

# EFFECTIVE COMMUNICATION BETWEEN NATURAL RESOURCE MANAGERS AND ISLAND COMMUNITIES

DAVID LLOYD & WILLIAM E. BOYD

## Abstract

This paper uses theory of planned behaviour to discuss the need for effective communication skills when managing natural resources. Using a case study of communication between a natural resource agency and fishers, it analyses approaches taken, and suggests processes to assist in improved compliance. It concludes by discussing the importance of theory of planned behaviour in developing an effective approach to communication, and suggests that, to be effective, the communicator must have a clear understanding of the intended receiver of the communication.

## Keywords

Natural resource management, community engagement, theory of planned behaviour, invitational education, Great Barrier Reef Marine Park

## Introduction

Conflict in managing protected areas generally, and natural resources specifically, often arises from attempts to simultaneously control over-exploitation of natural values and respond to aspirations of user groups (Viswanathan et al., 1997). Fisheries management in marine protected areas provides examples of such conflict. Over-fishing resulting from open access to fish resources, for example, is addressed through regulations that restrict gear and vessel operations, set minimum fish size limits, time and area closures and quotas, and licensing requirements to fish (Anderson, 1999; Clark, 1990), while poor vessel management leads to destructive use of nets, bilge oil released into vulnerable ecosystems, and anchor damage. As a result, management agencies must ensure fishers are aware of, and comply with, these regulations, to ensure long-term sustainability of the resource and the protection of biodiversity values; at the same time, fishing communities must adapt to a changed regulatory environment, an environment in which they may not be comfortable. Non-compliance with regulations can become a significant problem for management agencies (Hatcher et al., 2001). Agencies, therefore, must adopt a suite of tools to achieve their management objectives, including continued education and stakeholder participation in the development of management rules, effective law enforcement deterrents involving targeted operations and inspections, surveillance, intelligence gathering, risk assessments and mitigation measures. In all these, the effectiveness of communication is crucial to successful environmental management.

To contribute to an understanding of official communication with marine and island communities, this paper examines the communication practices – through an analysis of education and communication tools – used by government officials responsible for managing social access to environmental resources on sensitive coral islands such as those in the offshore Great Barrier Reef and in the Pacific island states of Tonga, Tuvalu and Samoa. Effective natural resource management relies on effective communication between stakeholders – management agencies, residents and visitors. Drawing on

concepts of the theory of planned behaviour and methods of social enquiry, including focus group and text analysis, we reflect on the results of several studies engaging people responsible for communicating management information to the broader community in marine and island settings. These studies yielded over 40 communication modes, which we will briefly summarise here, and which we use as our analytical base. Conventionally, environmental practice is commonly evaluated against project-specific output and outcome targets; such evaluation provides our first level critique of the individual modes. However, such an approach rarely informs deep understanding of the communication process, and the practical consequence in environmental management practice is a tendency towards more of the same. Evaluation against behavioural change is crucial – hence our interest in theory of planned behaviour as an analytical frame – and provides an opportunity to seek deeper insight into environmental management community communication.

We seek to extend our insight into official-community communication. While there is a rich literature on environmental communication, we will focus on two recent articles that, we suggest, provide a useful frame for considering the effectiveness of the communication recorded in this study. First, we draw on Measham et al.'s (2011) experience of examining community engagement in natural resource management amongst remote communities in the Eyre Basin, central Australia. While these are clearly inland communities, they are, by most definitions, 'island' communities: small, isolated and limited in resource options. Measham et al. provide a valuable case study of effective official-community communication with island communities, and thus provide us an important benchmark against which to review our own collated data. Importantly, they identify key characteristics of successful communication. First, their work emphasises the importance of communication relevant to geographical context. By this we read as being more than biophysical geography, and include socio-cultural geography. This latter point is reinforced by their acknowledgement of the importance of context specific characters, including recognition of what they, in their context, call desert (read 'island') timeframes and desert (again read 'island') distances. While these may be read simply as physical parameters, their significance lies in their articulation of community identity and culture as defined, in part, by geographical circumstance. Secondly, Measham et al. identify the importance of generic characters of social interactions that underlie successful communication – trust, community ownership, transparency, etc.

Haigh (2011), on the other hand, in writing about "invitational education", causes us to ask the question, "Could successful communication equal accepting an invitation?". Haigh notes that "learning is enhanced when learners are positively encouraged or 'invited' into the educational experience" (2011: 299). His discussion of this pedagogical approach draws attention to four core principles: respect for people and their differences; trust expressed through cooperation and a sense of community; optimism about untapped potential of each learner; and intentionality. The import of such a discussion is that it potentially provides an external evaluative frame against which to assess practiced modes of environmental communication. Here we return to the observation above, that environmental practice is more commonly evaluated against project-specific output and outcome targets, an evaluation that rarely informs deep understanding of the communication process, and, conceptually more importantly, may be inherently compromised in that it is founded on the premise of the original communication mode.

## The study

Our study focussed on an analysis of education and communication tools used by government officials, specifically those used to communicate management compliance messages to the public as part of government management of social access to

environmental resources. Data collection was through focus group interviews, adopting standard research methods (e.g., Kellehear, 1993; Maykut and Morehouse, 1994; Marshall, 1995). Focus groups were held at different locations in Australia and the South Pacific, to allow government officials to participate close to their place of work. Participants were staff whose positions in their agencies made them responsible for, or engaged in, extension, information or education activities. The geographic focus of their work was, variously, the Australian Great Barrier Reef islands, Tonga, Tuvalu and Samoa. Data collection at the focus groups followed an iterative brainstorming process to provide an exhaustive list of communication media adopted by the participants, and of comments on success or otherwise. The focus groups then worked clumping the individual modes of communication. Through this, a final categorisation was developed, providing the following generic headings: media; marketing; audio visual/video; publications; displays; events; user group liaison; and public participation. Standard terms of participation were in place: participants' comments remained confidential and un-attributable; participants remained anonymous; all received feedback of working analysis documents for review, which allowed for input by the focus group members after the initial discussion; and all were sent a copy of the finished matrix of analysed data to aid their own development of appropriate strategies.

We will report the detailed results elsewhere, but for the moment, it is worth noting that this exercise identified 37 individual media used by the participants to communicate a range of common environmental management compliance messages. By generic heading, these were distributed thus: Media (11 methods); Marketing (4); AV and Video (2); Publications (3); Displays (6); Events (3); User group liaison (4); and Public participation (4). Our record of the success or otherwise of these media indicates that all forms of communication, in some way (in the minds of the government officials), worked with at least some of the recipients. While the analysis focuses on communication from managers to community, communication theory informs us of the complexity and interactivity of communication processes (McQuail, 1987; Griffin, 2008; Littlejohn and Foss, 2008). It is therefore little surprise to record several common processes and characteristics. First, it was clear that, despite all the media working to some extent, not all media were equally preferred by all groups; context, in this regard, was important. In practical terms, the participants recognised that education and extension staff are key to success. They provide important agency-community links, and so are well placed to identify and target information, and thus contribute to meaningful design of communication strategies and messages. Overall, there was a view that mass media is increasing its reach and credibility, despite the recognition of the importance of using a range of media. Importantly, and practically, in understanding the information, we find ourselves asking how skilled community members are in understanding and participating in the communication. In asking this, we also need to address the skill base of management in adopting and harnessing communication methods, especially in the context of culture and power differentials between agencies and communities. We suggest that by better understanding the diversity of island community values, behaviour, knowledge and ownership, managers have an opportunity to expand the range of effective communication modes.

### Deeper insight: A case study

In the introduction, we suggested that deeper insight may be possible. The results and conclusions described above emerged from evaluation through focus group discussions. For managers, this provided a different form of evaluation from normal performance target evaluation. Close examination of individual methods provides good opportunity to identify more than merely patterns of success. The research team and the groups were thus able to consider more closely the processes that influenced the success of their

chosen communication modes. By way of example, we close discussion in this paper with an individual case study – the use of posters on fishing boats to influence waste disposal behaviour at sea – which we examine from several perspectives. Our primary analysis adopts theory of planned behaviour thinking. This is a body of thinking based on the assumption that people are usually quite rational, and that they make systematic use of the information available to them (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980). This view diverges from earlier social science views that attitudes, rather than intentions, were the main indicators and predictors of behaviour (Ham, 2003). The theory argues that behaviour is ultimately determined by a person's underlying beliefs – behavioural, control and normative beliefs – which, in turn, give rise to attitude, which in turn determines intention and, eventually, behaviour (Figure 1). Three key qualities influence behavioural intent: attitude to behaviour; subjective norms; and perceived behavioural control.

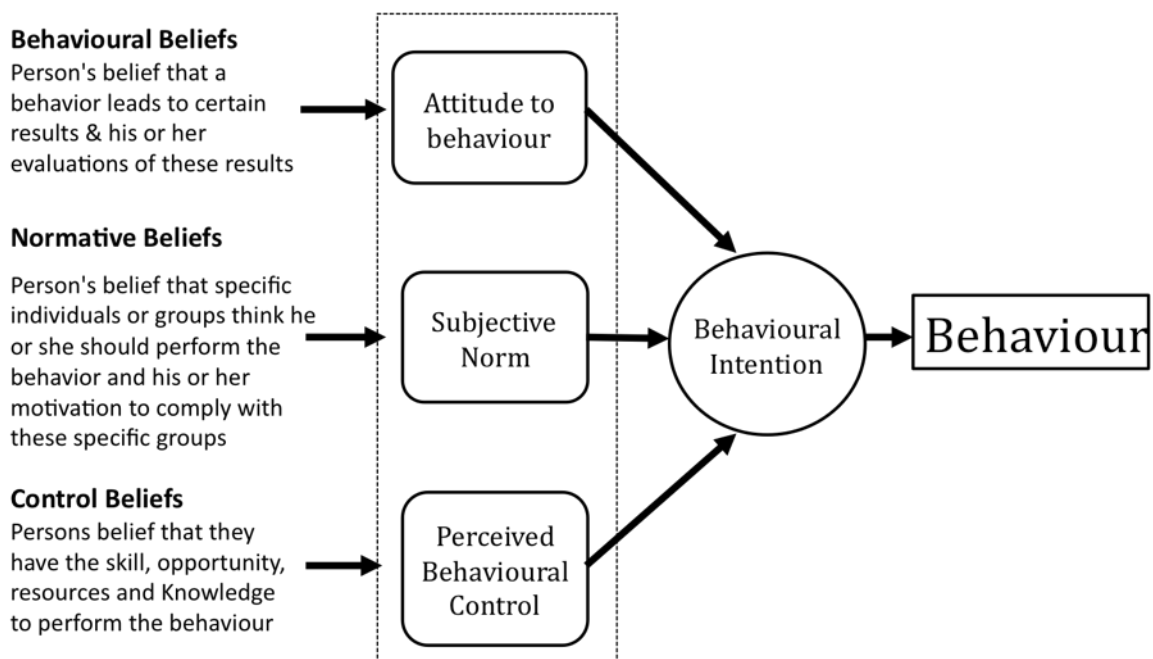


Figure 1. The theory of planned behaviour diagrammatic model (Ajzen, 2006)

The theory of planned behaviour emerged from the theory of reasoned action, as a response to initial limitations concerning behaviour that people do not have complete volitional control over (Ajzen, 2010). The importance of actual behavioural control dictates that the person's available resources and opportunities will, to some extent, determine the likely achievement of the behaviour. In theory of planned behaviour, the perception of behavioural control and its influence on intentions, belief and action is of greater psychological interest than actual control. The addition of perceived behavioural control is what differentiates the theory of planned behaviour from the theory of reasoned action (Ajzen, 1991).

Theory of planned behaviour contends that human action is guided by three kinds of beliefs: (i) behavioural beliefs, which are beliefs about the likely outcomes of the behaviour and the evaluation of these outcomes: this produces a favourable or unfavourable attitude toward the behaviour; (ii) normative beliefs, which are the beliefs about the expectations of others and the motivation to conform with these expectations: this results in the subjective norm; and (iii) control beliefs, which are beliefs about the presence of factors that may assist or impede performance of the behaviour and the

perceived control of these factors: this gives rise to the perceived behavioural control (Ajzen, 2010). The central factor of theory of planned behaviour is the individual's intention to perform a given behaviour. In theory of planned behaviour, intentions are assumed to be a sum of the above beliefs, capturing the motivational factors influencing behaviour. The strength of these intentions is an indication of the likelihood of one performing the behaviour. It has to be said that a person needs to have volitional control over the behaviour in question for the intended behaviour to be realised (Ajzen, 1991).

Attitudes toward the behaviour, subjective norm and perceived behavioural control are shown to be related to the respective behavioural, normative and control beliefs by salient responses. These salient responses must be obtained directly from the participants. The exact nature of these relations is uncertain, and expectancy value formulations have only been partly successful in dealing with this (Ajzen, 1991). As a model of attitude-behaviour relationships, theory of planned behaviour has been widely applied to predict a variety of behaviours, such as voluntary blood and organ donation (Sheeran, Orbell and Trafimow, 2008), and has met with some degree of success (Conner and Armitage, 1998). It has also been found that past behaviour and habit influences current intention and behaviour (Forward, 2009).

Various factors must be taken into account when examining a theory of planned behaviour response. These include social schemas, mood and disposition. Social schemas are organised clusters of ideas about social events and people. Some schemas are unique to an individual's personal experiences, while others are a product of shared cultural backgrounds. Stereotypes fall in to the latter category, and are widely held beliefs that people have certain traits or characteristics because they belong to a particular group (Weiten, 2007).

Anticipatory socialisation and organisational citizenship behaviour are other group thinking dynamics to be taken in to account. Anticipatory socialisation is the practice of acquiring information and knowledge about a group or organisation before one becomes an official member. In this instance, individuals are more likely to observe norms, characteristics and habits of the group they wish to become part of (Sheeran, Orbell and Trafimow, 2008). Research has established a positive relationship between organisational identity and behaviours directed towards the organisation and its members. This phenomenon is referred to as organisational citizenship behaviour: it has been found to predict cooperation, extra-role behaviours and loyalty, helping to maintain and enhance the social and psychological contexts related to task performance. In other words, these behaviours contribute positively to the organisation's goals, but are generally outside the specific performance of the task (Enns and Rotundo, nd).

Personality traits or participant disposition can have an effect on the underlying relationships crucial to theory of planned behaviour. It has been shown that intentions corresponding to the schemas or self-perceptions of participants are more likely to become realised as behaviour. For example, when individuals see themselves as fit and healthy their intentions to exercise are more likely to relate to actual behaviour (Sheeran, Orbell and Trafimow, 2008). Participant mood can affect the extent that attitude toward the behaviour, social norms and perceived behavioural control affects intentions. It has been found that when a person experiences negative mood states, attitude toward the behaviour was more likely to relate to intentions than to social norms. When experiencing positive mood states social norms were more likely to relate to intentions (Sheeran, Orbell and Trafimow, 2008).

To illustrate the relevance of the theory of planned behaviour, we draw on the case study of marine pollution posters, designed and implemented by the Australian Marine Safety

Authority (AMSA) in an effort to address a real problem of wildlife impacted by discarded materials (oil, nets etc.) from fishing trawlers. The campaign was supported by a highly technical brochure and posters featuring a scantily-clad, muscle-bound male-model covered in oil or entangled in netting strategically draped over him (Figure 2). The posters were distributed to trawlers, to be placed on display. The campaign failed. Why should this be? Which part of the theory of planned behaviour hierarchy links failed (Figure 3): the beliefs to attitudes, norms or perceived controls? The links to behavioural intention? The intention to behaviour link? While the posters represent an intervention between behavioural intention and behaviour, clearly designed to influence a change in behaviour, their putative success would be better described in terms of influencing change in attitude, norm and perception, themselves requiring change in beliefs. However, the AMSA officers who designed and implemented this part of the campaign did not take into account the target audience, trawler deckhands. In other words, they misunderstood the influences on behavioural intent, the attitudes, norms and perceptions, and their underlying beliefs. It is likely they did not consider which part of the processes the posters were targeting. The target audience, trawler deckhands, had generally left school before the age of 15, have poor communication skills, and have a resentment for bureaucrats which is part of the culture. There may be other characteristics that are crucial; they are also generally homophobic and ill-inclined to publicly admire such a poster or to pin it on the only available wall space on a trawler big enough to take it (the inside of the toilet door). Not only would their attitudes to behaviour, their norms, their behavioural controls and intentions be in conflict with the intended response to these posters, but the posters provided an affront to their very beliefs.

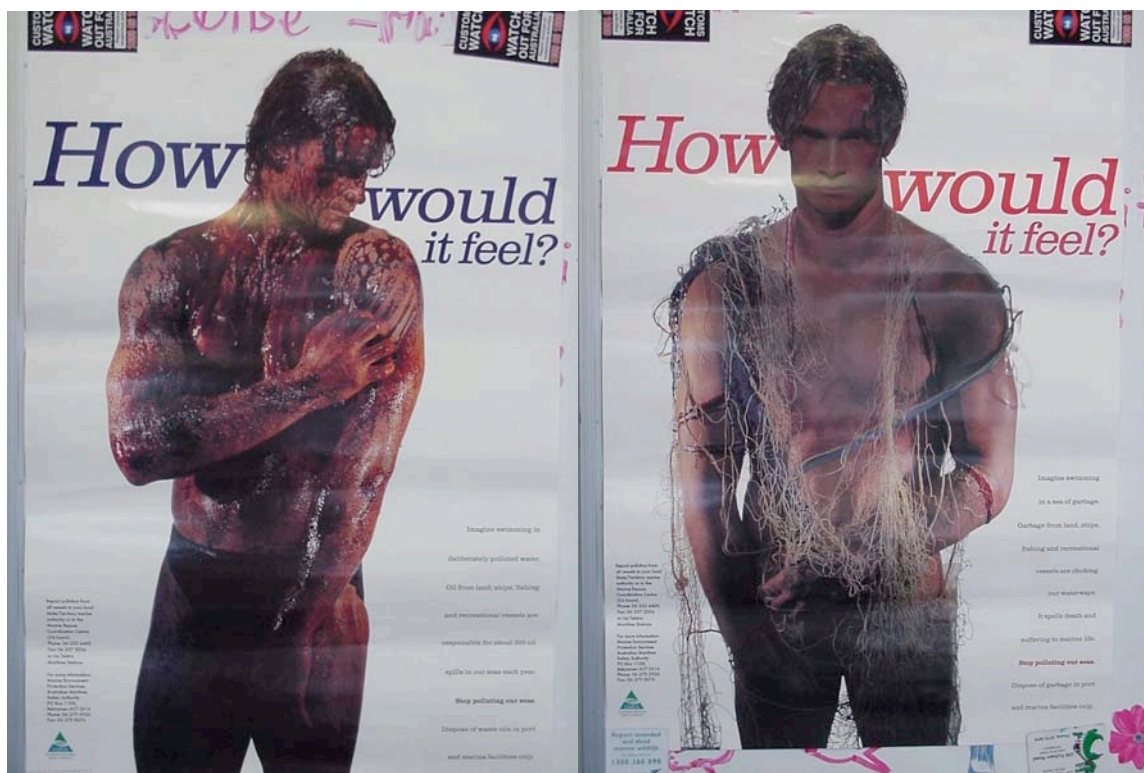


Figure 2. Environmental management compliance education posters, designed and used by the Australian Maritime Safety Authority on fishing boats in the Great Barrier Reef Marine Park

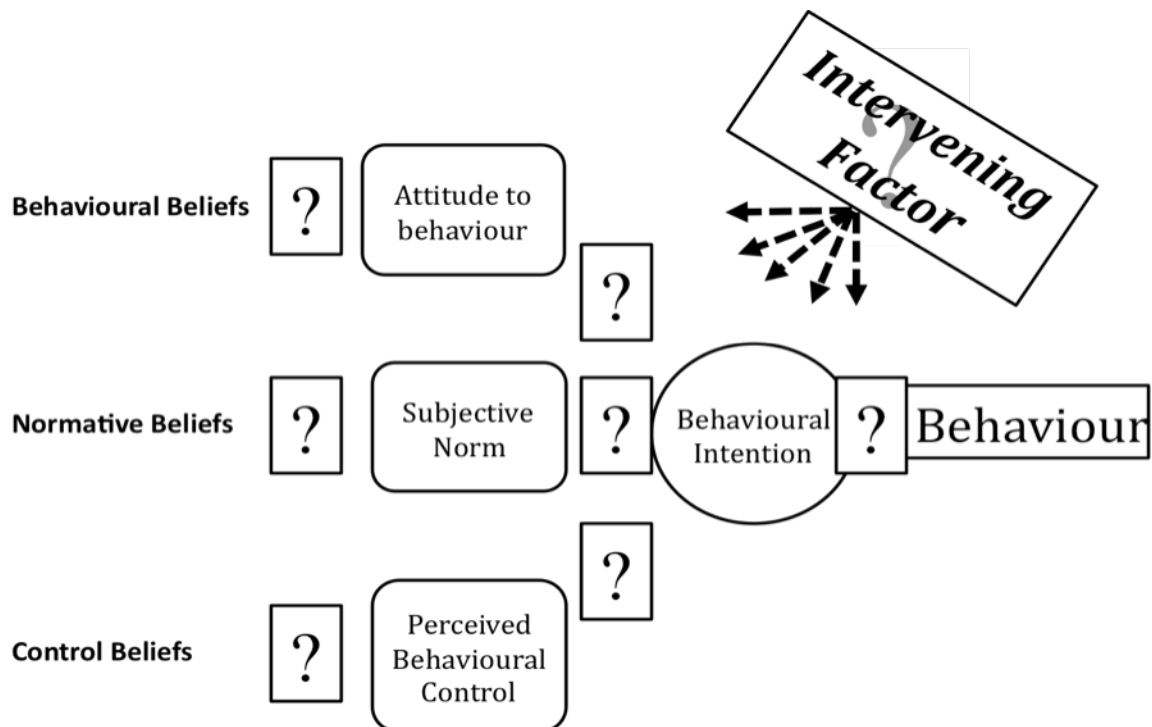


Figure 3. Role of the intervening factor – in this case, the marine pollution communication campaign – viewed through the theory of planned behaviour lens: where was it planned to intervene, and where did it actually intervene?

If we step back further, and return to external measures of communicative effectiveness, the analysis derived from the theory of planned behaviour takes further shape. Measham et al.'s (2011) study of official-community communication in isolated communities demonstrated the importance of communication being relevant to socio-cultural context in which it is conducted. Clearly, this campaign, while trying to address the limitations of a very specific geographical boundedness – the islandness of the fishing trawler, and its distinctive social constraints – ignored the very real social and, especially, cultural context: the target audience has a very specific and identifiable cultural identity, mediated by equally specific social (and temporary geographical) conditions. Alignment between the poster and these conditions may, in the one hand, have been good – the notion of poster graphics as being relevant communication to certain social groups is valid. However, in this case it was compromised by the reliance of overly-clever text that was, therefore, unreadable, at least by the intended audience. Furthermore, the specifics of the graphic – the scantily-clad, muscle-bound male-model – did not align at all with other socio-cultural characteristics of the target audience. In this regard, the agency was displaying its distance from Measham's second set of important characteristics of successful communication. By misunderstanding the culture of the audience – in theory of planned behaviour terms, its beliefs, attitudes, norms and intentions – it was unable to build the trust, sense of audience ownership and transparency required to successfully share its message. In Haigh's (2011) terms, it had failed to invite the audience into the experience of sharing knowledge, and thus was unable to effect change in the audience behaviour. By alienating the audience through both inappropriate and, worse, provocative imagery, and unreadable or incomprehensible text, the agency was ensuring that the intended audience "learning [would not be] enhanced [since the] learners are positively [dis]encouraged or [dis]'invited' into the educational experience" (to adapt and thus misquote Haigh, 2011: 299). In tandem with Measham et al.'s contribution to our insight, Haigh provides clarity on the underlying reason for lack of communication success in this instance: the key principles of good communication have been flaunted:

the fundamental approach to campaign design ignored the intended audience, that is showed a lack of the necessary respect for the audience and its culture. By doing this it could build no trust, and thus neither cooperation and a sense of community, which in turn disallowed opportunity to either influence the behavioural intention or change the consequential behaviour. While, in Haigh's terms, we might argue that the campaign certainly expressed 'optimism about untapped potential of each learner', its intentionality was simply misdirected.

## Conclusion

As the case study demonstrates, much communication is developed to appeal to the value of the message creators or their peers, and the medium selected to communicate the message falls within their comfort zone. Yet, to be effective, communication for compliance must understand the belief system of the intended recipient of the message, and target the message at a level the recipient is comfortable with, in a culturally appropriate manner. Failure to do this will mean, at best, the message is ignored; at worse, an opposite and negative reaction is precipitated. Theory of planned behaviour provides a tool to assist communicators in developing messages and managers to identify the underlying issues in an environmental management debate.

## Bibliography

Ajzen, I and Fishbein, M (1980) *Understanding Attitudes and Predicting Social Behaviour*, Englewood Cliffs, NJ: Prentice-Hall

Ajzen, I (1991) 'The Theory of Planned Behavior', *Organizational Behavior and Human Decision Processes* v50: 179-211

Ajzen, I (2010) *Constructing a TpB Questionnaire: Conceptual and Methodological Considerations*, September, 2002 (Revised January, 2006) – <http://www.people.umass.edu/aizen/pdf/tpb.measurement.pdf>

Anderson, B (1999) *Presentation on the Fisheries Management and Enforcement Programs of the Australian Fisheries Management Authority*, Fisheries Training Notes: Australian Fisheries Management Authority

Clark, C W (1990) *Mathematical Bioeconomics, the Optimal Management of Renewable Resources*, New York: John Wiley and Sons

Conner, M and Armitage, C J (1998) 'Extending the Theory of Planned Behavior: A Review and Avenues for Further Research', *Journal of Applied Social Psychology* v28: 1429-1464

Enns, J and Rotundo, M (nd) *Intergroup Conflict and Group Targets of Organizational Citizenship Behaviour*, Ontario, Canada: Joseph L Rotman School of Management, University of Toronto

Fishbein, M and Ajzen, I (1975) *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*, Reading, MA: Addison-Wesley

Forward, S (2009) 'The Theory of Planned Behaviour: The Role of Descriptive Norms and Past Behaviour in the Prediction of Drivers' Intentions to Violate', *Transportation Research Part F: Traffic Psychology and Behaviour* v12 n3: 198 -207

Griffin, E (2008) *A First Look at Communication Theory*, New York: McGraw-Hill

Haigh, M (2011) 'Invitational Education: Theory, Research and Practice', *Journal of Geography in Higher Education* v35: 299-309

Refereed papers from the 7<sup>th</sup> International Small Islands Conference, Airlie Beach, Whitsundays, Queensland, June 12-15 2011  
<http://sicri-network.org/>

- Ham, S (2003) *Theory of Planned Behaviour*, Melbourne: Interpretation Workshop, Monash University, Berwick Campus
- Hatcher, A, Jaffry, S, Thebaud, O and Bennett, E (2001) 'Normative and Social Influences Affecting Compliance with Fishery Regulations', *Land Economics* v76 n3: 448-461
- Kellehear, A (1993) *The Unobtrusive Researcher: A Guide to Methods*, St Leonards: Allen and Unwin
- Littlejohn, S W and Foss, K A (2008) *Theories of Human Communication*, Belmont: Thomson Wadsworth
- Marshall, C A R (1995) *Designing Qualitative Research*, Thousand Oaks, CA: Sage
- Maykut, P and Morehouse, R (1994) *Beginning Qualitative Research: A Philosophical and Practical Guide*, London: The Farmer Press
- McQuail, D (1987) *Mass Communication Theory: An Introduction*, Thousand Oaks: Sage
- Measham, T G, Richards, C, Robinson, C J, Larson, S and Brake, L (2011) 'Genuine Community Engagement in Remote Dryland Regions: Natural Resource Management in Lake Eyre Basin', *Geographical Research* v49: 171-182
- Sheeran, P, Orbell, S and Trafimow, D (2008) 'Self-schemas and the Theory of Planned Behaviour', *European Journal of Social Psychology* v30: 533-550
- Viswanathan, K K, Abdullah, N M R, Susilowati, I, Siason, L M and Ticao, C (1997) 'Enforcement and Compliance with Fisheries Regulations in Malaysia, Indonesia and the Philippines', *Research Reports of the Fisheries Co-Management Research Project* v5: 38
- Weiten, W (2007) *Psychology: Themes and Variation*, California: Wadsworth