Theorising And Practitioners In HRD: The Role Of Abductive Reasoning.

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Abstract

Purpose – The paper argues that abductive reasoning is a typical but usually unrecognized process used by HRD scholars and practitioners alike.

Design/methodology/approach- This is a conceptual paper that explores recent criticism of traditional views of theory-building, based on the privileging of scientific theorising, which has led to a relevance gap between scholars and practitioners. The work of Charles Sanders Peirce and the varieties of an abductive reasoning process are considered.

Findings – Abductive reasoning, which precedes induction and deduction, provide a potential connection with HRD practitioners who face difficult problems. Two types of abductive are explored – existential and analogic. Both offer possibilities for theorising with HRD practitioners. A range of methods for allowing abduction to become more evident with practitioners are presented. We consider how abduction can be used in engaged and participative research strategies.

Research limitations/implications- While this is a conceptual paper, it does suggest implications for engagement and participation in theorising with HRD practitioners

Practical implications-Abductive reasoning adds to the repertoire of HRD scholars and practitioners

Originality/value- The paper elucidates the value of abductive reasoning and points to how it can become an integral element of theory building in HRD

Keywords: HRD theory, theorizing, abductive reasoning

Paper type Conceptual paper

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Introduction

The place of theory and theorising remains a core feature of debates in HRD as it does with most other applied disciplines. Within the field, as Lynham (2002) suggests, there are a variety of false assumptions which treat a) theory as being disconnected from practice; b) theory-building and theory-builders as being isolated from the real world; and that c) view the use or application of theory as only an option. However, consider perhaps a typical process faced by an HRD practitioner, facilitating a meeting of managers and staff who are trying to develop a direction for their sustainability policy. After describing the complex array of meanings, arguments and activities which are occurring in the business, the participants arrive, after some consideration, at new possibilities for action. Or consider a problem-solving workshop in which brainstorming is used as a technique to generate new insights for moving forward. Or consider HRD practitioner-scholars undertaking case study research for Master's level dissertations and Doctoral level theses and having completed their field work and data analysis are seeking innovative resolutions to the real world problems they have identified. Our position in this paper is that in this very process of moving from a description of an issue which is very real and concrete for the participants to abstract considerations of possible actions, opportunities for theorising occur. Indeed, we suggest that there are many HRD moments when such moves are made to which the term abductive reasoning can be applied (Van Orden 2008). The basic principle is that no single problem identification or problem-resolving process can emerge without an observation of some initial puzzling facts. The reasoning process, be it from "observations to explanations" or from "explanations to actions", involves constructing plausible 'hypotheses on probation' that are defeasible i.e. can be substituted if more promising ones can be found. It applies equally to scientists and detectives (Sintonen, 2004, p.249) and managers engaged in strategic thinking (Dew, 2007, Carr et al, 2004).

We will argue that this form of reasoning, first explored by the philosopher of science, Charles Sanders Peirce (1839 – 1914), is a key but unrecognised process in HRD work and practice. In his formulation it is also a source of 'new ideas' (p.171) and the "first stage" of scientific inquiries (p.469), the start of a journey that could subsequently lead to a scientifically acceptable explanation. Crucially for HRD practitioners, this may never be the intended destination. Instead, by choosing one course of action over another, practitioners express preference for a particular 'hypothesis on probation'; a two-fold process of

attempting to arrive at an explanation for what is a confusing state of affairs, by drawing upon experience; and then testing the viability of the explanation by practical application. This results in the creation of professional knowledge or, what Shotter (1993) has termed practical theories which may then serve as a guide for action in future practice. It may also provide a wonderful opportunity for HRD scholars to engage with practitioners in the co-creation of knowledge (Antonacopoulou 2010).

We begin by considering recent debates on the status of theory before considering the process of abductive reasoning within HRD as an acceptable form of theorising showing how it can provide a bridge for a meaningful engagement between HRD scholars and practitioners as the basis for theory building.

Theories and Theorizing

Ask any practitioner about how they deal with the issues that confront them and it is unlikely that the explicit use of what is normally termed theory will be the response. Instead perhaps, local understandings and what is sensible might be preferred forms of reasoning (Toulmin 2001). While it could be argued that these categories matched what Argyris & Schön, (1974) refer to as personal theories-in-use, it is doubtful that the practitioners themselves would acknowledge the role of theories in their practice and even less, their role in theorising. In HRD we are familiar with attempts to link theory and practice through the stages of the experiential learning cycle including the theoretical component of abstract conceptualisation (Kolb1984) - 'the model provides an excellent framework for planning teaching and learning activities' (Tennant 1997: 92) - but there is little evidence that practitioners routinely engage in this process. Yet the model holds that engaging in the theoretical process of abstract conceptualisation is of significance if practitioners are going to deepen their learning from experience and critically reflect on what they have done and why they have done it. For example Kolb sees the need for managers to become "practical scientists" (Pavlica et al, 1998, p.301) capable of observing what has happened, generating theory from these observations and then testing it. Managers must be able to solve 'new' problems. In other words, they cannot just apply conventional wisdom and hope that this is right

In recent years, there have been ongoing concerns about the relevance of management and organisation research in which HRD has its place. There has been increasing criticism of the privileging of scientific theorising that is deemed to provide the necessary rigour. This apparent aping of the natural sciences is something that Bennis and

O'Toole (2005) refer to as 'physics envy' (p.98), using a term first coined by Philip Mirowski (1991). Pfeffer (2005) points to the power of economics in this regard with the discipline's concern for models, mathematical proofs, market solutions and claims of value-freedom. Both in the US and UK and beyond, it has become important for business schools to provide testable models through the development of particular 'traditions and ways' (Crainer & Dearlove, 1999, p.40). Lynham's (2002) method of theory-building follows this path. She argues that 'there is an inherently generic nature to theory building" (p. 221) and that "theory building research methods are [merely] of a duo deductive-inductive nature" (p.237). The process of translating theory into practice is seen as a systematic movement from deductive to inductive, and that of relating practice to theory as a similar movement from inductive to deductive. Lynham clearly distinguishes between pure and applied theory, and believes that applied disciplines such as HRD are not exempt from the need to demonstrate the dual conditions of rigour and relevance in the theory building process to reduce the occurrence of atheoretical practice and non-scientific inquiry. However, perhaps as a consequence, HRD scholars in their pursuit of status within academe, just like their more mainstream colleagues, can fail to bridge the 'relevance gap' (Starkey and Madan 2001)

Lynham's (2002) position could be construed as an instance of what Donald Schön (1991) terms "technical rationality", classified as the "dominant epistemology of practice" in which "professional activity consists in instrumental problem solving made rigorous by the application of scientific theory and technique" (p. 21). Schön is concerned that this is inappropriate for many practical situations where theorising is centred round thought processes during and after problem-solving activities. His position is that in practical situations, of which many may include novelty and uncertainty, effective practitioners do not draw upon grand theories or theories of the middle range (Merton 1968). Nor do they engage in a rigorous scientific process of analysis. They rely upon experience and nous that can be enhanced over time through reflection-in-action and reflection-on-action, out of which new ideas can emerge. Such reasoning therefore has the potential for creative possibilities and, as we explore below, provides a bridging point for theorising.

Aram and Salipante (2003) argue for a 'bridging scholarship' which seeks to 'meld rigour and relevance' (p.210). This has to begin and continue with the problems of those facing challenges. Despite the growing concern with 'science', practitioners in HRD still need to find some degree of certainty that answers can be found to the confusions and problems they face, if only to avoid 'Cartesian Anxiety' (Bernstein 1983 p.16). In seeking possible solutions, practitioners enter a reasoning process that helps them arrive at an action to take.

However, this is not to say that there is always one ‘best’ solution or action; this process may generate a number of possible solutions. The process provides for the possibility of being reasonable in a method of theorising referred to as abductive reasoning, a ‘logical operation which introduces any new idea’ (Peirce 1903).

Such theorising entails the ability to act interesting questions. It is the prelude to theory building. Sintonen (2004) emphasises the significance of *why* questions as key to the interrogative mode of inquiry that detectives as well as scientists engage in to enable discovery learning. *Why* questions can be seen as a generic term for associated forms of inquiry such as: ‘*How* is it possible that this happened? *Where* did this object come from? *What* caused this to happen? Asking interesting questions leads to *what if* conjectures of the type that, as we shall see in the next section, Peirce focuses upon as a mode of explanation. Within this category come *guesses.* As Weick (1989) points out, each *what if* explanation is a conjecture or *thought trial*. Not all conjectures are relevant or appropriate. The more one uses what he terms *disciplined imagination* and draws upon diverse sources of data the more likely one is to develop an interesting theory. Criteria that for Weick constitute an interesting theory include being plausible in novel ways and a source of unexpected connections.

One set of outcomes of *what if* conjectures are those that generate new scientific explanations about the laws that govern the physical and natural world. Another set are those that suggest relationships between variables such as teaching style and learning transfer. Conjectures that lead to change, and actions that impact on many people, are of a different kind. Here we move into the arena of practical wisdom or phronesis, which generates different types of question concerning the implications of taking action. An example is the four rational-value questions developed by Flyvbjerg (2001): Where are we going? Is this development desirable? Who gains and who loses, and by which mechanisms of power? What, if anything, should we do about it?

Abductive Reasoning

Charles Sanders Peirce is often considered to be the founding father of *pragmatism*, a term that he coined, but spent much of his working line investigating the adequacy of induction and deduction, the traditional models of reasoning and inference (Fischer 2001). He concluded that neither induction nor deduction were enough to explain how people

reason; there was a need to add abduction (sometimes called by him ‘retroduction’) According to Peirce (1903):

> “Deduction proves that something must be; Induction shows that something actually is operative; Abduction … suggests that something may be.”

Abductive inference was seen as a ‘preparatory’ and a ‘first step’ in scientific reasoning which is prior to both induction and deduction**...** It is a response to an observation of facts which are initially surprising but which require explanation.

> “The first starting of a hypothesis and the entertaining of it, whether as a simple interrogation or with any degree of confidence, is an inferential step which I propose to call *abduction*. […] This will include a preference for any one hypothesis over others which would equally explain the facts, so long as this preference is not based upon any previous knowledge bearing upon the truth of the hypotheses, nor on any testing of any of the hypotheses, after having admitted them on probation.” (Peirce 1955:150–151)

The reasoning process as described by Peirce is as follows:

> The surprising fact, *C*, is observed;
> But if *A* were true, *C* would be a matter of course,
> Hence, there is reason to suspect that *A* is true. (CP 5.189)

A stands for a hypothetical rule invented to explain a phenomenon, but in the words of Peirce, it is a ‘hypothesis on probation’; that is, it is not yet a truth but a tentative presentation of a possible truth, a new idea that carries the suspicion that it might work as an explanation, a *what if* possibility. To take it beyond what Walton (2008) terms a “plausible belief” (p.161) that the idea we have come up with could conceivably resolve a problem (i.e. be causally efficacious), there needs to be some attempt to test it. Although not worded as such by Peirce, for practical application the reasoning process becomes:

> The surprising problem *C* is observed.
> But if *A* worked/was implemented *C* would be resolved.
> Hence there is reason to suppose that *A* will work.

The reasoning process is equally applicable to different levels of complexity. It would apply to a mechanic trying to diagnose why a car has broken down in order to repair it – short-term problem solving. It could equally apply to a messy organizational problem such as

how to implement a process for increasing understanding of and commitment to a new sustainability policy which not everyone accepts.

The reasoning involved can also be seen as form of an argument, although as Peirce recognised, at this stage rather a weak argument but providing for the possibility of further discovery through inductive testing. To demonstrate this, Pierce (1902) provides an example of noticing the dress and behaviour of a man on street car:

> 'I remark a man opposite to me whose appearance and behaviour unite characters which I am surprised to find together in the same person. I ask myself, how can this be? Suppose I find this problematic reply: Perhaps he is an ex-priest. He is the very image of such a person; he presents an icon of an ex-priest. Here is an iconic argument, or abduction of it.'

Following Toulmin (1958), we can see how such observations are a common feature of everyday lives with the first step being the expression of a view based on facts which support the view. In Toulmin's terms, the argument can be expressed as:

> Claim 'he is an ex-priest'
> Data: appearance and behaviour unite characters which I am surprised to find together in the same person

The argument remains tentative as expressed by the use of the qualifier, 'Perhaps'. Nevertheless the claim which can be seen as the hypothesis on probation is sufficiently plausible to suggest further action. Peirce proceeds as follows:

> 'Secondly, it now occurs to me that if he is an ex-priest, he should be tonsured; and in order to test this, I say something to him calculated to make him take off his hat. He does so, and I find that he is indeed tonsured. Here at last is an indication that my theory is correct. I can now say that he is presumably an ex-priest, although it would be inaccurate to say that there is any definite probability that he is so, since I do not know how often I might find a man tonsured who was not an ex-priest, though evidently far oftener than he would be one.'

With the additional data there is now growing confidence in the hypothesis, and the argument becomes stronger although still with the qualification of 'presumably'. Further testing might be required to make the argument more valid. Toulmin showed how such arguments are underpinned by a warrant which provides justification for linking data to a claim. A warrant explains why the particular data given is relevant to the claim made (van Eemeren et al, 1996). For example,

Claim ‘he is an ex-priest’

Data: ‘he is… tonsured.’

Warrant: Ex-Priests are tonsured

As Gold *et al* (2002) have shown, consideration of the warrant can enable a critical understanding of assumptions and how the argument is linked to context, allowing new lines of enquiry to be considered

We could see from this process how practitioners are able to find a new way forward in the face of a difficult problem. The hypothesis may be tentative, ‘on probation’, but as an abstract idea, it is a theory - albeit a minimal one (Fischer 2001) that can be further developed into an explanation through a simultaneous articulation of understanding. The process has been critiqued by others as a logical fallacy because it seeks to provide an explanation, of which there could be many, from an observation or perception of surprising facts; this infers causes from effects. For Peirce (1935) however fallibility does not prevent the possibility of new ideas which ‘come to us like a flash’ as an ‘act of insight’ with ‘no force in the reasoning’. This would also encompass those parts of conscious understanding which are already known but not yet brought together to become a discovery. Abduction is presented as both an insight and an act of inference, even if guesswork might appear to the main force at work (Fann 1970). There is some debate however, as we consider below, about possible tension between the two processes.

Abductive reasoning has been presented as a resolution to the classical Meno learning paradox or dilemma as laid out by Socrates: how can I know anything about X if I do not know what X is? Nickles (1981) explains the paradox as follows:

> ‘Either you know what you are searching for or you do not. If you do know, you already have it, whence inquiry is pointless. And if you do not know, you would not recognize it even if you stumbled on it accidentally; hence, again, inquiry is impossible, pointless.’ (p. 89)

HRD practitioners frequently face variations of this paradox, when for example trying to explain creativity and being caught in a circular loop

> ‘If one tries to account for learning by means of mental actions carried out by the learner, then it is necessary to attribute to the learner a prior cognitive structure that is as advanced or complex as the one to be acquired.’ (Bereiter, 1985, p. 202)

It is suggested that abduction provides reconciliation of the Meno problem by its conceptualisation of the logic of discovery (Hanson 1958) and we can often see this at work

in the way practitioners find a way forward. Take the example provided earlier of a mechanic trying to repair a troublesome problem with a car. If the initial and expected solution doesn't work then there is a need come up with something new, that extends beyond the familiar repertoire of possibilities. The process entails also what Donald Schön terms reflection-in-action.

Varieties of Abductive Reasoning

The literature provides a number of varieties of abductive reasoning, mostly influenced by Peirce**.** While much of Peirce's work took place over 100 years ago, there has been a growing interest in the concept of abduction because of its practical utility in explaining the creative reasoning process. An illustrative example is the 2004 special edition of the journal 'Foundation of Science' in which the issue editors emphasise the role of abductive logic in providing a cognitive framework for creative model-based reasoning in science (Magnani and Nernessian 2004). This edition of the journal followed an earlier conference where over 70 papers were presented on the use of exploratory reasoning for creative changes to theories and concepts.

Thagard (1988), building on Peirce, identifies four types of abduction: simple, rule-forming, existential and analogical. Simple abduction produces hypotheses in the form of empirical generalisations about individual objects. Rule-forming abduction produces rules or theoretical generalisations that have the potential to explain other rules. For the purposes of this paper we focus on the distinction between existential and analogical abduction. The former, as we explain below, is mostly associated with the use of instinct and guessing in the generation of a plausible hypothesis to resolve a problem. The latter is concerned with using 'past cases of hypothesis formation to generate hypotheses similar to existing ones' (p.54). As we will suggest, both approaches to theorising offer possibilities to the HRD community.

Existential Abduction

Existential abduction provides a logical formulation for an act of creativity, which in the face of what Rittel and Weber (1973) refer to as 'wicked problems', can engender a learning process (Khisty 2000). As we argued above, it is the problems of HRD practitioners that need to provide the focus for engagement. 'Wicked' problems need to be distinguished from 'tame' problems that may involve some degree of complexity, but can be analysed and resolved by using known techniques. Wicked problems on the other hand arise when something new occurs that entails change to current ways of operating; and when there are multiple stakeholders who each have different perspectives on the change process, and

even the need for change itself. The basic requirements for wicked problems –or messes - are:

1. There is no definite formulation
2. There is no stopping rule, and one usually ends up by saying ‘‘that’s good enough.’’
3. Solutions are neither true nor false, but just good or bad; for instance, there is no such thing as a true or false plan, but just a good or bad plan.
4. The solution has no immediate and no ultimate test.
5. Every wicked problem is a one-shot operation.
6. They do not have an exhaustive set of potential solutions.
7. Every wicked problem is essentially unique.
8. Every wicked problem can be considered as a symptom of another problem

In the face of intractable and difficult issues, practitioners can move towards an explanatory hypothesis which ‘has to be invented *ex novo*’ (Eco 1984) p.42) as though following a model of discovery; or through an ‘instinctive insight’ generate new ways of understanding and knowing. Fischer (2001, p.363) is adopting an existential perspective when he argues that abductive reasoning is the ‘constructive modus operandi of the process of knowing’. He contends that learning and improving our knowledge of the world takes place through making logically false inferences – including mistakes - that are part and parcel of generating ‘hypotheses on probation’. For Paavola and Hakkarainen (2005) instinct, inference, and distributed cognition provide three partial abductive solutions to the Meno paradox of how to explain discovery learning that many have felt could not be addressed through conceptual tools. Popper (1959) felt that such discovery learning was the realm of empirical psychology: “The act of conceiving or inventing a theory seems to me neither to call for logical analysis nor to be susceptible of it” (p.31).

Interestingly, there remains a debate about the novelty or originality of abductive reasoning (Kapitan 1990), especially Peirce’s view on the role of guessing. This debate is also reflected in current understanding on the role of instinct, intuition and tacit knowing in creative work (Sadler-Smith 2007). However, Peirce, while not entirely clear on the issue, and this is entirely understandable given continuing debates, did not see either abduction or discovery as random processes of guessing based on insight. If anything, he argued, we have a sense of finding a hypothesis which could possibly and plausibly be true. According to Peirce (1929), our guessing instinct is based on how ‘we often derive from observations strong intimations of truth, without being able to specify what were the circumstances we had observed which conveyed those intimations’ (p.282). As Hanson (1958) argued, abduction is

closely linked to our perceptions and perhaps more importantly our pre-conceptions which also provides a strong connection to Gadamer's (1989) hermeneutic philosophy and his basic argument that human understanding in the phenomenological present is by necessity grounded in pre-understanding and language. That is, without pre-understanding, it is impossible to understand or engage in an interpretative act (Kögler 1999). Further, such pre-understanding or 'prejudice' is always historically formed, mediating meanings made in the present but from a historical situatedness and positioning.

Hoffman (1997) highlights Peirce's attention to the mediation of 'signs' and 'elements of generality' and this also chimes with a Vygotskyian view of action (Vygotsky 1982). For any person in action, there is always a goal, the achievement of which is enabled or constrained by the use of mediating tools, particularly the use of signs and language; as Vygotsky explained, such tools include ''systems for counting; mnemonic techniques; algebraic symbol systems; works of art; writing; schemes, diagrams, maps, and technical drawings; all sorts of conventional signs, and so on.' (p. 137). According to Vygotsky, such tools, mediate our thoughts, feelings and behaviour and are crucial to the development of more advanced forms of understanding. The most important tool is language but all tools are socially and culturally formed and therefore a crucial feature of any context. It against such context and through the use of signs that it becomes possible for learners to respond, abductively to what is surprising or unfamiliar with the possibility of a new way of going on – a hypothesis on probation is discovered, not as a guess without hope but as a possibility that carries 'contextual meaning' (Shotter 2008, p.33).

Analogic Abduction

The process of existential abduction allows for the generation of hypotheses which are plausible but rudimentary in nature. Such hypotheses are not understood as true but carry the possibility of truth and are therefore worth considering for further examination (Haig 2005). Analogic abduction works with the use of existing hypotheses to generate something similar, through the development of models based on analogical reasoning. Peirce had identified the importance of analogy and analogic reasoning in order to expand knowledge further through the accumulation of evidence. It is the way that something 'unknown' becomes 'known' by 'its analogy with other things known'. As he warned, 'do not attempt to explain phenomena isolated and disconnected with common experience. It is a waste of energy, besides being extremely compromising'.

This approach to theorising has found growing favour with scientists where there has been significant interest in analogical reasoning in such fields as Cognitive Science and

Artificial Intelligence, interestingly as a means to provide problem-solving heuristics through modelling (Abrantes 1999). There has also been interest among social science and humanities researchers who seek to advance theoretical development through such approaches such as Grounded Theory and Action Research (Richardson and Kramer 2006).

Analogic abduction and reasoning are concerned with how we use similarity and association in our understanding. There is a connection here with Bruner's (1986) distinction between a logico-scientific mode of thinking and a narrative mode. The former consists of propositional statements but the latter gives more prominence to the way we make sense of our lives with others. Narrative is considered as the main contribution to the meaningfulness of human experience (Polkinghorne 1997). Within any narrative told, an interpretation of ideas, actions and events will draw on analogy, metaphor and other linguistic tropes to make meaning and sense of a perceived reality.

Heeding Peirce's warning to not 'waste energy', we can offer a number of ways that would allow analogical abduction to become more evident with practitioners. These include:

1. Story-telling – spoken or written that allow the presentation of what has happened in relation to actions agreed. Stories provide a means to represent realities capturing the richness of context and told in relation to a pattern and plot.
2. Stories are replete with analogy, metaphor and arguments which are employed to set a direction and make a point. Closer attention to the way these are used allows the surfacing for new possible hypotheses, again on probation but moving more closely towards a better explanation of facts.
3. The personal nature of narrative and their linguistic expression also offers the possibility for critique of claims made. Practitioners can find new ways to consider difficult issues by surfacing and testing underlying assumptions.
4. As an aid to considering patterns of reasoning, practitioners can reconsider data already accumulated as a map or model. According to Huff and Jenkins (2002), maps provide a visual representation allowing learners to see their thoughts, allowing them to make sense of what is going and providing the potential for further creativity and consideration of implications. Conceptual or causal models and maps indicate relationships between various elements which are considered relevant to the issue. Vertue and Haig (2008) employed causal modelling as stage in the analysis of data in a process of abduction reasoning in the description and explanation of health problems.

Through such processes, it also becomes possible for HRD practitioners in collaboration with scholars to become more aware of how abductive reasoning can lead to new discoveries with others in the context of the workplace. Magnani (2001) considers how a process of inquiry to learn about issues can become more than just 'doing'; in what he refers to as *manipulative* abduction for behaviour that involves 'thinking through doing', resulting in the production of 'communicable accounts' of what is found which can then be integrated into existing practices (p. 53). Such behaviour is regarded as 'extra-theoretical' in the sense of the way thoughts need to be articulated and communicated with others. It is a reminder that complex and wicked problems are seldom resolved by individuals alone and require a collective response based on collaboration between different participants (Grint 2005). Khisty (2000) invokes Bateson's (1979) framework of levels of learning and points to the way a group will attempt to solve a difficult problem by 'backtracking', using past experience and intuition. Solutions that are developed can only be tentative as possibilities but need to be agreed and shared among a group. The potential here is for significant and even radical discoveries for change in organisations and structures, corresponding with Bateson's Learning Level III.

Theory Building, Research Strategies And Abduction

In recent years there have been a number of approaches to theory building within the social sciences that see abductive reasoning as an integral element and which go beyond the conventional induction – deduction dichotomy that is so familiar in research methods textbooks. Two of the most influential are summarised below.

Blaikie's Abductive Research Strategy

Blaikie (2000) introduces four research strategies of which abduction is one. His interpretation of abduction is different to those formulations so far considered. For him an abductive research strategy, unlike deductive and inductive research strategies, focuses on 'the meanings and interpretations, the motives and intentions, that people use in their everyday lives and which direct their behaviour' (Blaikie 2007, p.90). He refers to abductive layers that permit iterations between theory and practice to resolve sense-making:

"Everyday concepts and meanings
provide the basis for
social action/interaction
about which

social actors can give accounts
from which
social scientific description can be made
from which
social theories can be generated
or which can be understood in terms of existing
social theories and perspectives"
(Blaikie 2007, p.90) (emphasis in original)

He admits that his use of abduction as a research strategy incorporates some of Peirce's ideas 'but has a different emphasis because of its exclusive application within the Interpretive approach to social enquiry' (Blaikie 2000, p.114). Indeed his formulation of a retroductive research strategy (p.111) is closer to Peirce's approach, although he considers it to have limited applicability to the social sciences where – as he puts it - 'the nature of explanatory mechanisms is usually well known' (p.111). In discussing retroduction he asks whether there is a logic of discovery. If so: 'it requires disciplined scientific thinking aided by creative imagination, intuition and guesswork' (Blaikie 2009, p.87). This, of course, is existential abduction!!

Van de Ven's Engaged Scholarship Research Model

Van de Ven (2007) has formulated a participative method of research 'for expanding the capabilities of scholars to study complex problems and create the kind of knowledge that advances both science and practice' (p.9). The resultant framework of 'engaged scholarship' is designed to support the likelihood of scholars discovering more about a complex phenomenon by involving others in the various activities of the research process. These four activities of research design; theory building; problem formulation; and problem solving can be undertaken in any sequence. Of particular significance for this paper is his emphasis on the role of abduction in theory building. For him theory building involves three activities: (1) conceiving or creating a theory; (2) constructing or elaborating the theory; and (3) justifying or evaluating a theory. Each activity entails a different type of reasoning: abduction is used for conceiving a theory, whereas logical deduction is the basis for constructing a theory, and inductive reasoning for evaluating a theory. Unlike Blaikie he doesn't identify a separate abductive or retroductive research strategy but sees abductive reasoning as an essential component – alongside induction and deduction - in the theory building process.

Summary and Concluding Thoughts

This paper has looked into the implications of viewing theorising and the relationship between HRD theory and practice from an abductive reasoning perspective. Following an introduction to the classical pragmatist formulation of hypotheses on probation by Charles Sanders Peirce it has analysed more recent perspectives, focusing on existential and analogical abduction. The significance of abduction for discovery learning and the possible resolution of the Meno learning paradox have been reviewed. Peirce was concerned with truths and scientifically acceptable explanations. The paper emphasises that with practical applications and change situations abductive reasoning of itself takes us no further than creating plausible explanations/ways forward that seem to be viable but about which one may be mistaken. Yet that doesn't vitiate the need for action and ultimately we have to make choices. As Donald Schön recognised, those choices and our hypotheses on probation are strengthened through our ability to learn from our experiences and develop our problem solving expertise in practical situations. Expertise involves learning how to formulate questions that can generate unexpected answers and lead to informed judgments in situations of uncertainty. Over the years HRD practitioners have developed a set of mechanisms to enable and support critical reflective practice. The notion of abductive reasoning adds to this repertoire. Phronesis highlights the importance of a value-oriented approach as we exercise those choices and engage in the reflective process.

Our discussion suggests a need for HRD scholars and practitioners to engage with knowledge produced in the context of application. This is akin to what Gibbons et al (1994) term 'mode 2' knowledge, "characterised by a constant flow back and forth between the fundamental and the applied, between the theoretical and the practical" (p.19). Mode 2 reflects conceptions of praxis and learning by problem solving rather than experts presenting learners with solutions. This contrasts with 'mode 1' knowledge which is "generated within a disciplinary, primarily cognitive, context" (p.1), often through formal 'teacher centred' as opposed to 'learner centred' development processes, such as classroom teaching. Watson (1996) illustrates how theory can be counter-productive in the learning process, especially when it is presented as an end in itself, as is the case in some management classrooms. He talks about 'lay theorising' as a process in which learners can engage as way of making sense of theory or the way things are in organisations rather than relying on theoretical models to do this for them. An unquestioning approach to theory is likely to lead to 'surface' rather than 'deep' learning (Marton and Säljö, 1976). In applying this questioning approach to the nature of work and organisations, starting with questions such as, 'how do you go about getting people at work to do things you want them to do?' (Watson, 1996:459) and then

examining how models and concepts can help or hinder the search for answers, theory becomes an enabling rather than guiding mechanism in learning.

As a guiding mechanism it can support notions of power and control (Sambrook 2004) by proposing a 'managing by numbers' approach that reinforces organisation dogma with one 'best' solution or action. Such an approach to learning transfer is problematic for developing the skills and insights to resolve wicked problems and has led Lave (1996) to argue that informal learning is superior to traditional methods.

Practitioners and scholars should therefore reflect on their contribution and role in supporting individuals to learn. They should consider rejecting a traditional *primus inter pares* role ('sage on the stage') through which they impart only propositional knowledge, without going so far as to echo the view of Rogers and Frieburg (1969) that anything that can be taught is rather inconsequential. In any curriculum, methods that allow learners to make their own discoveries such as Participatory Action Research (PAR) should be emphasised. As Chiu (2006) proposes that the twin goals of PAR are emancipation and transformation, learners can uncover knowledge that is relevant in their specific context, and develop practical wisdom (phronesis).

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