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JTDE - Vol 7, No 4 - December 2019 ^[3]

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The Contribution of High Frequency Radio to the Social and Economic Development of the Northern Territory

Abstract

This paper examines the relationship between the use of High Frequency (HF) radio and the development of social capital in the Northern Territory (NT) of Australia. Social capital is an elusive concept. It has its origin in a number of disciplines and, as a consequence, it is a mix of disparate and intangible concepts such as trust, reciprocity, norms and cooperation. It has been argued that there is a strong positive correlation between the acquisition of social capital and social and economic wellbeing. In order to determine if the use of HF radio promoted the development of social capital, qualitative data was collected from 32 NT self-identified HF radio users. Although manned operations of the Darwin-based HF coastal

radio service ceased on 30 June 2002, the evidence indicates that HF radio was instrumental in the development of a sense of community amongst its widely dispersed and isolated users. The social capital outcomes of HF radio use that included social and economic well-being, engagement in participatory democracy and the acquisition of human capital were precipitated by the shared community concept of trust, informal and formal networks and cross-cutting ties.

Introduction

The now obsolete Darwin Coastal Radio Service (DCRS) was, for many years, the only form of telecommunications access in the remote and very remote regions of the Northern Territory (NT) of Australia (Bandias & Mason, 2017 ^[6]; Bandias & Vemuri, 2005 ^[7]; IMG, 1980 ^[8]). It was initially established for the purpose of safeguarding the lives of seafarers and to guard the northern coastline of Australia (Hewitson, 2012). It eventually evolved into a service that not only met the commercial needs of the outback but also provided a mantle of physical, social and emotional safety for remote, isolated residents (Harte, 2002). However, little is known of the social capital benefits and the shared community concepts of trust, cooperation and values High Frequency (HF) radio engendered amongst its users. Consequently, this paper examines the relationship between the use of HF radio and the social and economic development of the NT. The research question this project sought to address was: 'Did High Frequency radio use contribute to the social capital of the Northern Territory?'

In order to provide a context for the research, the paper commences with a description of the NT. This is followed by a brief historical overview of the use of HF radio in the Territory. The paper then discusses the theoretical concept of social capital and the methodology employed in the data collection. An analysis of the data and a discussion of the social capital indicators, as defined by the Organisation for Economic Development and Cooperation (OECD), follows. The paper concludes with a summary of the qualitative data and a description of the social capital outcomes facilitated by HF radio use.

The Context and the History of Telecommunications Access in the NT

A review of the literature indicates that, apart from an historical timeline, little is known of the role of HF radio or the DCRS in building community capacity. This topic has been under-researched and is absent in the history, management, social science and Information Communications Technology (ICT) literature. Consequently, this paper will fill a significant gap in the literature by exploring the nexus between social capital and HF radio use in the NT.

The Northern Territory is situated in the far north region of Australia. It covers a geographic area of 1,349,290 sq km (Geoscience Australia, 2018). According to the Australian Bureau of Statistics (ABS), as at 2017 the total population of the NT was 246,105 and the population density was 0.2 people per sq km (ABS, 2017). More than 50 percent of the Territory population reside in Darwin, the capital city of the NT. The remainder reside in remote or very remote communities. Approximately 25 per cent of the population are of Indigenous descent (ABS, 2017). The provision of telecommunications access to the people of the NT has a long history (Bandias & Mason, 2017; Bandias & Vemuri, 2005; IMG, 1980; Legislative Assembly of the Northern Territory, 1985; Livingston, 1996; Moyle, 1984). It was, and is, complicated by remoteness, isolation and low population density.

Initial telecommunications access in the NT commenced in 1913 with the establishment of a coastal radio station in Darwin. It was established for the purpose of safe-guarding the lives of seafarers and to guard the Northern coastline of Australia (Hewitson, 2012). Although Darwin was connected to the national telephone network in 1942, the remote, underpopulated regions of the Territory remained isolated from the mainstream (Bandias, 2008; IMG, 1980; Moyle, 1984). Both distance and lack of telecommunications access contributed to the isolation.

In the ensuing years the Coastal Radio Service evolved into Darwin Coastal Radio Service (DCRS), and eventually the Outpost Radio Service.ⁱ [9] At the height of its operation, the DCRS was one of the busiest stations in the Coastal Radio Service and employed a staff of ten ([Hewitson, 2012](#)). Victor Juliet Yankee (VJY) was the call sign for the dedicated radio service for Health and Aero Medical Services in the Top End of the NT.ⁱⁱ [10] As the role of the DCRS expanded, it eventually serviced the whole of the remote top end of Australia as the only communications network relaying medical, civil, legal and defence information between remote communities, pastoral stations and Darwin.ⁱⁱⁱ [11] Manned operations closed in June 1999 with the upgrading of all outposts to satellite communications and the station officially closed on 30 June 2002 along with other coastal radio stations ([Northern Territory Police Historical Association, 2000](#)).

Social Capital a Theoretical Perspective

Both the ABS and the OECD define social capital as "...networks, together with shared norms, values and understandings which facilitate cooperation within or among groups" ([ABS, 2002, p. 4](#); [OECD, 2002](#)). The concept has its origin in a number of disciplines and, as a consequence, it is a mix of disparate ideas such as trust, reciprocity, norms and cooperation. It has been argued that there is a strong positive correlation between the acquisition of social capital and social and economic wellbeing at both the individual and community level ([ABS, 2004](#); [Coleman, 1988](#); [Grootaert, 1998](#); [OECD, 2002](#); [Woolcock, 2000](#)). Stone (2001) states that influential social capital theorists perceive the outcomes of social capital are concerned with "...social and economic well-being, democracy at the nation state level and the acquisition of human capital..." (p. 4).

The dimensions of social capital that emerged in the data gathering phase of the research were closely linked to the theoretical constructs that underpin the concept. Trust, networks, reciprocity and cross-cutting ties are common themes in the social capital literature. These themes correlate with the OECD recommended indicators of social capital ([OECD, 2002](#)). The indicators include community participation through organised groups, informal networks, trust, cross-cutting ties such as bonding (within groups) and bridging (across groups) and indicators of ICT-based networks.

Methodology

The research question, 'Did High Frequency radio use contribute to the social capital of the Northern Territory?' emerged as the project evolved. Consistent with a grounded theory research paradigm, this project employed a qualitative methodology ([Carmichael & Cunningham, 2017](#); [Loonam, 2014](#); [Martin, 2018](#)). According to Martin (2018), grounded theory is a deductive methodological study of "... culture, which sees the communication process as a means of production, created through the discourse of groups and individuals that is produced within particular political, historical, and cultural contexts" (p. 16).

The data was collected through a process of recording discreet interviews from 32 self-identified HF radio users. A request for volunteers to participate in the project was circulated via Charles Darwin University eNews letter, the NT Branch of the Australian Computer Society and Darwin's ABC radio. A number of participants also recommended other potential interviewees. All participants were self-identified HF radio users in the period between 1950 and 1990. Ethics approval was sought and obtained from the Charles Darwin University Human Ethics Committee in August 2016.

Fifteen of the participants were former nurses; three were medical practitioners; three were teachers; three were school boarders; two were wives/mothers; and the remainder included a construction worker, a pilot, a radio technician, a VJY operator, a tourist operator and a surveyor. Twenty-four of the thirty-two participants were female. This gender bias is a reflection of the then demographic of the HF radio users.

In the period between August 2016 and June 2017 two experienced researchers conducted face-to-face and telephone interviews. In order to provide a focus for the interviews, the participants were asked a number of stimulus questions. The interviews were subsequently transcribed and returned to the interviewees for verification and correction where necessary. In analysing the data a number of consistent themes emerged. The themes are discussed in the following section.

Consistent Themes

The vital role of HF radio

In recoding recollections of the interviewees, the vital role HF radio played in the lives of the outback inhabitants became apparent. In the absence of any other form of communication, DCRS was an essential means of accessing health and education services, maintaining social contact and facilitating commercial transactions. However, transmission and reception over HF radio was not without its vulnerabilities.

A core group of people worked behind the scenes to keep DCRS operational. They included technicians, telegraph operators and, in some instances, indigenous telegraph boys. They were, as one interviewee stated, the 'life blood' of the radio service. They monitored the three radio frequencies utilised by the DCRS and they kept VJY on air twenty-four hours a day, seven days a week. According to one interviewee: "The technicians did anything and everything that was required to keep VJY operational and the 'community' connected".

The technicians and the 'girls' who were employed as telegraph operators were central to the effective operation of the DCRS. They connected outback users with vital medical services; relayed information on impending cyclones, floods and medical emergencies; facilitated commercial transactions; and assisted novice users, including medical staff, in taking calls.

A number of contributors acknowledged the high regard the outback community had for the operators. The operators were "...loved, feted and looked after" by the community they served. Regular VJY users often expressed their appreciation by providing the operators with boxes of mangoes, buffalo fillets, live crabs and crayfish.^{iv} [12]

Despite the instability of and issues inherent in HF radio transmission, it was a vital communication system. As one interviewee commented: "[HF Radio] was a lifeline for running daily life from getting in stores, listening for weather reports, schooling, social life, social contacts, to emergency and health care". Children were educated, medical services were delivered, spiritual support was accessed and community activities all took place amid the static, unwelcome cross-frequency intruders and technology failures. It was acknowledged that, for many years, there was no other alternative.

Cross-cutting ties – bonding within and across groups

VJY was a public radio network. Everyone connected to the frequency could potentially hear every message that was sent and received. According to one interviewee: "There were no secrets in radio land". Everyone knew the news that was vital to the fabric of community life – births, deaths, marriages, wives chasing recalcitrant husbands, who had paid their bills and even who was behind in their rent. Participants listened to evolving romances, funeral arrangements, people being informed of a death in the family, patient diagnosis, stations talking to employees, mechanics ordering parts and grader crews requesting supplies.

Medical services had priority use and a 'sched', which dictated their scheduled time and duration. However, the very public nature of the network ensured everyone was informed. As one contributor commented: "Everyone tuned into the same wavelength and got the run on each station's medical problems!"

Everything in life and the bush was discussed. Everyone involved listened to and shared in the events that defined the life of their community. The loss, empathy, humour and love that regularly played out over the airwaves helped form a unique bond amongst the HF users, some of whom would never meet face to face.

Whilst many interviewees lamented the lack of privacy over HF radio, they also acknowledged the vital role it played in building a sense of community. The pastoral care, medical support, social interaction and community engagement delivered over HF radio was a collective experience that enriched the lives of those who lived and worked in the isolation of the outback. As one interviewee recounted:

I was always within earshot of the radio whilst at camp and I would listen to the morning chatter. People, all strangers ordering Vegemite, flour, beer and stores. I would listen to ... the local mob from outstations talking to ... the VJY Darwin operator, to the shop and to each other. Sometimes in Kriol, sometimes in that wonderful Arnhem Land accented English and often full local language. It filled my mornings and made me feel a part of the Northern Territory and this big community.

In the physical absence of immediate neighbours, extended family and access to essential services, radio users bonded over their shared experience lived through their 'life in radio land'. The depth of the bond was illustrated by one of the interviewees who, in 1988, was asked to make the final call on VJY on its transfer to St John Ambulance — a narrower more medically focused radio service. She emotionally described the final call as: "[It] was like saying goodbye to my family".

Informal and formal networks

The coastal radio service was a 'community' in every sense of the word. As the use of the DCRS evolved and grew, both formal and informal networks were established over the air. The Aero Medical Service, The Country Women's Association, The School of the Air and religious services held regular sessions that required an understanding and an adherence to schedules, protocol and etiquette. Those outback residents hungry for gossip and human contact could access what was euphemistically called the 'Cockatoo Service' and participate in a 'galah session'.^{v [13]} The galah sessions were open for general communication and social chit-chat.

For the women of the outback the DCRS filled a huge social void. Of an evening, after the business of the day had been transacted and children had completed their school-of-the-air sessions, the women would use the radio for social contact and to participate in clubs, groups and associations that had formed over the radio.

One club, a public speaking group for women, commenced in the early 1980s and fulfilled such an important social need that it continued until 2003 when the Internet had made HF radio all but redundant. Participants used the School-of-the-Air frequency and conducted their meeting from radios in Darwin, Humpty Doo and Katherine as well as pastoral stations in the remote areas of the Territory. The 'venue' covered a geographical area of over 800,000 square miles [2 million square kilometres] and 'meetings' occurred on a regular monthly basis. Such was the persistence of the group that, despite the static, the increasingly poor reception and the often cross-frequency interruptions by fishermen in the Arafura and Timor Seas, the group 'met' on-air for over twenty-three years. However, as one participant commented, the club served much more than a social need:

These airborne [club members] of the outback stepped forward to become active members of organisations that were involved in their lives and business. I believe that, through their involvement, the Isolated Children and Parents Association became a powerful lobby voice to Government.

Trust

The DCRS operated on a basis of trust. Users trusted the DCRS to keep them connected, informed and provide access to vital essential services. They also trusted the relationships and bonds that had developed over the airwaves with the operators, technicians, medical staff and other VJY users. These bonds were often vital for the physical, social and emotional health of isolated outback users. As one interviewee stated: "If there was a problem somewhere, someone (on the DCRS network) would fix it".

There was a mutual understanding between the DCRS users of the necessity of providing assistance in a time of need. The vagaries of the DCRS and poor atmospheric conditions often meant that radio communication was difficult. An example of the cooperation and mutual trust that existed on the airwaves was highlighted by the following comment: "Everyone helped everyone else, and often unknown other users would help convey messages if we were having trouble sending or receiving".

The depth of the trust amongst HF users was often apparent in times of emergencies. In the absence of face-to-face medical assistance many lay people became primary caregivers:

Radio consultations were usually between the doctor and a nurse. However, many calls were from women unqualified in medical matters, but all became skilled in presenting the patient symptoms. It was not uncommon for the doctor to ask the person at the other end their opinion regarding management and treatment. There was tremendous trust in the judgement of these rural people, nurses and others.

Users respected the priority of the medical schedules and they acknowledged the effort of the technicians and operators that kept VJY operational 24 hours a day. They trusted each other to co-operate in collective on-air public endeavours and they trusted the on-air community to provide them with often much needed support. In the words of one interviewee: "...everyone looked after everyone else. They gave support and comfort to each other. They had a better understanding of living in the outback and they provided a form of security for those living in remote locations".

Discussion and Conclusion

As evidenced by the qualitative data, HF radio had a significant role in building the social capital of the Northern Territory. From its initial operation in 1913 until its closure in 2002, the DCRS was indispensable in developing the community of the outback. HF radio brought education to the children of the bush; it serviced the commercial, medical, social and spiritual needs of its inhabitants; and it gave comfort, solace and companionship to those isolated by distance and remoteness. HF radio was the glue that held the community together.

The VJY 'girls', technicians, medical staff, wives, mothers, entrepreneurs, teachers, missionaries and government employees shared their lives via the radio. They bonded over their collective experience. They formed groups, shared gossip, attended religious services and built a community based on trust, reciprocity and cooperation. They also endured the vagaries and problems inherent in using HF radio. Medical emergencies, cyclones, love, births, deaths – all the major life events occurred and were shared in the public domain of the DCRS.

HF radio was also instrumental in ensuring that isolated residents were part of the participatory democracy process. It enabled them to access and share information, to join community groups, to become effective advocates and to participate in the events that shaped their existence. The human capital of the outback was similarly enhanced through the provision of education, training and the opportunity for improved individual capability. These intangible social capital outcomes created economic and social value for individuals and the broader community. They also enabled the inhabitants of the outback to thrive in an otherwise harsh and isolated existence.

Although the researchers endeavoured to interview a cross-section of HF radio users there are a number of omissions and limitations to this study. The experience of indigenous people is notably absent from the data. However, photographic and anecdotal evidence indicates that indigenous people living in remote and very remote regions of the NT did use HF radio on a regular basis and for a variety of purposes. Similarly, the experience of male cattle station owners and managers is also missing from the data. Further research that incorporates a broader cross-section of HF radio users in the NT would enrich our understanding of the HF radio-social capital nexus.

The available evidence indicates that fifty years after these events the memories of life lived via the DCRS are still vivid and that the sense of 'community' has not diminished. The interview participants spoke fondly, with affection and admiration for their on-air companions. They also lamented the demise of the DCRS. As interviewees commented: "There was indeed a romance about VJY...we never realised one day it would be gone".

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Endnotes

- i [24] For the purpose of this article the various iterations of the Costal Radio Service will be referred to as Darwin Costal Radio Service (DCRS).
- ii [25] Voice communication was not initially part of the service offered to the outposts for personal traffic. This service was reserved for the Aero Medical Service only. Eventually, the VJY service evolved to a mix of telegrams and phone calls, all manually connected and relayed by the operators at VJY.
- iii [26] The Katherine School of the Air shared the Darwin Costal Radio Service frequency with the Aero Medical Service up until 1966 when increased demand necessitated they operate under a dedicated radio frequency.
- iv [27] In recognition of the vital role of the telegraph 'girls', a bark painting of "VJY Telephone Operators" by Brian Nyinawanga [1982], was presented by the Bawinanga Aboriginal Corporation of Maningrida to the VJY operators. The painting is currently held in the collection of the Museum and Art Gallery of NT. It is the only known bark painting depicting non-Indigenous women.
- v [28] Galah sessions were named in recognition of the flocks of screeching galahs that frequently descended on the radio aerials strung between the HF radio and the nearest tree (McKay. 1995 [29])

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Cite this article as:

Susan Bandias, Elizabeth (Janie) Mason. 2019. 'This is VJY, Over'. JTDE, Vol 7, No 4, Article 229. <http://doi.org/10.18080/JTDE.v7n4.229> [32]. Published by Telecommunications Association Inc. ABN 34 732 327 053. <https://telsoc.org> [33]

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