

Learning as an Intended Outcome of Impact Assessment

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Abstract

This paper explores how project developers and their consultants, government regulators and stakeholders can learn from the impact assessment (IA) process, thus potentially improving its effectiveness and enhancing project sustainability. Despite the benefits that learning can bring to an organization, failure to learn appears commonplace both within the IA process and, once approved, subsequent industrial development. To nurture organizational learning through IA, enabling structures that foster information sharing and interpretation and enhance organizational memory are needed. In our paper learning outcomes are grouped into three categories: acquisition of knowledge and skills, developing new behaviors and developing sustainability-oriented norms and values. Means to achieve such outcomes include education and training, experiential learning, learning through public participation (social learning) and a 'learning organization approach'. We propose that learning be treated as a purposeful outcome of IA, facilitated by adopting a 'learning organization approach' and coupled with best practice such as early stakeholder engagement.

1. Introduction

The acquisition, interpretation and use of knowledge have always been key ingredients of impact assessment (IA). More specifically, knowledge of the existing social and environmental conditions and of the predicted impacts of a proposed development is essential to IA 'best practice'. In assessing the impacts of a proposed development, an interdisciplinary IA team combines the knowledge, skills and competencies of each team member in order to: (1) identify direct, indirect and cumulative impacts and risks; (2) make predictions on the future state of the environment both with and without the proposed project; (3) assess the significance of impacts, considering the perspectives of affected communities, civil society organizations, government agencies and other stakeholders; and (4) make recommendations on effective means to mitigate (avoid, reduce, restore or compensate) harmful impacts and to enhance beneficial ones.

While knowledge in IA practice is well established, comparatively less attention has been paid to the role that learning plays, or *could* play, in the IA process. Indeed, recent reflections on the effectiveness of IA - a recurrent theme in the literature - consider knowledge and learning alongside other effectiveness criteria (Bond et al., 2013). Knowledge tends to get higher visibility, partly due to the prioritization and application of evolving knowledge tools such as remote sensing, airshed modeling and other technological advances to capture and describe baseline conditions and impacts. In practice, learning appears more often in the 'softer' aspects associated with IA such as in the post-approval phases of development where adaptive management planning is increasingly practiced (Walkerden, 2005). Many questions remain. For example, how has learning been integrated into IA practice? Can it be explicitly treated as a desired outcome of knowledge sharing or co-creation? Can robust, mutual learning be achieved within a strict IA timeframe among diverse affected communities and other stakeholders, IA specialists and the proponent?

In this paper³, we enquire how project proponents and their consultants, government regulators and stakeholders can learn throughout the IA process, thus potentially improving its effectiveness, with arguably more sustainable outcomes. While recognizing that learning is relevant to all levels of IA, from policy to project, we focus mostly on IA from a project level perspective. Our paper is structured around three questions: (1) who can learn in IA?; (2) what are the possible learning outcomes?; and (3) how can learning be achieved? A table and conclusions are presented in the final section.

2. Agents of Learning in Impact Assessment

Learning is an ample concept with several meanings depending on the ontological context (e.g., educational, political, cultural). It is commonly described as some kind of activity or process of

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gaining knowledge or skill (Merriam-Webster, 2015). In the management field, learning is defined as “increased capacity to take effective action” (Kim, 1993, p. 38). Learning is also goal-oriented, and often treated as a process of acquiring not only new knowledge and skills, but also new behaviors and values. Although individual knowledge learning underpins IA, collective levels of learning such as group, organizational and social learning are fundamental to its practice. Impact assessment is typically undertaken by consultant firms under contract with a project proponent and has to conform to applicable regulations and company policies or standards. External expert and public review are part of the process, while early public engagement is a generally recommended best practice.

Various hierarchical and other conceptualizations illustrate how learning can occur at various levels or degrees within a group or organization. Following Argyris and Schön (1996), the literature distinguishes between single- and double-loop learning. Single-loop level learning focuses on actions and results, or ‘adaptive learning’ which is necessary for the organization to survive; namely, acting to change behavior, or what is commonly referred to as ‘change management’ (also adaptive management in the context of resource development). When a mismatch between action and outcome is detected, future actions are altered accordingly in order to prevent similar mistakes. In contrast, double-loop learning occurs when serious problems are detected and the organization’s norms and values are changed as a consequence. It focuses on the actions and the assumptions behind the actions, or ‘generative learning’ necessary for the organization to thrive.

Single-loop and double-loop learning in groups or organizations can also be considered within a collaborative learning environment. Among the first to describe collaborative learning, Daniels and Walker (1996) conceptualized it as a model for effective public participation in natural resource planning and policy-making. The collaborative learning approach “emphasizes activities that encourage systems thinking, joint learning, open communication, and focuses on appropriate change” (p. 81). Since “no single party, agency, organization or discipline holds the key to understanding a particular resource management situation” (p. 75), it is crucial that the various participants learn from one another. Whatever the case, shifting from single to double or triple learning requires support throughout the organization.

Social learning is yet another construct which has been conceptualized in many ways, resulting in some confusion and criticism. For example, according to her review of social learning in research on natural resource management, Rodela (2011) notes three divergent research approaches: (1) an individual-centric perspective (participatory); (2) a network-centric approach (group and organizational), and a systems-centric (social-ecological system moving toward a more sustainable trajectory). Building on Habermas’s theory of ‘communicative action’, Webler et al. (1995) consider social learning as a ‘cooperative discourse’ when communities of people with both diverse and common interests can reach agreement on collective action to solve a shared problem. With their conceptual framework akin to the systems-centric approach described by Rodela (2011), Sinclair et al. (2008) treat the IA process as “an essential element of socio-ecological governance”, with potential to enable individual and social learning outcomes, which, in turn, is needed in the “transition to sustainability” (p. 419).

3. Achieving Learning Outcomes in Impact Assessment

Knowledge and skills relevant to IA can be acquired in various ways; for example, by education, training, experience (experiential knowledge), by study or research (usually referred to as scientific knowledge), by cultural rules and norms (traditional or generational knowledge) and by interaction of people with their biophysical environment (local knowledge). Building from this premise, at least three main paths exist for acquiring knowledge and skills for IA practice: (1) tertiary education and professional training, including continuous or adult education; (2) experiential learning, whether passed on by other IA specialists or gained through ‘hands-on’ experience; and (3) research. Any of these paths offer opportunities for learning.

In the first path, IA professionals come from a range of disciplines, including the natural and social sciences, engineering and health professions. Formal IA teaching is now widespread, featuring a common set of principles and practices. Universities and colleges in many countries teach some form of IA, especially Environmental Impact Assessment (EIA), in departments such as regional planning, geography, environmental sciences and environmental engineering. Still, many IA professionals enter the field without prior formal exposure to the discipline. On-the-job training and capacity building are

preferential forms of disseminating IA knowledge, skills and tools. Effective ways of delivering training have been extensively discussed at the annual conferences of the International Association for Impact Assessment (IAIA) and reviewed in the early EIA literature (Bisset and Tomlinson, 1985; Lee, 1988).

Learning from experience and from seasoned professionals is arguably the backbone of IA. Knowledge and skills *for* IA are outcomes of instrumental learning by individuals and groups professionally involved in IA. Still, IA is not the exclusive realm of professionals or researchers. Various forms of knowledge are relevant for IA, ranging from those of a more personal nature (e.g., lay, tacit or implicit knowledge) (Polanyi, 1958; 1997) to those that are embedded in and interact with traditional cultural rules and norms, such as traditional (Berkes, 1993; Stevenson, 1996) and local knowledge (Baines et al., 2003; Raymond et al., 2010). The latter is not necessarily ‘traditional’ from an indigenous or ethnic view, but has evolved “from the interaction of the people’s cultural values and social organization with the physical environment in which they dwell” (Baines et al., 2003, p. 26).

Public participation in IA is credited with facilitating social learning (e.g., Glucker et al., 2013; O’Faircheallaigh, 2010) and evidence from different jurisdictions supports this understanding. For example, Webler et al. (1995) for a waste disposal facility in Switzerland, Chávez and Bernal (2008) concerning hydroelectric development in Mexico, Saarikoski (2000) concerning waste management plans in Finland, and Sinclair et al. (2008) in their review of previous studies of different types of projects in Canada. Webler et al. (1995) consider that the criteria of “good public decision-making processes” (p. 444) are fairness, competence and social learning. Although they don’t use the term ‘transformative’, by conceptualizing social learning as made of both cognitive enhancement and moral development, we can approximate the ability “to make judgements about right and wrong” (p. 446) to transformation arising or associated with participating in the IA process. Having studied the IA process for a waste management facility – a classical NIMBY or ‘not in my backyard’ project –, they concluded that “to effectively cope with the tendency for people to want to pursue egoistic aims before collective ones” (p. 460), public participation should foster social learning.

Finally, IA can be conceived as a tool and process with potential for sustainable outcomes. As the primary purpose of IA is to influence decision-making towards sustainability, and possibly deliver more sustainable outcomes (Sinclair et al. 2008; Morrison-Saunders and Retief, 2012), it has been argued that IA has potential to be a powerful educational tool. Diverse decision-makers (project proponents, regulators and others), as well as affected and interested parties (i.e., stakeholders) and the public at large, can learn through the IA process. From a learning perspective within the context of IA, combined with a drive for sustainability in project design, construction and operations, two essential factors that could facilitate sustainable-learning outcomes are changing behaviors and transforming organizations.

Table 1. A Taxonomy of Learning in Impact Assessment

| Questions | Categories |
|---|--|
| Who can learn? [learners] | <ul style="list-style-type: none"> • All participants in the impact assessment process as • individuals, groups or organizations |
| What can be learned? [learning outcomes] | <ul style="list-style-type: none"> • Skills and knowledge (single-loop learning / instrumental learning / improving performance within existing processes) • New behaviors (double-loop learning / improving the process) • Norms and values (triple-loop learning / transformative learning) |
| How can learning be achieved? [processes to facilitate learning / to deliver learning outcomes] | <ul style="list-style-type: none"> • Formal education • Experience • Public participation • Learning-organization approach |

Key findings from this paper are illustrated in Table 1 above: (1) who can learn in IA?; (2) what are the possible learning outcomes?; and (3) how can learning be achieved? Other taxonomies of learning outcomes related to IA, in particular the framework of Diduck et al. (2012) classify learning outcomes under instrumental, communicative, transformative and sustainability-oriented domains. These categories intersect with the classification proposed here. For example, skills tend to be associated

with instrumental learning, but knowledge is not restricted by practicalities; new behaviors, on the other hand, can arise as a result of a transformational experience or, pragmatically, as a means to achieve a desired end, like obtaining approval for a project.

4. Conclusion

This paper has hopefully demonstrated that, by itself, acquiring knowledge does not imply learning in organizations. To encourage and achieve the conditions needed for genuine learning, then learning must be treated as a purposeful action and designed as an integral component of the IA process, with learning outcomes and targets clearly articulated. Furthermore, for organizations to learn for and through IA, internal enabling structures and conditions should not only be in place during the IA itself, they should be maintained and adapted for all phases of the development, from start to finish.

A proposed project and its IA process and associated products may be shared amongst various stakeholders who may in turn produce their own materials and tools to share 'learnings'. Knowledge also implies a power relationship – e.g., knower to recipient – whereas learning implies grassroots or perhaps more fundamental actions and outcomes. Learning is a multi-faceted process that should involve both the holders and recipients of knowledge, and should occur throughout an IA process, recognizing that decision-making occurs throughout the design of the project, not only at the end. IA practitioners and proponents should value not only learning from mistakes (single-loop), but also and especially the development of shared understandings, if successful outcomes are desired. A learning-based approach would differ from a knowledge-based approach; the latter describes a more traditional, one-sided view of a knowledge holder (usually the proponent) transferring it to a recipient (usually the host community), whereas the former would be driven by a spirit of enquiry.

Two potential learning shortcomings are the length of time and the amount of resources needed for multiple-loop learning and social learning to occur. A learning-centric approach could demand long and possibly unacceptable timeframes, and may add additional costs that may not be acceptable for a proponent with a limited budget. It is likely that multiple stakeholders would need to be engaged with greater intensity and openness. However, firms that are striving for a social license to operate or that want to genuinely learn may well find that the additional time and resources invested in learning approaches could result in a smoother IA as well as post-approval phases.

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