# Supervisors' Conceptualisations of Creativity in Education Doctorates

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## ABSTRACT

Doctoral study is inherently a creative endeavour through which a student creates a scholarly contribution extending the knowledge boundaries of a discipline. However, creativity is not well-defined within the context of doctoral education. Supervisors play a key role in doctoral students' understanding of the creative process that leads to an original contribution. This article therefore explores the conceptualisation of creativity in doctoral education. A qualitative descriptive approach was followed in the research, starting with a theoretical conceptualisation of creativity within doctoral education as a basis for further inquiry. Ten experienced supervisors in a South African Faculty of Education described how they conceptualised creativity in guiding students along the doctoral journey by means of recounting their supervisory experiences. The results reveal that as a multi-dimensional concept, creativity is not limited to the eventual contribution the doctorate is supposed to make. Respondents narrated their understanding of creativity as a student attribute, an epistemological understanding, and an interaction with methodological processes.

Keywords: Creativity, doctoral education

## INTRODUCTION

Doctoral study is inherently a creative endeavour through which the student creates a scholarly contribution, extending the knowledge boundaries of a particular discipline. A variety of literature from across the world implies the notion of creativity as a central feature of doctoral education in that the student is expected to create an original, significant and independent knowledge contribution to a discipline (see the definitions of a doctorate as proposed by the Association of American Universities 1998, in Lovitts, 2005; the Australasian Qualifications Framework Advisory Board, 2007, the New Zealand Qualifications Authority, 2001, and the United Kingdom Quality Assurance Agency for Higher Education, 2008). The United States of America Council of Graduate Schools (1977, as quoted in Bargar & Duncan, 1982, p.1) goes so far as to proclaim the main purpose of a PhD as a preparation for "a lifetime of intellectual inquiry that manifests itself in creative scholarship and research." However, creativity is not well-defined within the context of doctoral education, even though it underlies the notion of *doctorateness* (Trafford & Leshem, 2009, p.305). Lovitts (2007) argues that conceptualisations – such as creativity – are not operationalised or well-defined in doctoral education. This lack of conceptualisation may

make it difficult for students to understand what is expected of them, and this further complicates the task of supervisors who need to guide the students on their doctoral journey.

The question of conceptualising creativity in education is not new – in fact, educational theorists have grappled with possible explanations for the general notion of creativity for some time (Piaget, 1971; Torrance, 1988), but the way in which creativity is encapsulated in the highest degree awarded in higher education raises unique issues beyond a general conceptualization of creativity. Creativity is often used synonymously with terms such as originality. Barron (1995) sees originality as a component of the complex phenomenon of creativity, and the work of Lovitts (2007) positions originality as an eventual product of the (creative) doctoral process. The conceptual distinction MacKinnon (1970) and Sternberg & Lubart (1999) make between the creative process and the creative product may therefore be useful. While such contributions have enhanced our understanding of doctoral education, the literature focused on creativity as part of the doctoral process seems limited at present (Whitelock *et al.*, 2008). Thus, this study explored the conceptualisation of creativity in doctoral education from the perspective of university lecturers in a faculty of education who facilitate the creative endeavour of doctoral education.

## *A Theoretical Conceptualization of Creativity in Doctoral Education*

A process view of creativity can be traced back to the Greek word *krainein,* which means to fulfil – and implies that people who fulfil their potential, who express an inherent drive or capacity, can be seen as creative (Evans & Deehan, 1988). Such a process-oriented view resonates with Pope's (2005, p. xvi, 11) definition of creativity as "the capability to make, do or become something fresh and valuable with respect to others as well as ourselves", which involves "a grappling deep within the self and within one's relations with others; an attempt to wrest from

the complexities and contradictions we have internalised". MacKinnon (1970) summarises that the creativity extends from simple problem solving, to the full realisation and expression of a person's potential. In doctoral education, the tasks of identifying and describing a research problem, selecting an appropriate approach to investigate the problem, collecting and analysing data, as well as writing research proposals and papers form parts of the creative process (Dewett *et al.*, 2005).

Sternberg & Lubart (1999) argue that creativity extends beyond the generation of novel ideas – it also includes an evaluative component in terms of problem solving as a part of the creative process. The creative product, according to Sternberg & Lubart (1999), is an original and appropriate contribution that has value and purpose, and these can be judged according to some external criteria. Creative products result from purposeful behaviour, and often lengthy and arduous processes (Hennesey & Amabile, 1988; MacKinnon, 1970; Sternberg & Lubart, 1999), but which Pope (2005, p.12) still describes as "work at play." In doctoral education, the creative product may manifest in the doctoral dissertation itself or in refereed journal articles, book chapters, and conference papers.

Pope (2005) challenges definitions that only apply to the creative product as reductionist, and proposes that creativity not only be seen in terms of what it *does*, but also in the socio-historical underlying influences of *who*, *where*, and *how*. Meanwhile, literature suggests an emphasis on the creative product (Dewett *et al.*, 2005) which Pope (2005) explains as a mid-twentieth century, Western problem-solving response to social and technological changes. Dewett *et al.* (2005, p. 14), therefore, describe creativity as "a protracted process of creative engagement with many intermediate stops in the journey towards creative products." Thus, creativity may have relevance to the individual and the wider society but it could also have an economic imperative (Sternberg & Lubart, 1999).

Creativity results from inquiries that are able to draw lasting support away from

competing scientific theories, facts or products, and is sufficiently open-ended to leave an array of problems for the new supporters to resolve (Kuhn, 1962), which Trafford & Leshem (2009, p. 311) refer to as "troublesome knowledge." As such, creativity does not emerge suddenly, but it needs to develop and be fostered over time in an atmosphere that allows exploration and expression, regardless of the discipline or programme format (Jones, 1972).

Csikszentmihalyi (in Sternberg, 1999) and Kuhn (1962) confirm that creativity is often not the result of individual endeavour alone, but rather of social systems that judge the merit of individual work. Social systems refer to the cultural domain (such as the academic discipline), and the social field (consisting of competent judges, including supervisors) (Csikszentmihalyi, in Sternberg, 1999). The process of creativity can be observed where the individual, domain and field meet, in what Kuhn (1962) describes as "revolutions in science", Feyerabend (1975) calls "epistemological anarchism", and Foucault (1972) refers to as "epistemological breaks." Creativity may result in changes in how reality is viewed within a social system (consisting of the domain and field), or what Taylor (1959, in Torrance, 1988) refers to as "emergenative creativity." Such changes may serve as evidence of doctorateness. Doctoral students should therefore be able and even encouraged to challenge the existing social systems if creativity is to be fostered. However, differences occur in the social systems within which doctoral education takes place (Pope, 2005). Kuhn (1962) notes that creativity may be more difficult in domains where rigid boundaries occur as changes require a redefinition of the permissible problems, concepts and explanations within the discipline and its scientific community. Hodges (1995, p. 35) agrees and argues that a duality exists in the way doctoral students are supervised within disciplines. On the one hand, students are expected to produce an "original" contribution, which implies an "obligation to change the whole field of knowledge in some undefined way, which is always at risk of being overtaken by some other work". On the other

hand, guidelines and policies within disciplines, institutions and at a national level are much more guarded, seemingly making little allowance for the "anarchy" the notion of originality might imply, and which may alienate the student from the discipline.

Pope's (2005, p.66) notion of creativity as co-becoming, Maslow's (1959, p.93) explanation of integrated creativity and Bohm's (1996, p. 48) arguments around participatory thinking may be valuable in bridging the above-mentioned duality and in exploring the role of the supervisor in a conceptualisation of creativity. Pope (2005) argues that learning can only be truly creative when all stakeholders' roles in the creative process are acknowledged. MacKinnon (1970) argues that traditional approaches to learning (e.g. rote learning, learning of unrelated facts, repetitive learning, and precise memorisation) do not foster creativity, and relate to an authoritarian, supervisor-controlled learning environment that may lead to "destructive friction" (Vermunt & Verloop, 1999, p. 270). MacKinnon (1970) warns that creativity should not be seen as something to be taught, but rather as developed by leading through example. Austin (2009, p.175) calls this approach "cognitive apprenticeship", as it makes experts' thinking processes in understanding and addressing problems visible. Co-becoming implies that the supervisor becomes the co-creator of knowledge, which legitimises creativity in doctoral education as the collaboration between an established expert/ researcher, and a novice researcher.

Frick (2009, pp. 40-41; 2010) argues that the notion of creativity opens the door to a more integrated view on the processes and eventual product(s) associated with doctoral education. As such, creativity can be conceptualised as a multi-faceted concept developed in various facets, including ontological (how to position themselves as scholars), axiological (how students integrate themselves into the values and ethics underlying the discipline), epistemological (how students negotiate their understanding of and contribution to the discipline), and methodological facets evident in both the processes and products associated

with doctoral education. Epistemological beliefs and methodological approaches become evident in a doctoral dissertation (the product), but ontological and axiological development is much harder to discern. Translating creativity into the doctoral process and eventual outcomes therefore needs to take place on various levels including ontology, axiology, epistemology, and methodology. If a student is only stimulated or allowed creativity in one or two of the levels, and the emphasis is on either process or product, creativity may suffer (Frick, 2010).

## METHODOLOGY

A qualitative descriptive approach was followed, as this methodological approach allows the researcher to be intersubjective as interpreter of the data (Babbie & Mouton, 2001). A conceptual framework of creativity within doctoral education was used as a basis for further inquiry (Frick, 2010). Semi-structured interviews with ten experienced supervisors (professors) in a South African Faculty of Education explored how these supervisors conceptualise creativity in guiding students towards the eventual product in the form of a PhD dissertation. The particular doctoral programme is research-based, and student-supervisor interactions are mostly conducted on an individual and project-specific basis. Supervisors therefore play a key role in doctoral students' understanding of the creative process that leads to an original contribution.

The respondents were asked to narrate their understanding and practice of doctoral supervision based on their prior supervisory experiences. They were asked to keep the following question in mind when narrating their stories of supervision, namely, how they conceptualise creativity in doctoral education.

The interviews were transcribed verbatim and analysed by means of narrative inquiry. Johnson (2006) describes narrative inquiry as a way in which meaning can be made from lived experience. Pavlenko (2002) defines narrative inquiry as research which focuses on the socially-situated content of narratives. Ollerenshaw & Creswell (2002) make reference to contextualized inquiry situated within a particular setting, while Phillion & Connelly (2004, p. 460) add 'context is crucial to meaning making', which serves to explain the limited nature of this explorative inquiry to a particular faculty at one university.

The idea of narrative space consisting of three interconnected dimensions which provide context for any particular story (Clandinin & Connelly, 2000) was useful in the design and execution of the study. The three dimensions include: (a) the participants, in this case supervisors' own experiences in their interactions with their doctoral students; (b) the timing of the story, how it relates to both the past and the future; and (c) the setting or locality of the story. Any story can be positioned within the space created by these three interrelated dimensions. The space creates the context within which the story is understood, by both the narrator of the story and the narrative researcher – in this case relatively experienced doctoral supervisors reflecting on past and current experiences and insights as it pertains to creativity in doctoral education within the discipline of Education.

The data was analysed by means of narrative analysis and the major emerging threads (or narrative threads, as explained by Nieuwenhuis, 2007) are reported. The choice of voice (Miles & Huberman, 1994, p. 301) and the presence of the researcher in creating the narrative is justified in what Pillay (2005, p. 540) refers to as the researcher's "story of others stories" and Tierney's (2002, p. 392) notion of narrative reflexivity. Johnson & Golombek (2002, p. 4) also note the value of reflexivity in the narrative, in that "inquiry into experience … can be educative if it enables us to reflect on our actions and then act with foresight". Respondents' anonymity is ensured through the use of pseudonyms. Each story told highlights the individualized nature of doctoral education, but there were also definite emerging themes on how the ten interviewed supervisors conceptualised creativity in doctoral education. The study does not aim to generalize, but rather explore the complexity of conceptualising creativity in doctoral education.

## RESULTS AND DISCUSSION

The respondents' narratives were analysed as stories of their supervisory experiences. In reaction to my reference to the so-called original contribution commonly expected of doctoral candidates, many used this as a starting point for their discussion (the conundrum of the original contribution). They then proceeded to talk about how they conceptualise creativity in doctoral education (creativity as…).

### The Conundrum of The Original Contribution

While the work of Barron (1995) and Lovitts (2007) may have greatly contributed to a general understanding of creativity and eventual originality at the doctoral level, the respondents still found the notion of originality problematic. L pointed out how a differentiated understanding of what an original contribution entails is problematic in practice:

> *What worries me is lecturers' different understandings of what it [the original contribution] is. Three years ago I had a bad experience, bad in the sense of my understanding [of the topic]. And the externals all agreed, but another person's understanding of what constituted this contribution was totally different. And it took the student a year longer, you, know, to make changes to make it even stronger. And this is the dilemma that you sit with people's understanding of what is an original contribution. It's totally different.*

D was quite explicit in problematising the conundrum of the original contribution, and preferred to steer away from this notion altogether:

> *I doubt whether a person can ever make an original contribution. I would rather say that a person makes a contribution, firstly. And the contribution must be of such a nature that it is justifiable. Sometimes the focus is too much on*

> *the original contribution and then the contribution made is not justifiable. So I would rather say you can make any contribution, but the contribution must be justifiable. For me the originality lies in how you can justify – the argument – rather than saying it is an original contribution. Because it sounds a bit presumptuous, or forward, to think that your contribution can be, can imply you have read everything that exists. Because how do you know your contribution is original? So I would say the contribution is maybe of such a nature that it's plausible enough to qualify for a doctoral study. I am rather careful of using the word originality because original would mean to me something that you have never thought of [before].*

E resonated with this view, and added that it is difficult to judge originality, and that it should not be seen as an absolute notion required in doctoral research:

> *How do you decide if this thesis makes a contribution to shifting the boundaries of the discipline? ...when is an idea original? There are not ideas that can be original in an absolute sense. So you use other people's work, and you use other people's ideas and you extend on it in a way. So in an absolute sense there is not such thing as originality.*

K talked about original work as pioneering work, with an emphasis on the applied nature of research:

> *Now my perception is that research must be pioneering work. ... I think anything that eventually makes a difference – and this is a very loaded word – because we say original contribution – what do we actually want to know by asking this? I think*

*the one [thing] is what knowledge gap does this fill? If it fills a knowledge gap then the examiners are happy. But I still ask: so what? Fill the knowledge gap but what is going to change out there? I don't know if this is creative enough? I don't think it's worth pursuing a doctoral study if there's no creativity. This is what this can bring to the community for whom the research was done. And I think that would be the ultimate of the research, to say this is actually the output of this research and what it brings. Because that's where most research falls flat.*

These results support Hodges' (1995) claims that originality is an equivocal concept with is problematic within the often set boundaries of disciplines, even though originality often features in policy documents on doctoral education. The distinction between originality and creativity in doctoral seem to be vague in both literature (*see* Hodges, 1995; Lovitts, 2005), and practice (as the above results indicate). Although neither originality nor creativity in doctoral education is easily defined, creativity seemed to be less troublesome and more legitimate and defendable within doctoral education in the particular context. The respondents conceptualised creativity as a student attribute, an epistemological understanding, or an interaction with methodological processes.

### Creativity as a Student Attribute

The data suggest that the respondents could relate to the various factors Sternberg & Lubart (1999) which refer to as student-specific influences on creative development. Intellect seems to be an important consideration, which is understandable as a PhD requires an intellectual engagement with and inquiry into a particular issue or problem. R and K linked creativity and intellect in the following ways:

*I don't think it's worth pursuing a doctoral study if there's no creativity. It would be interesting to construct the word, because I would see creativity as intellect, there's a huge amount of intellect, there's the ability to insight, and the ability to bring that together… [Respondent R]*

*It [creativity and intelligence] is closely related, I think. So to be creative I also think you need some grey matter. I don't think you can be very creative if you don't have the material [intellect]. [Respondent K]*

If creativity requires an interplay between intellectual abilities, knowledge, personality, styles of thinking, motivation and environment (as postulated by Sternberg & Lubart, 1999), then intelligence seems to be necessary for creativity, but not a sufficient condition in itself (Nickerson, 1999) and one would therefore need to look wider than only intelligence to understand creativity.

Frick (2009), Dall'Alba & Barnacle (2007), as well as Wisker & Robinson (2009) emphasize on the importance of ontological development in doctoral education. The respondents in this study also told stories of students' ontological development, and what gave these students the courage to take "creative leap(s)" (Jones, 1972, p. 25). F referred to students' cultural capital as a defining influence on their ability to progress, which seemed to move beyond intelligence:

*… with cultural capital I mean what we possess before we come to the PhD … It calls in history, it calls in family, it calls in community, it calls in a sense of being educated, educatedness. And the two people who made original contributions, established a relatively (although not unproblematic) seamless connection between supervisor, themselves and*

*what they were researching. They were able to establish for themselves a research process momentum that enabled them to establish a synergy with supervisor. Intellectual synergy with supervisor. And establish a synergy with the processes they needed to do that. They could understand what that entailed. And those people had the cultural capital. For these people there was a congruence between the school that they went to, the university that they went to. So their cultural capital was congruent, with requirements of an original contribution in a PhD… [They] had to establish a process that wasn't an intellectual process. It was a systemic process they had to engage in.*

He continued to tell the stories of the ontological journeys of two particular students, who brought vastly different forms of cultural capital into the supervisory relationship, but who both succeeded in establishing the congruence he mentioned above:

*One of the two students I work with best, because she's so creative, this student has an ontology, nothing will stop her. …this student for example, … she didn't come through the university system. She's got four kids, she's divorced. What propels her through all of this, she's got a hell of a plak [attitude], she's a bit robust and she's a bit rude and stuff like that. But she pushes herself. And she can see the damn thing, and she can run after it. And she can find and bribe people to give her money to do things [laughs]. So, she's got something in herself. So I have to deal with the affective.*

*…there was this one student, I could see… he exceeded the expectations way beyond what I thought was the start of a PhD. I saw him once over those four*

*years. I supervised him over the email. [The student's country of origin] was involved in a war. You can't get an environment that's more challenging. This guy he had the ability and the understanding of discipline. … This guy was just continuously working. He had a cultural capital that didn't need me to do the affective stuff. He took care of himself in what he needed to do. He knew exactly what the thing entailed and I needed to promote that. …and that was easy because he could push the creativity boundary. When it came to three and a half years into it, I realized this man will not be able to pull the thesis together, while there is a conflict state. And then the only thing that I did was I brought him in and he klapped [completed] that thesis, brilliantly.*

Pope's (2005, xvi, 11) definition of creativity as "the capability to make, do or become something fresh and valuable with respect to others as well as ourselves", which involves "a grappling deep within the self and within one's relations with others: an attempt to wrest from the complexities and contradictions we have internalised" is apparent in these stories. These and other stories spoke of students' seemingly difficult circumstances, but that students' maturity and autonomy enabled them to eventually take the necessary creative leaps (Jones, 1972). The independence and maturity evident in the two stories above was mirrored in the personal reflection of L:

*With creativity, to establish that originality, comes autonomy. You know that their individuality, it's about freedom really, maturity yes. So it's the maturity to dare taking that jump. I always tell students I want you to look out when you're starting to overtake me. And then I'll say ok, you're on the push.*

Autonomy was also emphasized in the stories told by R, who referred to autonomy as cue alertness, self-direction, an ability to handle critique and intelligence, facilitated by experience in practice. The inability to handle critique and the clashes between students and supervisors is not unexpected, as Jones (1972) describes creative students as non-conformists, which may result in tension and adjustment problems, even though such students often strive for independence.

R also talked about passion as an element in creative development, which was emphasized in the majority of conversations, as evident in K's quote thereafter:

> *A person should never enter a D and think I just want to follow this research process, there's a lot of passion and a lot of other stuff, many times also emotion, that goes into a D study. That's really why a D study is there, to put people on another level of thought and functioning. If someone does not have an attunement about what she [sic] wants to work on, and have sort of a passion to address and solve that problem, I think you'll struggle. You cannot, especially over a longer period, you cannot get someone enthusiastic about something you are enthusiastic about, but not that person necessarily. It is not just a procedure to complete. I think this is where creativity plays a role. [Respondent R]*

> *If a student doesn't have a passion that is linked to feeling, it won't be a good study. Because otherwise, they won't put the energy and the commitment into it. And I don't think you can disconnect feeling from that, because of what it takes out of a student. … And then you have the promoter, whether they match. What the doctoral student wants to do, and what the promoter wants to do – you need to get that match as well. [Respondent K]*

Creativity as a student's attribute was evident from the data, but in itself seemingly insufficient as an explanation for creativity in doctoral education. An epistemological understanding also featured prominently in the data as an undercurrent to understanding creativity.

*Creativity as Epistemological Understanding*

The importance of an epistemology in respondents' understanding of creativity in doctoral education is not surprising, as creativity demands knowledge and immersion in the field of study in identifying problems and gaps in the field in order to move beyond the existing perspectives and to create something new (Dewett *et al.*, 2005; MacKinnon, 1970; Nickerson, 1999; Sternberg & Lubart, 1999). An epistemological understanding seems to be important throughout the doctoral journey. In order for this understanding to be creative, however, it requires identifying gaps in current knowledge and then moving beyond what was known (as K explains):

> *First there must be a huge knowledge gap filled by nothing else. Nothing else. Which means you must be comfortable to enter space that's unknown. In your literature review, you're only working with what's known. Nothing is unknown in a literature review. So what are you going to do with that to enter the unknown? And to stay in some form of integrity. Now one person may dare to go into the unknown and for others it may be more uncomfortable. So the only way in which that person can stay within integrity, is to show how he/she is justifiable. That takes a lot of creativity. To take all this stuff, all these worlds, to get a bridge and say this is how these worlds fit together.*

F similarly referred to a particular kind of synthesis as part of what could be called creativity in doctoral work:

*You're making an empirically based argument to show different nuances, to add to the literature, as opposed to confirm the literature. And you know I have to be very honest, and say of my six students whom I have, about two of them did original creative PhDs. Others did excellent syntheses, with empirical base, that supports the synthesis. As opposed to pushing the synthesis. The other two did excellent empirical work, who I think did original contributions, but challenged the prevailing synthesis. To then construct, to make an original contribution beyond existing work.*

He went further to explain what he called a generative process in doctoral work, and that this generative process demanded epistemological fluidity, which D described as creatively immersing yourself in the current discourses.

*And you have to understand that a PhD in form is also generative. There's a generative process that goes on in that PhD. That's why a PhD is never done until it's done. And that's why you'll write it ten times over and over again. And my sense is that we're also dealing with changing epistemologies. We're not dealing with static epistemologies. If the world is mobile and fluid, then epistemologically you have to have a lens that captures the mobility [Respondent F].*

*I don't believe anyone can tell me anything creativity if you haven't read the preceding debates, about where we are and where we stand now. So what this tells me is if you are creative, there is a place where you start. Then you can disagree, build or extend further. That, for me, is creativity to an extent. Creativity means to me that I can describe or explore a theoretical point different to what was intended before, that is very creative to me. I like what*

*Derrida says to me, he says if you talk about creativity, you talk about critique. You have the ability to explore new possibilities, you have the ability to pursue a diversity of interpretations. You have the ability to look beyond the given, and that to me is highly creative. ... And creativity will be more evident in people's work who engages in depth with their discourses. You must initiate yourself within the discourses. You have to be initiated into the discourses before you can begin to think creatively [Respondent D].*

L added that supervisors guide this process, but rarely have control over what students eventually add to the field of study.

Epistemologically speaking, creativity thus also manifested itself in how doctoral students were able to become experts in their field of study. L talked about this notion of creativity as eventual expertise in the field based on the experience in working with students and his own experience:

*I always tell the student when we enter the oral, listen here you are the fundi in this area now. You know more than us, you know more than the person [examiner]. They evaluated you. You are now the expert. You are going to be the doctor on this. As [his supervisor] told me, remember the guys are now going to consult you on that which you have put on the table there.*

E summarized that creativity as an epistemological concern could be viewed in different ways, and should not be seen in isolation from the methodology of the study.

*I think there are different ways in which you can view creativity. The first is that you look at the topic itself and see whether the topic, the question actually, you look at creativity there.*

*And it can also be in the particular genre within which the person writes, where creativity can come in where people move away from how it was done conventionally. And the third is how people work methodologically in their thesis. So I would think there is actually a lot of room for creativity.*

### Creativity as Interaction with Methodological Processes

In doctoral education, the tasks of identifying and describing a research problem, selecting an appropriate approach to investigate the problem, collecting and analysing data, as well as writing research proposals and papers form part of the creative process (Dewett *et al.*, 2005). This process takes place within a particular methodological framework focused on the research problem, which the R emphasized as an important consideration in creativity.

*I question the thing about a creative problem. A problem as such cannot be creative. But someone can see, or identify a problem in a creative way. I think this is important. And if that problem is seen in a creative manner, one can go about solving the problem creatively. Because you get people who tell you I want to do a PhD, what can I do it on? So you [the supervisor] must identify the problem. People who don't have the vaguest notion what they want to study. And these are very difficult people to work with. ... Additionally to the whole thing of creativity, one must maybe think of creative problem-solving. Because that is what a study is, a study of a problem. There's a problem statement and a problem question. And actually it's about how the student creatively does problem solving to address the formulated problem. ... My point of departure is more to look at creative problem solving, and not only creativity. Because I*

*distinguish between creative problem solving and creativity. Because creative problem solving follows a type of process, while creativity is more of an attribute. I use that perspective and the creativity is in that. And you must master the methodology. Go and read about the methodology and different methodologies so that you can make choices to fit your research question.*

F and E described the methodological choices students make as some of the most creative elements of the doctoral process, as follows:

*And methodologically speaking, it's the most creative moments in the thesis. But what's your methodological issue, what's the research question? Now what method do I use to answer that research question? Can you see the connectedness between the two? ... But that's not how it works, you've got to have the research question, not completely apart from the research methods. And if it's generative, then the methods unfold. And there's all these post-positivist methodologies that you can generate methods and so on. [Respondent F]*

*So I think there are different examples of what you can do. The one thing is that you can tell different narratives or stories in the field. And that is a way of being creative, that you can look at a particular problem and you can tell a positivist story and you can tell a post-modern story, you can tell a critical story of the same issue. And this is one way of doing it [research] creatively. The presentation of the data. [Respondent E]*

K agreed with Sternberg & Lubart (1999) that creativity needs to result in an original and appropriate contribution that has value and

purpose, and that such a contribution can be judged according to some external criteria.

> *A study may be very meaningful to the student. Most students choose something that they have some personal commitment to. A passion. Which becomes very meaningful and creative to them, but not necessarily for the examiners, and you need that match eventually.*

The process underlying such an end result therefore needs to be rigorous in order to meet doctoral standards, but students may not always find it easy to match creative work to rigorous processes.

## CONCLUSION

The results of this small-scale study in Education highlighted the conceptual and practical difficulties in pinpointing concepts such as originality and creativity in doctoral education – even though such concepts often occur in documents describing the intended outcomes of a doctorate.

The interviewed supervisors confirmed Hodge's (1995) argument that the concept of originality does not easily fit into the confines of academic disciplines. Creativity seemed to be a more legitimate pursuit.

The conceptualisation of creativity in doctoral education is multi-dimensional. A conceptualisation of doctoral creativity needs to encompass aspects of both process and product in a transformative manner in the various phases of the research process. The data suggested that creativity could be conceptualized as a student attribute, but that it also has epistemological and methodological foundations in doctoral education. Creativity needs to transform students so that aspects of self, knowledge and action interact (Parker, 2003). MacKinnon (1970) summarises that creativity extends from simple problem solving, to the full realisation and expression of a person's potential.

As supervisors, we need to create environments that motivate students to become creative, to provide a means for them to be creative, and the opportunity to showcase their creativity, as Johnson-Laird (1988, p. 208) claims, "[c]reativity is like murder – both depend on motive, means, and opportunity."

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