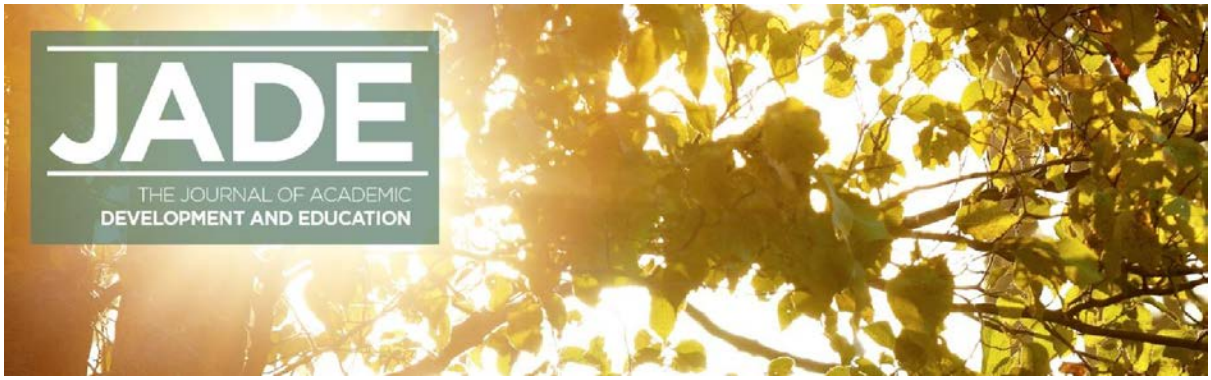

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Article:

In Pursuit of the 'Holy Grail': Staff Perceptions of Creativity and Innovation

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Abstract

Context and Objectives

Debate about conceptual understandings and practical applications of creativity and innovation into learning and teaching practice is long standing. Our empirical research aimed to explore how these concepts were understood by staff working in UK higher education (HE) settings and the implications for informing quality improvements. Our goal was to enhance knowledge, skills and understandings within our own context, alongside offering suggestions for HE institutions elsewhere.

Methods

We conducted thematic analysis of qualitative data collected via audio-recordings of workshop break-out groups at two learning and teaching conferences, and positioned our findings within the broader international literature on creativity and innovation.

Results

We identified four interconnected themes: (i) how creativity and innovation are understood, (ii) problems with claiming work as creative or innovative, (iii) a practical skills deficit, and (iv) a nuanced relationship between their meanings and uses in different disciplinary contexts.

Discussion and Conclusions

We have shown that creativity and innovation have been defined as both products and processes. These particular findings concur with the broader research on these topics across different international settings and disciplines. Activities must be implemented that facilitate discussion about the meaning of these concepts and the emotional impact of value judgements while building awareness, confidence and understandings of how and when students are being creative and innovative. Staff working in other HE institutions around the world may like to reflect on whether these recommendations have relevance in their own contexts, perhaps exploring more rigorously using our proposed methodology.

Keywords: Creativity, Innovation, Pedagogy, Skills Development

Context and Objectives

There is longstanding debate about the nature of creativity and innovation in learning and teaching contexts (Hunter et al., 2007, Oldham and Cummings, 1996, Woodman et al., 1993, Kampylis and Valtanen, 2010, Amabile, 1988, Daskolia et al., 2012, Demir, 2014, Demir, 2015, Onyia, 2014, Tang, 1998, Tsai, 2012, Bondarenko and Isaeva, 2016, Byron, 2017, Herrera and Mejías, 2017, Loaiza et al., 2017, Sanchez-Martin et al., 2018, Richards, 2015). As teachers working in a postgraduate context, this raised questions for us about the subsequent impact it might have on students' opportunities to recognise and implement creativity and innovation in their assignments.

Such questions are pertinent as students' confidence to be creative and innovative is perceived less positively than other questions in the Postgraduate Taught Experience Survey (Soilemetzidis et al., 2014), even though developing such skills can enhance students' learning gains (Leman, 2015) and enable students to align their skills with Masters-level descriptors (SEEC, 2010). According to Byron (2017), at Masters-level staff often highlight the need for students to demonstrate critical thinking skills but neglect how these are interlinked with creative thinking.

Furthermore, Virtanen and Tynjala (2018) found that providing opportunities for students to collaborate and interact using constructivist and integrative pedagogies was more likely to enhance their development of skills, such as decision making, using different forms of creativity and problem solving, when compared to traditional university teaching methods (Biggs, 1999, Biggs, 1996, Biggs and Tang, 2011, Bonwell and Eison, 1991, Brown and Race, 2012, Lage et al., 2000, Novroski and Correll, 2018, Office for Students, Rui et al., 2017, Ryan, 2005, Springer et al., 1999, Tusa et al., 2018, Virtanen and Tynjälä, 2018).

With these issues in mind, we initiated dialogue between a group of interdisciplinary staff, including ourselves, about what creativity and innovation meant to each group member within their own learning and teaching contexts. We reflected on what these concepts mean for our professional practice and also examined case studies including a seminar series for students, a public health skills development game, a careers support workshop, and an autobiographical book on breast cancer. It quickly became apparent that the concepts of creativity and innovation were defined and interpreted in numerous ways and that it would be difficult to embed them in our respective student learning contexts without further insights to help consolidate our understandings about them. Subsequently, we held a follow-up meeting during which we agreed that the interdisciplinary and interprofessional collaboration with our colleagues had broadened each of our mindsets with respect to the way we understood the concepts. Additionally, our dialogue enabled us to reach consensus about what these ideas and practices meant, which felt reflective, creative and innovative in and of itself. Given this, we decided to develop a research project that could explore these ideas further.

Our research aimed to evaluate how the concepts of creativity and innovation are perceived by staff in a range of disciplinary contexts – seeking the 'holy grail' as one participant put it! In the next section, we review the literature on creativity and innovation to show fragmented perceptions associated with these concepts. Following this, we present the study and results. Finally, we conclude with recommendations for embedding creativity and innovation into curricula to improve staff and student knowledge, skills and understandings within our own context of

postgraduate education in public and global health offered by the London School of Hygiene & Tropical Medicine, alongside offering suggestions for HE institutions elsewhere to consider.

Literature Review: What is 'creativity' and what is 'innovation'?

We searched the educational literature through the ERIC database (in November 2018), for definitions of creativity and innovation, limiting the search to articles relating to health or science in higher education (including synonyms).

Tsai (2012) proposes that creativity is an elusive construct which is difficult to define, and also a process that can be used to transform new ideas into useful products, particularly where there is a clear interconnection between the individual and the learning context (Hunter et al., 2007, Oldham and Cummings, 1996, Woodman et al., 1993). Daskolia et al (2012) also identify issues with defining creativity relative to four components: who is doing the work, which contexts they work in, which processes are involved and what the end point is (Kampylis and Valtanen, 2010). Demir (2015) argues that scientific creativity involves critical thinking that enables individuals to produce original ideas by drawing on interdisciplinary ideas to solve problems (Demir, 2014, Demir, 2015). Demir connects innovation with creativity and implies that the end product is definitive of the concept. However, there are different perceptions in the literature about what we mean by a product, for example, it has been defined as an initial idea (Amabile, 1988) and the final/end product (Tsai, 2012).

We found that the term 'innovation' is commonly used as a popular 'buzz word' that is not always explicitly defined (Onyia, 2014, Richards, 2015). However, when it is defined, it is most often associated with specific examples, such as changing the teaching method to gamification (Sanchez-Martin et al., 2018) or to a variety of computer activities (Shi, 2008) or to calculative-analytical tasks, scientific group discussions, etc. (Bondarenko and Isaeva, 2016). In some cases 'innovation' is only mentioned in the title, abstract or references (Herrera and Mejías, 2017, Leiman et al., 2015). Kempe and Reed (2014) propose that there are fundamental problems with developing an identity as an innovative teacher when the criteria for being innovative are so ill-defined. Loaiza-Aguirre et al (2017) draw on a citation from the Oslo Manual, which states that innovation can be a product, process or method (Loaiza et al., 2017, Manual de Oslo, 2005). Within these different definitions, innovation is mainly described as relating to the introduction of something new or making a change that results in an improvement.

Amabile (1988) describes innovation as the successful implementation of ideas and Tang (1998) proposes that innovation grows out of creativity, while Merx-Chermin and Nijhof's (2005) describe a 'creation-innovation-learning spiral' (Amabile, 1988, Merx-Chermin and Nijhof, 2005, Tang, 1998). Similarly, Charyton (2015) argues that, across both art and science, the application of creative ideas results in innovation. Along these same lines, Byron (2009) suggests that innovation refers to the management of ideas which involves making creative ideas a reality. He argues that they will only be valued if they are seen through to innovation (Byron, 2009). However, West (2002) argues that seeing creative ideas through to innovation may be inhibited by other demands placed on teaching staff but, nonetheless, this should be encouraged. Collectively, these papers seem to imply that creativity precedes innovation, with one clear exception (Demir, 2014, Demir, 2015). Additionally, as with

creativity, it appears to be the case that the four factors identified by Daskolia (2012) are also referred to in definitions of innovation; person, disciplines/contexts, processes and product.

West's (2002) proposal that additional factors may inhibit the implementation of creativity and innovation in practice have been raised elsewhere, for example, they may be restricted by political concerns (Berg and Östergren, 2006, Gannaway et al., 2013, Hannan et al., 1999, Jackson et al., 2006, Smith, 2011, Smith, 2012). Furthermore, Smith (2011) argues that there is no shared understanding about the boundaries between creativity and innovation, which may impact on how they are perceived, understood and implemented. Both Daskolia et al (2012) and Smith (2011) highlight the importance of context as they are likely to be used and understood in different ways in different disciplines.

Having identified the main concerns in the literature, being the lack of consensus on clear definitions of the concepts of creativity and innovation and the relationship between them (and noting that making sense of both concepts requires consideration of the person, disciplines/contexts, processes and product), we now describe the methods and findings of our study.

Methods

Data Collection

Our sample comprised staff who had an interest in or worked in UK higher education (HE) learning and teaching contexts. At the time of the study, both authors worked at the London school of Hygiene and Tropical Medicine (LSHTM), which is a world leading centre for research and postgraduate education in public and global health. Therefore, it made sense to use our own setting for data collection. Furthermore, the second author convened the annual learning and teaching conference at LSHTM (2016), so we agreed that this provided a useful opportunity to discuss the project and gather our data. Additionally, we had a conference talk accepted for the annual (2016) Staff and Educational Development Association (SEDA) conference**, which is commonly (although not solely) attended by** educational developers who promote good practice and innovation in UK HE settings.

(1) As these cohorts comprised staff with potentially different day-to-day interests, they provided opportunities for eliciting different understandings about the concepts in question, and we welcomed this diversity given our own experiences in the lead up to the study. The LSHTM sample comprised academic and professional support staff in various roles and operating at different levels of the organisation. The SEDA sample included educational development staff with backgrounds in law, social science, nursing, physics and other sciences, to name but a few. The sample, therefore, constituted a convenience sample of N=28 staff, comprising four workshop break-out groups at LSHTM (two groups containing 4 participants in each, one group containing 3 participants and one group containing 5 participants) and three break-out groups at SEDA (each containing 4 participants).

(2) Following a 15-20-minute presentation by the lead author, each group was provided with flip chart paper, pens and the questions to be considered, and 10-15 minutes to discuss them, following which the lead

author invited contributions in a 5-10-minute plenary session to gather collective ideas from each group. The LSHTM workshop ran for approximately 30 minutes in total whereas the SEDA workshop ran for about 45 minutes in total. Digital, audio recorders were placed on the tables where each group was seated to capture their discussions.

We asked delegates to work in small groups to discuss the following:

i) What the concepts of creativity and innovation mean in the participants' own contexts; and

ii) How both staff and students could better recognise, understand and apply these concepts in practical ways.

Ethical Considerations

Prior to commencing the research, we gained ethical approval from the LSHTM ethics committee (ref 11785). Our research followed the British Educational Research Association guidelines and code of conduct for educational research (British Educational Research Association [BERA], 2018).

Participants were provided with an information sheet at the start of the workshops (also summarised verbally by the principal investigator) that described the aims and outcomes of the project, and also provided information about their voluntary participation, and how their data would be stored, analysed and disseminated. Participants were assured that individual data would be treated with confidentiality and not shared with anyone outside of the research team, and published data may be linked to their discipline and/or profession but not in such a way to make them or their employer identifiable.

Participants were informed that they have the option to leave the room prior to the initiation of the audio recordings. Consent to record and use the data collected, in the manner outlined, was assumed from those remaining in the room. Participants were made aware of this assumption and informed that they could leave the session at any time and request their data not to be used in the research.

The investigators will review the secure storage of the data after 10 years in line with the LSHTM Retention and Disposal Schedule and in conjunction with the Research Data Manager and Archives & Records Management Service to determine the next steps.

Contact details of the principal investigator (lead author) were provided and participants were advised that they can make contact should they wish to discuss any aspects of the research. Participants were also provided with the contact details of the LSHTM Ethics Committee and details about how to make a complaint, should they wish to do so.

We have followed the general principles for conducting ethical research by assigning numerical identifiers to anonymise contributions and maintain confidentiality. Within the analysis and discussion sections, any quotations from group members have been labelled using 'L' for LSHTM and 'S' for SEDA (in parenthesis). The number following each letter corresponds to the group the participant was in within each of the workshops: L1, L2, S1, S2, and so on. The number following this, after the hyphen, indicates the specific individual in that group. Comments from the plenary discussions are labelled as LP or SP, as a prefix, for the LSHTM or SEDA workshops, respectively.

Data Analysis

The recordings were transcribed verbatim and analysed using thematic analysis (TA) which is a method for identifying patterns and themes within qualitative data (Braun and Clarke, 2006). Being highly flexible, TA lends itself to any epistemological context (Alholjailan, 2012). Given the disciplinary-diverse character of our sample and research focus, we thought that it might work well as it has been defined as being advantageous for studies of learning and teaching (Maguire and Delahunt, 2017). We used a deductive approach to avoid a common issue with TA, whereby data analysts use the main research questions as themes (Clarke and Braun, 2013). So, rather than starting with any preconceived ideas, we were led by the data and therefore had no predefined hypotheses to test.

We used a six-stage framework for the analysis (Braun and Clarke, 2006). We started by listening to the recordings and transcribing them to familiarise ourselves with the data (stage i). We then made notes individually to generate initial themes (stage ii). We used open coding as we had no predefined codes, developing and modifying them as we worked through the data (Maguire and Delahunt, 2017). As coding is an interpretive process (Saldana, 2008), and there were two data analysts, we anticipated differences in what we would find but agreed that this could ultimately lead to more robust findings. After initial coding, by which we mean numbers of times a category was mentioned, we discussed our respective findings, noted similarities and differences and then revisited the data individually, to look for overarching themes (stage iii). By overarching themes, we mean not just the number of times a category was mentioned but also how it was contextualised, for example through interpretations of its meaning by participants.

According to Braun and Clarke (2006), there is no fixed way of identifying themes and there may be some overlap between codes and themes, especially with small data sets (Maguire and Delahunt, 2017) such as ours. We found this to be the case and had multiple discussions about how to describe the overlap in published work. Having identified our initial themes, we then reviewed them together (stage iv), asking ourselves how could we resolve any differences of opinion and what we meant by each theme. We agreed the final themes by defining what the substantive character of each one meant to us (Maguire and Delahunt 2017: 33511), and we have now written this up (stage vi).

Results

We focus on four themes that we think are most useful for highlighting the issues associated with creativity and innovation for both staff and students. Some of the themes are cross-cutting between disciplinary contexts and concepts, hence we discuss the relationship between them. We also consider how our findings might inform both staff and student learning, knowledge and skills development. The first theme relates to mixed understandings about what these concepts mean in practice.

1. How creativity and innovation are understood

The following quotation summarises a problem that underpins perceptions about these concepts:

> I think that higher education as a practice for the last 20 years has been shackled by the need to innovate and lots of perfectly good teachers feel

> that they're being devalued because they need to do something new….whereas creativity is a different thing altogether (S3-1).

This participant makes a clear distinction between the two concepts, contending that innovation requires doing something new, whereas creativity does not. He also points to the potential issue for teachers who are judged negatively as a consequence of a shifting HE landscape that requires them to be innovative (Brennan et al., 2014, Blass and Hayward, 2014). In this respect, it is not only the students' lack of skills, knowledge and understandings of these concepts that are perceived to be problematic, but it also points to a lack of understanding and consensus by staff. As one participant put it:

> It's a bizarre thing to have in the postgraduate survey [a question about creativity and innovation] because it implies that people have a common understanding of it when in this room we have 27 different understandings of it (S2-4).

So, the problem is twofold, and if staff treat these concepts as having variable meanings, attempts to embed them into practice are bound to be difficult. The lack of consensus about their meanings was mainly, although not solely, brought out by the SEDA group.

Some participants defined these concepts as different while others saw them as being connected, albeit through a problematic relationship. For example, in one of the SEDA groups it was proposed that, 'If you go to the Latin root of the word innovation it implies something new whereas creativity could mean using what you have but in a different way' (S3-3). Similarly, in another group it was said, 'They're very different concepts' (S1-1), with innovation being about 'developing something new, but creativity can be working with existing knowledge but packaging it in different ways' (S1-4). This difference was also brought out in the plenary discussion at the SEDA conference by one group who had come to 'the conclusion they were different things and not necessarily connected' (SP-S3-1). However, some differences of opinion were expressed in the data, with innovation being defined as an 'offshoot of creativity but not a necessary, desirable or appropriate one' (SP-S1-2), while creativity was said to be 'very messy' (S1-3) and involving 'thinking that we have to do something amazingly different' (L1-1). Others said that 'innovation comes with the concept of critique' (S3-1) but perceived creativity as coming from 'a more positive concept of making things work' (S3-1) in 'different […] not conventional ways' (S3-2). Participants in the LSHTM conference questioned whether it related to 'creative approaches or changing a commodity' (L3-4). In trying to reach consensus, the SEDA group agreed that there was a lot of scope relating to the 'everyday creativity of making things happen that weren't there before' (S2-3). While creativity as an everyday process was seen to be a positive development, innovation was described as being 'productive and much more goal-orientated' (S2-4) and as belonging to 'an emotional domain' (S3-1). In this respect, the relationship between achievements, and the emotional impact that this may lead to, also points to the issue of being judged.

As we can see, whether creativity and innovation are understood to be processes or skills or concepts, they are difficult to pin down in any concrete way but they also have ramifications for individuals working in different contexts. What is notable from the discussion is that the dialogue itself helped participants to draw out some of the nuances relating to how people think about these concepts, which resonated with our own early experiences. An additional, but related concern that emerged, was a problem with claiming that something is creative.

2. Problems with claiming work as creative or innovative

Two subthemes were identified in relation to claims of being creative or innovative: one concerned receiving value judgements, the other related to how creativity might just be part of day-to-day activities. For example, one participant admitted being 'hesitant to say, "well that was creative", because of all the value that gets carried along with having been creative' (S2-2). Although the issue is not explicitly stated, the inference here is that the very use of the concept can impact on how creative (or not) a piece of work is when judged by others. This was brought out by another participant who thought that the concept (creativity) itself is 'very value-laden' (S3-3). These comments resonate with some of those in the previous section.

In relation to the second subtheme, some participants suggested that the process of creativity is commonplace in day-to-day activities and may even be utilised unreflexively. For example, one participant expressed the view that it was something we 'use all the time' (L1-1), and others stated that it involved 'just doing their job' (S2-2), or that 'learning is always creative' (S2-4). Another participant questioned whether it is 'something that we do anyway, like automatically, when you're planning the research project?' (L2-3). For some then, the process of creativity is constituted as part and parcel of their general practice. A positive outcome of these interactions was that participants began to reflect on how they might be obscuring creativity in the classroom due to not having previously recognised its embeddedness in their routine practical activities. One participant proposed that maybe it is not so much about 'getting students to be creative, but rather, teaching them that they are being creative already' (L1-2). Another reflected on their group's discussion and remarked the following during the LSHTM plenary:

> Where we were sort of saying 'you've been creative', people were saying 'no I haven't, that wasn't creative'! So, interestingly, we might be doing things and none of us are prepared to claim that they are creative or imaginative. So maybe that's the same with the students (LP-L3-1).

In addition to the issue with labelling work as creative because of how it might be perceived, participants considered whether staff and students had the requisite skills to be creative or innovative.

3. A practical skills deficit

One participant stated that 'A lot of people, especially the less privileged people do […] find it quite an intimidating word…[so we should] put it in front of people to kick around and get confident' (S2-4). In this quote, the participant implicitly invokes a contrastive social class categorisation by inferring that more privileged students might have less of a problem understanding what creativity is. However, they then go on to suggest how this problem might be addressed in practice by entering into dialogue about it in order to familiarise less privileged students so that they can gain confidence.

It was also proposed that there might be 'a huge gap between the external label and the inner processes' (S2-4), which pointed to the relationship between the label and the cognitive skills required to be creative. While this judgement was less pronounced than the previous one, it nonetheless suggests that using the label and the creative/critical thinking skills that Byron (2017) highlights, are intertwined. This point was also implied in the LSHTM workshop:

> They [students] all seem very focused on an assessment […] and what we really want them to do is to go through this creative process […] and it's by putting that bit of themselves into it which means they then have done the critical thinking which is what we want them to do and then they get a very good grade. I think a lot of them tend to forget that. They just think 'oh I've got to get that out of the way' because I'm focusing on this exam at the end of the year (L1-2).

Moreover, the underlying inference is that teaching practice may need to be changed in order to close the skills gap and address the stifling of creativity in the classroom 'to enact […] a certain amount of freedom that as much as possible goes to the student' (S3-3). This could be achieved by being more explicit about when students are being creative. In the SEDA plenary, some questioned how we make explicit 'some of the things that students are doing around their creative practice…and helping them to articulate it' (SP-S1-2). This was also brought out at the LSHTM discussions, as one participant asserted, 'Sometimes I think we don't sell the students the idea of their assignment as being a creative act' (L1-1).

So, the way to make progress in working with students appears to warrant being more explicit and helping them to discuss their creativity. However, there are other challenges that need to be addressed to resolve our central concerns, which relate to our final theme about how creativity and innovation are perceived in different teaching contexts.

4. A nuanced relationship between their meanings and uses in different disciplinary contexts

As with the skills deficit, there was some debate relating to disciplinarity and the application of ideas. For example, one participant questioned whether using a new context to deliver information would constitute creativity (L3-4), while the participant whose work was being discussed suggested that this was not being creative but involved 'just stealing other people's ideas and slotting them into my own context' (L4-1). Elsewhere, this was challenged on the grounds that, 'It doesn't matter whether anyone else has done it or not before, it can still be creative in terms of your sphere' (S2-4).

One participant discussed her background as a palliative nurse and explained:

> So it might be about being creative in enabling someone to do the stuff they really want to do before they die when lots of people say you can't do specific things - so it's about being creative within boundaries and enabling that to happen…[for example] go on a holiday (S2-1).

Additional categories such as designing research experiments/processes (L3-5), generating hypotheses (L2-1 and L3-3), creating a sculpture (S1-1), producing an essay or MSc project (L1-1), doing Pecha Kucha presentations (L4-1) and undertaking public engagement activities (L2-3), for example, were all considered to have obvious potential for developing creativity, with one participant remarking:

> You think of creating a beautiful work of art […], whereas actually producing an essay or a project is actually a creative process (L1-1).

However, one participant was quite explicit that 'We don't want them to be creative and innovative. They have to learn about British Law' (S1-1), which suggests that creativity might be constrained by curriculum content in some contexts

but enabled in others. However, the same participant did go on to consider the possibility that putting together an argument for defence or prosecution might be considered creative.

Another participant suggested that these different perspectives were due to disciplinary-cultural discrepancies but also argued that it is not necessarily the case that law is an uncreative discipline while art and design students are naturally creative (S3-1). A different participant commented upon the use of interdisciplinary work 'to unlock creativity and to drive innovation […] by exposure to other disciplines and to students in other disciplines with very different perspectives (S1-4). Another went on to suggest that 'innovation or creativity happens when there's a dialectic or a cognitive dissonance' between different disciplines which might initially be confusing but resolving such uncertainties can lead to creativity (S1-2), which resonates with our own experience of working together on this project. Talking from a critical pedagogical perspective, one participant proposed the idea of being 'constantly in the pursuit of a better version of what we have today' (S3-3), which pointed to the ongoing nature of being creative and innovative.

Discussion

The aims of this study were to facilitate discussion relating to the concepts of creativity and innovation, and to gain insights into how they are understood and used by others working in UK HE settings, along with suggesting recommendations for LSHTM that may have broader relevance beyond the UK. In relation to these aims, the conference discussions enabled participants to critically engage with these concepts, which has revealed that both SEDA and LSHTM staff struggled to provide a unified definition of either concept. This aligns well with some of the literature. For example, Smith (2011) found that innovative learning and teaching practices were linked to notions of change, difference, improvement and 'newness', and that mentions of being 'creative' and 'engaging' revealed an interconnectivity between the concepts of innovation and creativity. Additionally, our findings illustrate the importance of context and disciplinarity, in terms of different understandings of (and expectations surrounding) creativity and innovation, with transdisciplinary work igniting these, which others have previously commented upon (Charyton and Snelbecker, 2007, Mishra and Henriksen, 2018).

However, participants in the SEDA workshop described a complex relationship between creativity and innovation that does not seem to connect as easily with the broader literature. The majority of the international literature we reviewed suggested a more linear connection, with creativity preceding innovation (Amabile, 1988, Charyton, 2015, Tang, 1998, West, 2002), although others propose it is more complex (Demir, 2014, Demir, 2015). We noted that SEDA members, who are mostly educational developers, were more equipped to unpack concepts and implement tasks relating to creativity and innovation than some of the academics working in different disciplinary settings at LSHTM. However, participants across both workshops and in the literature (Craft, 2004) describe the creative process as a perpetual one, constantly needing to change and adapt to new demands.

The importance of teachers' own creative learning has been raised elsewhere, such as in an Australian case study exploring understandings of creativity and creative learning in the Arts (Selkrig and Keamy, 2017). Yet, our finding that staff lacked confidence in applying labels, like 'creative' or 'innovative', to define their

work and/or their self-identities is consistent with other studies. For example, science teachers in Turkey reported medium-levels of creativity in self-evaluations which it was argued was either because of their perceived inadequecies or because they were unclear about the concept (Demir, 2015). Issues around confidence in identifying oneself as being innovative were also revealed in a South African study that highlighted the power of cooperative learning in positive identity formation (Kempe and Reed, 2014). Students themselves may struggle similarly with such self-identities, although an online intervention to raise awareness of creativity among bioscience postgraduate students in England found it developed participants' confidence to see themselves as creative (Adams et al., 2010). Staff are role models for students and so, with appropriate intervention/support, need to show awareness of their own creativity and innovation, claiming these labels for themselves as well as confidently applying them to students and enabling students to do likewise.

The broader literature is also in alignment with our finding that the creative process is routine practice in research, driven in part by the need to solve problems, with examples drawn from Greece, Slovenia and the USA, spanning Science, Engineering and Music (Charyton and Snelbecker, 2007, Daskolia et al., 2012, Juriševič, 2011). However, the view held by some of our participants, that the terms creativity and innovation are necessarily value-laden, is challenged in the literature. Berg and Östergren (2006), who study innovation in HE in Sweden, propose that innovation, in and of itself, is neither good nor bad as there are many types of innovation. Daskolia et al (2012), who study creative thinking in relation to environmental education in Greece, argue that creativity is not inherently good, benevolent or constructive, but there is the potential for harm if awareness of the impacts on society and the environment is lacking (Cropley et al., 2010, Sternberg, 2010, Craft et al., 2008, Daskolia et al., 2012).

Such differences of opinion resonate with our findings that understandings of these concepts are likely to be associated with disciplinary concerns. As we have seen, multiple factors (such as the need to build awareness and confidence, to develop critical thinking skills within assessment-driven cultures, and to talk about the emotional impact relating to value judgements) were indicated as impacting on using, articulating and embedding creativity and innovation into both staff and students' everyday learning and teaching practices.

Strengths and Limitations

A key strength of this work is that we have drawn on international literature and empirical data from staff who work in various disciplinary contexts. Our analytical approach was iterative, involving repeated discussions and reflection. Consequently, by taking our time to reach consensus, we got deeper into our data which enabled us to go beyond what we set out to achieve. This enhanced our personal and professional development.

The main limitation is the lack of qualitative data from students; had we gathered their insights about these concepts, we may have gained more knowledge about their understandings and enhanced our findings. Sample size and sampling context are also limiting factors in terms of generalisability but our findings still likely have broader relevance beyond LSHTM.

Future Research Work

It would be prudent to gather more detailed qualitative and quantitative data from LSHTM students to identify whether or not our findings resonate with their experiences. We could conduct baseline surveys (pre-implementation) to evaluate students' understandings and self-evaluations of their skills, knowledge and understandings about creativity and innovation. Following implementation of the current recommendations below into a number of taught courses at LSHTM, we could then conduct a post-implementation survey and interviews with staff and students, relating to our current findings above and the impact of implementing them into practice. The study could also be extended to other settings.

Recommendations to Enhance Practice

We recommend the following to enhance learning and teaching practice (taking care to acknowledge any differences in the definitions of creativity and innovation and the relationship between them):

- Develop learning resources to better support staff and students to recognise when they are being creative or innovative, and to develop these skills further so that they can use them more frequently across a wider range of learning. Resources could include various definitions, more tangible related verbs (e.g. synthesise, extend, adapt, generalise, solve, etc. (Churches, 2008, Munzenmaier and Rubin, 2013)) and a list of examples of when students commonly display skills in creativity or innovation such as
    - in problem solving within a data analysis where the data is non-ideal,
    - in planning and iteratively re-planning their MSc research project,
    - in composing and producing an essay, or
    - in designing and delivering a Pecha Kucha presentation.
- Introduce staff development opportunities for discussion of the learning resources outlined in the previous bullet point to generate critical dialogue between staff about the concepts of creativity and innovation, and to raise awareness of what they look like in practice.
- Use the terms creativity and innovation more explicitly in module- and programme-level intended learning outcomes to indicate the need for these skills in order to demonstrate other skills already present in the intended learning outcomes such as those relating to critical thinking.
- Use the terms creativity and innovation more explicitly in assessment guidelines for students to help them to see the importance of using these skills as an expectation of postgraduate-level work and as transferable skills for employability.
- Invite staff who are thought by their colleagues to be creative in their teaching practice to showcase examples of best practice for embedding creativity and innovation into learning and teaching strategies as routine practice, to support staff peer-to-peer learning and confidence in this regard.
- Encourage staff to act as role models and ambassadors of creativity and innovation through their claiming of these labels in relation to their own work and that of colleagues.

- Guide staff to help students to recognise when they are being creative or innovative by applying these labels, as appropriate, with justified explanation.
- Revise staff guidelines to ask them to use the terms creativity and innovation in formative and summative feedback to students.
- During annual performance development reviews for each staff member, and periodic reviews of programmes, encourage staff to reflect on how well they have communicated information about the concepts of creativity and innovation on taught programmes.

Conclusions

By studying the relationship between creativity and innovation for staff who teach in UK HE settings, we have shown that these concepts have been defined as both products and processes, which involve the utilisation of cognitive and analytical skills. They have also been associated with the identities of individuals relative to the contexts they are working in. These particular findings concur with the broader research on these topics across different international settings and disciplines. Additionally, it is notable that, by engaging in dialogue about the concepts, delegates in both conferences recognised that they had not previously acknowledged their own creativity or innovation, implying that our workshops had raised their awareness.

The specific benefits for staff and students at LSHTM are that the findings can be used in a practical way by engaging more staff in such discussions and by developing learning resources and methods that can be applied in practice. This also requires recognition of additional factors such as the need to build awareness and confidence, to develop intellectual skills and to talk about the emotional impact relating to value judgements. By including assignments that make use of cognitive dissonance and critical thinking as practical and intellectual tools that traverse disciplinary boundaries, there can be practical outcomes for quality improvement in curriculum development. It is, therefore, necessary to implement specific activities that facilitate working through these issues, to unlock student skills, knowledge and understandings, and raise their awareness of how and when they are being creative and innovative. The first step towards this goal is to build awareness and confidence among staff in claiming and applying the labels of creativity and innovation, and provide them with the necessary tools and support to extend this to students. Staff working in other HE institutions around the world may like to reflect on whether these recommendations have relevance in their own contexts, and embed them within existing staff development structures, and institutional procedures and documentation. Others may also like to explore these recommendations more rigorously using the suggested methodology above of pre- and post-implementation surveys.

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