Connecting communities through the use of Technology: Insights from communities

Dr Raechel Johns, Associate Professor in Marketing

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Overview

Research Process

Findings

Next steps
Back in 2011
It was 2011...

- Marketing
- Technology
- Services

Raechel Johns

Birgit Muskat

- Tourism
- Management
- Services

Matthias Muskat

- Marketing
- Management
- Services
Common Interests ?
The Research Focus

Enabling community change through social media in the Murray-Darling Basin
The Research Process
Findings
# Data to Understand Technology use in Regional Australia

<table>
<thead>
<tr>
<th>Organisational level</th>
<th>Objective</th>
<th>Individual level</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-structured interviews with the Murray-Darling Basin Authority</td>
<td>To understand how Government agencies are utilising social media to connect with regional communities</td>
<td>Action research: farms (n=29)</td>
<td>To influence change in farming communities in relation to technology enablement of farms</td>
</tr>
<tr>
<td>Document analysis</td>
<td>To understand how Government agencies are utilising social media to connect with regional communities and the community situation</td>
<td>Technology readiness survey in regional and metropolitan areas (n=1300)</td>
<td>To measure technology readiness and link this to relevant personality traits; relative to residential location (regional/rural vs. metropolitan)</td>
</tr>
<tr>
<td>Social media review</td>
<td>To measure how social media is being used by organisations and individuals with the region</td>
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<tr>
<td>Experimental design - apps</td>
<td>To explore how apps, developed for use within regional Australia, score on functionality</td>
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</tr>
</tbody>
</table>
The literature review
The Literature Review

Lack of theoretical direction in relation to Social Media use

However, plenty of academic research on social media

Increasing use of social media within organisations and communities

Source: Kietzmann, Hermkens, McCarthy, and Silvestre, 2011
The Literature Review

Prior to Web 2.0, the 7cs of designing effective websites was developed:

Context; Content; Community; Customisation; Communication; Connection and Commerce (Rayport and Jaworski, 2001)

Not viewed as sufficient in Web 2.0 space

Our analysis of 40 top articles in social media (up to 2012) allowed us to identify eight themes.

The 8Cs of Social Media:
Community
Customised Communication
Conversation
Co-creation
Credibility
Cutting-edge Culture

MDB futures
Collaborative Research Network
## The Cs Models

<table>
<thead>
<tr>
<th>The 7Cs of Designing an effective website (Web 1.0)</th>
<th>The 7Cs of Social Media (based on practice)</th>
<th>The 8Cs of Social Media (from this paper - based on academic literature)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context</td>
<td>Community</td>
<td>Community</td>
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<tr>
<td>Community</td>
<td>Customisation</td>
<td>Customised</td>
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<tr>
<td>Customisation</td>
<td>Content</td>
<td>Communication</td>
</tr>
<tr>
<td>Content</td>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>Connection</td>
<td></td>
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<tr>
<td>Connection</td>
<td>Curation</td>
<td></td>
</tr>
<tr>
<td>Commerce</td>
<td>Creation</td>
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<tr>
<td></td>
<td>Conversion</td>
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<td></td>
<td>Conversation</td>
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<td></td>
<td>Co-creation</td>
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<td></td>
<td>Credibility</td>
<td></td>
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<td></td>
<td>Cutting-edge</td>
<td></td>
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<tr>
<td></td>
<td>Culture</td>
<td></td>
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</tbody>
</table>

*Source: developed based on Rayport and Jaworski, 2001 and Royse, 2012 and the literature review*
Qualitative: Interviews and netnography: MDBA
While it has been claimed that there is no real coherence in communication theory (Anderson, 1996), researchers have attempted to expand on aspects of relationship theory (Craig, 1999).

Many different ways of categorising communication

For the media, Agenda Setting is most relevant

Agenda Setting considers that issues are prioritized by the public, because of how they are presented in the media, their placement and frequency (McCombs and Shaw, 1972; Vandenberg, Price, Friendman, Marchman, and Anderson, 2012).

However, very limited attention has focused on agenda setting and social media
Agenda Setting

Agenda setting has been criticized for seeing the audience as passive participants, greatly influenced by media messages (Literat and Chen, 2013).

Social media alters this: the audience is not passive.

Social media has been utilised in disasters and community conflict, however, academic attention has only focused on disaster management rather than community conflict. (eg. Ikeda, Beroggi and Wallace, 1998, Merchant, Elmer and Lurie, 2011 and Smith, 2010; Jaeger, Shneiderman, Fleischmann, Preece, Qu and Wu, 2007, Yates and Paquette, 2011, Merchant et al, 2011, among others).

An overview of Agenda Setting Research

Source: Scheufele, 2000
The New Communications Paradigm

Source: Mangold and Faulds, 2009: 360
The MDBA

RQ: How has the Murray-Darling Basin Authority (MDBA) used technology to connect with previously alienated stakeholders and meet the needs of the community?

Method:
1. Netnography (Kozinets, 2010)
2. Interview with MDBA: grounded theory
Intermedia Agenda Setting with Social Media: Based on the Murray-Darling Basin Authority

**Intermedia Agenda Setting with Social Media**

**BLOG**
- Objectives:
  - Conversation
  - Promotion

**FACEBOOK**
- Objectives:
  - Information
  - Colour

**TWITTER**
- Objectives:
  - Immediacy
  - Interaction

**INTEGRATED SOCIAL MEDIA COMMUNICATION**
- Objectives:
  - Integrated message
  - Cross-promotion/ Links
Communities

“Overall, the MDBA has made some great strides in its use of social media. The tools were used in an increasingly interactive way, live tweeting, answering questions and adopting a more proactive stance. The MDBA also began blogging, a process that proved especially successful for providing plain English explanations of Basin Plan issues and quickly updated Basin Plan consultation information. Internally, approval was given for all staff to access social media, subject to completion of social media training.”

“we’re quite proud of how we used social media during the Basin Plan public consultation phase. We made a point to live tweet from the public meetings, tweeting updates and tweeting each speaker – whether they were positive or negative. It was very important to us that we not use the platform in a less than honest way – we wanted to show the progress as it was and not as how we may have wished it.”
“A broad cross-section of the MDBA’s stakeholders are actively using social media, not just to receive information but to ask questions and voice their opinions. This will only grow over time. There is a clear trend of increased social media use in farming and agriculture sectors. This has already been seen in the US and the UK, and is becoming more active in Australia”.
Enabling Community Communication Through the Use of Social Media

Organisation

Human Relationships, facilitated through social media

Community

Conversation and information communication: needs to be enhanced

Sociocultural/ alienation: needs to be reduced
A Proposed Model of Agenda Setting Research in a Social Media Context

Public perception of reality

Interest Groups

Social Media Agenda

Audience Agenda

Public perception of reality
Experiment: Apps
NSW RealTime Water Data
By NSW Department of Primary Industries - Office of Water
Streamflow Plus: An iPhone App for US Rivers

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Descriptions</th>
<th>Questions</th>
<th>Rating Score 1-5 (excellent – worse)</th>
</tr>
</thead>
</table>
| Effectiveness | Effectiveness states that the object assists to solve a problem or achieve a targeted outcome (*Harrison et al, 2013*). In other words, does an object meet the expectations doing the right thing. | 1. How big is the importance if results or tasks are not achieved?  
2. How often the results are needed? | 1. Researcher: 3  
2. Researcher: 2  
Average rating: 2.5 |
| Efficiency | Efficiency distinguishes the relationship between used resources and the performance of an app. Moreover, efficiency describes doing something right to complete a task precisely, which is measure and related to costs (also time behaviour). Accordingly, “this attributes reflects the productively of a user while using the application” (*Harrison et al, 2013, p4*). | 1. What kind of actions and how many are needed to come to the expected outcome?  
2. What kind of users/groups employ the app? | 1. Researcher: 1  
2. Researcher: 1  
Average rating: 1 |
| Learnability | Learnability measures the capability of software to enhance users to learn the interface quickly and effectively to get the work done (*Nielsen, 1993*). This criterion is critical, as users choose the easiest application and are not prepared in spending much time for learning the software (*Flood, Harrison, Jacob & Duce, 2012*). | How understandable are the functions, abbreviations, explanations in general and is the application intuitive? | 1. Researcher: 3  
2. Researcher: 1  
Average rating: 2 |
| Satisfaction | Satisfaction includes on the one hand the attractiveness of software and how users like the look. On the other hand it states the interaction with an app according to his desire. Simply stated, if the functions satisfy the users’ needs, a positive attitude arise (*Nielsen, 1993*). | 1. What kind of subjective impairment does the user feel while applying the app for example?  
2. Does the user feel supported or satisfied in conducting his task? | 1. Researcher: 4  
2. Researcher: 2  
Average rating: 3 |
| Memorability | Memorability refers to the individual use of an application in order to encourage the “users to remember how to use the software without the need to relearn it after a period of inactivity” (*Harrison et al, 2013, p4*). To fulfil this condition, designs concentrate on easy, intuitive and understandable software. | Is the user able to remember, navigate and run the application even after a longer unutilised period? | 1. Researcher: 2  
2. Researcher: 2  
Average rating: 2 |
| Errors | Errors or a low error rate indicate that if user experience failures, they might able to operate and continue without interruption to complete their tasks (*Nielsen, 1993*). The reliability of software and its performance understated conditions must be unharmed. | 1. Which errors occur in context in use?  
2. And is the user able to continue without interruptions? | 1. Researcher: 2  
2. Researcher: 2  
Average rating: 2 |
| Cognitive Load | Cognitive load illustrates the impact on performance while operating a mobile application and doing another task at the same time (*Schildback & Rukzio, 2010*) in a diverse context. (*Harrison et al, 2013*) interpret that “cognitive load refers to the amount of cognitive processing required by the user to use the application” (p5). “These situations are challenging and complex as the tasks are competing for user’s limited attention” (*Heikkinen et al, 2009, p1*). The cognitive load takes a toll because of the demanding situation of mobility and portability of devices and combining visual and motor tasks (*Heikkinen et al, 2009*). | Is it possible to run the app simultaneously while undertaking other activities? | 1. Researcher: 1  
2. Researcher: 1  
Average rating: 1 |
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Let your customers document their experiences with our simple mobile app.

Analyze their real customer journeys in your browser.
Action Research: The Farmer Workshop
Farming communities are under considerable pressure due to economic considerations, changing Government requirements, globalization, technology (Ag Health, 2008) and climate change.

Australian farmers have had to demonstrate resilience and adaptability in light of financial pressures, water shortages, isolation (Wells, 2015), long hours and limited holidays (McDonald, 2015).

In addition to this, farmers have felt pressure to adopt technology, as this can increase productivity gains (Griffith, Vere and Bootle, 1995) and are deemed to be essential in contemporary farming (Ag Health, 2008).
The Farmer Workshop

“How do farmers score on the technology readiness index (TRI), extroversion and technology use?”

n=29

Free workshop
Hosted in Cooma

The Cooma-Monaro Shire has a population of 9,726 people with 68% living within Cooma itself, and 28% rural residents (Cooma-Monaro Shire Council, 2008).

Household incomes tend to be lower than State and National averages, however a greater proportion of residents within the Shire have paid off their homes, compared with the State average (Cooma-Monaro Shire Council, 2008).
# Overview of Surveys Conducted

<table>
<thead>
<tr>
<th>Survey</th>
<th>Purpose</th>
<th>n=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personality traits</td>
<td>To explore how various personality traits such as introversion/extroversion impact on technology use</td>
<td>29</td>
</tr>
<tr>
<td>Technology readiness</td>
<td>To determine background details (farm type etc) and to measure the technology readiness of the respondent</td>
<td>24</td>
</tr>
<tr>
<td>Further comments</td>
<td>Specific comments regarding the workshop: open ended questions and demographics</td>
<td>23</td>
</tr>
</tbody>
</table>
Technology Readiness

**Motivators to technology readiness:**
Optimism – a view that technology benefits the lifestyles of its users
Innovativeness – a tendency to be a thought leader in relation to technology

**Inhibitors to technology readiness:**
Discomfort – a perceived lack of control regarding technology
Insecurity – distrust of technology, particularly in relation to its ability to work

The farmers scored 3.255 overall out of a scale of 1 (not technologically ready) to 5 (highly technologically ready) on the Technology Readiness Index (TRI).

This indicates a medium level of technology readiness.

*(Parasuraman and Colby, 2015)*
## Summary of Technology Readiness on the Four Attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimism</td>
<td>4.48</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>3.19</td>
</tr>
<tr>
<td>Discomfort</td>
<td>3.4</td>
</tr>
<tr>
<td>Insecurity</td>
<td>3.25</td>
</tr>
</tbody>
</table>
The majority (85%) of respondents have smart phones. Seventy-eight per cent of respondents have laptop computers, just over half (53%) have desktop computers and 50% have tablets. Respondents were asked how much social media they had utilized the day prior to the workshop.... Time was an issue for most

“When I came I knew I didn’t know much, but now I am starting to see how vast are the things I don’t know!!!! No reflection on the presentation, just my limited uptake/ data reception!!”
Technology Readiness

“probably one of the best workshops I have attended in recent times”

“very helpful. Need to plan whole farm system now! Would like more information about electric fence monitoring and move of NBN satellite to 3G or wireless”

“Excellent presentation. Need more training on how to access relevant technologies”

“How to increase data and mobile reception through car kits”

“Connectivity will change the game” (for farmers)
### Social Media Use – The Day Prior to the Workshop

<table>
<thead>
<tr>
<th>Statement</th>
<th>Percent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>I never use social media</td>
<td>71%</td>
</tr>
<tr>
<td>I usually use social media but did not yesterday</td>
<td>4%</td>
</tr>
<tr>
<td>Less than 1 hour</td>
<td>17%</td>
</tr>
<tr>
<td>1 – 3 hours</td>
<td>4%</td>
</tr>
<tr>
<td>3 – 5 hours</td>
<td>4%</td>
</tr>
</tbody>
</table>
Personality Traits

Preliminary analysis on personality traits indicated that the majority of the respondents were extroverted and scored low on neuroticism.

<table>
<thead>
<tr>
<th>Scale item</th>
<th>Percent for ‘yes’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you a talkative person?</td>
<td>64%</td>
</tr>
<tr>
<td>Are you rather lively?</td>
<td>67%</td>
</tr>
<tr>
<td>Do you enjoy meeting new people?</td>
<td>85%</td>
</tr>
<tr>
<td>Can you usually let yourself go and enjoy yourself as a lively party?</td>
<td>57%</td>
</tr>
<tr>
<td>Do you usually take the initiative in making new friends?</td>
<td>60%</td>
</tr>
<tr>
<td>Can you easily get some life into a rather dull party?</td>
<td>25%</td>
</tr>
<tr>
<td>Do you tend to keep in the background on social occasions?</td>
<td>57%</td>
</tr>
<tr>
<td>Do you like mixing with people?</td>
<td>78%</td>
</tr>
<tr>
<td>Do you like plenty of action and excitement around you?</td>
<td>60%</td>
</tr>
<tr>
<td>Are you mostly quiet when you are with other people?</td>
<td>46%</td>
</tr>
<tr>
<td>Do other people think of you as being very lively?</td>
<td>42%</td>
</tr>
<tr>
<td>Can you get a party going?</td>
<td>35%</td>
</tr>
<tr>
<td>Does your mood often go up and down?</td>
<td>39%</td>
</tr>
<tr>
<td>Do you ever feel miserable for no reason?</td>
<td>25%</td>
</tr>
<tr>
<td>Are you an irritable person?</td>
<td>17%</td>
</tr>
<tr>
<td>Are your feelings easily hurt?</td>
<td>28%</td>
</tr>
<tr>
<td>Do you often feel ‘fed up’?</td>
<td>28%</td>
</tr>
<tr>
<td>Are you a worrier?</td>
<td>35%</td>
</tr>
<tr>
<td>Would you call yourself a nervous person?</td>
<td>18%</td>
</tr>
<tr>
<td>Do you suffer from nerves?</td>
<td>7%</td>
</tr>
<tr>
<td>Do you often feel lonely?</td>
<td>10%</td>
</tr>
<tr>
<td>Do you worry too long after an embarrassing experience?</td>
<td>28%</td>
</tr>
<tr>
<td>Are you often troubled about feelings of guilt?</td>
<td>10%</td>
</tr>
<tr>
<td>Would you call yourself tense or ‘highly strung’?</td>
<td>10%</td>
</tr>
</tbody>
</table>
Quantitative:
The community survey
Technology Readiness

Explored technology readiness, personality traits and social media use with two groups: regional (MDB) and metropolitan Australia

Further analysis being conducted...

Photo source: Muskat, 2012
Connectivity is an issue

Time is an issue

However, social media facilitates conversation and reduces social isolation, which can be a concern in these areas
Next steps
My Research

- Technology
  - Self-service
  - Social media
  - Service
Increasingly research on services is calling for a focus on improved wellbeing through the delivery of services (Anderson, Ostrom, Corus, Fisk, Gallan, Giraldo, Mende, Mulder, Rayburn, Rosenbaum, Shirahada and Williams, 2013).

This includes being sustainable in service delivery and improving societal wellbeing (Ostrom, Parasuraman, Bowen, Patricio and Voss, 2015).

In particular it is important to provide service to under-privileged communities (Ozanne and Anderson, 2010).
Next Steps...

Social Media and engagement

Transformative Service Research

Regional Australia and technology: More workshops?
Questions or Comments?

raechel.johns@canberra.edu.au