**Problematising the Philosophical Foundations of Entrepreneurship Education: from Invisible College to Echo Chamber.**

**Paper Type** - Full Paper

**Key Words** - entrepreneurship education, philosophy, problematization

**Topic:** entrepreneurship education philosophy

**Abstract**

**Purpose**

Our aim is to focus attention on philosophy being a key consideration in entrepreneurship education (Hannon 2005, Hannon 2006; Fayolle, 2013, Fayolle, Verzat & Wapshott, 2016). Far from being abstract considerations, the assumptions and deep beliefs an educator or researcher holds – their philosophy – will significantly influence the way they practice and their potential impact (Hannon, 2005). This collaborative paper provides an opportunity for reflection and insight into entrepreneurship education by problematising the most co-cited research in the field from an ontological, epistemological and sociological perspective, enabling a (re)consideration of the foundations of entrepreneurship education from a philosophical point of view.

**Methodology**

P*roblematisation methodology* encourages researchers to identify and challenge implicit but routinely taken-for-granted assumptions within an existing body of literature. It is an alternative to gap-spotting or gap-filling, which often builds on or around existing literature rather than identifying and challenging foundational beliefs (Alvesson and Sandberg, 2013). We chose the 44 most co-cited articles in entrepreneurship education (Loi et al, 2016), which are said to reveal the field’s Invisible College, as a context for problematisation. We looked at these articles from a number of meta-theoretical perspectives to help loosen up implicit assumptions about ontology, epistemology and sociology. Using the problematising heuristic of developing alternative analogies (Alvesson & Sandberg, 2013), we re-conceptualise entrepreneurship educations’ Invisible College as a philosophical Echo Chamber and reflect on the implications of this problematisation. As part of this process we purposefully seek out philosophical views alternate to the ones most common in entrepreneurship education’s most influential articles as a route to offering alternate assumptions.

**Contribution**

Discerning taken for granted assumptions at the philosophical level in entrepreneurship education enables a reflection on tensions between the ambition to cultivate innovative and entrepreneurial ways of thinking and how entrepreneurship education is framed in research and practice. Whilst entrepreneurship education research has been viewed as highly fragmented and heterogeneous (Fayolle, 2013), this pattern of diversity was less apparent when considering the philosophical assumptions underpinning entrepreneurship education’s most institutionalised literature, where the idea of an external social reality accessible to the dispassionate researcher is largely accepted without question, where assumptions about objective knowledge and scientific methodology dominate and where research products reproduce the social status quo.

**Implications for practice/policy**

Entrepreneurship education is not just a pedagogical issue in terms of the methods we use to teach but a philosophical issue in terms of how we conceptualise and research social behaviour and action. The field may seem vast and fragmented, but an *Invisible College* (the field’s scientific ‘in-group’), has been revealed through an analysis of the 44 most co-cited articles in entrepreneurship education (Loi et al, 2016). Problematising this body of work from ontological, epistemological and sociological perspectives enables a (re)consideration of the foundations of entrepreneurship education from a *philosophical* point of view. A deeper appreciation of the philosophical status quo enables a renewed focus on methods which might better enable one to gain a real insight into the practice of what it means to be an entrepreneur, where learning is gained through the natural process of social enactment.

**Introduction**

Our aim in this paper is to focus attention on philosophy being a key consideration in entrepreneurship education. Far from being an abstract matter, the assumptions and deep beliefs an educator or researcher holds – their philosophy – will significantly influence the way they practice and their potential impact (Hannon, 2005). Because entrepreneurship education research is still a relatively young field that struggles for legitimacy (Fayolle, 2013), more robust intellectual foundations are needed. Philosophy has been a neglected area of study in entrepreneurship education (Fayolle et al, 2016), as such, we seek to say something about the philosophical underpinnings of the field and related inherent assumptions. We do this by exercising the principles of problematisation (Alvesson & Sandberg, 2013). This process involves identifying texts or bodies of work and surfacing and unsettling taken-for-granted assumptions which are contained within. Our focus has been the ‘44 most co-cited articles’ in entrepreneurship education (Loi et al, 2016). This body of work is said to outline the ‘theoretical foundations’ of entrepreneurship education by revealing the field's 'Invisible College' - that is, the collective logic and behaviour contained within the most influential and most institutionalised articles (Loi et al, 2016). Problematising this body of work from ontological, epistemological and sociological perspectives enables a (re)consideration of the foundations of entrepreneurship education from a *philosophical* point of view.

This study has evolved in two stages: first a review conducted by one of the authors provided a starting point for reflecting on the philosophical foundations of entrepreneurship education. Then, the product of this review - a matrix of ontological, epistemological and sociological assumptions (Appendix 1) - was used as a focus for debate and problematisation (Alvesson & Sandberg, 2013). We reflected that whilst entrepreneurship education research has been viewed as highly fragmented and heterogeneous (Fayolle, 2013), this pattern of diversity was less apparent when considering the philosophical assumptions underpinning entrepreneurship education’s most institutionalised literature. Using the problematising heuristic of developing *alternative analogies* (Alvesson & Sandberg, 2013: 64) we re-conceptualise this most co-cited body of work from an *Invisible College* (Loi et al, 2016), a benign representation of the field’s most institutional knowledge, to a philosophical *Echo Chamber* (Sunstein, 2001; Sunstein, 2018), a place where ideas about an external social reality accessible to the dispassionate researcher are implicitly accepted, where assumptions about objective knowledge and scientific methodology dominate and where research products reproduce the social status quo. In this paper we take the position of a reflexive voice to consider the implications of these foundational beliefs. Our aim is to engage in discussion about the nature of entrepreneurship education and we seek to provide to the reader a resource for exploring, reviewing and *re*presenting existing knowledge.

**Problematisation as an approach to inquiry**

The importance of developing research material which seeks to foster and promote meaningful inquiry is becoming increasingly important not just for the improvement and development of entrepreneurship education, but also for the reputation and legitimacy of how we engage (Van de Ven, 2007), as a field. A lack of criticality and a lack of interest in the ontological and epistemological foundations of entrepreneurship education contributes to a limited legitimacy and a tendency towards the uncritical acceptance of handed down practices and approaches (Fayolle, 2013; Fayolle et al, 2016). P*roblematisation* encourages researchers to surface routinely taken-for-granted assumptions *within an existing body of literature* (Alvesson and Sandberg, 2013). The approach offers and number of 'heuristic tools' through which a problematisation might be developed, however, the broad thrust of the process is to *deliberately* identify and challenge assumptions underlying literature.

Problematisation of a literature domain or existing body of work starts with scrutiny of the issue that is the focus of inquiry or debate (Alvesson & Sandberg, 2013), in this case the philosophical foundations of entrepreneurship education. Gibb (2002), set out the importance of ontology and epistemology when he called for a new paradigm in entrepreneurship education, but since then authors have continued to highlight the limited interest in this area. Hannon (2005), called for robust attempts to reflect upon and analyse philosophical underpinnings (and contradictions) in entrepreneurship education. Yet, more than a decade on, the lack of clarity in the axiological, ontological and epistemological dimensions of entrepreneurship education has been highlighted as a major factor limiting the legitimacy of the field (Fayolle et al, 2016). Research accounts have been dominated by ‘instructor narratives’ based on ‘often implicit, taken for granted assumptions’, with limited reflection or practitioner reflexivity and little attention paid to the ontological and epistemological issues which exist in research and practice (Fayolle et al, 2016). Philosophical reflection has been limited and instead, the field has been described as one where *action and intervention* have 'raced far ahead of the theory, pedagogy and research needed to justify and explain it' (Rideout & Gray, 2013: 346). The number of entrepreneurship education programmes and courses has increased in recent decades (Katz, 2003), and intensified since 2008 (Rizza & Varum, 2011). Entrepreneurship education and/or enterprise learning experiences are now widely provided in most UK and EU HEI’s or at least offered as some form of selective in the science and social science programmes of study. And initiatives and interventions now exist for every level of education including primary and secondary schools (Fayolle, 2013). Emerging calls for a ‘new era’ of entrepreneurship (Rae, 2010), with ethically and socially aware practice result in the need to consider in greater detail the philosophical foundations of entrepreneurship education as a means of promoting and developing more ethical practitioners and critical thinkers (Fayolle, 2016). There is a crucial need to attend to the suggestions that entrepreneurship educators should develop a deeper understanding of philosophical foundations which underpin pedagogical decisions “in order to maximise the opportunities for developing students and graduates who feel and are enterprising” so that we go “beyond learning to dance to becoming dancers” (Hannon, 2006, p. 307). A useful starting point for such an endeavour is the establishment of a better understanding of the most common philosophical assumptions in entrepreneurship education so that implicit beliefs are made visible and opened up for deeper consideration.

Ruona & Lynham (2004), argue that whilst philosophy is often thought of as ‘abstract’ and ‘offering little practical utility’ (Ruona & Lynham, 2004, p151), it actually makes a deeply practical contribution. They concisely describe three components of philosophy: Ontology (how we see the world), epistemology (how we come to know and think about the world), and axiology (how we act in theorizing, researching about and practising in our world), and they summarise how the effects of beliefs and assumptions will impact fundamentally on the “shape and qualities” of the interventions that follow (Ruona & Lynham, 2004, p152). For each of these philosophical components there are well developed meta-theoretical stances which can be utilised to explore and question assumptions which underlie research and practice (Crotty, 1998; Johnson and Duberley, 2000).

Problematisation methodology encourages researchers to identify and challenge implicit but routinely taken-for-granted assumptions within an existing body of literature. It is an alternative to gap-spotting or gap-filling, an approach where researchers often build on or around existing literature rather than identifying and challenging foundational beliefs (Alvesson and Sandberg, 2013). The ultimate aim of problematisation is to generate research questions which will open up and unsettle what we already ‘know’ around a subject (Alvesson & Sandberg: 13). Whilst problematisation is described as organic and adaptive, six principles are summarised to support the process of identifying and challenging assumptions:

* Identifying a domain of literature for assumption challenging
* Identifying and articulating assumptions within the body of literature
* Evaluating articulated assumptions
* Developing alternative assumptions
* Considering the assumptions in relation to the audience
* Evaluating the alternative assumption ground

The goal of these principles is to generate novel research questions which will lead to interesting and useful theory development (Alvesson & Sandberg, 2013: 70). In the following sections we will utilise the principles of problematisation methodology to identify and challenge the philosophical assumptions we can discern in entrepreneurship education.

**Identifying a domain of literature for assumption challenging**

Entrepreneurship education can appear vast and heterogeneous, however, Loi et al (2016), say they have illuminated its theoretical foundations through a co-citation analysis of its most influential work. Their research identifies ‘the intellectual structure of the field by studying the behaviour of the citing scholars recorded in the ISI Web of Science’ (Loi et al, 2016, p949). Loi et al describe their analysis of entrepreneurship education’s most co-cited work as revealing the field’s *Invisible College.* The term Invisible College has been used to refer to the “In-Group” in competitive specialities of science (De Solla Price & Beaver, 1966). By utilising bibliometric measurement researchers ‘discover patterns in the structure of scientific fields’ and ‘identify processes of knowledge dissemination’ and ‘visualize the dynamics of scientific developments’ (Van Raan, 2005). The study conducted by Loi et al is based on the study of works spanning a period from 1991 – 2014 and authors use a bibliometric technique called co-citation analysis to identify the most influential and connected works. A co-citation occurs ‘between articles ‘A’ and ‘B’ when article ‘C’ cites both articles ‘A’ and ‘B’ in its references (Loi et al, 2016). The more co-citations that happen, the stronger the relationship between articles, and the more likely they are related to a *particular school of thought*. Co-citations therefore are a useful means of unfolding the theoretical core and revealing the Invisible College among associated articles and topics (Loi et al, 2016). Whilst Alvesson & Sandberg (2013) suggest that it is usually not obvious how to 'sort and de-limit' existing studies into a specific domain, the body of literature identified by Loi et al – the 44 articles considered the most influential in entrepreneurship education - does offer a pre-defined body of work that is of particular interest. This body of literature is said to map the domain’s collective cognitive patterns (Loi et al, 2016), and we believe there is an interesting opportunity to consider this body of work from different perspectives. We find the idea that it represents the field's Invisible College particularly thought provoking. An Invisible College has been described as the ‘international forum’ by which research results are discussed and colleagues play a role by referring in their own work to earlier work of other scientists (Van Raan, 2005). That the studies identified by Loi et al (2016), are said to represent the intellectual structure, the theoretical core of the field prompted us to ask - what else could this domain of literature reveal about the collective logic of entrepreneurship education research? As the most co-cited and institutionalised body of work in the field, analysis of it from alternative perspectives offers the chance to reveal other cognitive patterns, for example, philosophical assumptions implicit in the most influential entrepreneurship education literature. In order to do this, the 44 articles used in Loi et al’s study were collated and reflected upon, utilising a number of meta-theoretical perspectives to consider the philosophical assumptions within the body of literature. Alvesson & Sandberg (2013) describe how paradigms, theories and debates all offer methodological resources to open up and scrutinise assumptions under lying theory. Whilst 'the job of theory' is to organise and communicate relations between concepts within a boundary of assumptions, such theoretical statements are always bounded by the researcher's assumptions (Alvesson & Sandberg, 2013: 51). As such, unless the underlying *assumptions* are well understood, it is difficult to coherently use, test or problematise them. As Alvesson & Sandberg argue, assumptions underlying a specific domain of literature are rarely explicitly formulated and 'heuristic tools' are needed to 'loosen up' views (Alvesson & Sandberg, 2013: 59). The following section describes the assumptions we aimed to identify and what we discerned.

**Identifying and articulating assumptions within the body of literature**

An aspect we consider crucial about the problematisation approach is the depth at which it happens. It is an approach which seeks to question not the content or the constructs of research, but rather 'the very pre-suppositions that researchers make about subject matter' when they develop theory (Alvesson & Sandberg, 2013: 52). They suggest a number of assumptions open to problematisation, but this paper focusses on paradigmatic assumptions, which involves the identification of ontological, epistemological and sociological assumptions which underlie specific literature. Such an approach offers the opportunity to undertake a 'broader and more fundamental' form of problematisation (Alvesson & Sandberg, 2013: 55), which may surface and unsettle the philosophical underpinnings of literature and enable the pre-suppositions of researchers to be better understood. A number of meta-theoretical stances were used in this process (see Table 1). The process involved collating and reading the articles from Loi et al’s study, paying attention to the way authors framed their methodology, and whether, explicitly, or through choice of method and language, statements were explicitly made, or assumptions articulated, about the nature of knowledge, social reality or the paradigmatic values they demonstrated (Appendix 1).The process involved moving back and forth from the literature domain and the different perspectives to identify the *central assumptions underlying the existing literature* in a way that opens up new areas of inquiry’ (Alvesson & Sandberg, 2013, p56).

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| --- | --- | --- | --- |
| Assumption | Key elements of meta-theoretical stance |  |  |
| Ontological assumptions about nature of social reality (Johnson and Duberley, 2000).  | Ontological assumptions (beliefs about the nature of social reality) are presented as on opposing ends of an objectivist/subjectivist continuum where the objectivist view is that social reality exists independent of human consciousness and cognitions (Realism) and the subjectivist view is that reality is simply a product of our minds with no independent status (Nominalism).  |  |  |
| Epistemological assumptions about the nature of knowledge (Cunliffe, 2011).  | Epistemological assumptions are presented as being on a fluid and dynamic continuum which includes subjective, objective and inter-subjective ‘knowledge problematics.’Subjectivism – Common sense knowledge — naturally occurring actions, interactions, conversations. Mundane activities. Non-replicable knowledge, situated validity. Macro and micro level focus. Researcher embedded in the world, shaped by & shapes experiences & accounts, mediates meanings of actors. Experience in the world. Researcher as outsider or insider.Objectivism - Replicable or sharable knowledge leading to the accumulation of knowledge. Knowledge & researcher are separate from the world. Researcher observes, discovers facts & develops predictive theories. Often macro level focus. Intersubjectivism - in-situ, knowing-from-within. Transitory understandings and ‘withness’ thinking. Micro level focus. Research as embedded and embodied, as a dialectical interplay between research participants. Focuses on experiences between people. Embodied & embedded researcher. |  |  |
| Sociological assumptions about the nature of society (Burrell & Morgan, 1979).  | Four paradigms describe different orientations of research: Functionalism (scientific method used to analyse society and its institutions and contribute to an ordered status quo); Interpretative (participants viewpoints used to understand shared versions of reality within organisations); Radical Humanism (release people from socially constructed realities and ideological constraints by developing alternatives); Radical Structuralism (analyse dominating and exploitative organisations and processes to catalyse social change). |  |  |
| Assumptions indicated by deployment of language (Cunliffe, 2011). | How does the language that authors use to construct their research accounts utilise language which reveals certain ontological and epistemological assumptions (Cunliffe, 2011, pp 659 – 665).  |  |  |

Table 1 – Metatheoretical stances used to surface philosophical assumptions in EE's Invisible College.

Using the meta-theoretical stances in Table 1 the following philosophical assumptions were discerned from the 44 most co-cited articles (Appendix 1). We specifically use the word discerned to acknowledge that all data is a result of interpretation (Alvesson and Skoldberg, 2007).



Table 2 – The Philosophical Foundations of Entrepreneurship Education.

Whilst there is some variety in methodology – quantitative, qualitative, conceptual, empirical – the philosophical underpinnings are similar. To greater or lesser extents, the articles assume a stance where the researcher is an ‘independent observer, theorizer and predictor of behaviour’, absent in the text (Cunliffe, 2011, p 660), and research accounts are abstract and academic, often dealing with humans as objects (students, pupils, nascent entrepreneurs, graduates). The majority of articles imply that knowledge can be objectively accessed, and the default research posture is that personified by Merton (1938), when he characterised an ethos of science involving disinterested and sceptical scientific researchers searching for universal truths. The methods and language of this ethos dominate entrepreneurship education's Invisible College: experiments and quasi-experiments test hypotheses; predictions are proposed; characteristics are measured; control groups ensure validity; effects are calculated and analysis is undertaken in systematic and rigorous ways. Such language speaks to the idea that the social world can be treated as the natural world – as being ‘hard, real and external to the individual’ (Burrell and Morgan, 1979, p 2).

There were a small number of articles which offered some variation on this approach. Cope (2003), uses a qualitative case study method to study the ‘lived experience’ of six practicing entrepreneurs, and how they learn from ‘discontinuous’ events. His acknowledgment of the active role of the researcher in co-constructing knowledge and meaning highlighted that ‘….the authors were able to help managers explore prominent work experiences and facilitate ‘new understandings and insights (especially with regard to their identity), new perspectives and new ways of acting’ (Cope, 2003, p 22). The interviews became a ‘sense making process’ where researcher and participant clarified the meanings and importance of experiences. Cope (2011), offers another alternative to natural science, with an interpretative phenomenological analysis involving 8 entrepreneurs reflecting on failure and illustrating how tightly bound the experience and understanding of the entrepreneurs was with the people around them (relatives, employees, spouses), and the pivotal role of the researcher in drawing out this experience. Cunliffe argues that living conversations between researcher and the researched, and the relationships between people provide insights into how we relate to each other. The stories of Cope’s entrepreneurs underscores a sense that we are always ‘selves-in-relation-to-others’ (Cunliffe, 2011, p 657). That is, depending how those around you react, failure will be experienced in different ways, as shamefulness, isolation, loneliness, or as a part of life and a learning experience. The fact that the interviews began with a broad question, and all other questions were derived from the interview, signposted that the interview itself was a sense making process, where researcher and researched were co-constructing a narrative. Rae (2006), also offers an alternative model, and out of the 44 articles, commits the most space to discussing underpinning theoretical assumptions. Rae uses a ‘social constructionist methodology, making use of narrative and discourse analysis’ and argues that this ‘alternative and equally valid perspective to the entitative ontology’ (Rae, 2006, p 39). In exploring the ‘lifeworld’ of the entrepreneur Rae considers that: ‘the ‘voice of the entrepreneur, together with the interpretation of the researcher, are vital aspects of understanding the entrepreneurial experience’ (Rae, 2006, p 42). Like Cope, Rae, acknowledges the active role of the researcher as a crucial element in the co-construction of knowledge. They both create names and personas for the people in their studies and this position distinguishes their work from most other articles, though, Ravasi and Turati (2005), also humanise the participants in their comparative case study.

Having briefly summarised the philosophical inclinations we discern in entrepreneurship education's Invisible College (and highlighting approaches which offer a counter point), we consider whether the typical pre-suppositions which underlie entrepreneurship education research are worthy of being problematised.

**Evaluating articulated assumptions**

Having identified and articulated assumptions, the problematisation endeavour moves on to assessing those assumptions. A major issue which lurks in the background here is the extent to which the surfaced assumptions offer an interesting contribution, whether they stimulate 'non-trivial' thinking, and whether they will lead to productive new research questions (Alvesson & Sandberg, 2013: 61). We reflect that the philosophical foundations of entrepreneurship education suggest that the field is characterised by a set of defined theories, models, methods and measures and a shared belief towards theory building and testing through a structured process of deductive methods and generalised data sets, with a view to establishing generalisable findings. The philosophical foundations of entrepreneurship education could be described as scientific, where experimental approaches, systematic reviews and meta-analyses suggest that researchers view (and present) entrepreneurship education as a treatment which can be given to subjects and its effects accurately measured. Indeed, the quantitative studies impress upon the reader how the use of control groups and the careful analysis of data will mean that results are unbiased and robust. So what? Why is there a problem with such an approach? Shouldn’t evaluation or impact investigations specifically, and entrepreneurship education research more generally, aim to be scientifically rigorous? This philosophical scenario is problematic though; firstly whilst the field appears to be taking a paradigmatic approach to normalise subject matter into sets of deductive logical, we know through entrepreneurial learning literature that entrepreneur’s gain knowledge through lived practice (Gibb, 2002). Second, how the field views the construction of knowledge appears to be that of extracting, by testing and deducing, as is normal in the natural sciences. Yet in entrepreneurship education, being entrepreneurial is thought of as a complex and highly dynamic where one is learning to understand the interplay of multiple social interactions, learning to navigate complex environments, learning to revise strategies and learning how to turn ideas into action (Fayolle & Toutain, 2013). As such, when we think of entrepreneurship education, we think of engaging with living people - students and kids - in all their diverse, multi-layered complexity. The educational environment is one which is experienced and lived, which holds rich, in-depth knowledge requiring researchers to acknowledge and adopt divergent ontological and epistemological positions which embrace human practice (Easterby-Smith, Golden-Biddle, & Locke, 2008; Gephart, 2004). This is not to suggest that ‘anything goes’ methodologically; of course, in order to advance any field robust research is critical. But a central issue we perceive is how can more social and complex underpinnings become more widely accepted and utilised, which better reflect the dynamic and multi-layered nature of entrepreneurship education that is lived out in practice. Entrepreneurship education is not just a pedagogical issue then in terms of the methods we use to teach, but a philosophical issue in terms of the assumptions we make about how we conceptualise and research social behaviour and action. The objectivist approaches we have discerned as foundational beliefs in entrepreneurship education’s Invisible College tend to be pre-occupied with defining the research objective, (assessment, learning outcomes, modes of learning, policy guidelines, best practice etc), and the choice of data collection methods (survey, secondary data analysis, case studies, etc) with limited attention given to what beliefs and values constitute our understanding and explanation of the social phenomenon that we are trying to understand. So it appears that entrepreneurship education is cast as a linear phenomenon that can be described through causal relationships (cf. Sarasvathy, 2001). Consequently, we are able to speak-about and describe entrepreneurship but cannot transfer, reproduce or create an understanding of why, where and how entrepreneurship emerges (Bruyat and Julien, 2001; Gibb, 2002). So, whilst functional orientated pedagogy might present entrepreneurship as a series of measurable and teachable processes which students can be educated about, there is less use of reflexive perspectives to facilitate appreciating the deeply relational elements which are a part of entrepreneurial practice.

As an alternative to positioning entrepreneurship education research and practice as functional and objective, it could be (re)presented as a multi-layered transformational process where entrepreneurial learning and development is created in events, which over time create the phenomenon itself (Van de Ven and Engleman, 2004). This type of view of entrepreneurship education would bring to the core versatility and flexibility of explanations, temporal order and discontinuations of explanations and layers of causalities (Sarasvathy, 2008; Van de Ven and Poole, 2005). In this sense, entrepreneurship would be (re)positioned in an ontological position of “becoming” (entrepreneuring) rather than simply “being”, a way of transcending how we view and appreciate the relationality of the entrepreneur’s patterns of interacting and enactment. Such a positioning would highlight the need to (re)consider the nature of entrepreneurship education as a deeply complex, social, fluid, dynamic phenomenon.

According to scientific approaches, the ‘effectiveness’ of entrepreneurship education programmes is in serious question (Rideout & Gray, 2013). Whilst those authors argue for more ‘rigorous’ scientific research, characterised by the ‘gold standard’ of Randomised Control Trials, we suggest instead that the inadequacy of such methods lies in part with a philosophical misalignment between the phenomenon under study and the research philosophy underpinning its investigation. At the very least, it underscores the persistent need to critically analyse the philosophies which drive decision making both in the design of research and the design of entrepreneurship education programmes.

In summary then, we believe that the philosophical foundations of entrepreneurship education - the philosophical logic discernible in its Invisible College - *is* problematic, and that further problematisation will could lead to insights that are though provoking and practically relevant.

**Developing an alternative assumption ground**

The next step proposed by Alvesson & Sandberg (2013), in the problematisation process is the development of counter assumptions. This is a creative activity for which a number of 'heuristic tools' are offered to support the process of coming up with something unexpected, memorable or novel. Genuine problematisation is 'not programmatic', that is, there are no pre-defined answers, and researchers should not apply readymade stances in their development of alternative assumptions (Alvesson & Sandberg, 2013: 63). Instead, they can use dialectical interrogation, or develop analogies or metaphors to formulate alternative assumptions in a way that points to new pathways for theoretical exploration and/or empirical study.

Having explored the deeper pre-suppositions which underpin the majority of the most influential works in entrepreneurship education, we zoom out to look at this body of literature from a high vantage point and ask ourselves, 'what does it matter if the philosophical logic of the field is something like we discern?' After all, in a field which has been conceptually confused and dogged with definitional difficulties, isn't it comforting to know that below the surface, underneath it all, we demonstrate *the same* assumptions about the most fundamental elements of practice - our philosophy.

Such a thought leads us to offering a new analogy which we hope is memorable and thought provoking enough that it might inspire new directions of reflection and action. As an alternative to the benign and ingenuous Invisible College which unproblematically reveals the collective philosophical logic of the field, we use the analogy of an Echo Chamber to spotlight the consequences that exist if there is implicit and unproblematic acceptance of the same ontological, epistemological and sociological viewpoints.

An Echo Chamber is term derived from an acoustic chamber where sound reverberates. This analogy has been developed to describe the situation where the beliefs of a group of people (in real life or on-line), are strengthened through repetition (Sunstein, 2001). The impact of Echo Chambers has become a greater focus of research, because of their potential to effectively inure participants to the views of outsiders (Sunstein, 2001; Sunstein, 2018). Indeed, a quality of an Echo Chamber is that ones' views are amplified and returned, and thus, they have the tendency to increase the strength of one's *initial* view. The impact of such an effect has been much discussed recently, following two significant social/political events: the result of the referendum on leaving the European Union in the UK, and the election of Trump in the US. To some, these events were shocking and unexpected and commentators argued that the Echo Chamber had effectively protected ‘in-groups’ from the views of others outside of their community. It has been suggested that politicians’ unconscious existence in their own Echo Chamber resulted in persistent unawareness that there were whole segments of constituents experiencing a different reality than the one imagined for them (Hooton, 2016; Bossetta, Dutceac-Segetsen, Trenz, 2018). In the analysis, the Echo Chamber featured in distinct ways: 1) that there was an effect where people (voters) inside an Echo Chamber could be fed information which confirmed and strengthened their existing inclinations, and 2) that those in power (politicians) were inside their own Echo Chamber and disconnected from the real concerns of their constituents.

How does this relate to the philosophical foundations of entrepreneurship education? What we discerned from the review of the 44 most co-cited articles, is that the field appears to have adopted and developed its own rules for what are considered appropriate methods of engagement from ontological, epistemological and sociological perspectives, with a trend towards the becoming more and more institutionalised in terms of the knowledge the scholarly field is generating. Such knowledge does not necessarily service practical purpose, but has been said to serve the needs of ranked journals, which replicate methodological trends (Finkle and Deeds 2001; Welter and Lasch 2008). One may also reflect that such functionalist approaches are a key prevailing trait of Business Schools, whose focus towards accreditations, impact and school rankings can be a heavily influencing factor on scholars’ thinking and the wider context of academic legitimacy (Alvesson & Sandberg, 2013). Pursuit of journal rankings and business schools’ requirement for measurable accreditation and impact may contribute towards the field becoming focussed on its own needs, and less on the needs and concerns of outside constituents. At a human level, trying to meet the demand for scientific, academic rigour against the need for practical relevance in research and teaching may feel self-contradictory. Furthermore, when this process is simultaneously detached from pedagogical and methodological debate and reflection on how we might research and teach in more engaged ways (Van de Ven, 2007), the process also threatens to marginalise researchers and educators and the very process of education itself.

For example, entrepreneurial development and entrepreneurship education has now become a part of the University Business School agenda. Its adoption into Business Schools has taken place over many years, and this can be attributed to issues such as political agendas, perceived ideologies about business and what matters, institutional and educational divides and drivers. The codification of entrepreneurship into a subject compounds the situation, by generating many strands of knowledge, which are the formalised into specific teaching areas, for example, entrepreneurship as a process of learning, a method of innovation, entrepreneurial traits or who or what is an entrepreneur, to name but a few. The institutionalised infrastructure in many Business Schools requires entrepreneurship to be owned and taught in a certain manner, rendering entrepreneurship an isolated subject on the business school curriculum (Gibb, 2002), in faculties which are increasingly characterised as irrelevant (Pfeffer & Fong, 2002), and dysfunctional (Mintzberg, 2004). Turning to the schools sector in secondary education, and increasingly, in primary education, the (potential) depth and richness of entrepreneurial learning and education is most frequently boiled down to ‘one day competitions’ (Mann et al, 2017). Students are presented with a ready-made scenarios, ignoring fundamental developments in entrepreneurial learning such as the ‘individual/opportunity nexus’ (Thrane et al, 2014), and ‘effectuatual theory’ (Sarasvathy, 2001). Students have their ideas appraised on the arbitrary inclinations of a panel of *judges*, despite neither human or machine being able to ‘pick winners’ in business planning competitions (McKenzie & Sansone, 2017), and such learning being difficult to translate to the daily practice of start-up and business development (Watson et al, 2018). These practices continue, indeed, they are the subject of public investment, enshrined in policy and presented as good practice, a situation facilitated by foundational beliefs that, using the Echo Chamber analogy, will reproduce and amplify its own way of thinking and doing.

To conclude this element of the problematisation process; we have offered an alternative assumption ground, an alternative analogy, which (re)conceptualises entrepreneurship education’s Invisible College as a philosophical Echo Chamber, to prompt new directions of thinking and action. We now consider this reconceptualization in relation to the members of the entrepreneurship education community.

**Considering the assumptions in relation to the audience**

Contemplating the extent to which a new assumption ground is relevant or useful to a target audience is the next step in the problematisation process. Entrepreneurship and enterprise researchers and educators are a diverse field, however, regardless of the focus of research or the age or stage of students, there are demands on this audience for their research to be relevant and useful and their practice to be effective and legitimate. A better understanding of the philosophical status quo, and alternatives, might provide new departure points, or provocative capacity which it is hoped will catalyse new insights and ideas and lead to practical significance (Alvesson & Sandberg, 2013). But enterprise and entrepreneurship education has been said to lack criticality (Fayolle, 2013), with one study finding that just 4 out of 103 papers reviewed having an element of sociological critique (Bechard and Gregoire, 2005). We reflected that philosophy and pre-occupations within the domain of literature which is the focus of this study might appear distant from the economic and social realities of people living in a post-crash global society for example. A darker-side of entrepreneurship education *has* been described, for example how it utilises state education to develop the ideological apparatus of neoliberalism (Mccafferty, 2010), uses teachers in this endeavour whether they want to or not (Komulainen et al, 2014) and ‘responsibilises the individual’ for their own success or failure (Peters, 2009). Such concerns are real, but they are absent from the most co-cited body of work in entrepreneurship education. Ingrained social immobility (Clark, 2014), financial disadvantage (Piketty, 2017) and class inequality (Savage, 2015) which individuals face aren’t a feature. Critique of the entrepreneurship ‘trickle down’ effect which is meant to benefit society but doesn’t materialise (Chang, 2012); the revised economic theory in the light of global economic crisis (Keen, 2011); the work of a whole field of critical management education studies (Alvesson & Wilmott, 2012) - all this is currently hasn’t made it into the field’s most co-cited work. So, the language of science is used to give the research products credence and authority, to construct a version of reality, but which reality? Scientific truth claims are constructed around the idea that research holds a mirror up to a single, external reality (Rorty, 1979). But it is a reality that many won’t recognise, one where power and inequality, as we have come to understand it through such authors as Foucault (1980) and Bourdieu (1989), are rendered invisible. As such, it may be felt that the most institutionalised knowledge in entrepreneurship education has a dreamlike quality, which may feel out of step with the lived realities that many know and struggle in. Such a situation has been recognised in other, related fields. For example ‘post-crash economics’[[1]](#footnote-1) has emerged as a movement, established and driven by students who believe that economics syllabus and teaching needs to be re-thought, and, amongst other things, these students are campaigning for a new module on ‘poverty and inequality’.

Because of the new economic realities enterprise and entrepreneurship researchers and educators find themselves in since the global financial crash ‘new’ enterprise values have been proposed. Such values reflect critically on masculine, power-focussed, profit-generating, hard-edged practice of entrepreneurship, and lean towards feminine, social, sustainable, soft-power values (Rae, 2010). These changes *are* reflected in the field of enterprise and entrepreneurship education more generally, as increasingly publications take a critical turn (Berglund & Verduijn, 2018); journal calls aim to explore entrepreneurship education’s ‘dark side’ (Entrepreneurship Education & Pedagogy, 2018), and conferences and workshops focus on sustainability issues (RENT, 2018). This signals an expanding interest in criticality, and increased concern about which social effects are re-produced or transformed through enterprise and entrepreneurship programmes and practice. As such, challenging these assumptions is worthwhile, and the tack that we take, one of the possible approaches suggested by Alvesson & Sandberg, is to propose how we can think differently on the issue and listen to alternative voices as a strategy for breaking out of the Echo Chamber (Sunstein, 2018).

**Evaluating the alternative assumption ground**

The ultimate aim of problematisation is to generate questions which will open up and unsettle what we already ‘know’ around a subject (Alvesson & Sandberg: 13). By reviewing the foundations of the most co-cited and institutionalised work in entrepreneurship education from a philosophical point of view, and offering an alternative analogy for what it represents, the goal is to consider how these new assumptions can lead to new thoughts and actions. After all, why *does* it matter if the dominant philosophical perspective promotes the idea that there is a hard, external reality, and that dispassionate researchers can search for an objective truth? Kuhn’s theory of science (1970), suggests that a given community, at a given time, will have a set of beliefs, assumptions, values and techniques which create boundaries for what work in that community will look like. The point is, that this is a *paradigm*, a world *view*, rather than an objective truth. For many years the functional orientated pedagogy of the traditional business school has been unquestioned in its application towards favouring functionalist worldviews. Educational programmes which are structured on this epistemological perspective tend to leave participants with an abstract and unconnected set of knowledge and skills which at times have very little relevance to the actual complex activity of being entrepreneurial. The field of entrepreneurship education has been dominated by scientific based approaches, promoting rigorous factual empirical data sets. The drive, and indeed the pressure, to have scholarly material published in high ranking journal has only sought to embed favoured methodological choices for publication and the measurability of success have become an end game focus. But what makes entrepreneurship education interesting? Are we at the point where it is simply a game of who can best replicate existing studies, spot a gap or crunch the biggest data set? Where is our ability to ask meaningful and complex questions about the very nature of what we are doing?

In this context it is now time to examine what will make the field interesting and purposeful, insightful and relevant. Our pedagogical and research practices are representative of our expectations, or what the field believes to be the expectations of society and their beliefs, towards the values and philosophical underpinnings which serve to determine how we measure learning performance versus *engaging* with more experiential methods of learning.

We conclude our problematisation by returning to the analogy of an Echo Chamber. One way to break out of an Echo Chamber is to purposefully seek out views alternate to the ones you hold (Sunstein, 2018). Purposefully adopting alternate theoretical perspectives - from the ones cementing the foundations of the Invisible Colllege/Echo Chamber - is one route to this.

Intentionally positioning entrepreneurship education and learning as complex and emergent, illustrating the contextualised nature of social practice and placing human activity at the centre of how we inquire (Higgins et al, 2015), could better connect with the ontological and epistemological nature of being entrepreneurial (Gibb, 2002). Considering entrepreneurship as a living experience embodied in social action, shaped and mediated by context, a means of becoming, co-constructed in connection with others (Anderson et al., 2007; Jack et al., 2010) might alternative methodologies which would be required to capture this ‘as it happens’ (Brundin 2007). Recognising that entrepreneurial practice is a crafted form of art which requires an appreciative and sensitive engagement with a range of socio-cultural phenomena in the entrepreneurial setting (Blackburn and Kovalainen, 2009; Hjorth, Jones and Gartner 2008), could help us re-assess how we practice entrepreneurship education. Seeking out alternative philosophies could become a central focus - as it is these very philosophies which influence pedagogical practices and the educational experience for the learner (Carlile and Jordan, 2005), and the nature of research that is conducted. Previously, philosophies such as behaviourism, cognitivism and constructivism have been considered as a way of exploring the nature and impact of entrepreneurship education programmes (Nabi et al, 2017). Ertmer & Newby (2006), contrast these three theories – behaviourism, cognitivism and constructivism - and summarise how: behaviourists equate learning with changes in observable behaviour; cognitivists equate learning with changes in states of knowledge and constructivists equate learning with creating meaning from direct experience. But there is a growing need to consider different philosophies which offer new radical visions of engaged collective learning (Kyrö, 2015). This leads to the question which is the result of this problematisation process - what value and insight would an alternative mode of inquiry give the field and to whom? For example, Lindgren and Packendorff (2009), explored how social constructionism offered an alternative and insightful philosophical perspective through which to (re)view entrepreneur*ship*. Their work showed how re(viewing) entrepreneurship through this alternate philosophical lens focussed more attention to the social and relational aspects of the phenomenon and gave new and insightful ways of (re)considering entrepreneurship. Familiarisation with, and application of, such an alternate philosophical position could help re-balance the philosophical foundations of entrepreneurship *education*, its research and its practice. Such a philosophical position, or variations of it, might be well suited to the deeply complex and social nature of entrepreneurship education and might better align with the lived reality of entrepreneuring, as well as facilitating a focus on the lives and concerns of the field’s wider stakeholders.

Our aim in this paper was to surface and problematise the taken for granted assumptions the entrepreneurship education’s Invisible College. By recasting the Invisible College as an Echo Chamber, we aimed to justify further exploration of the importance of philosophy in entrepreneurship education. A key to breaking out of an Echo Chamber is to purposefully seek out alternate views, and by generating the question – what value would an alternate mode of inquiry bring, and to whom? – we hope to prompt thinking and, potentially action. In particular, how the act of seeking out and trying on such alternate views might build strong foundations for a more relevant, social and engaged philosophical logic, which better reflects social, moral, political and cultural elements which are inextricably part of entrepreneurship education.

**Appendix 1 – The Philosophical Foundation of Entrepreneurship Education - assumptions discerned in the 44 most co-cited articles in Entrepreneurship Education (Loi et al, 2016).**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Paper | Author | Research approach | Summary of article | Typical language | Ontological assumption | Knowledge Problematic | Paradigm |
| 1 | Kreuger et al (2000) | Quantitative | A 'competing models approach' is utilised to compare two intentions based models using regression analysis on data from a sample of student subjects.  | Predict - Robust - Generalizable - Validity - Testable - Model.  | Realism | Objective | Functionalism |
| 2 | Chen at al (1998) | Quantitative | Two studies (one with students, one with small business executives) were conducted to assess Entrepreneurial Self Efficacy scores.  | Construct - Predict - Control - Variables - Model - Assess.  | Realism | Objective | Functionalism |
| 3 | Katz (2003) | Qualitative | A detailed chronology of entrepreneurship education in the United States.  | Review - Discuss - Historical - Primary Sources - Secondary Sources - Interviews | Realism | Objective | Functionalism |
| 4 | Kuratko (2005) | Qualitative | Data from articles, courses and text is synthesised to present 'trends and challenges' in entrepreneurship education.  | Sources - Commonalities - Perspective - Analysis - Trends - Findings | Realism | Objective | Functionalism |
| 5 | Peterman and Kennedy (2003)  | Quantitative | Pre-test/post test control group design to test the effects of a Young Achievement programme on 117 students.  | Effect - Empirical - Measure - Hypothesis - Control Group  | Realism | Objective | Functionalism |
| 6 | Politis (2005) | Qualitative | A review and synthesis of available research to explain entrepreneurial learning as an experiential process.  | Theoretical - Logic - Reasoning - Review - Synthesize - Proposition | Realism | Objective | Functionalism |
| 7 | Baron (2006) | Qualitative | The paper argues that pattern recognition is a useful model for re-appraising opportunity recognition.  | Framework - Evidence - Research - Models - Propositions - Perspective  | Realism | Objective | Functionalism |
| 8 | Souitaris (2007) | Quantitative | Pre-test and post-test quasi experimental design measuring the entrepreneurial attitudes and intentions of 250 students.  | Test - Measure - Effect - Validity - Reliability - Variables | Realism | Objective | Functionalism |
| 9 | Cope (2005) | Qualitative | Conceptual article which reviews and synthesises extant literature to develop a new framework on entrepreneurial learning.  | Perspective - Theoretical - Conceptual - Empirical - Synthesize - Framework | Realism | Objective | Functionalism |
| 10 | Robinson and Sexton (1994) | Quantitative | An empirical study using US census data on self employment to assess the effect of education and experience on self-employment success.  | Hypothesis - Empirical - Effect - Regression - Causation | Realism | Objective | Functionalism |
| 11 | Wilson et al (2007) | Quantitative | An analysis of the relationships between gender, entrepreneurial self-efficacy, and entrepreneurial intention, using a sample of students from 7 graduate programmes in the US.  | Data - Test - Hypothesis - Effect - Measure – Scale | Realism | Objective | Functionalism |
| 12 | Cope (2003) | Qualitative | Qualitative case study research into the 'lived experience' of six practising entrepreneurs using interviews and story logs.  | Technique - Personal Representation - Sense Making - Meaning - Case | Realism | Intersubjective | Interpretative  |
| 13 | Honig (2004) | Qualitative | A conceptual piece discussing the historical and theoretical underpinnings of business plan competitions and comparing three pedagogical models.  | Paradigm - Evaluating - Systematically - Impact - Model – Finding | Realism | Objective | Functionalism |
| 14 | Crant (1996) | Quantitative | A study investigating the relationship between pro-active personality and entrepreneurial intentions.  | Scale - Measure - Variables - Correlations - Variance - Empirical | Realism | Objective | Functionalism |
| 15 | DeTienne and Chandler (2004) | Quantitative | An empirical test of a pedagogical approach to develop opportunity identification.  | Empirical - Test - Experiment - Inventory - Hypothesis - Effects | Realism | Objective | Functionalism |
| 16 | Vesper and Gartner (1997)  | Quantitative and Qualitative | A mail survey of 311 Deans of Business Schools to rank entrepreneurship programmes and surface evaluation criteria dilemmas.  | Survey - Measure - Rank - Criteria - Evaluators - Comparison | Realism | Objective | Functionalism |
| 17 | Shepherd | Qualitative | The author describes pedagogical changes which aim to help students learn from failure. The challenges of measuring impact of such changes is discussed and a 'pre, post and then' test described.  | Theories - Pedagogies - Measuring - Testing - Competency - Scale | Realism | Objective | Functionalism |
| 18 | Gibb (2002) | Qualitative | The author argues for a new approach to the study of entrepreneurship and a new paradigm as a basis for entrepreneurship education.  | Review - Synthesize - Conceptual - Framework - Ontological - Epistemological | Realism | Objective | Functionalism |
| 19 | Kourilsky and Walstead (1998) | Quantitative | The study investigates Gallup poll data from 1000 14-19 year olds to explore gender similarities and differences in relation to attitudes to entrepreneurship.  | Survey - Statistical - Reliability - Validity - Logistic Regression Analysis - Random Sample - Significant | Realism | Objective | Functionalism |
| 20 | Harrison and Leitch (2005) | Qualitative | The authors review the development of the field of entrepreneurship as a context for the emergence of learning as an area of scholarly attention.  | Review - Summarize - Theoretical - Conceptual - Systematic - Conclude | Realism | Objective | Functionalism |
| 21 | Pittaway and Cope (2007a) | Quantitative and Qualitative | A systematic literature review was undertaken, drawing form a range of disciplines via detailed search criteria. Nine themes are identified and discussed.  | Systematic - Review - Empirical - Evidence Based Policy - Results - Conclude | Realism | Objective | Functionalism |
| 22 | McGee et al (2009) | Quantitative | The article describes, within a new venture creation process framework, the development and testing of a multi-dimensional Entrepreneurial Self Efficacy instrument.  | Model - Framework - Instrument - Standardization - Variable - Reliability | Realism | Objective | Functionalism |
| 23 | Ravasi and Turati (2005) | Qualitative | A qualitative comparative case study method is used to analyse two development processes, in the same organisation, at the same time.  | Comparative - Model - Theory - Evidence - Actors - Variable - Interpretative | Realism | Objective | Interpretative |
| 24 | Brush et al (2003) | Quantitative and Qualitative | A task force team draws on survey data from business school deans and entrepreneurship scholars to understand perspectives and attitudes towards entrepreneurship and doctoral education.  | Survey - Philosophy - Observations - Process - Questions - Recommendations | Realism | Objective | Functionalism |
| 25 | Oosterbeek et al (2010) | Quantitative | The paper analyses the impact of a leading entrepreneurship programme on students skills and motivation using an instrumental variability approach in a difference in difference framework.  | Impact - Evaluation - Treated - Untreated - Variables - Control - Measure – Unbiased | Realism | Objective | Functionalism |
| 26 | Tracey and Phillips (2007) | Qualitative | The article discusses social entrepreneurs and outlines the distinct challenges and issues involving in teaching and developing entrepreneurs who combine social and commercial objectives.  | Consider - Outline - Rejoinder - Illustrate - Examples - Analysis | Realism | Objective | Functionalism  |
| 27 | Rasmussen and Sorheim (2006) | Qualitative | The article presents a number of action based activities at five Swedish Universities, captured via 1 day visits and semi structured interviews with managers, faculty staff, coordinators etc.  | Present - Explore - Analyse - Empirical - Cases | Realism | Objective | Functionalism |
| 28 | Holcomb et al (2009) | Qualitative | The paper extends existing theories of entrepreneurial learning by explaining links between heuristics, knowledge and action.  | Theories - Conceptual - Consider - Model - Knowledge – Proposition | Realism | Objective | Functionalism |
| 29 | Fiet (2001) | Qualitative | The article reviews the results of a survey of the entrepreneurship courses taught by participants at an entrepreneurship retreat. Suggestions on how scholars can develop and teach cumulative theory are offered  | Debate - Assumptions - Theoretical - Pedagogical - Analysis - Cumulative Theory | Realism | Objective | Functionalism |
| 30 | Hood and Young (1993) | Quantitative and Qualitative | A survey of 100 leading entrepreneurs and CEOs is used to develop a theoretical framework suggesting four primary areas in which successful entrepreneurs must be developed.  | Survey - Study - Systematically - Analyse - Theoretical – Results | Realism | Objective | Functionalism |
| 31 | Hmieleski and Corbett (2006) | Quantitative | The study investigates examines the relationship between improvisation and entrepreneurial intentions using a sample of 430 college students.  | Study - Instrument - Dependent Measure - Variable - Difference – Findings | Realism | Objective | Functionalism |
| 32 | Gartner and Vesper (1994) | Quantitative and Qualitative | The article uses information volunteered by teachers about pedagogical experiments to identify issues identified as important by the authors.  | Survey - Analyses - Descriptions - Evaluation - Discusses - Findings | Realism | Objective | Functionalism |
| 33 | Neck and Greene (2011) | Qualitative | The article introduces a 'new frontier' in entrepreneurship education: teaching entrepreneurship as a method.  | Introduce - Explore - Discuss - Present - Advance - Overarching Framework – Advocate | Realism | Objective | Functionalism |
| 34 | Von Graevenitz (2010) | Quantitative | The article describes a study where 196 students on a compulsory business planning course completed surveys to measure their entrepreneurial intentions before and after the intervention.  | Effects - Test - Hypothesis - Variables - Standard Deviation – Robust | Realism | Objective | Functionalism |
| 35 | Katz (2008) | Qualitative | The article uses 'benchmarks in the development of a field' to argue that entrepreneurship/small business can be characterized as a fully mature, but partially legitimate field.  | Demonstrate - Support - Evidence - Analyse - Data - Consequences | Realism | Objective | Functionalism |
| 36 | Edelman et al (2008) | Qualitative | The article compares start up activities of entrepreneurs with data collected from entrepreneurship text books to identify overlap and differences between recommended and practiced activities.  | Examine - Explore - Compare - Systematically - Content Perspective – Implications | Realism | Objective | Functionalism |
| 37 | Parker (2006) | Quantitative | The paper seeks to measure the extent to which entrepreneurs adjust their beliefs in light of new information. A sample of 700 self employed Britons was used to build a model.  | Measure - Model - Linear Utility Function - Observable Characteristics - Theoretical Robustness | Realism | Objective | Functionalism |
| 38 | Bechard and Gregoire (2005) | Quantitative and Qualitative | The article describes a content analysis of 103 peer reviewed entrepreneurship education articles through the prism of Bertrand's (1995) Contemporary Theories and Practice.  | Empirical - Analytical - Systematically - Typologies - Classification - Peer Reviewed  | Realism | Objective | Functionalism |
| 39 | Rae (2006) | Qualitative | The paper explores a qualitative study on how entrepreneurial behaviours are learned and develops a conceptual framework.  | Social constructionist - Discourse Analysis - Sense Making - Meaning – Ontology | Realism | Intersubjective | Interpretative |
| 40 | Pittaway and Cope (2007b) | Quantitative and Qualitative | The article describes research which explored 64 students reflections on 15 group venture planning projects.  | Theorising - Argument - Conceptual - Framework - Narrative Coding – Evaluated | Realism | Objective | Interpretative  |
| 41 | Cope (2011) | Qualitative | The article describes a novel interpretative phenomenological analysis of the process and content dimensions of learning from failure.  | Phenomenological - Meaning - Situated Insights - Rich Details - Thick Descriptions - Sense Making | Realism | Intersubjective | Interpretative |
| 42 | Athayde (2009) | Quantitative | A research instrument was designed to measure enterprise potential in young people. A control group cross sectional design was used to investigate the impact of participation in a YE Company Programme.  | Instrument - Measure - Impact - Control Group - Reliability – Validity | Realism | Objective | Functionalism |
| 43 | Linan et al (2010) | Quantitative | The paper describes a study to investigate the influence of different factors effecting entrepreneurial intention.  | Empirical - Instrument - Statistical - Factor Regression – Results | Realism | Objective | Functionalism |
| 44 | Martin et al (2013) | Quantitative  | A meta analysis of entrepreneurship education literature is conducted to examine outcomes in relation to human capital assets.  | Quantitative Review - Hypothesis - Moderator - Correlations - Methodological - Calculated | Realism | Objective | Functionalism |

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1. The Post-Crash Economics Society was founded by students at The University of Manchester - <http://www.post-crasheconomics.com/> [↑](#footnote-ref-1)