APPROACHES TO VALIDITY IN ENTREPRENEURSHIP RESEARCH

Linda Brennan: Swinburne University Of Technology, Hawthorn, Australia
Peter Hayward: Swinburne University Of Technology, Hawthorn, Australia
Joe Voros: Swinburne University Of Technology, Hawthorn, Australia

Contact: Linda Brennan, Swinburne University of Technology, PO Box 218, 3122 Hawthorn, Australia, Email: lbrennan@swin.edu.au

ABSTRACT
This paper argues that research in entrepreneurship is a fraught process. Firstly, concepts of validity are paradigmatically framed. Secondly, the paradigms of research within entrepreneurship are still being argued and are the subject of much debate. Finally, the ‘quality’ of research is being determined by those at the leading edge of their own paradigm without reference to other points of view. We argue that these sub-processes of determining the validity of research outcomes are a challenge to the ‘discipline’ of entrepreneurship research (ER) and that ER is at risk of becoming too narrowly focussed. Furthermore, we believe this is limiting ER’s potential to contribute to the broader domain of business research.

INTRODUCTION
Business research (and therefore the subset of entrepreneurship research) uses a variety of means to establish validity. These will be explained later. However, let us assume for the moment that ‘validity’ as an idea is separable from a particular philosophical stance. That is:

Validity – arguments that are valid or invalid, according to whether the conclusion follows from the premises.

Entrepreneurship as a field of inquiry would clearly claim that it gives serious consideration to the validity of its research. It would seem reasonable to assume that, like business research, entrepreneurship research would embrace a range of methodologies and means to promote validity. Consequently, we find the following perspective somewhat disconcerting:

“This founded by Babson College in 1981, Babson College Entrepreneurship Research Conference is considered by many to be the premier entrepreneurship research conference in the world. Frontiers of Entrepreneurship Research contains the proceedings of the conference and is the most comprehensive collection of empirical research papers on entrepreneurship” (Babson College, 2007)

This is disconcerting because it seems to categorically suggest that the leading edge of entrepreneurship research is [only] interested in empirical research. Our concern arises because, if you accept this viewpoint, it would seem that only empirical research into entrepreneurship is considered to be valid. This means that the intent “to lead the global advancement of entrepreneurship education and practice through the development of academic, research, and outreach initiatives that inspire entrepreneurial thinking and cultivate entrepreneurial leadership in all organizations and society” (Arthur M Blank Centre website) can only come via testable and replicable research. However, to
accord such a test of ‘validity’ to the totality of entrepreneurship research would be tantamount to excluding swathes of the totality of the domain of research.

In this paper the authors introduce a model representing the variety of relationships that exist amongst a range of validity concepts that will assist methodological practice and increased rigor in entrepreneurship research. The authors will also introduce a matrix on research paradigms that can support the integration of a range of philosophical considerations to entrepreneurship research design. The authors believe that both of these will enhance the practices of research in the field of entrepreneurship.

**HOW IS VALIDITY APPLIED IN ENTREPRENEURSHIP RESEARCH?**

Entrepreneurship research (ER) is often about the exploration of innovation and opportunity creation. As a consequence, researchers are often constrained to adapt methods from other disciplines. Therefore, there are many innovative approaches to ER (innovation in this circumstance being the presentation of something new to the client or within the context). First, there is the transfer of methodology developed in other fields into ER. Second, there is transfer of knowledge. For example, concepts in psychology are adapted into ER. Finally, there are extensions of existing techniques within the domain of ER itself. The question arises – what mechanisms are in place to ensure that such adaptations of theory and method across disciplinary boundaries are applied appropriately? Is the expertise developed in the (for example) psychometric domain directly applicable to the matters embedded within the ER domain? Of course, the answer to that is; “it all depends.” Academics and practitioners alike must be in a position to evaluate when it is appropriate to adapt methods and theories from one domain to another. This would, of necessity, require some research training in a multitude of disciplines.

Within ER, therefore, there are a large number of methodologies and approaches that have been borrowed from other domains and used with new populations, situations and contexts. In addition, both these borrowed methodologies and those developed within ER are ‘tinkered with’. By this we mean that researchers change the methodology without considering the effect it will have on the validity of the methodology. For example, ethnography is a trendy ‘method’ that is applied as a term without much thought as to the ontological and epistemological foundations, nor the methodologies that were originally validated in the discipline. Participant-observation, for example, does not mean simply observing; it means actively participating, reflecting and observing, writing about the observation and being assimilated into the community under consideration. However, as it takes much time it rarely takes place; although there is much non-participant ‘observation’ that is passed off as ‘ethnography.’

These borrowings from other disciplines have helped shift the ER discipline into a credible and ‘scientific’ status within the domain of business decision-making. However, we argue that such ad hoc borrowing can lead to the proliferation of methodologies that have not been validated or revalidated for the new populations, situations and contexts in which they are used. This in turn leads to the generation of research findings that might or might not be correct.

This argument rests squarely on what we mean by ‘valid’. Therefore, we now review the basic concepts of validity. Figure 1 illustrates relationships between the many types of validity, as summarised from the typology presented below. The concepts of validity and reliability hold a central place in measurement science. In this paper, we put reliability to one side and discuss only validity. We note in passing, however, that there is confusion in the literature with many authors apparently using the terms interchangeably. For now, a working definition of reliability is ‘that a measure will yield the same result if repeated under the same conditions’ and a working definition of validity is ‘that a measure assesses what it purports to measure’.

**TYPES OF VALIDITY**

**Face validity** exists when the measure ‘looks as if’ (on the face of it) it should measure a particular attribute (McGartland Rubio & Kimberly, 2005). This is usually easy for others to agree with, so it is also called consensus validity (Heeler & Ray, 1972) or logical validity (McGartland Rubio & Kimberly, 2005). Both terms are often used synonymously with content validity (Sireci, 1998). However, face validity does not imply expert acceptance of the measure’s validity as content validity does. Interestingly, a large volume of research (supporting references?) is based on the assumption that
face validity is established before any measurement takes place. However, because it is such a base assumption, there is no way to test face validity outside of the context. We argue that the expression face validity has two meanings. First, a face belongs to an individual idea. For example in Figure 1, the construct of ‘intelligence’ is a single idea, which may or may not be uni-dimensional. Second, ‘on the face of it’ means simply that it ‘looks as if’ it would be reasonable to measure a phenomenon. However, we never ask “To whom does it look that way?”. In the establishment of face validity, an important but often missing question is - whose face? From whose perspective are we viewing the construct? For example, few people in Melbourne (Australia) would argue that a 24 degree day with sunshine is a ‘nice day’. We could ‘on the face of it’ establish 24 degrees and sunshine as two separate variables of the construct ‘nice day.’ However, if we do not know which temperature measure we are using (Fahrenheit or Celsius) then the ‘nice day’ could be very different depending on whether you are a located in the US which uses Fahrenheit or somewhere which uses Celsius. Furthermore, artists might prefer clouds and brooding skylines, pilots might be concerned about invisible turbulences and drought stricken farmers might prefer lots of rain. Thus, perspective is important in the establishment of validity. Nunnally (1967) clearly outlined the implications of face validity being established within a context rather than within a set of measures. However, this excellent advice seems to have been lost somewhere along the way.

The usual method of establishing face validity in the social sciences is a relatively cursory process (Rossiter, 2002). Most validation is done with university students and academics (Basil, Brown, & Bocarnea, 2002). These people are not representative of the general population. Researchers are usually adamant about random sampling but if face validity is established with people who are not representative of the population then the first step is flawed.

Figure 1: Relationships between aspects of validity

Figure 1 illustrates that only face and content validity can be established in the absence of other measures because all other forms are defined in terms of their relationship to other variables or measures – thus content and face validity are ‘formative’ in nature. That is, validity of one measure is
based on the supposed validity of another measure. We argue that if the first (formative) ‘validity’ is not well established, then the rest of the process becomes meaningless.

In order to describe these relationships, imagine a hypothetical group of researchers who have both Intelligence and Creativity (well don’t we all?). In the diagram these are shown under the heading ‘Constructs (hidden, latent, inferred). In the next column we have ‘Observable Behaviour’, which includes performing two different IQ tests and a creativity test. In addition, we note that these researchers do ‘good’ research. In the next column we show measurements that could arise relating to each of the behaviours. For instance, IQ test scores arise from undertaking IQ tests and we could assemble list of research achievements for each researcher who does good research. The rightmost column represents aspects of the broader environment. Let us imagine that these researchers first do a test that purports to measure their creativity and obtain a creativity test score:

Construct validity is the extent to which the test score (outcome of measurement) is a measure of what we understand by ‘creativity’ (Cronbach & Meehl, 1955; Smith, 2005). The creativity test is made up of a large number of individual test items. In this sense, creativity is not something which can be directly observed, it must be inferred from some other observable behaviour. The more abstract the concept, the more difficult to assess validity (Nunnally, 1967):

Discriminant validity is the extent to which the IQ and Creativity tests differentiate between the two constructs ‘creativity’ and ‘IQ’ (D. Campbell, 1960). That is to say if we believe that a person could have high IQ and low creativity, or vice versa, then the tests will be able to show this:

Convergent validity is the extent to which the two IQ tests provide similar results (D. T. Campbell & Fiske, 1959; Reichardt & Coleman, 1995). That is to say if some of our researchers scored highly on one IQ test but obtained a low score on the other we have cause to doubt that the tests are measuring the same thing. Let us assume that there is a belief that a high IQ score indicates that the researcher will perform good research:

Predictive validity is the extent to which the test score for IQ predicts how well researchers conduct research (Cronbach & Meehl, 1955; Nunnally, 1967). It might well be the case that IQ does not correlate at all with good quality research and it is found that creativity is a far better predictor. The question then arises of how we know whether a researcher is doing good work? The measure we have suggested is to assemble a list of research achievements. Researchers with longer lists of achievements would then be said to have done better research than those with shorter lists of achievements. Of course, we realise that simply having a longer list of achievements does not actually mean better research. However, we are using this as an easily explained exemplar:

Concurrent validity is the extent to which the test score could, for instance, differentiate quantitative researchers from qualitative researchers (Heeler & Ray, 1972). It is similar to Predictive validity, but does not imply future activity. Predictive validity and Concurrent validity are usually considered to be variants of Criterion validity (Diamantopoulos, 2005). In our researchers’ situation, an IQ test would potentially differentiate between levels of verbal and/or numerical skills.

Criterion validity is the measurement of how well one variable (or set of variables) predicts or correlates with an outcome based on information from other variables (includes concurrent, predictive and diagnostic validity) (Diamantopoulos, 2005). In this case our IQ tests are related to each other but may be used to determine different elements of IQ depending on the needs of the person testing. One variable (eg numerical skills) might be sufficient in some circumstances and can be used as a ‘valid’ alternative to a battery of tests.

Content validity is the extent to which a test is made up of a representative sample from the domain of interest (McGartland Rubio & Kimberly, 2005). We note that the issue of circularity, which is inherent in many aspects of validity, now arises. How do we know that the items we have chosen correlate with ‘good research’ unless we already have an idea in mind for what constitutes ‘good’ research? This is a vexing question. It is partly answered by the concept of ‘face validity’, which is not shown as a set of relationships on the diagram because it should be applied in all cases:

Face validity is the extent that the measurement captures the quality that it purports to measure on the basis of a common sense assessment (McGartland Rubio & Kimberly, 2005). Our hypothetical group
of researchers are only a small subset of all researchers. Having established that the ‘list of achievements’ is a valid measure of quality of research, we can now ask the question whether or not the idea of using this type of measure is applicable for the broader research community, or even for other professions. For instance, is ‘list of achievements’ a valid measure for the quality of social work, police work or sales?

**External validity** is the extent to which the results can be generalised to other populations, situations or conditions (Peter, 1981; Redmond & Griffith, 2003). Finally, we return to our IQ scores. It is reasonable to ask whether the ideas we have developed – that creativity is different to IQ and that IQ, not creativity, is a good predictor of quality of research as measured by lists of achievements – fits in with broader psychological and social theories.

**Nomological validity** is the extent to which the pattern of results for a theoretical network is consistent with broader theoretical networks (Peter, 1981). For instance, it could be the case that there is strong evidence in another domain, say, sales, where it has been shown that IQ does not predict performance at all and that lists of self-reported achievements are poor indicators of sales ability.

As you can see, ‘validity’ is confusing and a potentially confused area of concern for ER. The above list is not exhaustive, but only illustrative of the difficulties researchers face in defining what is valid and therefore ‘right’ in terms of framing their research. Let us assume for the moment, that every author who has contributed to the list is ‘right’ in their view of validity. We must firstly question how is it that we need so many terms to express something as relatively straightforward as the definitions in the introduction. Conceptual and methodological complexity is a serious issue when attempting to communicate across disciplines. In ER, this complexity is further complicated due to the variety of paradigms at work within the field.

**EXTANT PARADIGMS IN THE FIELD OF ER**

It is contended here that research cannot be properly or even competently undertaken in the absence of a solid understanding of the philosophical foundations underpinning it. That is, because each methodological approach has an implicit philosophical basis, it is necessary for researchers and practitioners to be fully aware of just what this basis is and whether it is appropriate to the form, domain and purpose of the inquiry.

While a large number of approaches to inquiry exist, it is possible to conceive of these approaches as belonging to a few broadly-defined classes or categories. The typology presented can be considered to be a set of broad-brush generalisations which look at the overall structure of the wider landscape of approaches to inquiry, while at the same time recognising that many gradations and inter-leavings exist between the various forms. Any approach to knowledge inquiry rests upon certain foundational assumptions and presuppositions—about the nature of reality; about the nature of possible forms of knowledge about that reality; about the types of methods which can be used to generate that knowledge; and several others. That is, any approach to knowledge inquiry (or ‘paradigm’) engenders certain commitments and assumptions which are inherent in the paradigm—including ontological, epistemological, and methodological. Different paradigmatic foundational assumptions give rise to different forms of and approaches to inquiry, and these assumptions condition what are considered to be acceptable, appropriate or valid types of methodology. Therefore, it is impossible to separate methodological considerations from the associated underpinning philosophical foundations, and to attempt to do so is, to quote Donald Michael (1985), to have “both feet planted firmly in mid-air”.

There are many classification schemes for inquiry paradigms, and a look at almost any book dealing with the conduct of research will reveal some sort of typology. One of the better-known classification systems is the one developed by Guba and Lincoln in various editions of the very influential *Handbook of Qualitative Research* (Denzin & Lincoln, 1994, 2000, 2005). According to Guba and Lincoln (1994, p.107):

A paradigm may be viewed as a set of basic beliefs (or metaphysics) that deals with ultimates or first principles. It represents a worldview that defines, for its holder, the nature of “the world”, the individual’s place in it, and the range of possible relationships to that world and its parts. The beliefs are basic in the sense that they must be accepted simply on faith (however well argued); there is no way to establish their ultimate
truthfulness. If there were, the philosophical debates would have been resolved millennia ago.

These ‘basic beliefs’, which are central to the different paradigms, may be found from the answers they would give to several fundamental questions. These questions are (Guba & Lincoln, 1994, p. 108):

1. the ontological question: what is the nature of ‘reality’ and therefore what is there that can be known?
2. the epistemological question: what is the nature of knowledge, the relationship between the would-be knower and what can be known? And,
3. the methodological question: how can the would-be knower or inquirer go about finding out whatever can be known?

To this set of three basic questions, they later added a fourth (Lincoln & Guba, 2000, pp. 168-9), in response to some commentary upon and extension to their work (Heron & Reason, 1997):

4. the axiological question: what is intrinsically worthwhile?

In addition, they define and examine several issues or themes which run across and through all of the classes of inquiry paradigms they consider. These themes include: the aim or purpose of the inquiry; assumptions about the nature of how knowledge accumulates; the ‘voice’ or ‘posture’ of the inquirer; the roles of values in inquiry; the criteria for assessing the quality of work; and so on. (See Table 6.2 in each of Guba and Lincoln (1994) and Lincoln and Guba (2000), and Tables 8.1-8.4 in Guba and Lincoln (2005). For convenience, some elements of these tables have been adapted and reproduced in the Appendix to this paper, in Tables 1 and 2.).

In their view, the different answers which are given to the basic fundamental questions actually define an inquiry paradigm, and hence characterise the stances taken on each of the main themes or issues. Paradigmatic assumptions affect, as a result, the overall methodological approach taken, the types of methods, techniques and tools that are considered appropriate, and the meanings and interpretations which are assigned to the results or data that have been generated by these practices.

Guba and Lincoln considered only Western approaches to knowledge inquiry, and initially (1994) posited four major classes of inquiry paradigm which they later expanded to five (Lincoln & Guba, 2000) in response to the commentary from Heron and Reason (1997) who, as mentioned above, also suggested the explicit consideration of the axiological question as foundational to paradigm definition. What is centrally important in the discussion here is not the specific details of how many inquiry paradigms there are (in the various authors’ opinions), or whether they are ‘Western’ or ‘non-Western’, but rather the very observation itself—that there are different inquiry paradigms, which have fundamental distinctions and differences—and that variations between them are apparent when the paradigms are examined side by side. The five main classes of paradigm which these authors consider are:

- positivism
- post-positivism
- Critical Theory and its variants, or ‘criticalism’
- constructivism, and
- the ‘participatory’ paradigm

and their major features are summarised in Tables 1 and 2 in the Appendix. The commentary presented here is based on a representation of the positions taken and observations made in the above-cited works. Drawing upon an idea of Reason and Torbert (2001), it is also sometimes useful to consider this five-part typology as consisting of three main classes: positivist (positivism and post-positivism); interpretivistic (criticalism and constructivism); and action/participatory.
The first of these paradigms, positivism, represents the so-called ‘received view’ of scientific inquiry over the last few centuries, and nowadays it most often functions primarily as the foil against which other paradigms are compared. Post-positivism arose as a result of attempts to address some of the key weaknesses which have been identified in the pure positivist viewpoint. Criticalism arose as part of the post-modernist movement of the 20th century and, to a greater or lesser degree, in opposition to the earlier positivistic paradigms. Constructivism has some features in common with criticalism, although there are significant differences between the two paradigms (see Schwandt 1994, 2000, for a detailed comparison of these positions), and the participatory paradigm introduces new assumptions, most especially about ontology and epistemology, but also in respect of almost all other foundational assumptions and issues (see Heron & Reason (1997); Reason (1994); Reason & Bradbury (2001) for more details, and see Lincoln (2001) for a comparison between the constructivist and participatory paradigms.) What is of most interest and use to us here is to note the essential differences in the various foundational positions of the different classes of paradigm (Table 1), as well as very briefly noting in passing some of their different stances on certain issues related to knowledge inquiry (Table 2).

Comparison of inquiry paradigms

Looking across Table 1, we can trace a shift in the ontological positions of the five inquiry paradigms. The stances move from: a ‘real’, objective, external but nonetheless knowable reality in positivism; to an external objective reality which is only imperfectly knowable in post-positivism; to an historically-contingent reality in criticalism which has formed over time through the reification of initially-plastic social structures; to multiple realities in constructivism which are dependent upon the relative specifics of the particular inquiry group; to a subjective-objective participative reality literally co-created by the interaction of the inquiring consciousness and the cosmos. In the two positivistic paradigms, reality remains external to the subjectivity of the inquirer but, in the other three, reality becomes increasingly contingent upon inquirer subjectivity so that, ultimately, in the participatory paradigm, the inquirer’s own subjectivity is considered to be literally formative of it.

We see a similar shift in the stances taken with respect to epistemology, axiology, methodology, the role of values, inquirer ‘posture’, and so on, and a careful reading of Tables 1 and 2 will provide the reader with many insights into these basic issues and paradigmatic commitments. Here, for reasons of space, we shall focus most strongly on epistemology and methodology.

The shifts in epistemological positions are especially interesting, as these of course form the basis for any knowledge claims which are produced by methodological interventions. We can see a change from the objectivist stances in the two positivistic paradigms—a view that the inquirer or would-be knower is separate and distinct from the object of knowledge (‘dualism’)—to the subjectivist stance taken in criticalism and constructivism—whereby knowledge is no longer considered ‘objective’ and therefore allegedly independent of the observer, but rather is influenced by the transaction between the would-be knower(s) and the object(s) of inquiry. In the criticalist view the findings are mediated (or ‘coloured’) by the value systems in operation, while constructivism takes a stronger stance and holds that the findings are co-created by the inquirer and the object of inquiry through the very act of inquiry itself.

Both of these views assume knowledge is primarily a function of mind—knowledge claims are expressed as propositions, which latter are mental constructs (as indeed they are in the two positivistic views). In the participatory paradigm, however, this ‘propositional’ form of knowledge is considered only one of four main types of knowledge: direct ‘experiential’ knowledge is prior to the propositional form, as is the ‘presentational’ form. These three forms of knowledge are considered useful insofar as they lead to the fourth, ‘practical’ knowing—knowing how to do something, which is considered the highest form of knowledge—hence the participatory paradigm’s emphasis on the primacy of ‘practical knowing’ (Table 2). In this view, direct experience of the rain on an upturned face during a rain shower is also a form of knowledge, even in the absence of a theory of rainfall or climate, and is prior to any conceptual propositional knowledge we might convey to you about the experience, or any presentational form we might use to represent (i.e. ‘re-present’) it to you, such as through metaphor, song, dance, poetry, and so on.
On closer inspection, we can see in the epistemological positions of the five paradigms a three-part evolution in the emphasis placed on different forms of knowing. Following, for example, Reason and Bradbury (2001, p.xxxv), Chandler and Torbert (2003), or Reason and Torbert (2001), these forms of knowledge inquiry may be termed ‘first-person’, ‘second-person’ and ‘third-person’, and in a similar vein, Wilber (2000, p.70) calls them ‘I’ (first person), ‘we/us’ (second person) and ‘it/its’ (third person, singular and plural). As noted above, one can simplify discussions of inquiry paradigms into three main types—positivistic, interpretivist, and action/participatory—and this maps very suggestively to what Reason and Torbert (2001) consider third-person, second-person and first-person modes of inquiry, respectively. (See also Torbert, 2000, for another view of social science paradigms and first-, second- and third-person research/practice.)

In the positivistic paradigms (those recommended by Babson), the emphasis is on ‘objective’, propositional knowledge; this is ‘third-person’ knowledge—the knowledge developed is about objectively-measurable qualities of material ‘objects’, things or ‘its’ (even when they are people). In the interpretivistic paradigms, the emphasis is placed on the subjective knowledge developed by a group of inquirers about some theme, issue or domain of inquiry; this is ‘second-person’ knowledge, as it is concerned with the shared, inter-subjective forms of knowledge which groups of people develop when they meet in a ‘we’ or ‘us’ space of discussion, dialogue, dialectic or hermeneutical meaning-making.

While these two forms of knowing are also present in the participatory paradigm, it also adds the distinctly ‘first-person’ knowing of direct experience, a type of knowledge that cannot be transmitted via the mental-level constructs of propositional knowing, which latter is the basis of knowledge in the other paradigms, nor even via the ‘representational’ forms mentioned earlier. Some of the different participatory approaches, such as ‘action inquiry’ (Reason, 1994; Torbert, 2001), focus squarely on the subjectivity of the individual inquirer in the midst of action, while others, such as ‘co-operative inquiry’ and ‘action research’ (Heron & Reason, 2001; Reason, 1994), are more usually conducted with larger groups of people. Nonetheless the key addition to epistemological validity in this paradigm is the admission of forms of knowing which are not based solely in mental-level, conceptual propositional knowing, but which could emanate from other aspects or levels of first-person subjective human experience. And what is more, this knowing could itself be subject to critical self-reflexive inquiry (‘critical subjectivity’) to ensure that it is well grounded in the experiential reality upon which it is based, as well as ensuring congruence of all of the different accepted modes of knowing.

There is also a similar progression of methodologies. The positivistic paradigms undertake experimental manipulation of the exterior objective (‘third-person’) world in order to examine the causal dependencies of the different factors under consideration, positivism using mostly quantitative methods, post-positivism also admitting some qualitative. The emphasis moves from naïve verification of hypotheses as ‘true’ in the former, to attempts at falsification of hypotheses in the latter—which hypotheses must of course survive all attempts at falsification to be admitted as ‘probably true’ findings. In the interpretivistic paradigms, the methods are grounded in the inter-subjective (second-person) ‘world’ of shared subjective experience, hence the dialogical/dialectical methods of criticalism, and the hermeneutical/dialectical methods of constructivism. In the participatory paradigm, the methods involve direct participation of the (first-person) ‘subjects’ of the inquiry in the very process of inquiry itself, granting equal-power status (i.e. ‘political participation’) to the participants, and this participation is conducted through the exchange of information via language constructs grounded in a direct, shared, first-person experiential context. Heron and Reason (2001) have therefore called this approach ‘research ‘with’, rather than ‘on’, people’.

In the case of the axiological stance, we see how propositional knowledge as an end in itself in the two positivistic paradigms shifts to propositional knowledge becoming simply a tool for social emancipation in the two interpretivistic paradigms. In the participatory paradigm, propositional knowledge is only considered useful insofar as it contributes to practical knowledge about how to flourish as human beings in balance with the rest of society and the wider cosmos. Again, we can see a shift in emphasis: a move away from the distanced, ‘objective expert’, ‘disinterested scientist’ stance or posture of the two positivistic paradigms, to a progressively more intimate engagement with the world, as an activist and advocate (criticalism), as a passionate participant/facilitator (constructivism), a type of knowledge that cannot be transmitted.
to a self-reflexive actor-agent engaging with others in multiple forms of knowing, knowledge-creation, and reality-creation (participatory).

We are left wondering which paradigm is being consistently applied in our research conferences and journals. It is clear from the Babson definition, that all research other than positivism is considered unacceptable and invalid. If one considers that these other paradigms are representative of ‘legitimate’ research, then the world of ER is excluding itself from many other ways of knowing as each paradigm defines methods of evaluating validity.

CONCLUSION
Entrepreneurship research deals with unknown and often unknowable situations. The discipline is characterised by complexity, abstract ideas, apparent contradictions and paradoxes. At present, the evolution of the domain of knowledge could be constrained by a narrow view of acceptable practice in research. This leads to confusion about what is valid research and therefore what decision making can take place as a result of our research. We argue that to expand the body of knowledge, researchers must be willing and able to take methodological risks. This means that our concepts of what constitutes valid research may need to be reviewed. Positivism often leads to incremental knowledge development. However, in ER, there is a need to allow for discontinuous knowledge development. It is not clear how we would validate such development if the framework for considering ‘validity’ is so narrowly defined.

REFERENCES
<table>
<thead>
<tr>
<th>Ontology</th>
<th>Positivism</th>
<th>Post-positivism</th>
<th>Criticalism</th>
<th>Constructivism</th>
<th>Participatory</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>naïve realism – ‘real’ reality but apprehensible</td>
<td>critical realism – ‘real’ reality but only imperfectly and probabilistically apprehensible</td>
<td>historical realism – virtual reality shaped by social, political, cultural, economic, ethnic and gender values; crystallised over time</td>
<td>relativism – local and specific co-constructed realities</td>
<td>participatory reality – subjective-objective reality, co-created by mind and given cosmos</td>
</tr>
<tr>
<td>Epistemology</td>
<td>dualist / objectivist; findings ‘true’</td>
<td>modified dualist / objectivist; critical tradition / community; findings ‘probably true’</td>
<td>transactional / transactional subjunctivist; value-mediated findings</td>
<td>transactional subjunctivist; co-created findings</td>
<td>critical subjectivity in participatory transaction with cosmos; extended epistemology of experiential, presentational, propositional, and practical knowing; co-created findings</td>
</tr>
<tr>
<td>Methodology</td>
<td>experimental / manipulative; verification of hypotheses; chiefly quantitative methods</td>
<td>modified experimental / manipulative; critical multiplicity; falsification of hypotheses; may include qualitative methods</td>
<td>dialogic / dialectical</td>
<td>hema/technical / dialectical</td>
<td>political participation in collaborative action inquiry; primacy of the practical; use of language grounded in shared experiential context</td>
</tr>
<tr>
<td>Axiology</td>
<td>propositional knowing about the world is an end in itself, is intrinsically valuable</td>
<td>propositional, transactional knowing is instrumentally valuable as a means to social emancipation, which is an end in itself, is intrinsically valuable</td>
<td>practical knowing how to flourish with a balance of autonomy, cooperation, and hierarchy in a culture is an end in itself, is intrinsically valuable</td>
<td>practical knowing how to flourish with a balance of autonomy, cooperation, and hierarchy in a culture is an end in itself, is intrinsically valuable</td>
<td>practical knowing how to flourish with a balance of autonomy, cooperation, and hierarchy in a culture is an end in itself, is intrinsically valuable</td>
</tr>
</tbody>
</table>

Table 1: Foundational stances of the five inquiry paradigms. Adapted and distilled from Guba & Lincoln (1994, 2005), Heron & Reason (1997), Lincoln & Guba (2000).
<table>
<thead>
<tr>
<th>Inquiry aim</th>
<th>Positivism</th>
<th>Post-positivism</th>
<th>Criticalism</th>
<th>Constructivism</th>
<th>Participatory</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>explanation; prediction and control</td>
<td>critique and transformation; restitution and emancipation</td>
<td>understanding and reconstruction</td>
<td>human flourishing</td>
<td></td>
</tr>
<tr>
<td>Inquirer posture</td>
<td>‘disinterested scientist’ as informer of decision makers and change agents</td>
<td>‘transformative intellectual’ as advocate and activist</td>
<td>‘passionate participant’ as facilitator of multivoice reconstruction</td>
<td>primary voice manifest through aware self-reflective action; secondary voices in illuminating theory, narrative, movement, song, dance and other presentational forms</td>
<td></td>
</tr>
<tr>
<td>Nature of knowledge</td>
<td>verified hypotheses established as facts or laws</td>
<td>non-falsified hypotheses that are probable facts or laws</td>
<td>structural / historical insights</td>
<td>individual or collective reconstructions sometimes coalescing around consensus</td>
<td>extended epistemology; primacy of practical knowing; critical subjectivity; living knowledge</td>
</tr>
<tr>
<td>Knowledge accumulation</td>
<td>accretion - ‘building blocks’ adding to ‘edifice of knowledge’, generalisations and cause-and-effect linkages</td>
<td>historical revisionism; generalisation by similarity</td>
<td>more informed and sophisticated reconstructions; vicarious experience</td>
<td>in communities of inquiry embedded in communities of practice</td>
<td></td>
</tr>
<tr>
<td>Values</td>
<td>excluded – influence denied; considered to be extrinsic to inquiry</td>
<td>included – formative; considered to be intrinsic to inquiry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goodness or quality criteria</td>
<td>conventional benchmarks of ‘right’; internal and external validity, reliability and objectivity</td>
<td>historical situatedness; erosion of ignorance and misapprehensions; action stimulus</td>
<td>trustworthiness and authenticity; including catalyst for action</td>
<td>congruence of experiential, presentational, propositional and practical knowing; leads to action to transform the world in the service of human flourishing</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Paradigm positions on selected issues. Adapted and distilled from Guba & Lincoln (1994, 2005); Heron & Reason (1997); Lincoln & Guba (2009)