Indigenous Learning Approaches for/from Sea Country

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Abstract

A commitment to learning about local and traditional knowledge has been crucial for coastal management in regions where Indigenous people live and depend on coastal resources. They have local knowledge that is increasingly becoming a significant part of the learning collaboration in coastal management but how this knowledge is learnt and influenced in coastal management has not been researched to any great extent. This paper provides an attempt at synthesizing the literature around Indigenous approaches of learning from Sea Country. It begins by discussing the different learning principles and theories and investigates this in the context of natural resource management (NRM) and Indigenous coastal management. It then looks at traditional ecological knowledge (TEK) as a process of learning and the different Indigenous learning approaches and learning styles documented in literature to outline the knowledge gap in learning for Sea Country management in Australia. This paper therefore provides the basis of what influences, drives and motivates Indigenous coastal communities in Australia to learning for/from Sea Country.

Introduction

Learning is essential for natural resource management (NRM). This is evident in the contemporary concept of adaptive management, where learning is fundamental to the process. Learning has been proposed and used by scholars of NRM, such as Hollings (1978) and Walters (1986), to help environmental decision-makers and managers increase knowledge acquisition rates, facilitate information flow among policy actors and create shared understanding among scientists, policy makers, managers and resource users. Learning builds the adaptive capacity of individuals or groups to make better decisions (Pahl-Wostl 2009) in NRM situations. In Australia, Sea Country planning by Indigenous Australians has become a useful process whereby traditional owners or the local Indigenous people develop their goals, strategies and actions for protecting their coastal and marine environment resources. However, Jackson (1995) argues that there is a mismatch between management approaches of Indigenous and Euro-centric societies. She describes Indigenous people as having more subjective, intangible and highly distinctive values of their relationship to water that do not usually translate into Euro-centric environmental management frameworks. Yunupingu and Muller (2009) discuss similar cross-cultural challenges for Indigenous sea country management. They argue that there is an ontological divide between Indigenous traditional ownership of sea country and Euro-centric notions of the sea belonging to everyone, which had surfaced when discussing management actions such as sea closures. NRM and Sea Country consultants therefore propose preconditions for reconciling Indigenous and non-Indigenous perspectives on sea management (Smyth 1993; Smyth 1994; Smyth 1995; Smyth 1997). These preconditions are recognition and respect for those differing culturally-based perspectives, and putting more effort into cross-cultural awareness and training of ocean managers, planners and policy makers to assist them in recognizing and respecting Indigenous approaches to coastal management that are based on customary sea country practices. Sharp (2002) in her book "Saltwater people" refers to this as a "two-way learning" between the cultures.

Principles and theories of learning

Literature describes learning depending on the different disciplines and on specific contexts and scales. A broad definition of learning is the acquisition and transmission of information, knowledge and understanding for the purpose described by UNESCO as, to

know, to do, to live and to be (Delors 1996). Ackoff (1996) distinguishes between information, knowledge and understanding as;

- information "the products of observations or the who, what, where, when and how many",
- knowledge as the "know-how or how things work" and
- understanding as the "explanations of why" so learning is the acquisition of information, knowledge and understanding.

Classical theories of learning are described by Klein (1987) in two general categories. The first is the mechanistic approach which is where experience governs human behaviour (Thorndike 1913; Watson 1913; Watson 1924; Thorndike 1932; Pavlov 1935; Skinner 1968; Skinner 2000) and the second is the mentalistic approach where behaviour is attributed to the inborn instincts (Vygotsky 1978; Piaget 1999). Conventional learning theory on the other hand is a complex interaction of the mechanistic and the mentalistic approaches to learning (Klein 1987). It has a humanistic perspective where learning is motivated by people's inherent desire to learn and fulfil their different potential which is different for adults compared to children because of their increased maturity (Rogers ; Maslow 1946; Maslow, Frager et al. 1970; Knowles 1978). It involves social learning which Bandura (Bandura 1969; Bandura and Press 1997; Bandura 1999) describes as learning that is influenced by social and cultural interactions. This develops one's communication, negotiation, debating skills, empathy or compassion with others, a sense of community and appreciation for other's worldviews. Contemporary learning is also influenced under different situated contexts where individuals experience learning such as a family home, as an Indigenous clan group, as a church group or sports club (Lave and Wenger 1991).

These different learning theories have been used to generalize the ways in which most people learn however writers of Indigenous psychology claim that these learning theories have been based on western cultures and cannot be applied to an Indigenous cultural context (Gergen, Gulerce et al. 1996). They explain Indigenous psychology as how people think, feel and behavior in a particular context, examing their knowledge, skills and beliefs people have about themselves and studying these aspects in their natural contexts (Kim 2000; Gegeo and Watson-Gegeo 2001; Kim and Park 2005; Kim and Hwang 2006; Kim and Park 2006). They describe Indigenous epistemologies as a cultural group's way of thinking, and of creating, reformulating and theorizing about knowledge via their traditional discourses and media of communication anchoring the truth of discourse in their culture (Gegeo and Watson-Gegeo 2001).

Learning in NRM

Different concepts of learning appear in NRM literature and some seem to follow a continuum of change according to different levels of acquisition, understanding and transmission of the information, knowledge and understanding.

The first kind of learning is experiential learning which was first described by Kolb (1984) as where knowledge is created through the transformation of experience and follows a cycle where learning is iterative, reflective and contextual. For example, a fisherman or hunter becomes skilful through increased direct experiences. Experiential learning,

although modelled on individual learning process, can also be applied to a groups' process (LMMA 2004; Keen and Mahanty 2006; Armitage, Marschke et al. 2008). Another kind of learning is described by transformative learning which results in a complete change of behaviour (habits of minds and points of view). It is derived from adult learning theory assumptions that learning does not stop with adolescence and that learning in adulthood is based on reassessing assumptions from a learner's formative years (Mezirow 1997; Olsson, Folke et al. 2004; Armitage, Marschke et al. 2008). Instrumental and communicative learning are also concepts that support the notion of transformative learning (Van der Veen 2000). Instrumental learning involves task-oriented, problem-solving actions to improve the performance of current activities (Armitage, Marschke et al. 2008) and communicative learning is constructing with others a joint composition of interpretation and understanding of a subject (Van der Veen 2000). Transformative learning, although largely modelled around individual learning behaviours (Armitage, Marschke et al. 2008), can also be used to inform group learning processes (Marschke and Sinclair 2009). An illustration of this is where engagement of resource management work by committee members of fishing villages in Cambodia increased as a result of a participatory resource management project (Marschke and Sinclair 2009).

Bandura (1999) defines social learning as learning via observations, imitation, and modelling; that is, from observing others, one forms an idea of how new behaviours are performed, and on later occasions this coded information serves as a guide for action. The social learning process occurs when that change in understanding has taken place in the individuals involved and that this change goes beyond the individual and becomes situated within wider social units and communities of practice; and occur through social interactions and processes between actors within a social network. Social learning and adaptive management have been identified as key elements for community based natural resource management (CBNRM) because stakeholders learn together and from each other, work collectively to address complex coastal management issues through action-reflection-action cycles, enabling stakeholders who are social learners to apply their new learning and improve actions (Gruber 2010; Vernooy 2010). The adaptive learning approach describes further the learning concepts above by describing a method for capturing the whole two-way learning process between people and their socio-ecological environment (Davidson-Hunt 2003; Davidson-Hunt and Berkes 2003). It is the learning that is not only the driver of adaptive management but also its product (Davidson-Hunt and Berkes 2003). Finally there is sustainability learning which has been defined by Tabara and Phal-Wostl (2007) as learning that develops the capacity to create options for the adaptation. This was illustrated by Thomsen (2008) as outcomes of self-awareness, social awareness and socio-ecological awareness of NRM participants.

Learning has also been described as a paradox (Armitage, Marschke et al. 2008) because although learning has been emphasized as a key theme in NRM, the ideas of learning are loosely encouraged and there hasn't been enough careful examination of the who, what, where and how the learning actually occurs. Even more significant are the questions of how learning occurs in the Indigenous context of coastal management.

Indigenous coastal management.

One of the driving principles behind Indigenous coastal management is the concept of custodianship (Jull and Kajlich 1999). Generally, Indigenous cultural philosophy is based around the interconnectedness between the three interactive worlds (physical, sacred and human worlds) (Foley 2003). Rose (1996) talks about how people talk to country the same way they would talk about a person. *"...they speak to country, sing to country and long for country*...". This is based on the perspective that people do not own the land but the land owns them and the land/sea is their food, culture, spirit and identity, which they have to protect and conserve (Rose 1996). It is through this kind of knowledge acquisition, transmission and socialization that worldviews are constructed and customary practices

are established to shape the culture and the society (Ruddle 2000). This knowledge learning process is interwoven into social, political and kinship structures primarily to reinforce individual and collective wellbeing and to ensure the protection and sustainability of the physical environment (Smylie, Martin et al. 2004).

Indigenous communities have acquired and transmitted information, knowledge and understanding over generations (Berkes and Davidson-Hunt 2006). Indigenous management practices are therefore based on their traditional ecological knowledge or TEK which is defined by Berkes (1993; Berkes, Colding et al. 2000) as "A cumulative body of knowledge, practice and belief evolving by adaptive processes and handed down through generations by cultural transmission about the relationship of living beings with one another and with the environment.

TEK – a learning process in coastal management.

Berkes (2009) discusses how TEK has also been described as a process rather than content where traditional elders do not actually transmit TEK but teach ways of observing, discussing and making sense of new information. This was referred to by Muir (1998) as the cultural basis of resource management or the relationship between people, country and resources. TEK is a significant learning process because it is adaptive by nature (Berkes, Colding et al. 2000; Davidson-Hunt and Berkes 2003), i.e. it accumulates incrementally, it is tested by trial and error and transmitted to future generations orally or by shared practical experiences. Indigenous knowledge (IK) or TEK institutions have also been described as a key characteristic of adaptive learning because they provide a model for adaptive learning based on the knowledge that resides in the land/sea which is progressively revealed through experience in the land (Davidson-Hunt and Berkes 2003). In contemporary approaches to coastal management, Indigenous people, with knowledge developed out of their adaptive learning mode, have proven to be active participants in the co-production of new NRM knowledge through social learning forums (Davidson-Hunt 2006). TEK is increasingly being integrated into contemporary coastal management to enhance learning (Berkes, Colding et al. 2000), for example oral narratives have been used to explore historical events and provide information about changes in migration routes, changes in population of different fish species. It has also been documented that local-based management, or management based on IK or TEK, have beneficial impacts on marine and coastal environments compared to a community-based plan with a top-down approach to conservation (Johannes 2002; Aswani and Hamilton 2004; Foale 2006; Hickey 2006).

Learning pathways have however changed because of new techniques and technology and the change in roles of knowledge-holders due to change in belief and governance systems today (Ohmagari and Berkes 1997). For example, traditional skills have not being transmitted to younger generations today because they no longer seem essential. The magnitude of loss of IK or TEK among Indigenous people has been compared in importance to the loss of biodiversity (Gadgil 1987; Ohmagari and Berkes 1997), yet few studies have been carried out to explore the nature of their transmission processes.

Indigenous learning approaches and learning styles to coastal management.

The transmission of TEK/IK begins with stories as the base units of knowledge, then proceeds to knowledge as an integration of the values and processes described in the stories, and culminating in wisdom, an experiential distillation of knowledge dissemination (Smylie, Martin et al. 2004). In Australia, knowledge is land or sea based and is graded by age, some of it is demarcated by gender and almost all of it is identified with country (Rose 1994). It is a personal authority or achievement and is performed and transmitted through song, dance, story, history and the use of country (Rose 1994).

Ruddle (1993) provides a general description of how TEK is transmitted from generation to generation. He says that TEK is transmitted;

- in age divisions;
- through adults who teach different tasks in similar and systematic manners;
- through tasks that are taught in a sequence ranging from simple to complex in different contexts;
- through tasks that are gender specific and taught by members of the appropriate sex;
- through teaching which is set aside in specific periods;
- through tasks that are taught by particular kinship folk, usually one of the learner's parent, aunt or uncle; and
- rewards or punishments associated with the tasks.

Indigenous approaches to learning have not only been described as just a process but also a moral and holistic process (Snively and Corsiglia 2001; Davidson-Hunt and Berkes 2003). For example learning methodologies such as observing, questing, inferring, predicting, problem solving, classifying, monitoring, interpreting and adapting are guided by the traditional wisdom such as respect, ethics, controls, sharing, harmony, reciprocity, holism and spirituality. The methodologies and traditional wisdom are then integrated in a local cultural perspective to result in long term sustainable societies (Snively and Corsiglia 2001). It is this moral, holistic approach that provides a key understanding of Sea Country in that the sea is an inseparable part of Aboriginal country and there is a cultural, spiritual, ceremonial, territorial and economic connection between Aboriginal people and the sea (Smyth 1993).

Literature on Australian Aboriginal learning styles is mainly focused around improving pedagogy in education which may indicate some Aboriginal learning styles to NRM. For example Harris (1984) described the Yolngu learning in contrast with Western oriented approaches as more through observation, imitation, and verbal instruction. It is more toward oral than written, more through personal trials, and usually accompanied by demonstration and learning through mastering context-specific skills in contrast to education systems which seek to teach abstract content-free principles and can be applied to new previously inexperienced situations. Yolngu learning was also described as learning through a more-person-oriented context in contrast to a more-information-oriented context. A model of aboriginal pedagogies based on cultural values was developed by Yunkaporta (2009) to better engage with Aboriginal learning processes was. These were listed as; connecting through stories (story-telling), picturing path ways of knowledge (learning-maps), seeing, thinking, acting, making and sharing without words (non-verbal), keeping and sharing knowledge with art and objects (symbols and images), working with lessons from land and nature (land-link), putting different ideas together and creating new knowledge (non-linear), working from wholes to parts, watching and then doing (deconstruct/reconstruct), and bringing new knowledge home to help the mob (community links).

Aboriginal learning approaches to NRM and coastal management are therefore part of complex or interrelated factors that have not been documented to a great extent in literature. More research is needed to understand better the Indigenous learning approaches that have been practiced over generations that have translated into the adaptive customary marine management practices for Sea Country today.

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