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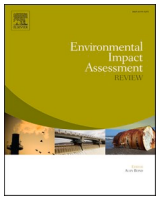

Exploring the relationship between context and effectiveness in impact assessment

Alan Bond [a,d,*], Jenny Pope [b,c,d], Angus Morrison-Saunders [c,d], Francois Retief [d]

[a] School of Environmental Sciences, University of East Anglia, Research Unit for Environmental Sciences and Management, North-West University, South Africa
[b] Integral Sustainability, Australia, Centre for People, Place and Planet, Edith Cowan University, Western Australia, Research Unit for Environmental Sciences and Management, North-West University, South Africa
[c] Centre for People, Place and Planet, Edith Cowan University, Western Australia, Research Unit for Environmental Sciences and Management, North-West University, South Africa
[d] Research Unit for Environmental Sciences and Management, North-West University, South Africa

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ABSTRACT

Impact Assessment (IA) has been adopted worldwide typically to ensure the achievement of its goal(s), which might be one or more of sustainable development, environmental policy integration, and democratic governance. Researchers have developed and applied effectiveness frameworks in order to evaluate whether IA achieves its goal(s). The application of these frameworks often identifies some areas of ineffectiveness, and the frameworks are rarely transferable to other cases either within or across different jurisdictions, which makes national and international comparisons problematic. Context is frequently cited as a reason why ineffectiveness is identified in a case, and yet context is not clearly understood in relation to effectiveness. Our aim in this paper is to unpack the notion of context in order to better understand how IA can achieve its goal(s). Based on literature review and a subsequent conceptualisation of context drawing, for the first time, on Integral Theory, we propose that the notion of context can be understood as a range of mediators, which act either as enablers or barriers to the ability of IA to deliver its goal(s). It is these mediators which lead to very different IA system performance in terms of goals achievement, despite applying similar procedural steps. Our conceptualisation provides a significant contribution as it clarifies the validity of claims about contextual elements in the literature, explains the nature of different elements of context, provides a framework with which they can be meaningfully considered and makes an initial attempt at identifying strategies for ensuring mediators act as enablers rather than barriers. It also potentially serves to help unify literature on the meaning of context for IA effectiveness, effectiveness dimensions, and causation in IA, thus providing clarity over the challenges of goals achievement and the appropriateness of capacity development interventions.

1. Introduction

The International Association for Impact Assessment defines Impact Assessment (IA) as a "*process of identifying the future consequences of a current or proposed action*" (International Association for Impact Assessment, 2022). This uses IA as an umbrella term to encompass practice across different tiers of decision-making, including Strategic Environmental Assessment (SEA) and project-level Environmental Impact Assessment (EIA), as well as more issue-focussed IA like Social Impact Assessment (SIA) and Health Impact Assessment (HIA), amongst many others. In this paper, we also use IA as an umbrella term following this same understanding.

Three common goals for IA have been distinguished by Rega and Bonifazi (2014). These are: sustainable development, Environmental Policy Integration (EPI) (which is "*the incorporation of environmental concerns in non-environmental policy sectors*" (Runhaar et al., 2014, p. 233)), and democratic governance. Whilst the stated goals may vary depending on the jurisdiction, IA processes need to be conducted effectively in order to deliver their stated goals. Therefore, effective practice forms the basis for evaluation of IA, which underpins the development and amendment of legal mandates, and hence capacity development initiatives designed to deliver more effective IA. So, effectiveness is a very important concept in IA, and has consequently received considerable attention in the literature, delivering a number of

* Corresponding author.
E-mail address: alan.bond@uea.ac.uk (A. Bond).

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conceptualisations that have evolved over time (e.g., Bina et al., 2011; Chanchitpricha and Bond, 2013; Fischer and Gazzola, 2006; Loomis and Dziedzic, 2018; Retief, 2007).

But effectiveness evaluation is a messy business (Cashmore et al., 2004). A review of literature on SEA effectiveness by Zhang et al. (2020) concluded that so many different interpretations of effectiveness exist that the science surrounding the topic is not cumulative (after Kuhn, 1970), meaning that the various pieces of research are adding to confusion, rather than leading to consensus, because researchers "*have begun to ask new sorts of questions and to trace different, and often less than cumulative, developmental lines*" (Kuhn, 1970, p.3). This has reached a point where it seems that every attempt to use an existing evaluation framework finds shortcomings in that framework (e.g., Pope et al., 2018), that are sometimes linked to the particular context in which the shortcoming is identified. By context here, we simply mean "*the set of facts or circumstances that have an impact on the chosen approaches to … or … on the outcomes of"* IA implementation (Hilding-Rydevik and Bjarnadóttir, 2007, p.668). This suggests that context is a critical concept in understanding the ability of IA practice to achieve its stated goals.

Other researchers, most notably, Bina (2008) in a discussion of Chinese SEA practice, have recognised that contextual factors are important in determining whether and to what extent practice is effective. Meanwhile, Runhaar (2009, p.201) argues, "*there is no consensus about what constitutes context*" while Therivel and González (2019, p.185) include context as a dimension in their conceptualisation of effectiveness, and summarise it as including *"legislation, capacity, organizational structure/culture/habits*". While this is useful it stops short of clarifying the mechanisms by which these elements affect the practice of IA. We see context as an influence on the dimensions of effectiveness rather than a dimension in its own right (as opposed to Therivel and González, 2019); therefore, we consider that context is an important consideration in evaluations of IA effectiveness, but argue that it is poorly understood.

Our aim in this research is to unpack the notion of context in order to better understand how IA can achieve its goal(s). This should improve understandings of effectiveness, allow more tailored evaluations of IA practice in any given setting, and assist in the planning of capacity development interventions. We take as our baseline for an effectiveness evaluation framework that proposed by Pope et al. (2018), given that it was based on a literature review of effectiveness thinking up to that point and was refined based on an empirical test case. In doing so, we acknowledge that numerous papers have been published on IA effectiveness since then, including a special issue of *Impact Assessment and Project Appraisal* on SEA effectiveness (Vol. 37, Issues 3–4, 2019), but these invariably have different departure points since superseded by Pope et al. (2018).

To achieve our aim, the paper is structured as follows. The next section sets out key definitions to ensure a common understanding of the meaning of words which can be used differently in the literature. Section 3 then introduces the methods and theoretical framework used for unpacking context, and for conceptualising effectiveness. This is followed in Section 4 by a mapping of the evolution of thinking on IA context related to effectiveness evaluation from the literature. In Section 5, drawing on the understandings of context from the IA literature, we conceptualise context as it relates to IA effectiveness, and as a basis for enhancing the transferability of evaluation frameworks and planning capacity development to improve effectiveness. The final section sets out our conclusions in relation to the aim of the paper.

2. Definitions

The literature on effectiveness frequently uses some (or many) of the terms: goals; aims; purposes; aspects; dimensions; criteria; indicators; factors; conditions; controls; issues; components; mediators; enablers; and barriers (e.g., Zhang et al., 2020; Russel et al., 2014; Ortolano, 1993; Pope et al., 2017). However, these are rarely defined, and where they are, the definitions lack consistency across the literature. Below we set out clearly what we mean by each of the terms we will use (recognising other interpretations exist – the aim is to be clear how we are using these terms which has underpinned how we have interpreted the literature), and how they relate to the other terms in this list (note that synonyms are only claimed in the context of effectiveness literature and not English language usage in other contexts).

- Effectiveness. Chanchitpricha and Bond (2013) identified a large number of definitions of effectiveness, some based on the dimensions which comprise effectiveness, others based on an understanding of particular goals (e.g., Ortolano et al., 1987, for EPI). Here we define what effectiveness means in general terms, after Sadler (1996, p.37), as "*how well something works or whether it works as intended and meets the purposes for which it is designed*".
- Goal. We define this as 'the ultimate purpose for IA'. Whilst there is no consensus on what this should be (for example, Hollick (1986) argues that the goals and objectives are both implicit and explicit), we will assume that it typically (but not exclusively) encompasses sustainable development, EPI, and democratic governance (after Rega and Bonifazi, 2014). The term is synonymous with: aims; objectives; purposes.
- Dimensions. Following Franks, Brereton, and Moran (2013, p.643) we define dimensions as "*the major aspects of comprehending"* a phenomenon, a definition which was also adopted by Pope et al. (2017). Dimensions are not measures against which scores can be given, rather they are components of a phenomenon, in this case IA effectiveness. The term is synonymous with: factors; components; issues; aspects.
- Criteria. In the context of IA, we define these as '*specific measures of the extent to which dimensions, or elements of dimensions, have delivered effective IA'*. Dimensions can be broken down into criteria against which scores can be allocated, or judgements made. For example, Chanchitpricha and Bond (2013, p.70) propose the "*identification of financial funds for SEA/IA practice*" as a criterion of procedural effectiveness. Therefore, it follows that as the goal(s) shifts in different IA contexts, so would the criteria need to shift to reflect the extent to which the dimensions deliver effective practice. The term can be used synonymously with: indicators.
- Context. We define context after Hilding-Rydevik and Bjarnadóttir (2007, p.668) (with 'IA' replacing the original reference only to SEA): "*context is the set of facts or circumstances that have an impact on the chosen approaches to [IA], but the context is also the set of facts and conditions that have an impact on the outcomes of [IA] implementation*".

To bring these all together, the purpose of IA is to achieve its goals. To achieve the goals requires an understanding of the dimensions across which effective practice is required (as measured through criteria); ineffective practice, as measured by defined criteria, in one or more dimensions is likely to mean that the goals are not fully achieved. But effective practice across dimensions might lead to the achievement of IA's goals in one context, but not another. This is the reason why understanding context is necessary to better understand how IA can deliver its intended goals.

3. Methods

For the purposes of this paper, we need to position effectiveness dimensions within the IA system as this will form the basis for conceptualising context (the context for considering context so to speak!). We start with the dimensions of effectiveness outlined in Pope et al. (2018, p.43) and refer readers to this paper for a literature review related to IA effectiveness:

> "Procedural effectiveness: Have appropriate processes been followed that reflect institutional and professional standards and procedures?

Substantive effectiveness: To what extent does the assessment lead to changes in process, actions, learning or outcomes?

Transactive effectiveness: To what extent, and by whom, is the outcome of conducting the assessment considered to be worth the time and cost involved?

Legitimacy: Was the assessment process perceived to be legitimate by a wide range of stakeholders?"

The first three of these dimensions were originally proposed by Sadler (1996) and have consistently been retained by subsequent researchers. They were originally conceived to be broadly positivist in nature in being measurable in absolute terms based on observable experience. Additional dimensions have developed over time to include normative aspects based on a contribution by Baker and McLelland (2003), recognising that different stakeholders will have different understandings and expectations of what IA should achieve (Bond et al., 2015). Pope et al. (2018) reflect this in their proposed dimension of *legitimacy,* which asks whether an IA process is perceived as legitimate by a wide range of stakeholders. Legitimacy can be understood as a product of the other three dimensions, as failure in any one of them would undermine the legitimacy of any given IA.

Fig. 1 highlights the interconnectedness of positivist and normative elements in considerations of effectiveness, and provides a structure around which effectiveness dimensions can be related to each other. It clarifies that the legitimacy elements of effectiveness are all normative, and that they provide an additional lens through which the positivist dimensions can be viewed and interpreted (denoted in red in Fig. 1). This figure serves as an analytical framework for the conceptualisation of context as those elements that influence either normative or positivist aspects of IA procedure, practice or outcomes. Note that the positivist aspects are inter-related, for example, transactive effectiveness can only be properly evaluated where procedural effectiveness and substantive effectiveness are delivered, otherwise the level of efficiency may be false.

We consider context to mediate the extent to which dimensions of effectiveness deliver IA goals, or are perceived to do so. This thinking draws on research into causation in EIA; for example Cashmore et al. (2008) argued that causal mechanisms lead to expected outcomes on a pathway to sustainability only where contingent conditions (or elements of context) allow. That is, the practice of EIA is subject to mediating factors that dictate whether goals are met. Our conceptualisation of how contextual elements influence the dimensions of effectiveness is based on the assumption that these mediating elements comprise the context within which IA practice takes place. Whilst the term 'mediators' is rarely defined in literature, it is frequently used in research dealing with causation to encompass barriers and enablers (e.g., Lodhia et al., 2018; Yu et al., 2020). Enablers improve the extent to which IA practice contributes to the achievement of the goal, whilst barriers interfere with the extent to which practice contributes to the goal. This is consistent with the views of Hilden, Furman, and Kaljonen (2004, p.523) that SEA effectiveness is contingent on both "*necessary conditions*" and "*facilitating factors*". Mediation is therefore understood as control of functions (e.g., Cardinale et al., 2012) or outcomes. As such, we define mediators as '*barriers and enablers which mediate the extent to which IA procedures achieve their goal(s) negatively or positively respectively*'. Mediators can be synergistic or antagonistic with other mediators. The term is synonymous with 'conditions', 'controls' and 'facilitating factors' and includes as subsets: barriers (synonymous with: impeding factors); enablers (synonymous with: contributing factors).

Our approach to conceptualising context draws heavily on literature review, given a key task is to make sense of non-cumulative science developed over many years. Database searches were undertaken (using Google Scholar and Scopus) for academic literature focussing on "impact assessment" OR "environmental assessment" (these search terms capture EIA, SEA, HIA, SIA, etc.) AND "effectiveness" OR "context" OR "dimensions" OR "mediator" OR "enabler" OR "barrier" (OR any synonym of these terms set out in Section 2), given that dimensions of context are likely to enable or impede dimensions of effectiveness (Bina, 2008). This approach was supplemented by following citations to more recent material, and following references to past publications where they were missed in the database search. In addition, the knowledge of the authors based on their own experience of publishing literature on IA effectiveness was utilised. Based on this literature, and after Jabareen (2009), conceptualisation involved:

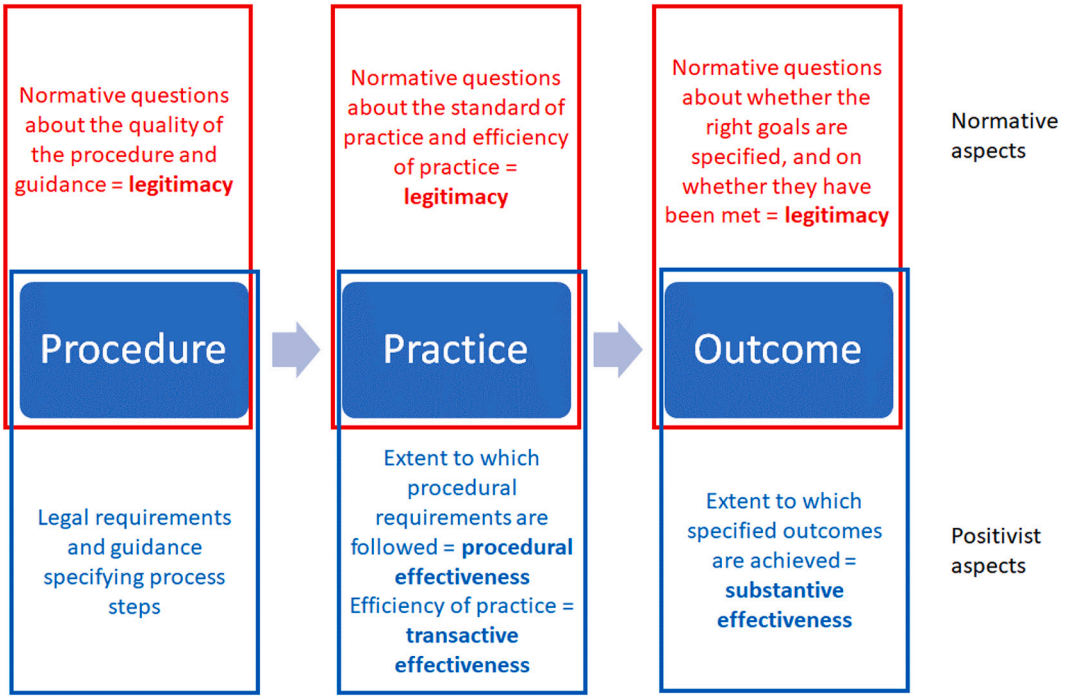

Fig. 1. Analytical framework for conceptualising context in relation to effectiveness.

1. Identifying and naming concepts of effectiveness and context.
2. Deconstructing and categorising the concepts.
3. Integrating concepts.
4. Synthesis, re-synthesis, and making it all make sense.

As we go on to show in the next section, there are many perspectives on what context actually is which complicates this task of conceptualisation. Our approach clearly makes interpretations based on our own world views and values. Nevertheless, we argue that analysis of multiple perspectives can be structured to ensure that it is as systematic as possible. To do this, we draw on Integral Theory (Wilber, 2005) because, as Tokede, Roetzel, and Ruge (2021, p.1) argue, "*the key assumption of [Integral Theory] IT is that multiple perspectives on any given subject exist, but that the understanding of reality from each singular perspective is fragmented and biased. While each of these perspectives is valid, this validity is only partial*". Thus, Integral Theory has potential to accommodate multiple perspectives and help to make sense of a currently confused literature (i.e., deliver cumulative science). It has been used successfully to examine how to effect strategic change (Landrum and Gardner, 2005), which is the ultimate purpose of this research in terms of understanding context as a step towards understanding how to improve IA effectiveness.

Integral Theory uses a quadrant model that considers that there are four perspectives "*that must be consulted when attempting to fully understand any issue or aspect of reality*" (Esbjörn-Hargens, 2010, p.2). These perspectives are outlined in Fig. 2 and encompass both individual and collective aspects (referring to "*the relationship between individual identity or agency, and social identity of communality*" (Klapper et al., 2020, p.4)), along with exterior and interior settings (referring to "*the inner world of subjectivity and the outer world of objectivity*" (Klapper et al., 2020, p.4). The benefit of examining context through a theoretical lens is that it allows a view to be taken on the validity of claims made in the literature about contextual elements (based on an initial assumption about the validity of the theory) and assists with the merger of contextual elements which overlap with others. This is step 2 of our conceptualisation approach. The quadrants in Fig. 2 also lend themselves to a clear analysis of where context elements lie, given that all mediators will reside in one of the quadrants, and will likely have been identified based on the particular perspective being taken by the researcher(s) that identified them. The quadrants are therefore helpful in considering how the context elements can be addressed in order to improve effectiveness as different strategies will be required to address individual as opposed to communal barriers, and subjectivity as opposed to objectivity. We subsequently use Integral Theory as the basis for undertaking steps 3 and 4 of the conceptualisation approach. Ultimately, Fig. 2 makes it clear that separate perspectives on effectiveness paint only a partial picture of the context which explains why interventions aimed at improving effectiveness are often only partially successful.

Section 4 details the elements of context identified in the IA literature, without judgement as to the veracity of the claim made that these do constitute elements of context. Then, in Section 5, we situate the elements of context using the Integral Theory quadrant model (Fig. 2).

4. Literature on IA effectiveness and context

Rather than summarise the text of all the literature identified on IA effectiveness and context, Box 1 lists the key papers that have been read and form the basis for the identification of elements of context. From all this literature, a list of IA contextual elements has been compiled (21 in total; Table 1), each justified by a source reference. This helps to indicate how understanding of context has developed, and to demonstrate the claim that research into context has not been cumulative, given the development of different ideas that have simply expanded the lines of enquiry rather than leading to a synthesis of understanding. The contextual elements in Table 1 reflect coding of the literature identified in Box 1, and precede conceptualisation based on Integral Theory conducted in Section 5. The only judgements made in compiling Table 1 relate to terminology: where we consider that the same concept has been described using different terms by different authors, we have consolidated the concepts. The difficulty in assembling such a list is that levels of detail vary across the elements. For example, governance as one contextual element has nine sub-elements defined by Monteiro et al. (2018).

The next section sets out our conceptualisation of the relationship between context and effectiveness using Integral Theory.

5. Conceptualising IA effectiveness and context

Fig. 3 indicates how the contextual elements in Table 1 have been categorised into the Integral Theory quadrants based on judgement of the authors.

There are five elements identified in Table 1 that do not fit the quadrant model: (9) legitimacy; (10) rationality; (17) uncertainty; (18) learning; (19) influence on other plans and projects. Reflecting on these in light of our definition of context expressed earlier as "*the set of facts or circumstances that have an impact on the chosen approaches to or on the outcomes of IA implementation*" we conclude that they have been misclassified as contextual elements in the literature. We consider that legitimacy is a dimension of effectiveness that is itself subject to contextual mediators, as illustrated in Fig. 1 (Pope et al., 2018). Uncertainty is generally considered to be associated with IA data and analysis (Bond et al., 2015), rather than the context within which EIA functions. Rationality is often used synonymously with effectiveness itself (Elling, 2009); a view also apparent in Kørnøv and Thissen (2000) who distinguish between rationality of process (which roughly aligns with procedural effectiveness) and rationality of outcome (which roughly aligns with substantive effectiveness). Learning we consider to be part of substantive effectiveness as it reflects learning that accrues from IA practice (Pope et al., 2018), and this is the way in which Tshibangu and Montaño (2019) introduce it. Influence on other plans and programmes aligns with notions of incremental effectiveness (Bina, 2008) whereby there are outcomes that are additional to those goals of

	INTERIOR	EXTERIOR
INDIVIDUAL	*I* (consciousness)	*It* (behaviour)
COLLECTIVE	*We* (organisational culture)	*Its* (organisational structure)

Fig. 2. The four quadrant model of Integral Theory. After Esbjörn-Hargens (2010); Wilber (2005); (Klapper et al., 2020).

Box 1
Literature contributing to the understanding of IA effectiveness and context.

Annandale (2001); Arts et al. (2012); Bina (2007); Bina (2008); Bina et al. (2011); Bitondo and André (2007); Ebisemiju (1993); Cherp (2001); Emmelin (1998); Fischer (2005); Garner and O'Riordan (1982); Haigh et al. (2015); Hanna and Noble (2015); Harris-Roxas and Harris (2013); Hilden et al. (2004); Kørnøv and Thissen (2000); Kolhoff et al. (2009); Lyhne et al. (2017); Marara et al. (2011); Marsden (1998); Monteiro et al. (2018); Meuleman (2015); Radaelli (2005); Retief (2007); Runhaar (2009); Runhaar and Driessen (2007); Therivel and González (2019); van Doren et al. (2013); Wirutskulshai et al. (2011); Wood (1995); Zhang et al. (2013)

the IA process. As such, it is an outcome and not a contextual element.

Fig. 3 is helpful in situating contextual elements and provides a basis from which to design interventions that will improve the context to deliver more effective assessment. Additionally, it makes it clear that capacity development initiatives likely need a broad scope if they are to be successful. For example, it becomes clear that there is validity of claims that the exercise of power comprises context when it can be seen that it operates at the individual, interior level. It allows strategies to be developed which might control inappropriate exercise of power – albeit those may require interventions in the collective, interior level, or even collective exterior level to prohibit certain actions. Where discourses (a collective form of power) are considered a mediating contextual factor, strategies can be drawn from political science research to shift discourse coalitions (e.g., Hajer, 1993; Renn, 2006; Schmidt and Radaelli, 2004). Below we provide some thoughts on how each of the contextual elements in each quadrant of Fig. 3 might influence the effectiveness of IA, and what kinds of interventions might improve effectiveness (i.e., by trying to ensure the mediators acts as enablers rather than as barriers). This helps to indicate how context varies across jurisdictions and therefore why effectiveness interventions might not be as successful as intended. We stress that these thoughts should form the basis for further debate and research to better understand how these various elements mediate effectiveness. We emphasise that they should not be interpreted as objective findings based on systematic research.

5.1. Individual/Interior quadrant (I)

This quadrant identifies contextual elements that are likely to be the most diverse within a jurisdiction, as the exercise of power, ethics, and values, are individual traits that stem from the past experiences and settings of the individuals involved in the IA. Values and ethics will be fundamental in determining views on legitimacy, and influence the exercise of power (Richardson, 2005). Richardson (2005) draws on planning theory to recommend that storytelling and ethical judgement might be appropriate approaches for dealing with the pluralism inherent in individual values; they act as means of understanding the discursive positions of others, and avoid the presentation in EIA documentation of some discursive positions at the expense of others, thereby alienating those with different values. Bond et al. (2021) argued that IA supports decision making grounded in an anthropocentric ethical position, which will be counter to the views of many conservationists. It points to a need for EIA processes which more clearly communicates the difference of opinions and values that are relevant in a situation, and which allows dialogue over the goals of the process. Legitimate IA processes will be those that reflect the values held by a wide range of stakeholders in the process.

The exercise of power has been regarded as a significant issue in IA, with Richardson and Cashmore (2011, p.121) finding that "*[IA] is inescapably part of deep hegemonic struggles over ways of governing*". They go on to argue that the way IA is institutionalised controls the extent to which power can be wielded by individuals, which points to exterior elements as being able to exert some influence. Cashmore and Axelsson (2013) identified a reluctance to relinquish control in IA based on a perceived loss of control over timescales as being a significant issue (amongst others) risking budgets, with some suggestion that the goals of individuals or institutions were focused on time and resources at the expense of the goals of the environmental assessment process. Ultimately, shared goal-setting could be a useful tactic (Bond et al., 2011), with individual learning potentially leading to changes in values (Cape et al., 2018). Open discussions on what constitutes corruption could feed into learning that mediates assessment outcomes in a positive way (Cashmore and Axelsson, 2013).

Therefore, current understanding would suggest that to enable effectiveness, IA processes should accommodate the different values and ethical positions that are relevant for a proposed development, and this has the potential to avoid the exercise of power in a way that can threaten legitimacy through the lack of explicit recognition for the validity of relevant value positions.

5.2. Collective/interior quadrant (We)

This quadrant includes elements that highlight shared values and history – that reflect broader reflections of values and ethical positions placed in the individual/interior quadrant. Kørnøv and Thissen (2000) argued that SEA needs to respond to the decision context, in which they included the nature of the actor network, and level of openness and democracy. Kørnøv and Thissen (2000) identified some strategies that may improve SEA through enabling more effective actor networking. These strategies include: participative or interactive modes of policy support, involving a broader range of relevant actors; normative debates about the nature of the problem rather than simply viewing the problem through a single lens; and process design to ensure agreed rules are applied for the interaction that takes place in the assessment process and in decision-making (thereby potentially ensuring participative modes of policy development and normative debates take place). These same approaches also deal with another context element: the level of openness and democracy.

Bina (2008) highlights the importance of culture in governing cooperation and coordination between organisations when evaluating SEA effectiveness in China. In particular, the difficulties inherent in working across sectors and at different hierarchical levels within the same sector. Bina (2008) suggested that effectiveness could be improved should SEA be used as a vehicle for environmental policy integration into other sectors, with a recommendation to learn from examples where this has been conducted more successfully in order to identify how best the cultural environment might be changed.

Runhaar (2009) suggests that discourses reflect the narratives, or meaning, that different combinations of stakeholders adhere to, that is, the different meanings or interpretations that different groupings of the actor network agree on. Dominant discourses tend to emerge which might reflect the power of the actors involved, and this then can affect the openness and transparency of the process as certain values are

Table 1
Contextual elements (including some sources mentioning the element in the IA effectiveness and context literature).

Number	Contextual element	Brief explanation (and original source(s) as an element of context)
1	Nature of actor network	The style and culture of the actors, including dependencies and interests (Kørnøv and Thissen, 2000).
2	Level of openness and democracy	Associated with the decision situation (Kørnøv and Thissen, 2000).
3	Political and economic situation	Refers to broad political systems, e.g. communism versus democratic, and centralised versus market-led (Cherp, 2001), and was considered part of the decision context by (Harris-Roxas and Harris, 2013). This manifests also in political commitment (Unalan and Cowell, 2019).
4	Socio-economic situation	Refers to country status – whether stable, affluent, etc. (Cherp, 2001)
5	Institutional structures	Cherp (2001) introduces this as a capacity issue in terms of IA procedures and trained stakeholders. For Radaelli (2005), it is more akin to governance (see below), encompassing policy processes and actor preferences. Radaelli (2005) describes this as bureaucratic context, as it concerns how types of evidence are viewed, and the place of IA, in decision-making.
6	Exercise of power	Hilden et al. (2004) emphasise the importance of power in determining problem definitions, which influence how IA is perceived in decision-making.
7	Government capacity / governance	Refers to how the institutions of government function (Radaelli, 2005). Also encompasses structural adjustment program; poverty reduction; globalization, privatization and liberalization; democratization; decentralisation; governance and corruption elements raised by Bitondo and André (2007). Unalan and Cowell (2019) refer to administrative capacity in Government, and Harris-Roxas and Harris (2013) refer to parameters of the assessment as a context feature, which include nature of decision makers and organisational arrangements.
8	Individual actor capacity	Kolhoff et al. (2009) highlights actor capacity as a key element affecting context (and also that context affects capacity).
9	Legitimacy	Whilst appearing as a dimension of effectiveness in literature, it is also considered as context that affects the influence of IA (Radaelli, 2005).
10	Rationality	Richardson (2005) moves away from considerations of rationality reflecting logical decision-making based on evidence, to the consideration of IA constructing rationality through choice of valid evidence.
11	Ethics	The extent to which questions of morality influence decision-making (Richardson, 2005).
12	Values	Runhaar and Driessen (2007) variously refer to norms and values, environmental values, and values of decision-makers. This was also introduced by Richardson (2005) as underpinning ethical choices, and was considered to be part of the decision context by Harris-Roxas and Harris (2013), Unalan and Cowell (2019) and Morteruel et al. (2020).
13	Culture	Bina (2008, p.719-720) associated culture with institutional context (see above), as the "*pattern of basic assumptions which a given group has invented, discovered or developed*".
14	Natural environment	Kolhoff et al. (2009) refer to this as both the state of the environment, and the occurrence (or otherwise) of environmental problems and disasters.
15	Discourses	Runhaar (2009) refers to discourses as meanings given to particular phenomena by actors or groups of actors. Advocacy coalitions tend to group around discourses and can therefore wield power. Morteruel et al. (2020) also refer to understanding between stakeholders.
16	Supporting legislation and guidance	Therivel and González (2019) emphasise this element, as do Tshibangu and Montaño (2019) and Morteruel et al. (2020) (as formal agreement on the process and alignment with objectives). This also includes the tiering implications, that is, where the specific IA process fits into the broader environmental licensing system (Tshibangu and Montaño, 2019).
17	Uncertainty	Runhaar and Driessen (2007) include this as a contextual element.
18	Learning	Tshibangu and Montaño (2019) include this as an outcome of SEA practice.
19	Influence on other plans and projects	Tshibangu and Montaño (2019) argue that other outcomes beyond the SEA are possible.
20	Availability of data	Tshibangu and Montaño (2019) highlight the lack of existing data leads to superficial assessments.
21	Timing	Morteruel et al. (2020) include timing as part of the decision context, and Zhang et al. (2013) argue that it is context category in its own right. This can be part of the supporting legislation and guidance, but equally, can be independent of this (either compliant or not).

favoured over others. IA can influence the dominant discourses, and therefore allow more values to be considered in decision making (Morteruel et al., 2020; Runhaar, 2009) through following some of the strategies for improving actor networking as suggested by Kørnøv and Thissen (2000) (see above).

5.3. *Individual/exterior quadrant (It)*

This quadrant has a single contextual element in it which underpins considerable capacity development effort in impact assessment systems: Individual actor capacity. Kolhoff et al. (2009) identify a series of different capacities of actors and organisations that need to be in place to enable effective IA; such capacities are the focus of capacity development schemes in developing countries in particular as they introduce, or try to improve, IA practice. For insights into approaches for capacity development, see, for example, OECD (2008); Sadler (2003); UNDP (2009); Van Loon et al. (2010); VanDeveer and Dabelko (2001).

5.4. *Collective/exterior quadrant (Its)*

The use of integral theory has led to the authors classifying the largest number of context elements in this quadrant, which perhaps goes some way to explaining why effectiveness evaluation frameworks are not transferable, but also why capacity development programmes only partially improve effectiveness in many jurisdictions (Kolhoff et al., 2009).

Therivel and González (2019) include supporting legislation and guidance as 'contextual factors', as do Tshibangu and Montaño (2019) and Morteruel et al. (2020). Whilst the existence of IA legislation is a key starting point for many IA systems, this needs to be clear enough on the specific process steps and objectives for the IA procedure (Morteruel et al., 2020), and there is a need for a broader environmental licensing system into which IA fits in order to set the standards against which impacts can be judged (Tshibangu and Montaño, 2019; Morteruel et al., 2020).

	INTERIOR	EXTERIOR
INDIVIDUAL	*I* 6 Exercise of power 11 Ethics 12 Values	*It* 8 Individual actor capacity
COLLECTIVE	*We* 1 Nature of actor network 2 Level of openness and democracy 13 Culture 15 Discourses	*Its* 3 Political and economic situation 4 Socio-economic situation 5 Institutional structures 7 Government capacity / governance 14 Natural environment 16 Supporting legislation and guidance 20 Availability of data 21 Timing

Fig. 3. Integral Theory quadrant for contextual elements.

Kolhoff et al. (2009) indicate that the state of the environment in a country, and the occurrence of natural and human-induced disasters, are contextual factors in the development of regulatory frameworks protecting the environment. As mediating factors, it is difficult to envisage strategies to ensure these become enabling factors, although it is possible that the collection of case studies highlighting the importance of the natural environment could raise awareness. For example, increasing concerns over climate change have already been argued to be a driver for more revolutionary change in social impact assessment processes (Parsons, 2020).

Government capacity and governance have been found to be contextual factors in several studies (e.g., Bitondo and André, 2007; Radaelli, 2005; Unalan and Cowell, 2019). Whilst some form of capacity development can help in terms of understanding of roles, one specific issue identified is political commitment which, Unalan and Cowell (2019, p.8) argue, means that "*established SEA regulations and measures are not sufficient to sustain effective SEA application, where ministries retain the scope to frame problems and translate them into policies, plans or programmes*". They suggest that flexible and adaptive practice amongst IA practitioners may help to include elements outside the framing of politicians, and therefore go some way to influencing political commitment, albeit it is clear that more research is needed to investigate the potential for this to become an enabling mechanism.

Institutional structures are recognised as being contextual factors in the practice of IA (Cherp, 2001; Kolhoff et al., 2009; Radaelli, 2005), and rely on the existence of institutions to carry out the functions required within EIA systems (for example, screening, scoping, review), and also demand independence of the judiciary, free flow of information, and clear divisions of responsibility for the various stages of the IA processes (Kolhoff et al., 2009). Capacity development initiatives can investigate this contextual element and make recommendations for appropriate change to enable effective IA, albeit political will is ultimately required for a jurisdiction to implement such recommendations. This point has been recognised by scholars identifying the political and economic situation as context elements, with reference to whether the political system is communist or democratic, and the socio-economic situation, such as whether a country is affluent or stable (Cherp, 2001). In such cases, adaptive IA practice may help to enable the necessary political commitment (see above).

The availability of data was identified as a contextual element with Tshibangu and Montaño (2019) noting that where this is limited superficial assessments ensue. The need for knowledge management in IA in general has been demonstrated (Sánchez and André, 2013; Sánchez and Morrison-Saunders, 2011), and the development of data repositories is apparent in some jurisdictions to ensure this is not a barrier to effective IA practice.

Zhang et al. (2013) identified timing and organisation as critical elements for IA effectiveness, with Morteruel et al. (2020) also emphasising the importance of timing. Zhang et al. (2020) consider that the timing of IA stages must be early enough to allow sufficient integration within the actor network to take place, although they are clear this is no guarantee of integration. Rather, good procedure will act as an enabler rather than a barrier if sufficient time is allowed in order to facilitate "*collaborative governance*" (p.94). Haigh et al. (2015, p.8) looking into Health Impact Assessment consider that timing includes the time to do the assessment, the time to train to do it, the time to build and maintain the necessary relationships, the time to deal with changing circumstances, and the organisational support to spend the necessary time on the assessment. As such, it should be possible to design an IA process such that timing is not a barrier.

6. Conclusions

In this research we have sought to conceptualise the context of IA at the global system level to help to understand how to achieve effectiveness. Based on the literature, it is clear that there are a number of contextual mediators that act on dimensions of effectiveness, and either impede, or facilitate, the achievement of the goals of IA. While these mediators constitute the context and are unique to different jurisdictions and individual cases within them, they do provide the basis for comparative effectiveness research.

The use of Integral Theory has supported judgements being made on the validity of literature claims about certain elements constituting effectiveness context. It has also led to a clearer understanding of the nature of contextual elements. A significant shortcoming of this research is that it has been restricted to contextual elements drawn from the impact assessment literature. There may well be elements of context currently missing from this literature, which a wider investigation of context in other fields of research might identify.

One of the values of our research is that it can help to underpin the focus of capacity development work. Sub-components of capacity that underpin capacity development have been categorised (e.g., Kirchhoff, 2006; Van Van Loon et al., 2010) that include, amongst others, resource and technical capacity, scientific capacity, human capacity, organisational capacity and institutional capacity. Fig. 3 helps to situate the elements of context which can be matched with these existing subcomponents of capacity. It can assist in explaining how capacity development interventions need to be cognisant of elements within all four quadrants if they are to be fully successful. This research has also helped to begin the process of developing strategies to ensure mediators act as

enablers of effectiveness rather than barriers to it.

The effectiveness literature is clear on IA practice potentially leading to beneficial outcomes outside the remit of the IA. The interpretation is that IA practice has changed the context, and that context exists outside the boundaries of IA practice. Evidence for this was found by Cashmore et al. (2008) whereby the existence of EIA requirements (the *Collective/Exterior* or *Its* quadrant in Fig. 2) was found to contribute to institutional culture change (the *Collective/Interior* or *We* quadrant) associated with change in values of staff (the *Individual/Interior* or *I* quadrant). These institutional and value changes operate both inside and outside the context of IA.

This paper has presented a conceptualisation of the context for IA effectiveness, driven by the desire to address the cumulative science issues associated with effectiveness studies (Zhang et al., 2020). Other conceptualisations will be possible which, we hope, will continue the efforts towards collective understanding of cumulative science. We have met our aims in presenting a conceptualisation of context, although the work remains unfinished. Further investigations are needed into elements of context not yet identified as being mediators of IA effectiveness, and much works needs to be done to develop clearer strategies for how each contextual element can act as an enabler of effectiveness rather than a barrier to it. The conceptualisation does suggest that effective practice is dependent on a broad understanding and consideration of context. That is, when trying to improve the effectiveness of IA, it cannot be considered to be an independently applied decision-support tool that can be improved through better procedure – it is subject to a large array of contextual factors that have a significant bearing on how it works.

CRediT authorship contribution statement

Alan Bond: Conceptualization, Methodology, Writing – original draft, Formal analysis, Investigation. **Jenny Pope:** Conceptualization, Methodology, Writing – review & editing, Validation. **Angus Morrison-Saunders:** Conceptualization, Writing – review & editing, Validation. **Francois Retief:** Conceptualization, Writing – review & editing, Validation.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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