on wellbeing. *Resources Policy*, 60, 185-197. DOI: 10.1016/j.resourpol.2018.12.011

Document Version: Accepted Version

This manuscript is made available under the CC-BY-NC-ND license
<https://creativecommons.org/licenses/by-nc-nd/4.0/>

Link to the final published version available at the publisher:

<https://doi.org/10.1016/j.resourpol.2018.12.011>

General rights

Copyright© and Moral Rights for the publications made accessible on this site are retained by the individual authors and/or other copyright owners.

Please check the manuscript for details of any other licences that may have been applied and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights. You may not engage in further distribution of the material for any profitmaking activities or any commercial gain. You may freely distribute both the url (<http://uhra.herts.ac.uk/>) and the content of this paper for research or private study, educational, or not-for-profit purposes without prior permission or charge.

Take down policy

If you believe that this document breaches copyright please contact us providing details, any such items will be temporarily removed from the repository pending investigation.

Enquiries

Please contact University of Hertfordshire Research & Scholarly Communications for any enquiries at rsc@herts.ac.uk

Exploring the dimensions of social capital that are effective mediators of long distance commuting impacts on wellbeing.

Long distance commuting (LDC) impacts are difficult to generalize due to interactions between neighbouring communities. This paper explored resident perceptions and the nature of social capital in Kalgoorlie-Boulder to mediate LDC impacts. Group interview respondents reported a lack of linking social capital, they did not possess this type of social capital thus could not use it as a mediator between LDC impacts and wellbeing. There was a sense of helplessness based on a perceived inability to influence the scale of LDC (thus the size of the impact). Respondents were empathetic towards the local council (their linking social capital), however, participants perceived the council as powerless to influence the size of the LDC workforce in Kalgoorlie-Boulder. Respondents also identified structural limitations in LDC employment such as 12-hour shifts, which impeded any attempt to build (bridging) social capital between residents and the LDC workforce.

Keywords: Long distance commuting, Australia, social capital, wellbeing

1. Introduction

There has been a recent increase in research investigating the potential of social capital to better understand the impacts associated with long distance commuting (LDC) on wellbeing in resource communities in Australia (Chapman, Plummer, & Tonts, 2015). LDC is an umbrella term describing distance labour movements including Fly-in, Fly-out (FIFO) and Drive-in, Drive-out (DIDO). LDC is unique because labourers live and work in different regions and are unable to return home after their shift (usually due to distance) (Carrington & Pereira, 2011). Instead, these workers reside in the region of work – also known as the ‘host region’ – and only return to their usual place of residence – also known as the ‘home region’ – for days off.

Resource communities can experience a variety of social and economic impacts of LDC (Petkova, Lockie, Rolfe & Ivanova, 2009) including a fly-over effect, hollow economic syndrome and fractionalisation of the community (McKenzie, 2010; SCRA & Windsor, 2013; Storey, 2010; Tonts & Plummer, 2012). Acceptance of LDC by resource communities (obtaining a ‘social licence’) is dependent upon industry behaviour. A social licence is an informal acceptance of LDC (and the associated impacts) by the resource community due to industry minimising LDC usage (Zhang & Moffat, 2015). Local communities will support mining operators if its residents perceive them as trying to maximise community benefits. So, in order to obtain a ‘social licence’, the mining operators need to contribute sufficiently to the local communities. Social capital may provide the bridge between sociological and economic perspectives by attempting to describe the hidden mechanisms that shape social interactions (Woolcock & Narayan, 2000). Hence, its inclusion is warranted in research investigating the impact of LDC on resource communities.

The search for variables—such as social capital—that may explain the impact of LDC on resident wellbeing in resource communities is important, since that link is not well understood in the current literature (Nicholas & Welters, 2017), particularly regarding large industry projects (Phelan, Dawes, Costanza, & Kubiszewski, 2017). That is, rural and remote communities, exposed to the sociological disruption caused by LDC (or mining more generally) do not experience similar effects. Instead, researchers have found communities react differently making extrapolation of findings difficult (Chapman et al., 2015; Lawrie, Tonts and Plummer, 2011; McDonald, Mayes & Pini, 2012). In an attempt to understand disparate findings, recent literature has focused on the unique spatial and temporal factors imposed upon resource communities. Spatial factors are community characteristics and interactions between communities (Nicholas & Welters 2016), whilst temporal factors refer to changes of these

spatial factors over time (Chapman et al., 2015). McDonald et al. (2012) highlighted the importance of a region's location and Nicholas and Welters (2016) found that spatial interactions between neighbouring communities should be considered. Chapman et al. (2015) and Plummer and Tonts (2013) found that the communities themselves (and presumably their spatial interactions) change over time. Nicholas and Welters (2017) built on these studies to incorporate both spatial and temporal interactions in their analysis.

Social capital is characterised by the trust and altruism between individuals of a social group. The literature has generally categorised social capital into three levels; bonding, bridging and linking. Bonding social capital consists of relatively small groups of close individuals with similar ideologies and/or demographic characteristics (Besser, 2013). The internal structure of bonding social capital becomes important and the relationships outside of their social groups become less influential (Adler & Kwon, 2002). Bridging social capital refers to networks between individuals of diverse groups (i.e. different ideologies) (Besser, 2013). On a community level this enables connections with outside actors that provide opportunities and resources that would have otherwise been inaccessible (Smith, Moore, Anderson & Siderelis, 2012). Unlike bonding and bridging social capital, which are focused on horizontal relationships, linking social capital refers to vertical relationships (networks between individuals of unequal authority) (Babaei, Ahmad & Gill, 2012). Hawkins and Maurer (2010) describe linking social capital as underutilized but far reaching, it has the most associated benefit, because of the connections with people in positions of power.

Differing levels of social capital may constitute an additional reason, LDC impacts on resident wellbeing in otherwise similar resource communities vary. That is, resource communities can mediate some of the impacts associated with LDC if they are proactive (Ruddell & Ortiz, 2015).

Besser (2013) describes social capital as a potential mediator used by residents to anticipate and react to impacts resulting in strong community resilience. The social capital framework has contributed to community resilience literature by describing the resources within the social networks of individuals/communities and their ability to be mobilised and used (Smith et al., 2012). This paper theorised this ‘ability to act’ as individuals using their social capital to mediate the impacts of LDC on their wellbeing. Without the ability to acquire and/or mobilise their social capital, residents are more likely to experience reductions in wellbeing (Poortinga, 2012).

Whilst the literature has addressed social capital and community resilience in resource communities, there has been little research on the mediation role that social capital plays between LDC impacts and resident wellbeing. Nicholas, Welters and Murphy (2018) investigated the mediation role of social capital between LDC impacts and resident wellbeing and found no such role despite its theoretical potential to serve as a mediator. This paper explores possible reasons why social capital does not serve as a mediator between LDC impacts and resident wellbeing in the resource community of Kalgoorlie-Boulder. Survey data discussed in Nicholas et al. (2018) provided a measure of social capital within the region, this paper used follow up qualitative group interviews to provide a greater insight into the ‘mechanics’ of social capital in Kalgoorlie-Boulder. In the group interviews the paper explored Kalgoorlie-Boulder residents perceptions of LDC impacts on wellbeing and social capital’s (in)ability to mediate these impacts.

2. LDC impacts through a social capital lens

Examining LDC impacts on resource communities through the lens of social capital can help to understand how socio-cultural dynamics within a resource community influence the

perceived impacts of LDC on resident wellbeing (Phelan et al., 2017). The relative strengths of bonding, bridging and linking social capital can influence how LDC impacts individuals in a resource community. Communities with strong levels of social capital benefit from high degrees of trust and inclusion (Smith et al., 2012) which, during and after shocks allow communities to maintain their level of wellbeing (Besser, 2013). If one type of social capital is relatively weaker than the rest, negative impacts such as dependence and fractionalisation can occur (Woolcock & Narayan, 2000). The utilisation of bonding social capital occurs in conjunction with bridging and linking social capital, or when these other forms of social capital are ineffective (Besser 2013). Bonding social capital is the most influential for promoting empowerment of both the community and individuals within that community (Babaei et al., 2012). The residents of resource towns often perceive a conflict between their long term social gain against the short term economic gain of industry (and sometimes government) (Carrington, Hogg, McIntosh & Scott, 2012). In these cases, bonding social capital is used as a survival tool, using shared resources provides better survival odds than trying to survive alone (Kawachi, Subramanian & Kim, 2008). Furthermore, Besser (2013) describes that leveraging bonding social capital can be very effective at motivating individuals within a community to become active members of that community.

Bridging and linking social capital are used to obtain resources that would otherwise be unavailable to an individual (Kawachi et al., 2008). On a community level, bridging social capital enables connections with outside actors that provide opportunities and resources that were inaccessible (Smith et al., 2012). Within rural communities these networks provide information, training, and resources that are perhaps only available in cities (Ryser & Halseth, 2010). After and during major disruptions to communities (i.e. influx of LDC workers), Besser (2013) found bridging social capital in the form of civic engagement was most effective at

improving post-shock wellbeing of residents. For example, within resource towns, disenfranchised residents can band together against the industry and political leaders. The act of banding together in itself can be beneficial to a community's wellbeing. An influx of LDC workers does not need to be a major disruption (causing fractionalisation). Integrating LDC workers within the community could offer both the LDC workers and local residents the opportunity to increase their engagement. The use of linking capital is also important for individuals who are disadvantaged hence must rely on people in positions of power to improve their wellbeing (Babaei et al., 2012). However, too much reliance on bridging and linking social capital (along with weak bonding social capital) can lead to a dependency on government services (i.e. welfare).

It is important to note, that the relationship between social capital and LDC need not be unidirectional. LDC itself may impact social capital in a community. Bell (2009) describes the demise of bonding social capital in communities in the West Virginia Coalfields. Without trust amongst residents, there was no united front to oppose the wishes of industry and government. Additionally, LDC may influence a community's bridging social capital. That is, temporary LDC workers are part of a community's bridging social capital network and as a result, residents have to continuously make new friends in order to associate with them. Over time, residents can develop an emotional fatigue where they start to avoid LDC workers (Lovell & Critchley, 2010), thereby eroding the bridging social capital of the community (Nicholas & Welters, 2017). The situation is amplified by typical 12-hour work shifts, which undermine the potential for social interaction between locals and LDC workers (McKenzie, 2010). Furthermore, the LDC workforce often differs demographically from residents, with LDC workers typically 'single' men with limited education and training (Petkova et al., 2009). Gradually the LDC workers and residents segregate, creating the 'us versus them' mentality

(SCRA & Windsor, 2013). This leads to fractionalisation of the community, potentially leading to conflict, reducing bridging social capital.

3. Kalgoorlie-Boulder, resource town case study

The resource town of Kalgoorlie-Boulder is located 600km east of Perth, in Western Australia and according to 2016 census data, has a population of 29 875 with 26 percent of the workforce affiliated with mining, compared to the Australian average of 1.7 percent. Currently the KCGM ‘super pit’, a 3.5km long, 1.5km wide, and 600 metres deep hole dominates the landscape. Whilst this mine does not employ LDC, the numerous smaller mines in the surrounding area do. The 2011 census indicated that four percent of the Kalgoorlie-Boulder workforce used LDC. Within Australia, the use of LDC is commonly associated with the mining industry (Carrington et al., 2012). In Kalgoorlie-Boulder, this perception has some merit with 37 percent of the LDC workforce accounted for by mining, whilst construction accounts for 16 percent and other industries not more than eight percent each. The composition of LDC within Kalgoorlie-Boulder is similar to Australia, with over 50 percent of LDC not related to mining (Skilton, 2015), and therefore, it would be prudent to distinguish between mining impacts and LDC impacts.

4. Study Design

The survey consisted of seven sections; demographics, perceptions of mining, perceptions of LDC, satisfaction with life in Kalgoorlie-Boulder, social networks, social capital in Kalgoorlie-Boulder, and perceptions about the future of Kalgoorlie-Boulder (survey is available upon request). In total, we collected 217 respondent surveys (1% of the adult population) in February 2016 using two approaches. Firstly, the local council and community groups were contacted and asked to distribute a link to an online version of the survey to their members via snowball

sampling. Secondly, respondents we approached through face-to-face contact with residents at different locations across Kalgoorlie-Boulder. Survey sites included parks, community events, the CBD and Kalgoorlie-Boulder Central Shopping Centre. Respondents agreeing to fill out the survey did so use either a tablet or paper version.

Table 1 provides a demographic profile of survey respondents. Overall, the sample was relatively gender balanced, with an average age of 44 and the majority of respondents living in Kalgoorlie-Boulder for more than 11 years. Most were married with similar percentages with and without dependent children. Respondent’s educational attainment clustered around a year 12 certificate or university degree. Eighty-one percent of respondents were active in the workforce. Sixty-three percent of the respondents had annual household incomes of \$100,000 and above.

Table 1: Demographic profile of survey respondents

Characteristics	%
Gender (n = 197)	
Female	55.3
Male	44.7
Age (n = 214)	
18 – 29 years	15.4
30 – 39 years	26.6
40 – 49 years	29.0
50 years or older	29.0
Years Lived in Kalgoorlie-Boulder (n = 216)	
Under 1 year	6.5

1 – 5 years	18.1
6 – 10 years	13.0
11 – 19 years	21.8
20 year or more	41.6
Relationship Status (n = 195)	
Single (never married)	14.4
Single (Separated, Divorced, Widowed)	11.3
Married	59.5
Defacto	14.8
Dependent Children (n = 196)	
No	47.7
Yes	52.3
Educational Attainment (n = 190)	
High School	34.2
Diploma or Equivalent	15.3
Certificate 3 or Equivalent	18.4
University	32.1
Employment Status (n = 216)	
Unemployed or retired	19.0
Employed	81.0
Annual Household Income (n = 189)	
Below \$59,999	15.3
\$60,000 - \$99,999	21.7
Above \$100,000	63.0

Respondents to the community survey could indicate their interest in participating in follow-up interviews at the end of the survey, this was how we recruited group interview participants.

Overall, nine residents participated in group interview sessions during September 2016. This equated to an 18 percent response rate from the original 50 survey participants who expressed interest. Six of the nine participants had lived in Kalgoorlie-Boulder for at least 11 years, with just over half over the age of 55. More males participated in the study (eight) with two-thirds of the sample being married (six) and one-third having dependent children (three). Most participants worked in industries of public administration and safety (three) and healthcare and social assistance (two), the remaining four worked in different industries. Due to the small sample size the perceptions below should be treated as personal views and may not represent the wider Kalgoorlie-Boulder residents, therefore, in drawing conclusions, the views of interview participants have been linked back to the larger survey data. Furthermore, it is also recognised that the views expressed below may be shaped by the participants demographics, these cannot be disclosed due to confidentiality reasons.

Group interview sessions lasted two hours in duration with participants allocated into one of three sessions. Firstly, background briefing was provided to explain that this study was a follow-up to the community survey published as 'Exploring the LDC attitudes and the use of social capital to mediate LDC impacts' and made available to the community via email on request. After this briefing, a moderator conducted the session whilst the researcher observed participant interaction and recorded discussions. Each session consisted of three sections; (1) perceptions of LDC and its impacts on resident wellbeing, (2) density of resident social capital, and (3) dimensions of social capital that are effective at mediating LDC impacts on resident wellbeing. The first two sections were intended to familiarise the participants with impacts of LDC and social capital in their community, which is a pre-requisite for starting a discussion about the potential mediating role of social capital between LDC impacts and resident wellbeing. Table A1 in the appendix provides a summary of the structure of the sessions

including the rationale between intermediate steps and the research aim and questions asked in the group interviews. This paper aims to establish possible explanations as to why social capital does not mediate the relationship between LDC perceptions and resident wellbeing.

4.1 Data Analysis

This paper analysed data from a survey and follow-up group interviews. Survey data was collected using Qualtrics – for a detailed overview of the data see Nicholas et al., 2018. The survey responses subsequent group interviews were divided under the themes ‘LDC attitudes’ and ‘Social Capital’. Audacity™ recorded, the authors transcribed the group interviews, and an independent person randomly checked sections of the transcriptions. To control for researcher bias when interpreting the data, Leximancer 4.0 conducted an automated content analysis on the group interview data.

Leximancer is a text analytics tool that measures the co-occurrence, frequency and strength of words (likelihood of a word being associated with another) within a text and provides a visual representation in the form of a heat map (Leximancer, 2011). When a word is mentioned frequently within a dataset, it is identified as a concept. Each concept is then positioned near other concepts based on how often these two words appear near each other in the text. Therefore, a collection of concepts which are used together more frequently than they are to other concepts, they will form their own theme. Leximancer constructs a concept map which is based on the principles of heat mapping; important themes (colour coded in red and yellow) in the centre and less important themes (colour coded green and blue) along the periphery. The important themes are usually comprised of the greatest number of concepts and therefore appear larger (Angus-Leppan, Benn, & Young, 2010).

Data processing in the first instance (i.e. initial concept map) aided the authors' understanding and reveals processing changes necessary to represent the data. Group interview participants spoke very casually, thus different variations of words that had the same meaning were merged (e.g. 'yep', 'yes' and 'yeah'). In addition, it is good practice to customise the Leximancer settings so that results are more representative of the data. This included changing the configurations for three main settings. (1) 'Prose Test Threshold' is a cut off for sentences that although containing words related to a concept will not appear unless the frequency is higher than the cut off. This threshold was set to zero by the researcher so all sentences contributing to the concepts were visible. (2) 'Sentences per Block' identifies the unit of measurement for Leximancer; each unit is a block of text analysed for co-occurrence. This was set to '2' sentences per block, because most of the participant responses were around two sentences. (3) 'Duplicate Test Sensitivity' removes blocks of text that are identical in different parts of the data; commonly used in blog analysis. Interview data does not suffer from this limitation. Last of all, manual adjustments to the display of the heat maps was made based off the authors first-hand knowledge of the data. Display settings include; 'Concept Visibility' - which refers to the percentage of labelled concepts displayed, 'Theme Size' - which changes the number of themes presented, and 'Rotation' - which rotates the heat map. It was important to follow individual participants to link their LDC perceptions and social capital usage, to detect differences amongst residents. Dialogue tagging in Leximancer allows such an analysis, with pseudo names given to each participant. This function positions the speaker(s) around the periphery nearest to the concepts that are most connected with their discourse.

5. Results

To understand the perceived impacts of LDC on residents' wellbeing, participants were shown the results of the survey with respect to wellbeing. The survey measured overall wellbeing in

Kalgoorlie-Boulder based on agreement with the statement '*All things considered, I am satisfied with my life*' measured life satisfaction. When compared to the national average, Kalgoorlie-Boulder residents rated life satisfaction (7.3 out of 10) approximately equally (-0.3 difference) (Weinberg & AUWRT, 2014).

5.1 Perceptions of LDC Impacts

At the start of the group interview, participants were shown the survey results with respect to perceptions towards LDC. That is, did residents have favourable or unfavourable views of LDC, and in considering these views, did LDC operators have a 'social licence'. In the survey, respondents were asked to rate their agreement with four statements about inbound LDC workers in general (i.e. regardless of the industry that employs them) (see Figure 1). Kalgoorlie-Boulder residents do not think LDC workers provide an opportunity to extend their social networks (3.7). Whilst no explanations were offered, it is possible that broadly speaking, LDC workers and locals do not encounter each other in ways to facilitate this, or more small-scale, residents are tired of trying to extend their social networks due to the temporary nature of LDC workers (i.e. emotional fatigue). In addition, residents believe that LDC workers do not contribute enough to the local economy (3.7); this implies that Kalgoorlie-Boulder may suffer from a hollow economy. Furthermore, residents' agreement with the statement that there are too many LDC workers in Kalgoorlie-Boulder (6.3) and the statement that industry turns to LDC workers too quickly before trying to hire locally (6.8) demonstrates a somewhat negative perception towards LDC.

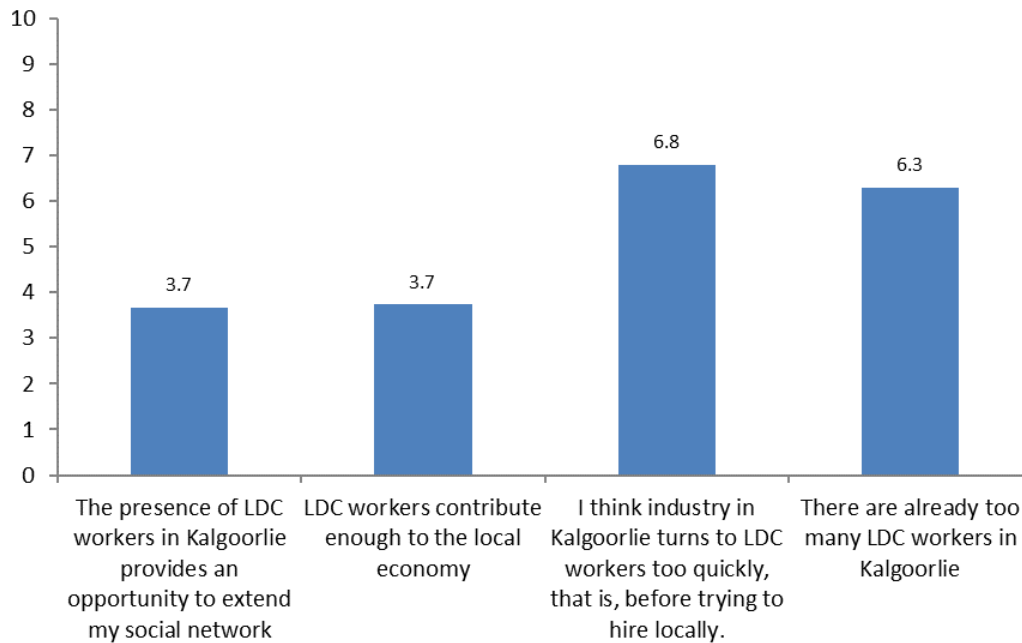


Figure 1: Survey respondent opinion of long distance commuting

To further explore residents' perception towards LDC, the interview transcripts were processed through Leximancer 4.0. Figure 2 provides the conceptual structure of conversations linked to the questions stated in Table A1 in the appendix. Leximancer generated three themes (larger shaded circles) which were labelled to reflect the concepts within (smaller grey nodes). The first theme labelled 'LDC Impacts', described impacts associated with LDC workers themselves (concepts such as: 'twelve', 'issues', 'long' and 'time') and LDC industries ('mining', 'industry', 'government' and 'companies'). The second theme, 'Social Interaction', included conversations around the interactions between LDC workers and the participants ('work', 'time', 'Kalgoorlie'), as well as between LDC industries and participants ('place', 'community', 'Perth'). Finally, 'Social Licence' was the least connected theme and reflected the current perceived behaviour of Kalgoorlie-Boulder LDC industries and whether they have a social licence ('need', 'better', 'social', and 'town'). Whilst all concepts fit within these three themes, some of the concepts can be clustered together, which indicates the topics that were

discussed within the same conversations. This paper gives individual consideration to the three themes separately.

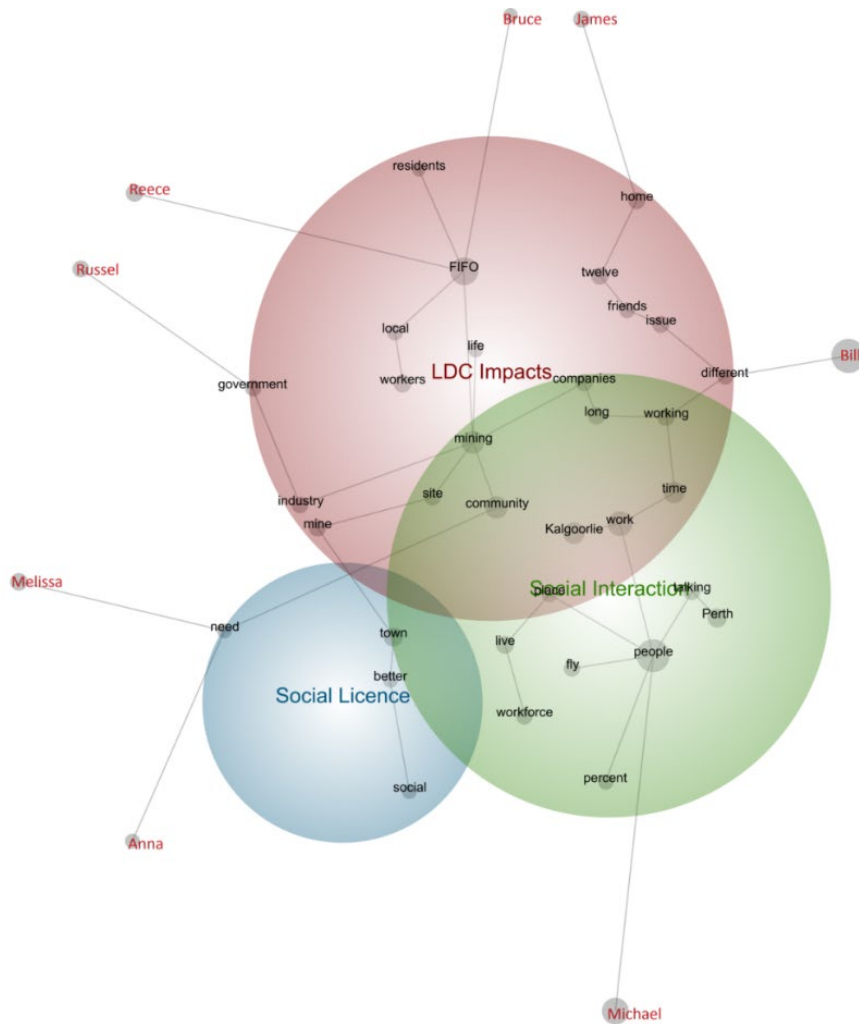


Figure 2: Participant perceptions towards long distance commuting (‘concept visibility’ = 100%, ‘theme size’ = 50%, ‘rotation’ = 0%).

Note: The tagging function in Leximancer allows participants to be positioned near the concepts closest to their dialogue. Due to the frequency-based derivation of concepts, it is possible that a participant may not be located if that participant’s dialogue is expressed differently to others and/or does not occur with enough frequency. In this analysis, Leximancer was unable to tag 1 participant.

5.1.1 LDC Impacts

The central theme expressed by participants during discussion about LDC perceptions was impacts associated with LDC. This theme contained 23 concepts; Fly-in Fly-out (FIFO) had the highest co-occurrence with 69 mentions. Concepts, which had the highest likelihood of being discussed with FIFO, were 'issue' (50%, n=9), 'residents' (50%, n=2), 'companies' (44%, n=8), and 'local' (40%, n=6). Using these central concepts as a base point for analysing the discussions, the analysis identified three underlying LDC impacts; the rise of 12-hour shifts and its implications for work – resident socialising, the impact LDC workers have on the community, and the perceived underuse of local workers.

The participants discussed how the introduction of 12-hour shifts was detrimental to the Kalgoorlie-Boulder community. Residents highlighted how long rosters did not align to the 8-hour workday of local employees, making social interactions with LDC workers difficult:

“The thing that needs to be recognised too is that there’s very little time for them to interact with anyone. You get a twelve-hour shift, they might have an hour either side or half an hour either side to get here.” (Bill, 26-35 years)

“The fact there is twelve hour shifts is almost as bad as FIFO itself but you combine those two and it’s a disaster.” (Russel, 66+ years)

Participants elaborated on how these 12-hour rosters also impact the community. That is, these rosters prevent LDC workers from having the opportunity to participate in community activities:

“If you’re flying, unless you’re based here, they just don’t see Kalgoorlie as home.

They just don’t see the same commitment or desire to participate.” (Bill, 26-35 years)

The perceived impacts of LDC was another topic of discussion. Participants felt that Kalgoorlie-Boulder was suffering from the hollow economy syndrome because the money that was earned in the surrounding region was not spent there:

“All we get out of it, the only thing I think we get out of it is landing fees at the airport, maybe a bus driver to take them to site and I suppose their food and all that would come from Kalgoorlie” (Bruce, 66+ years)

There was also the perception of ‘us versus them’, with some tension identified between LDC workers and locals:

“I think we can sum this up fairly well and certainly from my perspective, I look at the socio-economic inequity between what I do as a long-term resident, fourth generation person and what they contribute to our society and the economy and I can say there’s clearly an inequity there that can grate on us who live here.” (Reece, 56-65 years)

The third discussion centred on the perceived underuse of local residents by the mining industry. In particular, group interview participants reflected on the mining company’s

propensity to hire LDC workers instead of sourcing local workers or encouraging LDC workers to relocate to the community:

“I don’t think they try terribly hard in terms of bringing people here and it becomes this imperative versus long term structure to solve their problem.” (Michael, 56-65 years)

Kalgoorlie-Boulder residents, however, explained how government policy was driving this (and other) undesirable industry behaviour. In the participants’ view, the fringe benefits tax was a contributing factor towards the rise in LDC:

“But if the federal government wanted to change the fringe benefits tax the advantage to the mining companies would be gone in aiding FIFO.” (Russel, 66+ years)

Participants also discussed the mismatch of government funding caused by LDC. One example is that council funding is dependent on the number of permanent residents. LDC workers are not permanent residents despite living within a resource community for half the year. The LDC workers, however, use the community’s infrastructure and services, which leads to funding shortages:

The second thing is this, when government is looking at providing funds for facilities in a town like Kalgoorlie, they take no notice whatsoever of the number of people who are FIFO who are in camps around the place.” (Russel, 66+ years)

“It means rather than being a city of being maybe fifty or a hundred thousand people and all the benefits that may bring, we don’t have it.” (Bill, 26-35 years)

“Our last mayor kicked up a huge stink because they said “your population is 28,000” and he said “Bullshit”. At any given night of the week it would be 32,000 because of the people who sleep here” (Melissa, 26-35 years)

Although participants identified a range of industries using LDC, all these industries serviced the mining industry.

“... you take construction; you’d have to break that down to find out how much of that construction is actually directly related to mining.” (Russel, 66+ years)

“There wouldn’t be too much of that manufacturing that would not be mining ... professional, technical, scientific services and transport” (Michael, 55-65 years)

Overall, as shown by the tagging function in Figure 2, five of the eight participants closely associated ‘LDC Impacts’ in their perceptions of LDC. That is, James and Bill highlighted the implications of the use of 12-hour shifts for LDC workers and how they can negatively influence social interactions. Reece and Bruce considered the implications for local workers and residents by highlighting inequalities. Russel highlighted the influence of government and industry actions when considering LDC perceptions.

5.1.2 Social Interaction

Social interaction was an important topic of conversation amongst participants when discussing their perceptions towards LDC (97% connection to 'LDC Impacts'). This theme consisted of 17 concepts with 'people' having the highest co-occurrence (94 hits). When discussing the concept of 'people', 'talking' (69%, n=11), 'work' (42%, n=19), 'place' (40%, n=6) and 'issue' (39%, n=7) were closely associated. As seen in Figure 2, there is substantial overlap with the previous theme 'LDC impacts', which indicates that participants strongly associated both aspects when discussing their thoughts towards LDC. The central concepts of the 'Social Interaction' theme revolved around two discourses; willingness of participants to engage with LDC workers, and sympathy for LDC workers (instead blaming industry and government for LDC impacts).

Firstly, these concepts shape a narrative that shows that, despite the inability of LDC workers to have time to socialise, participants are willing to try if LDC workers share the same attitude:

“Originally, I didn't care at all if I wasn't their friend, but now I probably would try more, I would actually try to be friends with these people and invite them to things no matter what.” (Melissa, 26-35 years)

“I sort of feel that we're very accepting of new people. It's one of the strengths of Kalgoorlie but people that don't actually want to be here, I don't really, I don't care, like, there are enough people that do love being here so I'll be around them.” (Anna, 46-55 years)

In terms of scale of LDC in Kalgoorlie-Boulder, participants thought it was between 20 – 30 per cent of the workforce, higher than the estimated proportion of four percent:

“I reckon it’d be close to thirty percent.” (Bill, 26-35 years)

“I’d have it less than that. Fifteen to twenty.” (Reece, 56-65 years)

As a result, Kalgoorlie-Boulder residents may also be over-estimating the perceived scale of impacts.

Secondly, participants revealed that FIFO workers are not the cause of LDC impacts but are instead symptoms of profit-maximising industries and government. In their opinion, FIFO workers are often not given the option of migrating:

*“... I talk to **FIFO** people about their ability to participate in the community they often won’t give you an answer because they don’t know.” (Bill, 26-35 years)*

“It’s not as though people even have the choice and then, you know, someone in support services like a pastor who is talking to people and they’re having problems, he can start saying, ‘There’s this other choice, maybe you should look at this because that will help you get over some of these issues and allow you to better integrate and have a better quality of life.’ But that’s not even an option and they just got to try and manage these impossibly unhealthy environments where people are addicted to the dollars and they don’t look at the long-term community and social and personal health impacts.” (Bill, 26-35 years)

Overall, only one participant related more towards ‘Social Interactions’ during the group discussions when considering their perceptions towards LDC. Specifically, Michael would relate all conversations back to the community. Three other participants frequently discussed the importance of social interaction, however, only through other themes in Figure 2. Melissa and Anna highlighted the need for more social interactions but spoke from a community perspective thus connected with the social licence theme. Whereas Bill discussed LDC impacts first before following up on the social impacts, which caused him to be situated closer to the LDC impacts theme. This highlights the interconnectivity of social interactions.

5.1.3 Social Licence

Social Licence was the third-most connected theme to conversations about perceptions towards LDC (8% connectivity to LDC impacts theme). This theme consisted of four concepts, with ‘social’ having the highest co-occurrence at 13 mentions. The concepts with the highest likelihood of being discussed with ‘social’ were ‘residents’ (50%, n=2) and ‘issue’ (33%, n=6). Drawn together, these central concepts reveal a ‘community-as-a-whole’ perception held by the participants, which incorporates LDC workers and LDC industries.

With this community-mindset, Kalgoorlie-Boulder residents believe that mining companies need to obtain a social licence, which could be achieved through greater transparency in the recruitment process:

“Some mining companies have a good degree of local but could probably still do better and the transparency around employment numbers for most of the mining companies, apart from KCGM, is very low. You know, so they’re not publicly out

there saying what their numbers are and I never really see large recruitment pushes like you do for FIFO.” (Bill, 26-35 years)

“They have to have a social licence and that social licence includes that you have to have people who are living here and it’s got to be really good reasons why you’re not sourcing people locally.” (Anna, 46-55 years)

Overall, two out of the eight participants related more towards ‘Social Licence’ when considering their perceptions of LDC. Melissa and Anna highlighted community-wide views of LDC workers and LDC industries whilst providing context for a social licence.

5.2 Social Capital and its effectiveness to mediate LDC impacts on resident wellbeing

Then, to familiarise the participants with social capital in Kalgoorlie-Boulder, they were shown a selection of the survey results with respect to social capital (for a full discussion see Nicholas et al., 2018). Social capital describes the multitude of social networks between individuals and groups. These networks maintain and create social capital. Survey respondents were asked to indicate whether they had regular social interaction (on a scale from zero (disagree) to 10 (agree)) with the following groups; family members, friends, neighbours and work colleagues and where these interactions took place (Figure 3). Respondents socialised with family (6.9) and friends (7.4) more frequently compared to neighbours and work colleagues. Meeting at someone’s house was the favoured method when respondents socialized with family members (40.9%) and neighbours (46.8%). Interactions with friends (34.4%) and work colleague (35.7%) occurred mostly whilst ‘going out’. The use of non-personal communications (phones/social media) to interact was utilised with all social groups, but to a lesser extent with

neighbours. The ‘other’ category showed a large percentage of neighbour and work colleague interactions occurred at other locations.

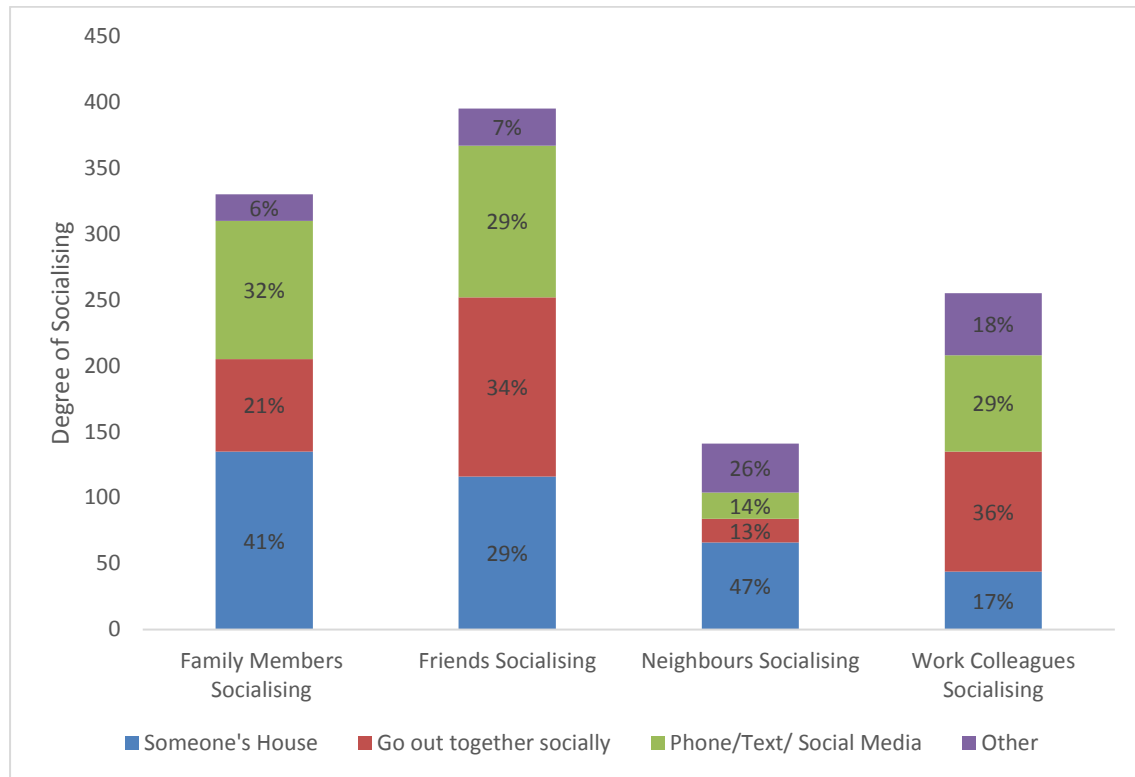


Figure 3: Regular social interaction of survey respondents and places of socialising

Note: Degree of socialising can be greater than n=217 (sample size) because respondents could indicate multiple options for places of socialising (colour components of individual columns).

Scenario analysis facilitated further exploration of the usage of these social networks for mediating LDC impacts. Group conversations based on the three scenarios ‘Hosting a BBQ’, ‘going out for the night’ and ‘town hall meeting’ aimed to explore (1) if participants utilised their social capital and (2) if so, whether it was effective to cope with the impacts of LDC – the research aim of this chapter. Figure 4 displays the conceptual structure of follow up group interviews around these two aspects. Leximancer produced four themes, which were re-labelled. The dominant theme was ‘bridging social capital’ which described social connections

between different members within and outside of the community ('community', 'talk', 'people', 'Kalgoorlie', 'local'). The second theme was 'bonding social capital' which describes networks between closer individuals ('friends', 'family'). The third theme was 'linking social capital' which describes social interactions between participants and decision makers ('council', 'government', and 'business'). The fourth theme was 'effectiveness of social capital', which described how participants did or did not utilise their social capital to mediate LDC impacts ('conversation').

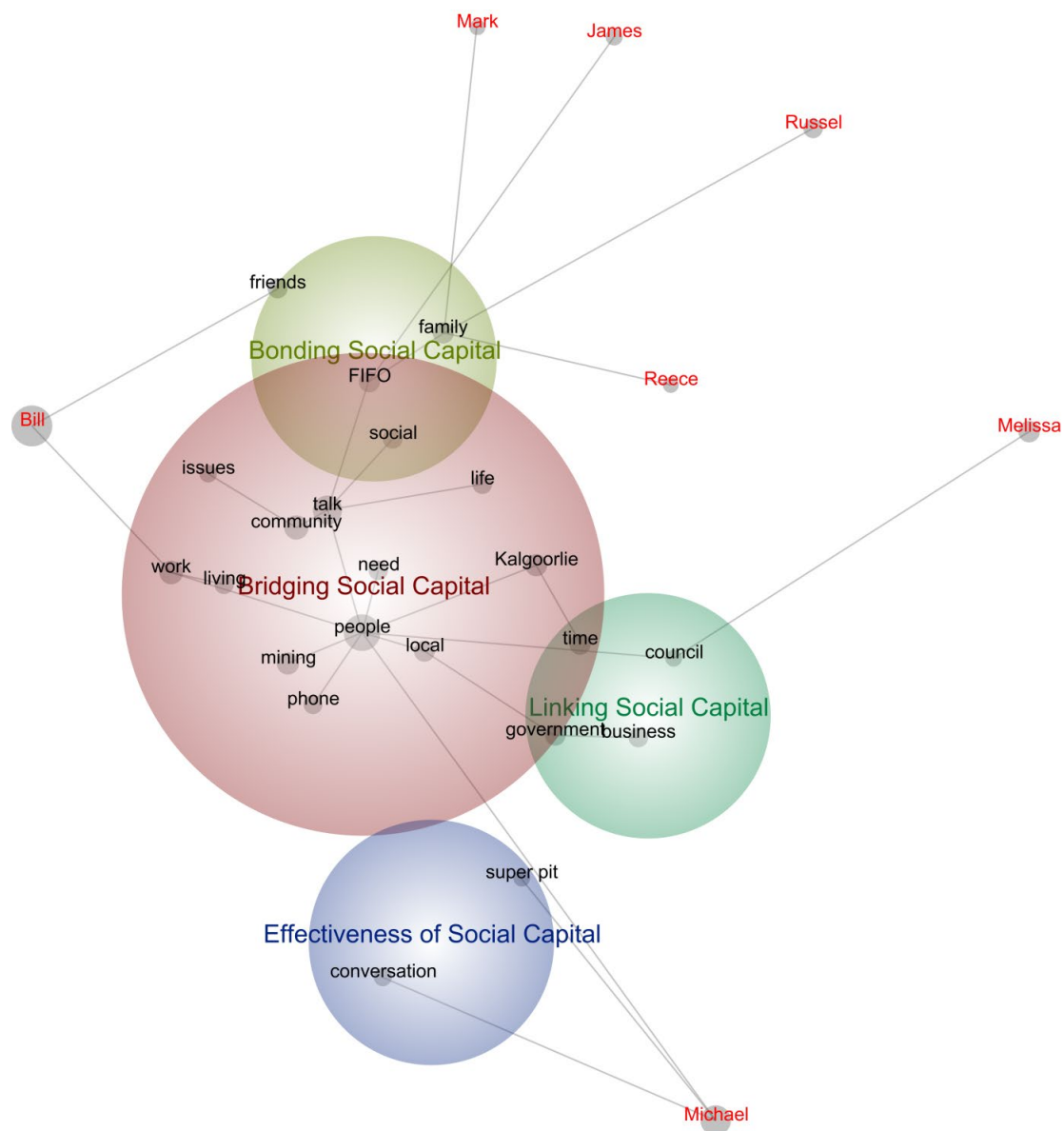


Figure 4: Social capital, 'concept visibility' = 100%, 'theme size' = 45%, 'rotation' = 0%.

Note: Leximancer was unable to tag 2 participants

5.2.1 Bonding Social Capital

Due to the isolation of regional communities such as Kalgoorlie-Boulder, family and friend connections can be geographically separate. The initial survey focused on community specific bonding social capital i.e. neighbourhoods, with follow up group interviews capturing external connections. These connections should be dense but localised to small groups of individuals. Before discussing bonding social capital in the group interview, participants were shown the survey findings with respect to neighbourhood connections. The structure of bonding social capital was determined by asking about neighbourhood levels of; trust (6.0), belonging (6.6), friendliness (6.3) and feelings of being close knit (4.7). Overall, the respondents had mixed opinions about their neighbourhoods (see Figure 5). Neighbourhoods represented places where the respondents felt they belong (6.6); despite it not achieving a close knit atmosphere (4.7). A lack of bonding social capital can leave individuals within some neighbourhoods feeling isolated.

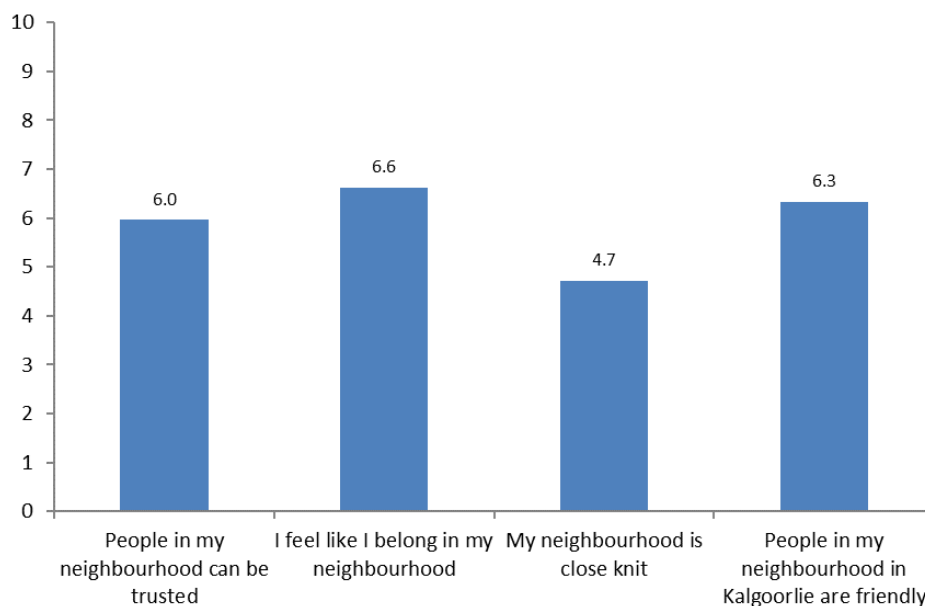


Figure 5: Survey respondent opinions of their neighbourhoods

In the follow up group interviews, the theme of bonding social capital covered four concepts; 'family' had the highest co-occurrence with 24 mentions (29% connectivity to bridging social capital theme). The concepts with the highest likelihood of being discussed with 'family' were 'phone' (27% n=3) and 'friends' (15%, n=3). There was considerable overlap between the bridging social capital and bonding social capital themes. This indicates that participants often discuss bonding social capital in conjunction with bridging social capital.

Participants highlighted improved communications infrastructure and social media as important for networking outside of Kalgoorlie-Boulder:

“[improved communications infrastructure] ... makes life more inclusive probably when you have one member of the family working from a long way away and they have a ten minute ‘smoko’ break or something like that they can talk to home, find out what’s going on and all that sort of stuff. Twenty years ago, you couldn’t do it.”

(James, 46-55 years)

One participant provided insight into the utility of Facebook:

“There’s the public that you’re prepared to put on there or whatever or discuss publicly but we actually, because we’ve got family in Perth we never see, we actually have a separate family bit which is private and we do a lot of Facebook stuff through that.” (Russel, 66+ years)

Conversations about the use of FIFO by mining companies are common within close social networks. Kalgoorlie-Boulder residents specifically discussed when companies used FIFO in favour of hiring locals:

“There’s a fair bit of discussion about that (FIFO). But if it’s family and friends barbeque we do get into politics.” (Russel, 66+ years)

“How many people are they going to employ from the workforce that’s here? It’s always, you know, whenever we go to a preview of what they’re doing it’s always the focus point.” (Anna, 46-55 years)

These results suggest that the participants have access to bonding social capital and reactively use it to complain about FIFO decisions.

5.2.2 Bridging Social Capital

Before discussing bridging social capital in the group interview, participants were shown the survey findings with respect to bridging capital. The survey measured the structure of bridging social capital by asking about; attachment to Kalgoorlie-Boulder and diversity of social networks. Overall, survey respondents had a sense of attachment and belonging to Kalgoorlie-Boulder and longed to return if away for an extended period of time (see Figure 6). Survey respondents expressed diverse views about their social networks. Whilst Kalgoorlie-Boulder residents indicated a reasonable level of agreement with a feeling of belonging (7.4) and attachment (7.1) to the community, they also indicated a degree of importance with social connections outside of Kalgoorlie-Boulder (7.1). There was also evidence of disparity in

income between friends (5.5), however, respondents did not feel that every person was out for themselves (4.4).

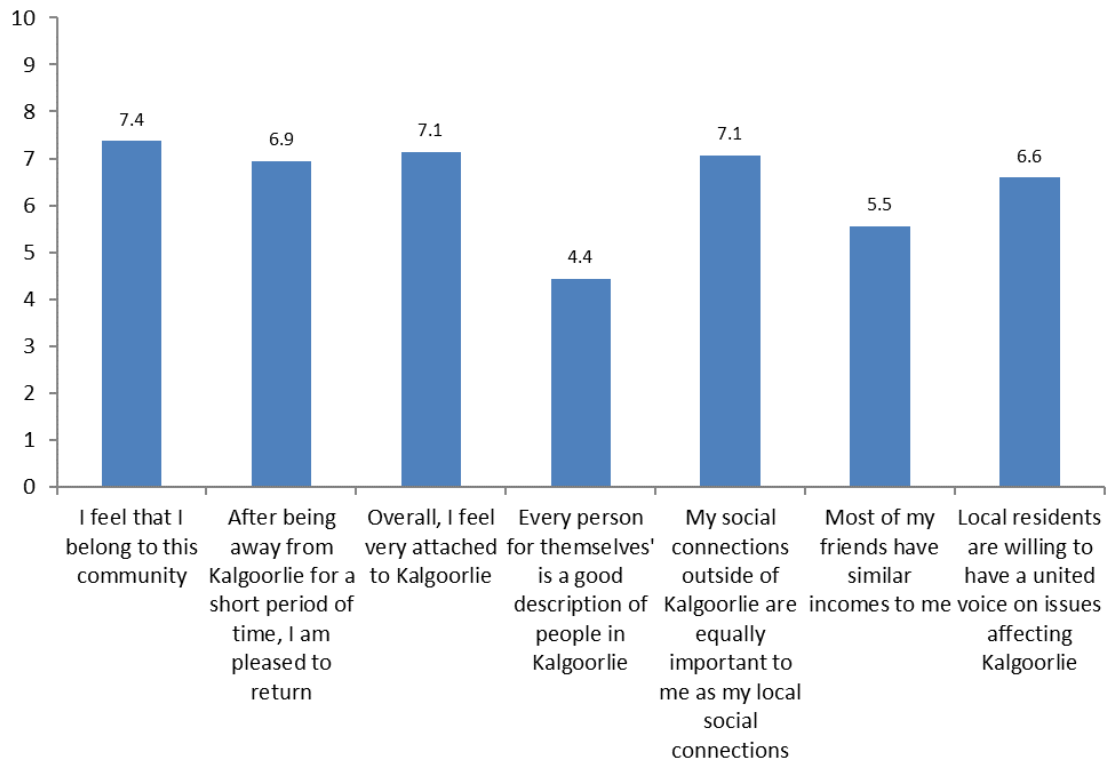


Figure 6: Survey respondent opinions of people in Kalgoorlie-Boulder

Bridging social capital as a theme consisted of 12 concepts in the group interviews, with ‘people’ having the highest co-occurrence at 78 mentions. Concepts with the highest likelihood of being discussed with ‘people’ were ‘work’ (48%, n=13), ‘phone’ (45%, n=5), and ‘issue’ (43%, n=3). In consideration of the clustered concepts around these central concepts, participants highlighted Kalgoorlie-Boulder’s community positively. This indicates that bridging social capital is present within Kalgoorlie-Boulder and it is having a positive influence on participant’s perception towards the community:

“It’s an interesting thing because we’re actually quite multicultural and we’ll find that people from New Zealand, people from Africa, when they come to Kalgoorlie they

bring their family and invariably they bring their cousins and it's like, for them, they don't want to fly in fly out they actually want to fly in and stay.” (Michael, 56-65 years)

“That's the whole reason I live in Kalgoorlie is because it's a part of the country with a sense of community. I've lived in Perth, there's no sense of community in Perth.”

(Bill, 26-35 years)

Participants also deliberated on the effort needed to maintain these networks. Local companies encourage work colleagues to socialise through staff social clubs; this can act as a starting point to help new staff integrate into the community:

“That activity works really, really well because you just need those couple of invites so you're not going somewhere by yourself and then that starts the ball rolling and all of a sudden people are embraced in the community. So, you've got workplaces that are doing that, it works fantastically.” (Bill, 26-35 years)

Mining companies could use such strategies as a form of initialisation of new FIFO workers to promote better community integration.

One issue, however, is the higher turnover of residents in the community. This means that networks (social or business) established in Kalgoorlie-Boulder often become long distance, with residents continuously needing to create new ones:

“Yeah, well, I mean the phone rings constantly and people are, you’re talking to family, you’re talking to clients, you’re talking to...but it’s a social thing.” (Michael, 56-65 years)

5.2.3 Linking Social Capital

Kalgoorlie-Boulder leadership represents the linking social capital available to respondents. These connections are between individuals and groups where one of them has authority over the other. Before discussing linking social capital in the group interview, participants were shown the survey findings with respect to bridging capital. The structure of linking social capital was demonstrated through opinions on; relationship with council, correct recruitment of key people and trustworthiness of the council and police. Overall, respondents trusted the police (7.2) and to a lesser extent, the local council (5.5) and state government (4.1) (see Figure 7). There was doubt the state government is capable of balancing the needs of residents with industry. Despite the willingness to unite (as indicated in this previous section), there were mixed opinions about whether residents are able to influence government (state and local) discussions about matters that affect their neighbourhoods (including LDC scale) (5.6).

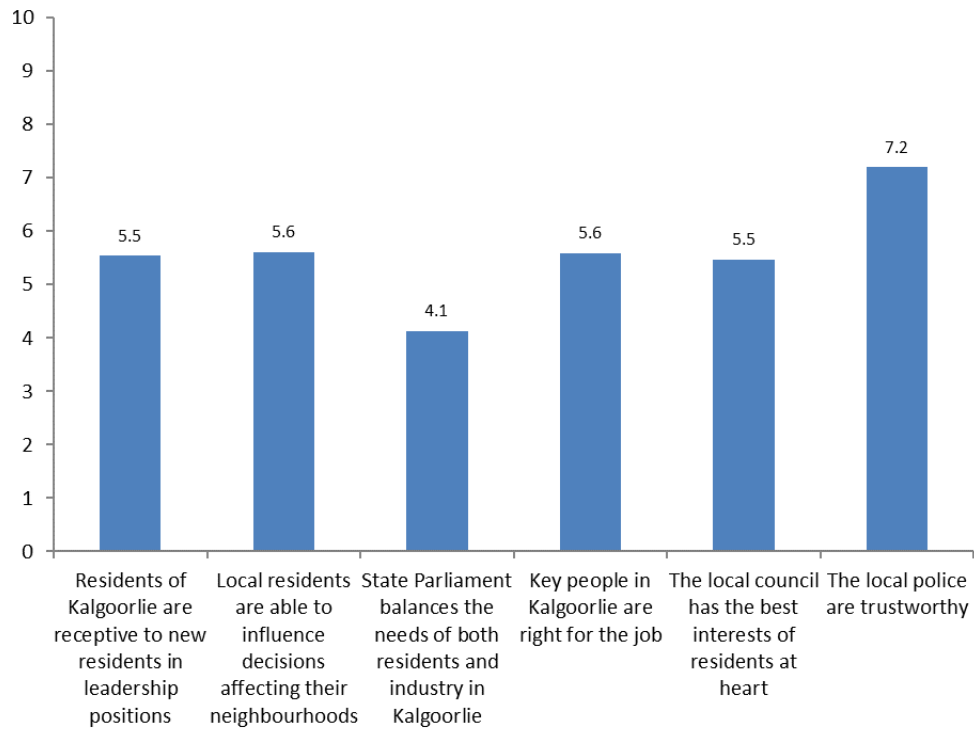


Figure 7: Survey respondent opinions of Kalgoorlie-Boulder leadership

In the group interviews, linking social capital consisted of four concepts, with ‘business’ having the highest co-occurrence at 17 mentions (19% connectivity to the bridging social capital theme). Concepts with the highest likelihood of being discussed with ‘businesses’ were ‘community’ (14%, n=4) and ‘conversation’ (14%, n=2). Conversations around linking social capital tended to be negative with participants describing a lack of linking social capital. Kalgoorlie-Boulder residents felt the state government was ignoring their community, creating resentment:

“So, they’ve stopped having government workers actually based here. They don’t have government departments with their heads living in Kalgoorlie because the perception is that we’re going to close down.” (Anna, 46-55 years)

“... the state government don't respond, and you feel like, if some of the things happened up north or in the south west, they would get a better response.” (Melissa, 26-35 years)

There was, however, a difference in opinions towards local council and state government. Participants were sympathetic to the plight of the local council:

“So, you know, you've got the poor old council over here that get governed by this incredibly stupid piece of legislation that restricts them to drains and ditches and footpaths but we expect to be out there leading but they don't get any resources to do that.” (Michael, 56-65 years)

5.2.4 Effectiveness of Social Capital

This theme consisted of two concepts, with ‘conversation’ having the highest co-occurrence with 14 hits (5% connected to the central bridging social capital theme). The concept with the highest likelihood of being discussed with ‘conversation’ was ‘phone’ (27%, n=3). The overall sentiment from the participants was that social capital in the form of bonding and bridging were accessible and used to improve participant wellbeing:

“The conversations generally help us to...help us with our quality of life.” (Michael, 56-65 years)

These bonding social capital networks improved resident wellbeing through means of simply sharing negative experiences with family and friends. In particular, networks with fellow

Kalgoorlie-Boulder neighbours were most effective as they allowed the opportunity to share the same experiences, which served as a form of casual counselling:

“Talking to friends and family helps you cope.” (Melissa, 26-35 years)

Participants also identified bridging social capital as prevalent in Kalgoorlie-Boulder and that they are active in maintaining it:

“That’s the whole reason I live in Kalgoorlie is because it’s a part of the country with a sense of community.” (Bill, 26-35 years)

Despite access to, and usage of, social capital in improving wellbeing, participants struggled to identify social capital as a mediator of LDC impacts on wellbeing:

*“I don’t think you can say that talking about **FIFO** improves the quality of our life.”*
(Anna, 46-65 years)

Participants were quick to highlight that FIFO was not a common talking point in social gatherings:

*“I don’t know that we particularly talk about **FIFO** that much.”* (Michael, 56-65 years)

This contrasts to conversations about mining, where participants vented their frustration about mining companies:

“We do talk about mining a lot, but I wouldn’t think we talk about DIDO, maybe a little bit of FIFO.” (Melissa, 26-35 years)

Interestingly, these mining-related conversations revolved around the lack of local hiring:

“People should be talking about it but they don’t. I think it comes up if people start talking about a new mine or something so you get on occasions, if a new mine was opening up and it was reasonably well known that they’re going to source most of their people from a FIFO perspective it might come up a bit”. (Bill, 26-35 years)

Participants also expressed negative opinions towards political and industry leaders with respect to dealing with the outcomes of FIFO:

“I think there’s very little leadership in the business community and with the Mayor and the chamber of commerce and the chamber of minerals and energy, they’re the senior people in the community.” (Russel, 66+ years)

With respect to differences amongst individual residents, Leximancer identified that seven out of the nine participants favoured one type of social capital. Four of the seven participants related more to bonding social capital when discussing social capital and effectiveness. James focused on the improvements of social media when connecting with family whilst Russel described the helpfulness of friends and family overall. Two participants related more to bridging social capital with both discussing the people in Kalgoorlie-Boulder. On the one hand, Bill focused on his personal networks and ‘living’ in Kalgoorlie-Boulder, whilst Michael

discussed Kalgoorlie-Boulder as a whole. Finally, one of the seven participants related more to linking social capital. Melissa expressed concern for the effectiveness of local council with a lack of support from the state government.

6. Discussion

Overall, participants had a negative view of LDC as a strategy of employment and expressed the view that LDC workers did not contribute to the local economy or community. These perceptions align with the current consensus that an influx of LDC workers leads to community fractionalisation and a hollow economy (McKenzie, 2010; SCRA & Windsor, 2013; Storey, 2010; Tonts & Plummer, 2012). These conclusions, however, are not useful for policy recommendation, because it is unknown whether the negative perceptions resulted from attitudes towards industry, the workers, or mining in general. The perceived underuse of local workers by the mining industry found in the current study offers some insight. The negative perception towards LDC is only associated with the mining industry, despite the moderator revealing the diversity of industries using LDC in Kalgoorlie-Boulder. In Australia, there is a perception that mining and LDC are mutually inclusive (Nicholas & Welters, 2017). McIntosh (2012) explains the hiring of construction workers by the mining industry. Participants believed this was the case for Kalgoorlie-Boulder as well, with many industries (not just construction) being either directly or indirectly influenced by the mining industry.

Secondly, participants considered the local labour market to be underused even though the LDC workforce only consisted of 4.5 percent of the total workforce in Kalgoorlie-Boulder. Residents believed that mining companies had not earned a social licence. Whilst residents did reflect on the efforts of some mining companies to improve community relations, overall, they felt that there was not enough collaboration with the community. Carrington and Pereira

(2011), however, suggested that a LDC workforce of less than 25 percent would be enough to earn a social licence. In the group interviews, the perceived extent of LDC workforce in Kalgoorlie-Boulder was 20 to 30 percent, much higher than this paper's estimates based on 2011 census data. Therefore, when taking perceptions into account, this study agrees with Carrington and Pereira (2011).

Responses from the follow up group interviews were generally consistent with the initial community survey results. That is, participants expressed dense bridging social capital, moderate bonding social capital and a lack of linking social capital. Participants favoured friends and family (regardless of distance) over close proximity relationships (e.g. neighbours). Bridging social capital revealed a sense of community, however, this only extended to long-term residents from other backgrounds and nationalities and not long distance commuters. Linking social capital was absent at the state level, which participants considered important for influencing the scale of LDC in Kalgoorlie-Boulder.

Participants indicated that due to geographical distance between their families, there was a higher reliance on bridging social capital to improve their wellbeing. This provides support for the argument posed by Smith et al. (2012) in that bridging social capital plays an important role in improving resident wellbeing in remote communities. Networks between members of the community (regardless of demographics or ideologies) were strong. Interestingly, however, bridging social capital did not appear play a role in coping with LDC impacts. One way of mediating LDC impacts through bridging social capital is uniting as a community and protesting the use of LDC. Although respondents complained amongst themselves about new LDC contracts, they do not unite in protest. A reason could be the perceived lack of effectiveness in protesting, with a perceived disconnect between the goals of the community

and the state government/ mining industry. Simply put, uniting, as a community in protest does not influence LDC decisions. Whilst residents formed connections with other long-term residents employed within the mining industry, they could not connect with short-term LDC workers. The issue with LDC workers is that structural limitations associated with this type of workforce inhibit the development of social capital. Despite the willingness of Kalgoorlie-Boulder residents, the 12-hour shifts employed by the mining industry limit opportunities for social interactions. SCRA and Windsor (2013) summarised that the introduction of 12-hour shifts lead to declines in community engagement by LDC workers. In addition, the establishment of self-contained work camps outside of town means that LDC workers have no need to integrate with the community. Subsequently, LDC workers tend not to engage with local community life and events, again limiting the opportunity for social integration, fuelling fractionalisation. Hence, bridging social capital may not mediate LDC impacts because they are simply 'out of sight, out of mind'.

Bonding social capital was the main forum for discussing LDC impacts, instead of the relatively stronger bridging social capital. Participants indicated that the use of technology was an important part of maintaining contact with friends and family. Technology was effective in improving residents' wellbeing; it provided a sense of connection to family who are mostly located outside of the community. Similar to bridging social capital, bonding social capital was not effective in mediating LDC impacts. The ineffectiveness of bonding social capital could be due to the nature of bonding social capital for individuals in remote communities. Their bonding social capital encompasses both geographically distant and close family and friends. Distant family and friends have different socio-economic pressures that may not be comparable. Without similar experiences (i.e. LDC impacts) their helpfulness to function as an empowerment and/or survival tool against LDC impacts would be limited. On the other

hand, friends and family living in Kalgoorlie-Boulder would experience similar socio-economic pressures (i.e. impacts of LDC), yet the respondents considered bonding social capital ineffective to deal with LDC impacts. Perhaps the continuous impacts of LDC on their wellbeing leads residents to avoid the topic in conversation—LDC fatigue.

Comparatively, Kalgoorlie-Boulder residents utilised linking social capital the least. Participants were supportive of the local council and believed they were responsible for the strong sense of community through their proactivity in providing numerous community-based events. Zhang and Moffat (2015) highlighted the importance of government playing a supporting role, as social pressure on mining companies increases. However, participants also held a view that council was ineffective when it came to convincing mining companies to minimise the use of LDC workers. Beyond the council, participants did not report access to any other linking social capital (such as state government or mining companies). This could be reflective of the perceived ineffectiveness of linking social capital (in particular, the state government) to provide support to Kalgoorlie-Boulder residents.

So far, however, this research assumed that participants would utilise available social capital to mediate LDC impacts. Data collection coincided with a relative slow period in commodity prices resulting in a reduction in LDC employed by the mining industry in Kalgoorlie-Boulder. It is, therefore, possible that participants did not need to use their social capital to mediate LDC impacts. For example, participants identified that FIFO is discussed only in relation to new mining projects (which are rarer in slow mining periods). Kalgoorlie-Boulder residents' wellbeing is similar to the national average indicating the mediating effects of social capital despite no direct usage (i.e. lack of conversation about LDC). Therefore, when mining practices are not as extensive as previous periods, the possession of social capital (opposed to

utilisation) could mediate LDC impacts. An alternative explanation is that respondents did not feel the need to bother with mediating impacts at all. Unfortunately, the survey was not designed to test the validity of the assumption about the need to utilize social capital to address LDC concerns.

7. Conclusions

Overall, this study explored the effectiveness of social capital as a mediator of LDC impacts on resident wellbeing within Kalgoorlie-Boulder. Research about social capital has repeatedly demonstrated that dense and equal networks within an individual's family and friends (i.e. bonding capital), work colleagues and acquaintances (i.e. bridging capital) as well as government and industry leaders (i.e. linking capital) lead to resilient communities. If, however, one of these social capital forms is deficient, the community becomes less resilient with residents more likely to experience a reduction in their wellbeing based on an event (i.e. LDC employment).

Both the initial community survey and follow up group interviews generally agreed on the density of social capital. That is, the presence of relatively dense bridging social capital, moderate bonding social capital and limited linking social capital. Importantly, the bridging social capital between residents and LDC workers was weak. This may be due to structural limitations that prevented the establishment of social networks between residents and LDC workers. Participants specifically identified the use of 12-hour shifts for LDC mining workers and the construction of work camps outside the community as inhibitors of social opportunities. Future research should investigate whether reducing shifts to for example 8-hour shifts increases interaction between residents and LDC workers. The same applies to locating work camps adjacent to community boundaries or at least providing transportation between the

community and work camps. Both these initiatives may facilitate LDC workers' engagement in community events and social clubs, which may strengthen social capital ties between residents and LDC workers. It is important though that only positive interactions are being promoted. Carrington, Hogg, & McIntosh (2011) cautioned that off-roster LDC workers with nothing to do may impact the community in a negative manner through violence and community disorder.

Whilst residents utilise social capital to improve their wellbeing, it does not appear to directly help them to cope with LDC impacts. This may be due to the helplessness of the situation in which participants perceived themselves to be. Residents perceived the council as powerless to dictate the size of the LDC workforce in Kalgoorlie-Boulder. Participants manifested this sense of helplessness with their negative perceptions towards LDC. Another reason is that residents may not need to directly use their social capital to mediate LDC impacts during the slow phase of the mining cycle. However, knowing their networks are available if needed could in itself be a mediator. One commonly held perspective was that the mining industry had not earned a social licence to operate near Kalgoorlie-Boulder. This paper recommends that greater transparency in justifying the use of LDC, and more importantly, better community engagement would earn them a social licence.

Impacts of LDC are a top-down problem with a larger entity disrupting a region. Therefore, ground-based (e.g. resident-based) solutions may be ineffective without top-down solutions. Such solutions may include joint commitments: (1) for (government) investments in regional infrastructure, which would raise the residential attractiveness, and (2) to emphasis 'best efforts' for businesses to prioritise locally, then regional, then national and finally international. These are based on the examples of the 'Community Benefit Plans' used in some Canadian

resource towns (SCRA and Windsor 2013). These plans set local labour and supplier provisions with the inclusion of equity programs. In both the labour and supplier contexts, companies need to justify what they do and penalties may be imposed if they cannot.

Although achieving the study aim, some challenges provide avenues for future research. A limitation when conducting this research was the lower than expected sample size. The survey achieved one percent of the adult population coverage with 217 participants. The follow up group interviews, however, numbered nine participants. The use of a case study approach also limits the extrapolation of results outside the study area. Future research would benefit from larger sample sizes (by either increasing the study area or implementing additional approaches to data collection). Furthermore, the use of this study as a point of comparison with additional case studies would provide greater insight into the role of social capital in mediating LDC impacts.

References

- Adler, P., & Kwon, S.-W. (2002). Social Capital: Prospects for a New Concept. *The Academy of Management Review*, 27(1), 17-40.
- Angus-Leppan, T., Benn, S., & Young, L. (2010). A sensemaking approach to trade-offs and synergies between human and ecological elements of corporate sustainability. *Business Strategy and the Environment*, 19(4), 230-244. doi:10.1002/bse.675
- Babaei, H., Ahmad, N., & Gill, S. (2012). Bonding, Bridging and Linking Social Capital and Empowerment Among Squatter Settlements in Tehran, Iran. *World Applied Sciences Journal*, 17(1), 119-126.

- Bell, S. (2009). "There Ain't No Bond in Town Like There Used to Be": The Destruction of Social Capital in the West Virginia Coalfields. *Sociological Forum*, 24(3), 631– 657. doi:10.1111/j.1573-7861.2009.01123.x
- Besser, T. (2013). Resilient Small Rural Towns and Community Shocks. *Journal of Rural and Community Development*, 8(1), 117-134.
- Carrington, K., Hogg, R., McIntosh, A., & Scott, J. (2012). Crime talk, FIFO workers and cultural conflict on the mining boom frontier. *Australian Humanities Review*, 53, 1-14.
- Carrington, K., & Pereira, M. (2011). Assessing the social impact of the resource boom on rural communities. *Rural Society*, 21(1), 2 - 20.
- Chapman, R., Plummer, P., & Tonts, M. (2015). The resource boom and socio-economic well-being in Australian resource towns: a temporal and spatial analysis. *Urban Geography*, 36(5), 629-653.
- Hawkins, R. L., & Maurer, K. (2010). Bonding, Bridging and Linking: How Social Capital Operated in New Orleans following Hurricane Katrina. *British Journal of Social Work*, 40(6), 1777-1793.
- Kawachi, I., Subramanian, S., & Kim, D. (2008). Social Capital and Health: A Decade of Progress and Beyond. In I. Kawachi, S. Subramanian, & D. Kim (Eds.), *Social Capital and Health* (pp. 1-28). New York: Springer
- Lawrie, M., Tonts, M., & Plummer, P. (2011). Boomtowns, Resource Dependence and Socio-economic Well-being. *Australian Geographer*, 42(2), 139-164.
- Leximancer. (2011). *Leximancer: Leximancer manual version 4*. Retrieved from <https://static1.squarespace.com/static/539bebd7e4b045b6dc97e4f7/t/53c33e0fe4b056735b9b4683/1405304335237/Leximancer+Manual+Version+4.pdf>.
- Lovell, J., & Critchley, J. (2010). Women living in a remote Australian mining community: exploring their psychological well-being. *Aust J Rural Health*, 18(3), 125-130.

- McDonald, P., Mayes, R., & Pini, B. (2012). Mining Work, Family and Community: A Spatially-Oriented Approach to the Impact of the Ravensthorpe Nickel Mine Closure in Remote Australia. *Journal of Industrial Relations*, 54(1), 22-40.
- McIntosh, A. (2012). Thinking Space: Ten Truths about Australia's Rush to Mine and the Mining Workforce. *Australian Geographer*, 43(4), 331 - 337.
- McKenzie, F. (2010). Fly-In Fly-Out: The Challenges of Transient Populations in Rural Landscapes. In: Luck, G., Black, Race, D. (eds) Demographic Change in Australia's Rural Landscapes. *Landscape Series*, 12.
- Nicholas, C. (2016). *Attitudes towards Mining, inbound LDC and the Structure of Social Capital in Kalgoorlie/Boulder*. Retrieved from <http://researchonline.jcu.edu.au/46526/>
- Nicholas, C., & Welters, R. (2016). Exploring determinants of the extent of long distance commuting in Australia: account for space. *Australian Geographer*, 47(1), 103-120.
- Nicholas, C., & Welters, R. (2017). What drives long distance commuting into Australian region? A spatial panel model approach. *Journal of Rural Studies*, 49, 140 - 150.
- Nicholas, C., Welters, R., & Murphy, L. (2018). Does social capital help communities to cope with long-distance commuting? *Regional Studies*, DOI: 10.1080/00343404.2018.1437899
- Petkova, V., Lockie, S., Rolfe, J., & Ivanova, G. (2009). Mining Developments and Social Impacts on Communities: Bowen Basin Case Studies. *Rural Society*, 19(3), 211 - 228.
- Phelan, A., Dawes, L., Costanza, R., & Kubiszewski, I. (2017). Evaluation of social externalities in regional communities affected by coal seam gas projects: A case study from Southeast Queensland. *Ecological Economics*, 131, 300 - 311.
- Plummer, P., & Tonts, M. (2013). Do history and geography matter? Regional unemployment dynamics in a resource - dependent economy: evidence from Western Australia, 1984 - 2011. *Environment and Planning A*, 45, 2919 - 2938.

- Poortinga, W. (2012). Community resilience and health: the role of bonding, bridging, and linking aspects of social capital. *Health Place, 18*(2), 286-295.
- Ruddell, R., & Ortiz, N. (2015). Boomtown Blue: Long - Term Community Perceptions of Crime and Disorder. *American Journal of Criminal Justice, 40*(1), 129 - 146.
- Ryser, L., & Halseth, G. (2010). Rural Economic Development: A Review of the Literature from Industrialized Economies. *Geography Compass, 4*(6), 510-531.
- SCRA, & Windsor, T. (2013). *Cancer of the Bush or Salvation for our Cities?* Parliament of the Commonwealth of Australia, Canberra.
- Skilton, N. (2015). Re-imagining Geographic Labour Mobility through 'Distance Labour'. *Australian Journal of Public Administration, 74*(3), 364-369.
- Smith, J. W., Moore, R. L., Anderson, D. H., & Siderelis, C. (2012). Community Resilience in Southern Appalachia: A Theoretical Framework and Three Case Studies. *Human Ecology, 40*(3), 341-353.
- Storey, K. (2010). Fly-in/Fly-out: Implications for Community Sustainability. *Sustainability, 2*(5), 1161-1181.
- Tonts, M., & Plummer, P. (2012). Natural Resource Exploitation and regional Development: A View from the West. *Dialogue, 31*(1), 19-25.
- Weinberg, M., & AUWRT. (2014). *The Wellbeing of Australian: The happiest days of life, and music*. Retrieved from <https://www.australianunity.com.au/media-centre/previous-wellbeing>
- Woolcock, M., & Narayan, D. (2000). Social Capital: Implications for Development Theory, Research, and Policy. *The World Bank Research Observer, 15*(2), 225-249.
- Zhang, A., & Moffat, K. (2015). A balancing act: The role of benefits, impacts and confidence in governance in predicting acceptance of mining in Australia. *Resources Policy, 44*, 25-34.

Appendix

Table A1: Research aims and rational

Intermediate steps / Aim	Literature Link	Purpose/ Explanations	Questions for group interview slides)
Intermediate step 1: Elucidate Participant perceptions of LDC and its impact on wellbeing	Mining and LDC are perceived as mutually inclusive (SCRA & Windsor, 2013), therefore perceptions towards mining will influence perceptions towards LDC.	Identify existing biases for or against a form of LDC (i.e. mining LDC).	Write down three words that come to mind when shown eight images of LDC workers from different industries.
	There are four impacts associated with the use of LDC (the degree of exposure to these impacts will influence residents' perceptions): (1) the degree of social fractionalisation (Storey, 2010; Tonts & Plummer, 2012); (2) the hollow economy (McKenzie, 2010);	Explore the presence of negative LDC impacts.	Participants were shown results from the Kalgoorlie-Boulder survey (Nicholas, 2016) that measured LDC impacts and asked "Why do you think these perceptions exist?"

	(3) the perceived acceptance of LDC (social licence) (Zhang & Moffat, 2015), and;		
	(4) the scale of the LDC workforce (SCRA & Windsor, 2013).		Perceptions about the scale of LDC further by asking participants was explored, “what percentage of Kalgoorlie’s workforce do you think uses LDC?” A comparison was made between the 2011 census result using Nicholas and Welters (2016)’s method for determining LDC counts. Participants were asked, who were shown these results (LDC size and composition), “why do you think there was a difference (if any) between your perceived and actual LDC percentage?”
Intermediate step 2: Elucidate the	The relative strength of each type of social capital influences the social	Explore the density of participant bonding, bridging	Scenarios were presented for each type of social capital.

density of participant social capital	networks used to mediate LDC impacts. The inability to access any forms of social capital would have negative consequences to resident wellbeing (Besser, 2013; Ruddell & Ortiz, 2015).	and linking social capital.	Being in a remote area, discussions included the role of virtual networks to sustain social networks separately.
	Bonding social capital		The first scenario, titled ‘Hosting a BBQ’, explored family and neighbourhood connections.
	Bridging social capital		The second scenario, titled ‘Going out for the night’, explored connections with friends and work colleagues.
	Linking social capital		The town hall meeting scenario explored the connections between the participants and government.
Aim: Elucidate	Social capital as an effective mediator	Discern the effectiveness of	Inquire if the topic of LDC came up in the social

<p>dimensions of social capital that facilitate or inhibit its mediating role between LDC impacts and resident wellbeing</p>	<p>depends on both the strength of social capital and its effectiveness. That is, the ability to mobilise social capital (Poortinga, 2012).</p>	<p>social capital for mediating LDC impacts</p>	<p>scenarios presented, “does LDC come up as a topic?”, “how often do you talk about LDC?” If it did, do those conversations help with your wellbeing?”, “do you find that discussing LDC issues helps you cope with the pressures of LDC?” “Do you find that discussions about LDC help?”</p>
--	---	---	--