

Research Article

Why the Standard Definition of Creativity Fails to Capture the Creative Act

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The standard definition of creativity holds that a creative idea is one that is novel and useful. Studies that follow from the standard definition and its derivatives tend to adopt an external frame of reference when estimating the level of creativity of an idea. It is not the person who has in fact generated the idea (the creator) who reports on whether they have come up with an idea that they themselves deem to be novel and useful - this would be a judgement from an internal frame of reference. Instead, this judgement is based on an external frame of reference as it is passed by people who are receiving the idea (the recipient). I make two cases in this paper. First, that employing external frames of reference when assessing the creative product has been erroneously applied to understand the creative mind. This is because making any claims of the inner experiences or mental life of the creator (or maker or explorer) necessarily involves examining creativity from an internal frame of reference. Second, any definition of creativity needs to be one that can be reasonably applied whether following an internal frame of reference of the creative experience or an external frame of reference of the creative product. With these aims in mind, I propose the following amendment to the definition of creativity which can be applied across fields of human enterprise that span artistic and scientific creativities – a creative idea is one that is both novel and satisfying.

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The challenge of defining creativity is a formidable one (for a rich and comprehensive analysis of this issue across disciplines, see Pope, 2005) particularly when considering the seemingly unending ways in which creativity manifests across domains of human enterprise (Abraham, 2022). Creative output in the sciences can take a range of forms from the clearly tangible (e.g., the discovery of the existence of a previously unknown physical matter, like the elements radium and polonium by Marie Curie) to the virtually intangible (e.g., the formulation of theories to explain natural phenomena, like the theory of evolution by Charles Darwin). In the arts, creative outputs take the form of artefacts which vary tremendously within and across modalities of human expression from the mostly unimodal (e.g., involving the engagement of one sensory modality, like the auditory system when creating a jingle) to the avowedly multimodal (e.g., involving the engagement of multiple sensory modalities, such when making a film).

A good definition of creativity would be one that captures the essence of the phenomenon across its countless manifestations in a manner that is both representative and valid. Other fields of commensurate complexity have managed the challenge of definition rather well. Take the field of memory as an example. Memory is defined as the ability to retain information over time. This simple definition captures diverse forms of short-term memory and long-term memory, including working memory (e.g., keeping a shopping list in mind temporarily), implicit memories (e.g., your ability to swim), and explicit memories like the knowledge of facts (e.g., the currency of Malaysia) and personal experiences (e.g., your first day at school).

Although scholars in the field of creativity routinely follow what is commonly referred to as “the standard definition of creativity,” this definition is not regarded as the standard because of its representativeness. It has been dubbed “the standard” because it is one that has been tacitly used in academic scholarship since at least the 1950s (Runco & Jaeger, 2012) with the earliest formulation attributed to Morris Stein (1953). In their valuable exploration of the origins of the definition, Runco and Jaeger (2012, p. 92) stated the following: “The standard definition is bipartite: Creativity requires both originality and effectiveness.” These defining components of creativity are often referred to in the literature related alternative terms. The words *novel*, *unique*, *new*, and *unusual* are routinely employed in place of “original” while “effective” is often substituted with the terms *useful*, *valuable*,

adaptive, fitting, or appropriate (Abraham, 2018; Mayer, 1998). To pick some notable examples – creativity is defined as “imaginative activity fashioned so as to produce outcomes that are both original and of value” (National Advisory Committee on Creative and Cultural Education, 1999, p. 30) and alternatively as “the interaction among *aptitude, process, and environment* by which an individual or group produces a *perceptible product* that is both *novel and useful* as defined within a *social context*” (Plucker et al., 2004, p. 90, original italics). As these two components routinely surface in most definitions of creativity in academic scholarship, they are generally taken to be the minimal criteria to determine whether an idea, a product, or a behavior is creative.

Well-known problems associated with the standard definition

A great many scholars have outlined one or more problems with the standard definition of creativity all of which call into question either its representativeness or its validity. As a result, alternative definitions that have been put forward differ in important ways from this standard definition in that they call for either the adding of further defining elements, or the refining of existing elements. For instance, in defining a creative idea as one that is novel, valuable, and surprising, Margaret Boden advocated for the inclusion of “surprise” as the third definitional criteria (Boden, 2004; Bruner, 1962, p. 3 also articulated the concept of “effective surprise” as being “the hallmark of a creative enterprise” several decades prior). In making a case for a less rigid definition of creativity that better captures the dynamic nature of the process, Giovanni Corazza calls for the fine-tuning of the definitional element of originality as reflecting “potential originality” instead (Corazza, 2016). Robert Weisberg, in contrast, proposes that “intentional novelty” is the defining attribute of a creative product (Weisberg, 2015).

Some have instead called for the discarding of the second element – usefulness, effectiveness, or value – entirely from the definition of creativity. There many problems associated with operationalizing “value,” ranging from the philosophical to the practical (Abraham, 2018; Paul & Stokes, 2023). For instance, “we conflate the ‘value’ of an idea with the eventual ‘value’ of the outcome that leads from the idea, which can be monetary, social, or environmental ... moreover, what is considered a valuable consequence in one context (e.g., free trade increases global prosperity) is not necessarily so in another context (e.g., the erosion of middle class prosperity as a consequence of free trade)” (Abraham, 2018, pp. 13–14).

Margaret Boden also noted the especial difficulty associated with the definitional element of value: “I said earlier that ‘new’ has two meanings, and that ‘surprising’ has three. I didn’t say how many meanings ‘valuable’ has – and no one could. Our aesthetic values are difficult to recognize, more difficult to put into words, and even more difficult to state really clearly” (Boden, 2012, p. 39). But despite the challenges of operationalizing value, Boden kept it within her definition of creativity. Robert Weisberg, on the other hand, advocated for the removal of this definitional criterion because of the very problems associated with estimating it. “Value is inherently subjective and is subject to large fluctuations historically. Therefore, value is of questionable utility if one hopes to provide a reliable objective classification of products and the individuals who produced them. The fact that judgments of value change significantly over time means that judgments of creativity—of works and of the individuals who produced them—will also change. Therefore, judgments of creativity that rely on the ‘standard definition’ will be unreliable” (Weisberg et al., 2021, p. 840).

Anthony Brandt takes these critiques much further and details the fundamental problems of estimating value in the specific context of the arts, which are regarded low consensus fields (relative to the sciences) (Brandt, 2021). With reference to the persons passing the judgement, necessary considerations involve who constitutes the jury (e.g., do they have the necessary dispositional qualities and background knowledge to adequately evaluate the works in question) alongside the recognition that even experts can disagree, their judgements can change with time, and their evaluations can be faulty or biased. While Brandt specifically makes these assertions in the context of the arts, these critiques are also applicable in the sciences. Indeed, they even apply to creativity research labs given that the raters who evaluate responses on creativity tasks in such contexts are often non-experts, thereby potentially compounding such problems.

Brandt (2021) also points out how the notion of “value” in creativity research is quite poorly conceptualized as value is in fact interpreted in multitudinous ways by artists themselves. For instance, the sheer production of art is often important in and of itself, regardless of whether it is useful or not. Usefulness is not only highly context-dependent, it is also the case that societal or field estimations of value need not necessarily align with an artist’s subjective notion of value. Moreover, novelty can often be generated at the expense of value which echoes Eysenck’s idea of overinclusive thinking (Eysenck, 1995) – that reduced appropriateness or relevance increases originality. Indeed, sometimes novelty is the very thing that gives rise to value in the context of the arts. Brandt summarizes his views as follows: “originality and novelty are well articulated: their opposite is

derivative, imitative, tried-and-true, etc. As we've seen, though, in low consensus fields, usefulness and value are deliberately open ended: they can mean different things to different people, and even put artists and their public in conflict ... as currently written and applied, the standard definition risks under-representing the nonconformist, the marginalized, the amateur, and the child ... Scientists may often have good reasons to limit themselves to effective output. But a definition needs to be all encompassing" (Brandt, 2021, pp. 91, 93).

Less recognized problems associated with the standard definition

In making his case for considering appropriateness and usefulness as secondary attributes as opposed to the primary attribute (novelty) in defining creativity, Brandt (2021) also mentions a further vital point of note in passing, namely that "a definition of creativity is more comprehensive and internally consistent when *the making* is distinguished from *its reception*" (Brandt, 2021, p. 93, my italics). With this, he uncovers one of the more glaring problems that need to be tackled when considering the representativeness of the definition of creativity, which is that we have fundamentally conflated the act of creative idea generation with the act of creative idea reception. In fact, the latter is widely used to inform our notions about the former.

Most creativity research labs make assumptions about the creativity of a participant based on their performance on a divergent thinking task or test battery, which is typically evaluated by external judges. This subjective external rating is used not only to judge the creativity of the produced output or the *product* but often also the mental operations or the *process* of the person who generated the output (see Rhodes, 1961 for the original conceptualization of the four Ps of creativity). At no point is the person generating the creative idea asked whether they have generated an idea that they themselves deem to be creative. Instead, we make claims about the generative experience of the creator (or maker or explorer) who is coming up with ideas based on the receptive experience of the recipient who encounters these ideas. As it turns out, this is a fundamental error, and one that calls into question the validity of the findings from a sizeable proportion of the published research to date on the creative process.

It is worth noting that this distinction was also articulated in the original Stein (1953) article to whom the standard definition is attributed: "Often, in studying creativity, we tend to restrict ourselves to a study of the genius because the 'distance' between what he has done and what has existed is quite marked. Such an approach causes us to overlook *a necessary distinction between the creative product and*

the creative experience. The child who fixes the bell on his tricycle for the first time may go through *stages that are structurally similar* to those which characterize the work of the genius. His finished product, however, is a return to a previously existing state of affairs. The product of an inventor's labor, on the other hand, may strike one as creative immediately because it did not exist previously. In speaking of creativity, therefore, it is *necessary to distinguish between internal and external frames of reference*" (Stein, 1953, p. 311, my italics). What Stein primarily draws attention to here is the crucial difference between what the experiencing person undergoes during idea generation process which is entirely separable from the eventual estimations of the degree of creativity associated with the product. The secondary point of note is the proposed parallel in the creative process between the expert who has attained creative eminence through their achievements and a child who is predisposed to creative engagement with their inborn potential. Several creatively eminent people have in fact drawn parallels between creative thinking and childlike behaviors like play, including Abraham Maslow and Pablo Picasso.

More contemporary creativity researchers have also distinguished between internal and external frames of reference. Mihaly Csikszentmihalyi (1997) contrasted little-c versus Big-C manifestations of creativity which closely parallel Margaret Boden's distinction between historical or H-creativity and individual or I-creativity (formerly referred to as psychological or P-creativity: Boden, 2004) (Boden, 2018; Csikszentmihalyi, 1997). I-creativity occurs when an idea that is experienced as creative to the individual regardless of whether the same idea has been generated by countless others before. An H-creative idea, in contrast, is experienced as being novel, valuable, and surprising, not only to the experiencing individual, but also by the receiving collective of mankind at large. A more nuanced distinction was proposed at a later point with the Four-C model which outlined gradually increasing orders of magnitudes in creativity (Kaufman & Beghetto, 2009). The first level is mini-c creativity which is developmental, deeply subjective, and interpretative. The second level is little-c creativity which enters an objective space of engagement beyond the purely intrapersonal. The third level is Pro-c creativity which is associated with expertise and notable achievements. The fourth and final level is Big-C creativity which represents eminence in accomplishments and feature the kind of ideas that change the world.

The definition applied for the recognition of creativity is the same across all levels of magnitude. However, the frame of reference that is applied differs across magnitudes. The higher the level of magnitude, the more external the applied frame of reference is in estimating the degree of creativity

associated with a particular work. At any level of magnitude, however, an external frame of reference cannot substitute for an internal frame of reference. How a work is received by an audience is separable from how a work is conceived of by the creator.

A new definition

Given that few objections have been directed at the “originality” element within the definition of creativity, one potential solution would be to limit the focus of the definition to only originality and to omit references to the “effectiveness” element altogether. However, even the earliest pioneers in creativity research warned against following this route. This is because only focusing on originality would be inadequate given that uncommon or rare responses that stem from ignorance or randomness or delusion could quite easily be falsely regarded as original (Barron, 1955). While it may appear that the emphasis on “intentional” novelty in the definition proposed by Robert Weisberg (2015) may help circumvent this weakness, what needs to be clarified in that theoretical account is to what extent the “intentionality” of the creative moment necessarily reflects a conscious process. This matters because artists regularly refer to the essentially unconscious nature of the creative process (Gilbert, 2016). Tchaikovsky, for example, eloquently spoke of this in an 1878 letter to Nadezhda von Meck: “Generally speaking, the germ of a future composition comes suddenly and unexpectedly. If the soil is ready – that is to say, if the disposition for work is there – it takes root with extraordinary force and rapidity, shoots up through the earth, puts forth branches, leaves, and, finally, blossoms. I cannot define the creative process in any other way than by this simile” (Chaikovskii & Newmarch, 1906, p. 274).

Early creativity scholars also insisted on the utility of the “effectiveness” element as they emphasized that a creativity “must serve to solve a problem, fit the needs of a given situation, accomplish some recognizable goal. And this is as true for the expressive arts as for scientific and technological enterprises; in painting, the artist's problem is to find a more appropriate expression of *his own experience*; in dancing, to convey more adequately a particular mood or theme, etc.” (MacKinnon, 1978, p. 50, my italics). MacKinnon captures something vital here in his description of how effectiveness is conceived of and applies in the definition of creativity. Central to it is the “appropriateness” or “adequateness” from the creator’s perspective.

Let us review the original Stein (1953) definition again – “The creative work is a novel work that is accepted as tenable or useful or satisfying” – and draw our attention to the fact that he used three

words to communicate one vector. Moreover, of these three terms, the first and last words are not synonymous with what we now refer to “effectiveness” or “value” in the standard definition of creativity. We have already examined the inadequacies associated with the element of value/effectiveness/usefulness in relation to the definition of creativity. The term “tenable” does not set the bar particularly high as it merely reflects that a proposed idea is plausible or sound; that it works, and it can be maintained. This term would also face the same problems in terms of its applicability in the arts (as outlined by Brandt, 2021) as do value, usefulness, and effectiveness.

The term “satisfying” takes us in a different direction. Once that is conative or emotional – capturing an essential yet disregarded facet of human creativity. It is also one that I believe better captures this second definitional element as it (a) encompasses all the other alternatives, (b) can be applied from the standpoint of an internal or external frame of reference, and (c) applies across low and high consensus fields. When I concoct a new recipe for a cocktail using anchovies that is experienced as novel and satisfying to me and me alone, I am exhibiting I-creativity. But when my recipe is experienced as novel and satisfying not just by me but also the wider collective and gets introduced on menus in restaurants and bars the world over, I am on course to attaining H-creativity. The creative process that I underwent in generating the idea of the recipe are one and the same (i.e., the psychological operations underlying the creative act) regardless of how the creative product is received (I-creative: creative to me alone versus H-creative: creative to many others).

As a definitional element, the notion of “satisfying” is also expansive as it permits the inclusion of the other alternatives. This is because an idea that is deemed to be useful or valuable or effective or appropriate is at some level deemed to be satisfying to the creator and/or the recipient because it is recognized as useful or valuable or effective or appropriate to a given end. Other authors have emphasized related concepts in defining creativity, such that creative ideas are novel and meaningful (as in the case of everyday creativity: Richards, 2010) or novel and adaptive (such as in the context of animal creativity: Kolodny et al., 2015). Another connotation, that enables the incorporation of non-Western views of creativity, which see creative merit in the re-creation or re-evaluation of the known and feature integrative views (Lubart, 1999), is in the definition that an idea is deemed creative when it is novel yet fitting. In the words of Rob Pope (2005, pp. 59-60): “Creativity may be ‘original’ in the sense both of drawing on ancient origins and of originating something in its own right; either way, the overall aim or end is a ‘fitting’ – an active exploration of the changing proportions, measure, ratios.”

The term “satisfying” readily accommodates all these varied connotations that have been proposed in relation to this second definitional element of creativity.

What are the consequences of adopting this new definition – that a creative idea is one that is both novel and satisfying – for researchers of creativity? The first is the need to identify whether one’s focus of interest is to understand creativity from the standpoint of the person who has generated the ideas (the creator/maker/explorer), or from the perspective of the persons who are receiving the ideas (the recipient/audience/field), or both. If the focus of study is the perspective of the creator, it would be necessary to take the internal frame of reference (i.e., is the idea novel and satisfying to the creator?) into account in our evaluations of creativity. If instead the focus of study is the perspective of the recipient, the adoption of an external frame of reference (i.e., is the idea novel and satisfying to others?) is needed. Once the focus is identified and grounds for the same are outlined, creativity researchers would need to specify how their study design accommodates the internal and/or external frame of reference in their evaluations of creativity.

A case in point: Adopting an internal frame of reference when evaluating the creative *process*

Understanding creativity in terms of the process reflects the study of the mental operations, which include “motivation, perception, learning, thinking, and communicating” among others that are involved during the act of creative idea generation (Rhodes, 1961, p. 308). It is per definition an exploration of the inner experience of the creator. Research from this perspective is typically directed at studying the dynamics of cognitive operations involved in creativity that derive from attention, imagery, memory, knowledge, language, problem-solving, and reasoning-based processes (Abraham, 2018), and is typically informed by prominent classic theoretical frameworks of the creative ideation process, such as Mednick’s associate theory (Mednick, 1962), Wallas 4-stage model (Wallas, 1926), and the Geneplore model (Finke et al., 1996).

Much of what we know about the creative process stems from investigating how we apply our minds differently when are engaged in a situation that requires us to take on a creative mode and compare it to situations when we do not. What happens in my mind when I read a poem or when I recite a poem from memory, and how is this similar to and different from what happens in mind when I create a new poem myself? In scientific research, the comparison (or control) conditions must necessarily be as

closely matched as possible to the creative condition (see Abraham, 2013 for a primer on methodological guidelines) to ensure that the conclusions derived from the comparison (behavioral and/or neuroscientific) are valid, and thereby accurate and revelatory about the creative process. Another approach is to use a neuropsychological perspective by comparing patients who have damage or insufficiencies in one or more brain areas (and thereby select compromised cognitive abilities) and compare their performance on creative cognition tasks with those of neurotypical people (Abraham, 2019). Differences in performance reveal much about the neurocognitive systems involved in specific creative operations. All of these approaches have been used across several studies that have directly examined one or the other facet of creative cognition, such as analogical reasoning (e.g., Green et al., 2012), conceptual expansion (e.g., Abraham et al., 2018), creative imagery (e.g., Finke, 1990), metaphor (e.g., Beaty & Silvia, 2013), insight (e.g., Jung-Beeman et al., 2004), overcoming knowledge constraints (e.g., Abraham et al., 2012), and flow (e.g., MacDonald et al., 2006).

Another approach that is increasingly employed to assess the creative process is to use a participant's performance on divergent thinking tasks, such as the alternate uses task, with the judgement about the degree of creativity associated with the responses passed by external raters (e.g., Beaty et al., 2018). Problems emerge when control or comparison conditions are omitted in studies that follow this approach, and when conclusions about the creative process of participants are made by merely correlating these external rater evaluations of participants' creative task performance with other psychological indices (e.g., participants' responses on personality questionnaires) or neuroscientific metrics (e.g., participants' resting brain functional connectivity patterns). The methodological shortcomings of such approaches notwithstanding (for a detailed exposition, see Abraham, 2024), the conceptual weakness of this approach is rooted in the fact they (a) gloss over individual variability in conceptual knowledge, and (b) adopt a wholly external frame of reference in the examination of the creative process (which, by its very nature, necessitates that some form of an internal frame of reference be at least taken into account). To put it plainly – an idea that is judged to be novel by the receiving person may not be one that is judged to be novel by the creating person, and vice versa. If we seek to make claims about the minds of the creating person under such circumstances, we cannot use the recipient's view (an external frame of reference) as a substitute for the creator's view (an internal frame of reference). It is in fact illogical to make judgments about the information processing mechanisms or neurocognitive networks involved in the generation of highly original responses on

the sole basis of how a recipient views it, and with no regard of whether the creator themselves regarded what they generated to be creative.

Empirical examinations of the creative process must therefore pay heed to the distinction between the creative experience and the creative product and do what is necessary to accommodate the internal frame of reference in the study design where possible. Several examples of how this can be done are readily available in the published literature. For instance, in proposing the top 2 method for scoring the responses on the alternate uses task, Silvia et al. (2008) accommodated an internal frame of reference in the evaluation of generativity on this task as participants indicated which of the ideas from the many responses that they came up with were their top two, and these were analyzed further (Silvia et al., 2008). Although the top 2 selection method does not in and of itself indicate whether these top 2 ideas were newly generated by the participants during the course of the study and how creative the participants estimated their own top two ideas to be, it at least partially takes into account the perspective of the creator in the assessment of the associated creativity of the generated ideas.

By asking participants to report on their experiences (e.g., how creative they evaluate their own responses to be, whether they have generated an idea that is new and/or satisfying to them), we can accommodate the perspective of the creator/maker/explorer more thoroughly. It is worth noting that the practice of asking a participant to report on their experience and judge their mental processes accordingly are not uncommon in the cognitive literature (e.g., using participants' self-reports of vividness in recall to evaluate episodic memory: Hassabis et al., 2007). Indeed, this approach has been adopted in studies exploring creative cognition, such as when assessing conceptual expansion (e.g., Abraham et al., 2021), insight (e.g., Jung-Beeman et al., 2004) and free associative thought (e.g., Lopez-Persem et al., 2023).

Recognizing the value of the internal frame of reference can help us better understand how to accommodate research findings that pertain to personal evaluations of creative behaviors, accomplishments, or perspectives. Here is one telling example: in a study that examined at the effect of psilocybin on creativity, the immediate effect of the intake of the drug (compared to a placebo group) was reduced creative performance as evidenced by low fluency (total number of ideas generated) (Mason et al., 2021). However, a week later, although there were no differences between the groups in external-rater-determined originality, the participants who had taken psilocybin reported having more ideas that were completely new to them. This is a deeply meaningful result if we seek to understand how the creative process could be influenced by psychedelics. Paying heed to the

internal frame of reference here truly matters. If we disregard the internal frame of reference and blindly favor the external frame of reference above all, we stand to completely miss the significance of such findings and potentially reach erroneous conclusions about the creative process.

The implications of the proposed definitional change (i.e., a creative idea is one that is novel and satisfying) for the study of the creative process are therefore as follows:

1. Recognition that the perspective of the creator must necessarily be considered when examining their creative process.
2. Recognition of (1) translates to a related recognition, namely that the perspective of the recipient cannot substitute for the perspective of the creator when examining the creative process of the creator.
3. Recognition of (1) and (2) translates to the acceptance that much research that has been conducted to date in psychology, education, and neuroscience to examine the creative process is lacking because the creator's perspective has largely been ignored when examining the creative process.
4. Recognition of (1) and (2) translates to the acceptance that most future research on the creative process will also be flawed if the recipient's perspective continues to be used as a proxy for the creator's perspective. This shortcoming is worsened by the latest trend to use automated AI and machine learning tools to evaluate responses on creativity tasks. With such methodological practices, we have now entered the era in which we ignore not only the creator's perspective but also the recipient's perspective when evaluating the creative process.

Conclusions

Given the inadequate state of affairs in relation to the standard definition of creativity, some have proposed giving up on the prospect altogether by rendering creativity to be indefinable (Silvia, 2018). Tempting as that might sound, not having a working definition in place, no matter how limited, is likely to lead down the line to more problems in the context of academic research. A conceptual void that ensues from lack of conceptual clarity and specificity will deepen steadily when researchers bandy the use of the term "creativity" indiscriminately when referring to very disparate psychological phenomena. Not having a working definition therefore stands to mar the field as a whole. A definition serves as a starting point from which to operationalize the phenomenon under study, examine its true

complexity, and engage in intra- and inter-disciplinary dialogue to gauge how it can be better understood.

By encompassing internal and external frames of reference, my proposed definition of a creative idea – as one that is novel and satisfying to the creator and/or the recipient – allows constructive inquiry and discourse that enables us to get to the heart of the phenomenon of human creativity. The paper also showcases the importance of distinguishing between internal and external frames of reference of in the study of creativity and makes the case for the necessity of acknowledging and accommodating the internal frame of reference – of the creative experience – in the examination of the creative process.

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