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Ideational Pathways: Toward a New Approach for Studying the Life of Ideas

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ABSTRACT

What is the life of an idea? How do some ideas result in creative outcomes? People interested in creativity often want to know the answers to these questions. Although there are numerous methods and measures for assessing creative persons and products, there is little by way of methods for documenting and analysing the trajectories of ideas. The purpose of this paper is to address this need by introducing a new approach for tracing and analysing *ideational pathways.* Ideational pathways refer to the trajectory of ideas in temporal and spatial dimensions. That is, how ideas travel through time and space and whether those ideas end up resulting in creative outcomes. We open the paper by providing a theoretical and conceptual background for ideational pathways. We then introduce an emerging approach for tracing these pathways and apply it to two examples. We close by discussing implications and directions for future research.

What is the life of an idea? How do some ideas result in creative outcomes? People interested in creativity often want to know the answers to these questions. Creativity researchers have made great strides over the past 60 plus years to clarify how we might think about creativity and how to judge creative outcomes. Creativity scholars have, for instance, helped people understand the definitional features of creativity (Plucker, Beghetto & Dow, 2004) and recognize that creativity can come in many forms (Beghetto & Kaufman, 2007; Glăveanu, 2013; Kaufman & Beghetto, 2009; Rhodes, 1961). Scholars have also demonstrated how judgments of creativity are influenced by the sociocultural context (Csikszentmihalyi, 1996; Glăveanu, 2014; Hennessey & Amabile, 2010). In some cases, such as creative learning, these judgements occur dynamically within and across the intra-psychological and inter-psychological spheres of experience (Beghetto, in press-a).

Researchers have also developed numerous strategies for generating and assessing the uniqueness of ideas (Runco, 2010). Although the field has made great strides, many

questions remain. Indeed, understanding how to generate and assess ideas is one thing, understanding the process of how those ideas develop dynamically and emerge in the form of creative outcomes is quite another (Glăveanu, 2014; Tanggaard, 2014). At this point, the field of creativity studies needs new methods to help researchers document and analyse the dynamic trajectories and pathways of ideas. This includes documenting how some ideas result in creative contributions.

We hope to start addressing this need by introducing a new methodological approach for tracing and analysing *ideational pathways*. Ideational pathways refer to the trajectory of ideas in temporal and spatial dimensions. That is, how ideas travel through time and space and whether those ideas end up resulting in creative outcomes. As will be discussed, time and space represent key sociomaterial dimensions for tracing the trajectory of ideas. We open the paper by providing a theoretical and conceptual background for ideational pathways. We then introduce an emerging methodology for tracing these pathways and apply it to two examples. We close by discussing implications and directions for future research.

Understanding Ideational Pathways

We conceptualize ideational pathways from a sociomaterial approach. Such an approach asserts that materiality and artefacts are substantial components of the process of creativity (Tanggaard, 2013). In this way, the creative processes and products are not separate but, in practice, fused together in a dynamically emerging assemblage (Orlikowski, 2007). Our sociomaterial approach thereby endeavours to trace the movement and dynamic shaping of ideas that are “entangled” in sociocultural interactions (see Latour, 2005). This approach is in alignment with Lave’s theory of practice which asserts that there are no fixed boundaries between an ideational activity and its settings, between cognitive, bodily and social forms of activity, or between problems and solutions (Lave, 1988; 2011).

In choosing the term ideational pathways as a central concept, our intent is to focus on the dynamic movement of ideas within and between people engaged in various types of interactions (e.g. classroom teaching and learning, problem solving, informal learning). This approach differs from traditional approaches to studying creativity, which tend to view ideas as the outcome of an individual’s hidden divergent thinking process (Glăveanu, 2014). We approach the dynamic emergence and trajectory of ideas as the sociomaterial object of interest. We assert that once an idea has been uttered, it takes on a material and temporal reality. In the context of a dialogue the materiality of ideas shapes and is shaped by the participants of that dialogue and the setting in which it takes place. Each temporal turn in an interaction pushes or pulls the idea along

a particular trajectory. We thereby endeavour to explore how ideas, once materialized, move through interactions and how these ideas take on their own performative agency (Fenwick, Edwards & Sawchuk, 2015). We are also interested in documenting the trajectory of this performative agency – tracing how ideas influence and are influenced by participants engaged in dialogue.

The Partially Indeterminate Potential of Ideas

Our conceptualization of ideational pathways is based on the notion that creative ideas represent a particular dimension of potentiality in everyday life which is 'not yet there' and which cannot always be imagined beforehand. Although we recognize that individuals may develop new and personally meaningful ideas in the interior dialogues of their subjective experiences (see Beghetto, in press-a), our focus is on how ideas rise beyond the intra-psychological sphere. We are most concerned with understanding how ideas take shape and simultaneously give shape to the sociocultural and historical interactions amongst participants. In short, we are most interested in how creative ideas are "performed into existence" (Fenwick et al. 2015). As such, our focus is on tracing how ideational pathways unfold and analysing the different patterns of movement, including what discursive factors might be shaping and shaped by those movements.

Our conception of pathways is also inspired by theoretical work related to the concept of situated learning and trajectories of learning (Lave & Wenger, 1991). A trajectory of learning develops dynamically as part of a person's engagement in a community of practice (e.g. a graduate student learning how to be a creativity researcher). A learning trajectory is not fixed or predetermined. Rather, it represents a possible future orientation that becomes more defined over time. In this way, a learning trajectory – just like a creative trajectory – is always partially indeterminate (Beghetto, in press-b). That is, dynamically moving between more or less determinate outcomes. We use the term trajectory to suggest a dynamic and indeterminate pathway of ideas. Some of these ideas develop into creative outcomes. Others may emerge briefly and then come to rest. Still others may emerge, be put down, and become reanimated in subsequent interactions.

The Fusion of Individuals and Social Situations

Our pathways concept also highlights the fusion of individual lives and social situations in practice. This conceptualization can contribute to a system-oriented, distributed model of creativity that emphasises the interdependence of mind and culture (Glăveanu, 2014, see also Hutchins, 1995). Importantly, such a model would not erase a focus on individuals or ideas as units of analysis, but rather situate those units of analysis in a broader sociomaterial context. This allows researchers to simultaneously "zoom in" on the more mi-

cro-features of ideational pathways and “zoom out” to understand the broader sociocultural context of those pathways (Beghetto, 2014).

Our conceptualization of ideational pathways also highlights the intersection between human doing and knowing. This intersection represents flexible engagements with the world entailing open-ended processes of improvisation with the social, material, and experiential resources at hand. We therefore assert that the trajectory of ideas represents a “developmental teleology” (Anderson, 1987, p. 6), which unfolds and becomes more determined over time and within particular sociocultural spaces (e.g. teachers and students in classrooms, conversations between researchers, and so on). This kind of developmental teleology can be seen in creative teaching (Beghetto, in-press-b) and in the creative work of artists. Just as artists don’t know what their final creation will be until they create it (Anderson, 1987), the pathways and outcomes of ideas develop and take shape over time and in the discursive interactions of participants.

There are various forces that impinge upon the trajectory of ideas. One way of thinking about these forces is to recognize that they emerge from the fusion of differences among participants engaged in the activity (Holland & Lave, 2001) and the developing material trajectory of the idea itself. In this way, *difference* serves as a driving force that propels ideas along various trajectories. A teacher engaged in a dialogue with a student, for instance, may attempt to propel a student’s idea along a particular predetermined path. A student may, in turn, pull the idea into a more indeterminate path. The material trajectory of the idea will also exert a force on the interactional patterns of participants. Ultimately the idea may come to indefinite rest in agreement (sameness), acquiescence (on the part of the teacher or student), dismissal (teacher denies further dialogue) or some other action or outcome. We will attempt to illustrate by way of example in a later section of the paper.

The Benefits of Studying Pathways

Studying ideational pathways from a sociomaterial approach allows researchers to focus both on the *microgenesis* and on the *ontogenesis* of ideas. Specifically, it allows researchers to document how ideas develop in interactions within particular sociocultural spaces (e.g. classrooms, boardrooms, professional development training) and travel through and across time (e.g. brief encounters, on-going interactions and cross-sections of interactions across multiple time periods). It also allows researchers to illustrate how ideas are co-developed in the interactions amongst participants who are situated in various sociocultural contexts (John-Steiner, 1997). Although there are few examples of this kind of work in the field of creativity studies, a sociomaterial approach represents an important departure from perspectives that tend to focus either on process or product (see

Kahl, da Fonseca & Witte, 2009). When studying ideational pathways, researchers can examine the more dynamic interplay between creative processes and product by exploring how ideas take shape in everyday interactions.

Studying ideational pathways also allows researchers to conceptualize creativity from a prospective angle – giving it a forward reading by studying ideas as products in the making (Ingold, 2013; Tanggaard, 2014). Doing so requires a flexible methodology that can represent different contexts and situations. This could include everything from the trajectories of ideas as they unfold in a dialogue amongst a group of students working together or learning from a teacher to a team of workers in a product development unit of a company.

Studying pathways thereby provides researchers with new ways to identify and analyse various patterns in the trajectories of ideas across time and how those trajectories influence and are influenced by the differing perspectives of participants who are situated in particular sociocultural contexts. This includes exploring discontinuities, breaks or ruptures (Zittoun, Valsiner, Vedeler, Salgado, Gonçalves & Ferring, 2013) in the interaction amongst participants and ideas and how these "micromoments" (Beghetto, 2013) might lead to new and meaningful adjustments, resolutions or resting points in the trajectory of ideas.

Documenting Ideational Pathways: **A Diagrammatic Approach**

How might researchers represent or trace ideational pathways? One way is diagrammatically (see Figure 1). We call these figures Ideational Pathway Diagrams (IPD). IPDs can be used to document interactions "in vivo" (i.e. tracing live dialogues) or retrospectively (i.e. using transcripts of dialogues). In an effort to illustrate how researchers might use IPDs, we develop and discuss two examples. The first is a classroom-based example and the second is an example of informal learning. In both cases we use the IPD to document and analyse transcripts of interactions amongst participants. We start with an excerpt from an interaction and briefly discuss how an IPD can be developed and analysed from that excerpt.

Our purpose here is illustrative (highlighting possibilities), not prescriptive. Still, we feel that the simple approach we have demonstrated in the examples below has value in providing a material representation of ideational pathways. Researchers can use our simple method of re-presenting ideational trajectories as a jumping off point for further methodological development, analysis (e.g. pattern identification and comparisons), theory building and theory testing. Doing so can help them examine whether and how creative ideas are performed into existence and can also be used by practitioners as a means for understanding and transforming social practice.

IPD Example 1: Documenting Classroom Interactions

The following example represents a fictionalized interaction[1] between a teacher and a group of five and six-year old students at the start of Grade 1.

Teacher (U_1T): Okay class, let's start by reviewing some very basic maths facts…. What does one plus one equal?

Student 1 (U_2S_1): Two

Teacher (U_3T): Correct. How about two plus two?

Student 2 (U_4S_2): Three?

Teacher (U_5T): No…

Student 1 (U_6S_1): Four!

Teacher (U_7T): Correct. Let's move on to something more difficult…

Student 2 (U_8S_2): Wait! Two plus two does not always equal four…

Student 3 (U_9S_3): Yes it does is! We learned that in Kindergarten!

Student 2 ($U_{10}S_2$): Not ALWAYS…

Teacher ($U_{11}T$): Hmmm…ok….can you give us an example of how two plus two can equal something other than four?

Student 2 ($U_{12}S_2$): If you add two hungry cats and two fat mice together, you end up with two fed cats!!

Teacher ($U_{13}T$): Ha! Okay….I can see how that would be the case in that situation… but, let's return to our maths facts now….

If we posit that the trajectories of ideas move within and between more or less determinate horizons, then we can create a vertical continuum representing these possible horizons. The continuum could be anchored on one end by a fully determinate outcome and on the other end by a fully indeterminate outcome (see Figure 1). The ends of the continuum obviously represent idealizations as there are never fully (in)determinate horizons. Still, we believe it is useful to use such extremes as anchors, because it allows us to model a full range of realistic and observable trajectories as well as consider not yet experienced trajectories.

[1]Portions of this fictionalized account (i.e., two hungry cats + two mice) are based on the insights a researcher had when teaching simple addition to a group of 1st grade students (reported in Matusov, 2009). We fictionalized this account to help illustrate the various facets of our IPD approach.

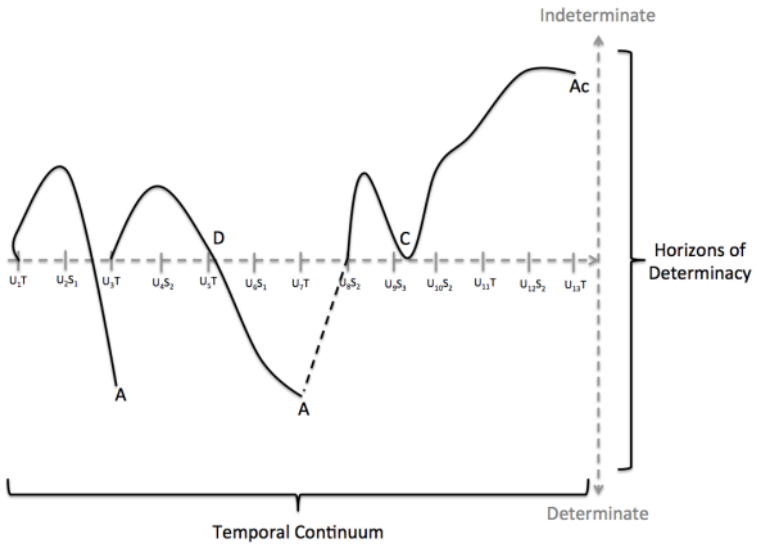

Figure 1 Teacher-Student Ideational Pathways

Also, as illustrated in Figure 1, a horizontal plane can be used to represent the temporal slice of an interaction. We can therefore plot or trace the trajectory of an idea as it moves between the utterances of participants in an interaction and as it travels within and across more or less determinate horizons. Using very simple notation we can specify each utterance of the participants along the temporal continuum. We use a combination of $U_{\#}$ (signifying each utterance in the temporal chain) and $P_{\#}$ (signifying each participant in the interaction) to represent each utterance and participant (i.e., $U_{\#}P_{\#}$). In dialogues with more clearly defined roles, participants can be further specified, such as a teacher (T) and students ($S_{\#}$) as illustrated in Figure 1.

There are various ways researchers can code utterances as more or less determinate. We used a very simple process for classifying questions, challenges and other response opportunities as indeterminate. Conversely, we classified signifiers of agreement, dismissals and acquiescence as ways that ideas can move toward (or into) the more determinate sphere or come to a (temporary) resting point. We then plotted each indeterminate utterance as moving one step upward into the indeterminate sphere and each determinate utterance one step downward into the determinate sphere. In our example we also used the following labels: challenges to ideas (C), dismissals (D), agreement (A), acquiescence (Ac), and reanimating resisting ideas reanimating resting ideas (--). We then labelled these various facets of the interaction in the visual diagram presented in Figure 1. Again, our procedure and resulting diagram is merely illustrative, not prescriptive. Other researchers may decide to use different labels or different methods for plotting and tracing ideational pathways based on the specific goals of their analysis.

Documenting ideational pathways is not limited to classroom-based research applications. Indeed, such an approach can be used in various programmes of research and can

also be used to transform social practice, including workplace research and professional development training. In what follows, we briefly demonstrate how it can be applied to workplace learning.

IPD Example 2: Workplace Learning

A group of Australian researchers were investigating so-called "informal learning spaces" among vocational school teachers in Australia (described in Solomon, Boud & Rooney, 2006). As part of the project, they conducted interviews with the teachers. Afterwards, they returned the interview transcripts to the teachers, who then turned out to be very ambivalent about how the researchers were referring to informal "space" (lunch room) as a "learning space." The researchers provided a transcript that demonstrates how the teachers became engaged in a discussion about this particular issue. This interview sequence provides data that can be plotted and analysed (see Figure 2) to illustrate how ideas can move in dialogues that involve negotiation and resistance among researchers and a group of vocational school teachers (excerpt[2] from Solomon, Boud & Rooney, 2006, pp. 8-9):

Researcher (U_1R_1): *How do you learn from each other as a team of teachers, do you learn from each other?*

Teacher (U_2T_1): *Well we don't ... OK, we do to an extent. Every lunchtime we're always sitting around the table and something will come up and we'll look at it there.*

Later, during the discussion with the teachers, one of the researchers attempted to name the lunchroom space an informal learning space, "another teacher clearly resisted this suggestion" (Solomon et al. p. 9).

Researcher (U_3R_2): *... you know how we were talking about informal learning spaces and how the lunchroom is a good example of that. And there's a lot of everyday talk that goes on there and a lot of learning as well.*

Teacher (U_4T_2): *I don't think we think about that as learning. I don't walk about there thinking I learned something today. To me it's not a learning environment. The classroom's a learning from me, to the student. The lunchroom sitting around here, it's not a learning environment at all. Even though I've learnt something.*

Researcher (U_5R_2): *... it seems to me a lot of learning takes place...*

Teacher (U_6T_2): *I'm sure there is learning there all the time but I don't look at it as learning, if you know what I mean.*

[2] We used two separate researcher (R1, R2) and two separate teacher (T1, T2) labels in this exchange. In the original transcript (Solomon et al. 2006, pp. 8–9), researchers and teachers were labeled "Researcher" and "Trade teacher." As such it was not entirely clear from the original transcript how many separate researchers and teachers were involved. Our choice of participant labels was based on our interpretation of the contextual commentary provided by Solomon et al. (p. 9).

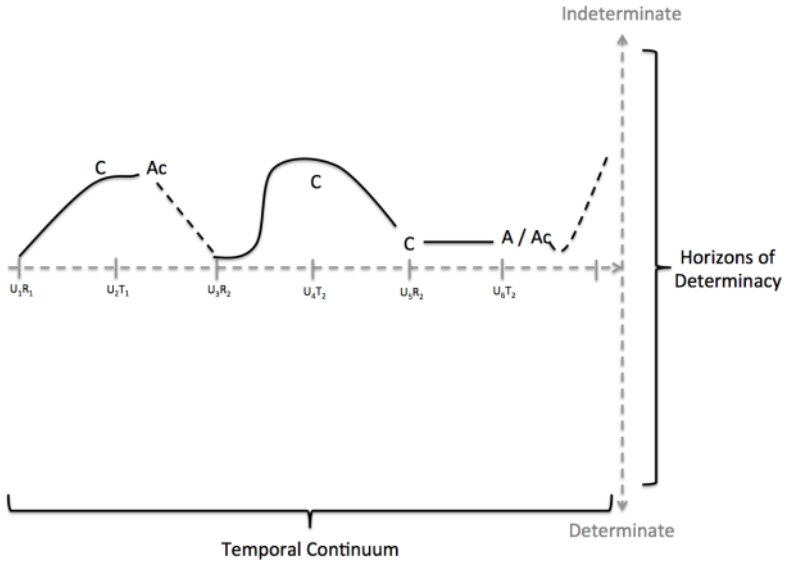

Figure 2 Teacher-Researcher Ideational Pathways

By plotting the exchange between researchers and teachers, the sociomaterial nature of the ideas and perspectives comes to life. We can see how the ideas and participants become entangled in the exchange. Specifically, in the case of this example, Researcher 1 introduces an open question that propels the exchange into an indeterminate horizon. Teacher 1 immediately challenges (C) the idea but, in the same utterance, acquiesces (Ac). The idea comes to a brief resting place that is later reanimated by Researcher 2 (---) and the pathway travels in a more determinate direction (i.e. pushing toward agreement that learning occurs in informal learning spaces like the lunchroom). Instead of coming to rest in agreement, Teacher 2 challenges (C) and propels the ideational trajectory into a more indeterminate horizon. Researcher 2 then challenges (C) the idea. This results in Teacher 2 briefly agreeing (A), acquiescing (Ac), but then reanimating and ultimately propelling the trajectory into a more indeterminate space.

In this example, the research interview turned into a discursive space with ideas taking shape, fusing different perspectives, and travelling through different temporal phases of the interaction. By labelling and plotting the interaction, researchers can use the visual data offered by an IPD in their analysis and interpretation of the interaction. Indeed, the sociomaterial record of the interaction can more clearly illustrate the push and pull of different perspectives and claims.

In the case of the interaction illustrated in Figure 2, the IPD might be interpreted as highlighting how participants were not seeking to arrive at some innate truth – as in the images of the original Socratic enquiry (Dinkins, 2005) – but rather trying to make sense of and negotiate different perspectives and insights about key concepts (e.g. learning, informal learning) and material spaces where those concepts have relevance (e.g. class-

room, lunchroom). By visually diagramming the exchange, researchers and participants can quite literally *see* key moments in the dialogue that propelled the interaction into a state of lingering indeterminacy. Moreover, the IPD can serve as a stimulus for further analysis and discussion amongst researchers and participants. In this way, IPDs can be thought of as having their own emergent properties. These emergent properties can manifest in further dialogue, learning and creative outcomes.

Applying the IPD Approach to Creativity Research

The IPD offers a novel and much needed methodological contribution to researchers interested in documenting and analysing the emerging trajectories and pathways of ideas. As has been discussed, traditional measures of ideation and creative expression tend to fall short in this regard. Most methods have tended to focus on measuring antecedent psychological factors (e.g. openness to experience, divergent thinking scores). In some cases this has included assessing features of the context thought to be conducive to creative expression (e.g. the extent to which creative ideation and risk-taking are encouraged and supported). Researchers then attempt to connect antecedent and contextual measures to some set of creative outcomes (e.g. expert ratings of creative products). The analysis of what happens "in-between" antecedents and consequences is often lacking or completely absent.

Even when traditional measures are used in combination with observational protocols (e.g. checklists, observational notes, recorded transcripts of interactions) we would argue that they would still ultimately fail to represent the shape and movement of ideational pathways. This is not to say that traditional measures lack value. Traditional measures have, in fact, contributed numerous insights about creativity (see Kaufman, Plucker & Baer, 2008). Still, without a way to represent the more dynamic and emergent nature of the assemblage of participants and ideas, we would argue that traditional measures provide somewhat of a fragmented mosaic of creative phenomena.

We would further assert that traditional qualitative methods (e.g. critical discourse analysis) also fall short in this regard. Although we recognize that such analyses can offer nuanced insight into the sociocultural and political dynamics of ideational exchanges, they still fall short in (re)presenting the socio-material trajectory of ideas. Our somewhat simple IPD offers a way to trace the trajectory and also produces material artefacts that can be used for further analysis.

Creativity researchers could, for example, identify whether particular contexts exhibit certain trends or patterns in the trajectories of ideas. This includes examining differential patterns in the IPDs that lead to more or less creative outcomes. Such efforts would com-

plement and enhance existing and more traditional approaches to studying creative ideation and problem solving in educational, workplace and other everyday settings.

Using IPDs in Professional Development

IPDs can also be used for professional development, training and organizational change. IPDs represent sociocultural and historical artefacts that can be used in training and professional development efforts to stimulate reflection and professional learning. A college instructor who is concerned about the lack of participation in her poetry seminar, for instance, could collaborate with researchers to map the typical interaction patterns that occur during her seminar. She may find that the patterns of talk in her seminar mimic what was seen in the first two trajectories displayed in Figure 1. That is, she asks questions that initially move the dialogue into the indeterminate horizon, students tend to respond with expected responses, and she confirms the interpretation. This pattern of talk can reinforce truncated ideational pathways that ultimately come to rest in the determinate horizon.

Such a pattern matches the longstanding, convergent IRE pattern of discourse (Mehan, 1979) found in many educational settings. Specifically, this pattern involves the teacher initiating with a question (I), a student responding (R), and the teacher evaluating (E). The problem with this pattern is that the teacher tends to ask known-answer questions (or at least questions with an expected response), students tend to provide a response that matches what the teacher expects and teachers tend to evaluate students based on how well they can match what they expect to hear and how they expect to hear it (Beghetto, in press-c). Such convergent patterns of talk effectively seal off opportunities for more generative and creative discourse. By being able to see the material representation of this pattern, teachers (and students) can identify different ways to propel the trajectory into more generative and indeterminate trajectories. Following a discourse principle as simple as “explore first, then evaluate” (Beghetto, 2013) can be one way to encourage more emergent and potentially more creative patterns of interaction. Using IPDs to reflect on one’s teaching practice can serve as a persuasive means of stimulating professional learning and help lead to desired changes in professional practice.

Another way our IPD approach can contribute to professional development efforts is by highlighting more nuanced perspectives about creative social practices. Social practices can sometimes be judged as either ‘business as usual’ or trying to ‘challenge everything.’ Rather than romanticise radical innovation in such a way as to dismiss slower and more gradual change as simply *business-as-usual*, researchers who use the IPD approach may be able to document how meaningful creative ideas can emerge and take shape in everyday interactions. This, in turn, can highlight a more moderate middle

ground of creative social practice. Doing so would challenge more radical “all or nothing” judgments of creativity.

Using IPDs in Related Areas of Inquiry

Our approach also contributes to similar lines of work that have examined the role of interaction in educational contexts. For instance, our IPD approach complements previous work on exploratory talk and intermental creativity zones (see Littleton & Mercer, 2013 for an overview). Exploratory talk is a form of social reasoning that can result from establishing ground rules that help participants become self-aware and co-regulate their efforts to collectively achieve creative solutions to problems. Similarly, Littleton and Mercer (2013) explain that intermental creativity zones (ICZs) are established when participants collaboratively construct new knowledge. Our IPD approach can serve as a way to document and analyse the development of ICZs and also explore how ground rules influence the patterns and trajectories of creative ideas expressed in exploratory forms of talk.

Along similar lines, our IPD approach can also contribute to research and practice in the area of teacher preparation and teacher development. As has been discussed elsewhere (Beghetto, 2010, 2013), prospective teachers often inherit patterns of talk from their prior schooling experiences that can short-circuit or inadvertently suppress students’ creative ideation and meaningful learning. Helping teachers become aware of how their default patterns of discourse can influence the trajectories of student ideas can help ensure that prospective teachers support (rather than inadvertently suppress) their students’ and their own creative ideation. Researchers can also use this methodology to examine the co-determinate relationship between learning and creativity (see Beghetto, in press-a). Specifically, they can use the IPD approach to examine the relationship amongst trajectories of more or less creative ideas and the development of student understanding.

Researchers can also use our approach to compliment related efforts in cultural and semiotic psychology (see Valsiner, 2014). This could include extended explorations that endeavour to trace how ideas develop into social memes, cultural beliefs, political ideas and ideologies. Our approach can also complement what has been described as the *New Look at Creativity* (Tanggaard, 2014), which entails taking a multipronged approach to understanding creativity. This includes exploring the more dynamic and evolving processes of creativity in everyday life (rather than focus primarily on creative products). Indeed, one cannot adequately explain a process solely on the basis of its outcomes (Valsiner, 1987). Our IPD approach thereby complements the work of researchers interested in documenting and analyzing the dynamic and evolving trajectory of ideas, which can result in creative outcomes.

Concluding Thoughts and Future Directions

Our goal in this paper was to propose a new way of thinking about and analysing the dynamic trajectories of ideas. To that end, we introduced an approach (IPD) to trace and analyse ideational pathways. Our IPD approach represents an "extended perspective" (Nielson, 2008) of creativity. It can help guide creativity researchers towards a more robust and dynamic understanding of creativity in everyday life. Specifically, our approach adds materiality to the study of creativity. This is because pathways represent materialized ideas that are part of the dynamic, here-and-now interactions of people acting in relation to the affordances and constraints of social practice. In this way, our IPD approach helps researchers understand and document the fusion of individual, material, and sociocultural features of creativity. As such the IPD approach is in line with recent work in the field of creativity studies that has called for more integrated and process-oriented approaches to studying creativity (Beghetto, 2014; Glăveanu, 2014; Tanggaard, 2013; 2014) and also aligns with other sociomaterial approaches emerging in related programmes of research in the social sciences (Fenwick et al. 2011).

At this point, our approach is at a very early stage of development. Moving forward, researchers will need to develop and refine their own use of IPDs. One way to do so would be to develop and share codebooks[3] used to produce IPDs. The codebooks can help researchers document their process and more clearly communicate the particular facets of ideational pathways that are of most interest to their programmes of research. Codebooks can also help guide other researchers working on similar projects using IPDs and thereby help ensure that the use of IPDs is contributing to the development of new and meaningful insights in research and social practice.

What is needed at this point is further testing and refinement through systematic study and application. In order for the potential value of this approach to be maximized, we feel that creativity researchers representing various disciplines will need to work in collaboration with each other to examine how this approach can shed new light on their specific programmes of research and also provide more general insights into the ideational and creative process and the outcomes of that process. Indeed, understanding a phenomenon as complex as creativity will require the continued development, testing and refinement of new and meaningful methods. We believe that our concept of ideational pathways and our IPD approach represents one step in this direction. The next step will require examining the viability of this concept and approach. We therefore invite creativity

[3] We would like to thank an anonymous reviewer who suggested the importance of developing a codebook when using the IPD approach.

researchers and practitioners to use, critique and elaborate on our conception of ideational pathways and the IPD approach.

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