Employee creativity and the role of risk

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Abstract

Creative efforts and creative outcomes are identified as distinct in employee creative performance. It is argued that an employee's willingness to take risks is an important antecedent of creative efforts. Behavioral consequences experienced by employees following creative efforts are discussed in relation to future creative efforts considered and the subsequent willingness to take risks. A model and propositions are developed to guide future research and are considered in light of the current creativity literature.

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Scholarship in the management arena has highlighted the important role of employee creativity in organizations (Katz, 1964, Oldham and Cummings, 1996; Staw, 1984; Woodman *et al.*, 1993). Although this literature is relatively young (Amabile, 1996), a general consensus has developed defining creativity with an outcome focus as the production of novel and useful ideas or products (e.g. Amabile, 1983, 1996; Oldham and Cummings, 1996; Woodman *et al.*, 1993). The current paper will argue that in order to understand creativity in the workplace an increased focus on the consequences and cognitive processes underlying creative behavior is necessary. To build this case, research concerning the definition of creativity, the consequences of creative behavior in organizations, and risk perceptions in organizations will each be considered. A conceptual model will be proposed, several propositions will be offered to guide future research, and the implications of the model will be considered.

Employee creativity: efforts and outcomes

Creativity has been defined in numerous ways. Several researchers have offered "process"-oriented definitions of creativity, focusing on the stages of individual creative production (e.g. Amabile, 1996; Parnes, 1967; Sternberg and Lubart, 1991), although most scholars have noted that the typical approach in the literature assumes an "outcome"-oriented definition (Amabile, 1983; Mumford and Gustafson, 1988). Thus, creativity is most often defined as the production of novel and useful ideas (e.g. Amabile, 1988; Oldham and Cummings, 1996; Woodman *et al.*, 1993). At its core, this outcome-oriented definition stipulates two criteria: novelty and utility. Novelty simply implies newness or originality. Utility implies that an idea or other contribution must be directly relevant to the goals of the organization and it must be something from which the firm can reasonably expect to extract some value (Cummings and Oldham, 1997).

While the literature has matured from early studies of creative persons (e.g. Mackinnon, 1962) to the more recent focus on the social psychology of creativity (e.g. Amabile, 1983), one thing has largely remained constant: our focus on the same dependent variable, creative outcomes. Thus, Drazin *et al.* (1999) suggest that the explicit or implicit question posed by these works is "How do you increase creative outputs in organizations?" An interesting oversight in this dialogue has been the failure to realize that creative outcomes are not easily obtained – creativity often requires

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considerable time (Amabile and Gryskiewicz, 1987; Burnside *et al.*, 1988; Gruber and Davis, 1988; Sethia, 1989). Stated differently, creativity in the organizational sense – ideas or actions deemed by relevant others to be sufficiently novel and useful – is not a frequently occurring phenomenon relative to the maintenance of the status quo.

Thus, as this literature has developed, a pattern has emerged which presents a challenge to our ultimate understanding of employee creativity: the typical definition of creativity clearly implies two different phenomena. "The production of . . ." refers to a process of creative behavior which an employee undertakes in an effort to arrive at a creative outcome. This process may result in novel ideas or actions, but may not often result in outcomes deemed useful. In turn, ". . . novel and useful ideas" represents the characteristics that an outcome must possess in order to be considered creative. In short, employees often do things that may be viewed as creative. Thus, scholars' reliance on the typical definition of creativity has resulted in an inadequate examination of the fundamental role of creative efforts, rendering the most typical result of the creative process neglected.

Following the work of Amabile (1983, 1996), Oldham and Cummings (1996), Woodman *et al.* (1993), Zhou (1998), and others, creative outcomes can be defined as novel and useful ideas, processes, or products offered by an employee, as judged by relevant others (e.g. one's supervisor). In turn, creative efforts can be defined as novel or original ideas, processes, or products offered by an employee, as judged by relevant others. It is through a process of engagement with creative efforts that, occasionally, creative outcomes result. It should be noted that the definition of creative efforts does not include any mention of utility or practicality. The need to recognize the importance of creative efforts is predicated on the primacy of novelty as a requirement for creativity (Brown, 1989). It has been suggested that novelty represents the necessary first step towards the production of a creative product (Jackson and Messick, 1967). These two general facets of employee creativity, efforts and outcomes, are shown in Figure 1.

Two characteristics of creative efforts make them particularly important in the context of employee creativity. First, they are thought to be considerably more common relative to creative outcomes. The typical result of an employee's engagement in the creative process produces efforts that are in need of further development or may in fact be wholly unworkable. The second important characteristic of creative efforts will be addressed in the next section.

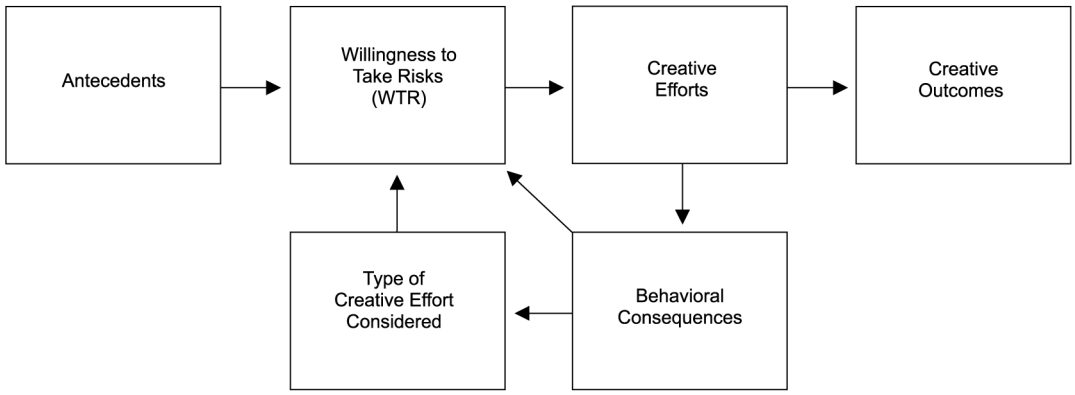
It must be noted that, at least conceptually, a few scholars have made a similar distinction between creative efforts and creative outcomes (e.g. Amabile, 1983, 1996; Schoenfeldt and Jansen, 1997). For example, Schoenfeldt and Jansen (1997) include ideas that are generated, yet never implemented, in their definition of creativity. They assert that when researchers consider only those ideas that are implemented, thus those that are both novel and useful, they are sampling on the dependent variable and are overly restrictive of what constitutes creative ideas. Similarly, Osborn's (1957) early work on brainstorming sessions was based on four rules: do not criticize; quantity is wanted; combine and improve suggestions; and say all that comes to mind no matter how wild. Importantly, what these examples make clear is that for outcomes to be generated that interested parties will eventually label creative requires the generation of many novel ideas, some of which will be creative and some of which will not. This sentiment has reoccurred frequently (e.g. Albrecht and Hall, 1991; Newell *et al.*, 1962; Politz, 1975).

These ideas reflect the reality that individuals participate in the creative process in an interactive fashion by developing ideas and presenting them to relevant others; and then by learning from reactions, reworking ideas, and representing them. For example, Drazin *et al.* (1999) define creativity as the process of engagement in creative acts, regardless of the nature of the outcomes. By doing so they focus on how individuals attempt to orient themselves to, and take creative action in, situations or events that are complex, ambiguous, and ill defined; that is, they engage in sensemaking (e.g. Weick, 1995). Stated differently, creative engagement is a process in which an individual behaviorally, cognitively, and emotionally attempts to produce creative outcomes (Kahn, 1990).

Creative efforts and the willingness to take risks

The second important characteristic of creative efforts alluded to above concerns the issue of perceived risk. Simply stated, to engage in creative efforts is not a risk free proposition. Risk can be defined as the extent to which there is uncertainty about whether potentially significant and/or disappointing outcomes of decisions will be realized (Sitkin and Pablo, 1992). In the present discussion, this view is extended into a context beyond decision making to include the evaluation of any task-related actions one might take at work. Consequently, new ideas can pose a risk to an employee because they represent disturbances in routines, relationships, power balances, and job

Figure 1 A general model of employee creativity



security. New ideas represent a change from the status quo (Pfeffer and Sutton, 2000) and invite evaluation, which can be dangerous given that it is often difficult for people to separate ideas from their source (Albrecht and Hall, 1991).

Research outside of the organizational arena clearly notes the central role of risk in creativity. For example, Simonton's research examining the eminence of creators from scientific as well as artistic disciplines points out that each product produced by an illustrious creator does not contribute credit to their name (Simonton, 1997). Indeed, a work that provides a creator with great acclaim may very well be followed by something quite embarrassing (Simonton, 2000). He notes that Beethoven created many compositions that his admirers did not like and that, in the realm of science, even Edison invented many useless contraptions. In science in general, it has been suggested that the search for new discoveries carries with it the inherent possibility of failure, a prospect which may threaten the innovators' economic and or social status (Silver, 1983).

Similarly, one might expect that employees in organizations could experience such a risk when they consider the manner in which to pursue their work – a notion endorsed by Deming (1986). Recent findings support this contention. As one example, Pfeffer and Sutton (2000) explored the "knowing-doing gap" in organizations and suggested that a lack of employee action, even when requisite knowledge was readily at hand, could be the result of obstacles such as fear of potential negative outcomes. In fact, their research suggests that fear is a pervasive reality in the modern workplace and that a distinct minority of employees feel that creative ideas can fail without negative repercussions for the person or work group responsible. Indeed, only half of the workers in their study felt that it was acceptable to challenge the status quo or to take informed risks in their work (Pfeffer and Sutton, 2000). This clearly presents a challenge to Katz's (1964) suggestion that one key employee behavior required for organizational success is for employees to be willing to engage in innovative and spontaneous activity beyond role prescriptions.

Importantly, several scholars have noted, yet not fully developed, the link between perceived risk and creativity in organizations (e.g. Fidler and Johnson, 1984; Jalan and Kleiner, 1995; Shalley, 1995; Tesluk *et al.*, 1997; Zhou and George, 2001). For example, Sethia (1989) notes that creative activity is a largely uncertain endeavor in which the action-outcome link is often unclear and drawn out over time. In essence, although scholars agree that creativity implies personal risk, very few have formally treated the issue of risk as central to the creative process at work.

It is important to note that when employees produce creative efforts they assume risk, while, technically, creative outcomes do not imply risk. Creative efforts, as noted above, imply risk because they are ideas or behaviors that are not within the normal range of work and thus depart from the status quo. Conversely, creative outcomes, which by definition are deemed novel and useful by relevant others, do not entail risk. However, in reality, an employee engaged in a creative effort does not have a priori knowledge of the outcome of his or her work. They are likely cognizant of the possibility that, ultimately, their work may or may not be judged to be creative. Thus, if we are to understand how an employee might consistently engage in a process that will only occasionally, maybe even rarely, result in creative outcomes, we must develop a theoretical understanding of the mechanism that drives their behavior.

Implied in Simonton's (1997, 2000) work on eminent creators was the creators' willingness to plunge forward into new works while having no knowledge of how the resulting product would be evaluated. They were willing to accept that risk. While examining employees in organizations is clearly different than studying eminent creators, a parallel nonetheless exists. Consequently,

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willingness to take risks (WTR) is an important antecedent of creative efforts, as shown in Figure 1. WTR is defined as a willingness to take calculated risks within the scope of one's job in an effort to produce positive job-related outcomes such that one is open to potential failure as a result. This definition attempts to capture an employee's willingness to "go out on a limb" with an idea that they perceive as worthwhile in an effort to accomplish their work and reach their goals. Importantly, WTR is not so broadly defined as to include a WTR directed towards nonproductive behaviors such as lying, habitual tardiness, or embezzlement – only the employee's willingness to take risks that are intended to be positive with regard to their core job tasks.

WTR is somewhat related to the construct of psychological safety. Kahn (1990) defines psychological safety as the employee's sense of being able to show and employ one's self without fear of negative consequences to self-image, status, or career. Edmondson (1999) defines the construct similarly in a group context. Both treatments position the construct as a belief that risk is low or nonexistent as the result of a particular context. In contrast, the WTR construct is specifically defined in the context of creative behaviors to recognize that risk is present and salient and that employees vary in their willingness to engage that risk. Importantly, WTR is not meant to suggest the need for a blind WTR or for an excessive level of positive affect, rather, a willingness to take reasonable risks in the face of potential negative outcomes.

WTR as a distinct construct is a largely new consideration in the creativity literature, although several organizational and creativity researchers have suggested or implied the need for such a construct. For example, in their often cited work, Abbey and Dickson (1983) note that successful R&D units are characterized by a willingness to take risks. In a decision-making context, Dutton (1993) and Krueger and Dickson (1994) have illustrated how the sense of threat evoked in organizations by discussing problems limits employee's willingness to engage in problem-solving activities. This suggests that in some situations employees will perceive the career and interpersonal threat of certain discussions or actions as sufficiently low, leading them to ask for help, admit errors, and discuss problems (Edmondson, 1999). In other situations employees feel that they cannot ask for help or freely admit errors. Further, it should be noted that, in general, people tend to avoid risks while preferring actions that afford the same or higher expected value – what the decision-making literature refers to as risk aversion (Larrik, 1993). This is important to the discussion of how to foster creativity given that some people are more motivated to avoid failure than to achieve success (McClelland, 1961). In short, for people to engage in any change-related behavior they must be willing to take risks and see a path forward that will not be catastrophic (Schein, 1993).

The WTR construct has relevance to creativity at work given that managers and organizations can develop environments that should impact the willingness to engage certain risks. For example, several researchers have described what might constitute a climate for creativity or a context supportive of creativity (see Amabile, 1983; Amabile *et al.*, 1996; Scott and Bruce, 1994; Woodman *et al.*, 1993 for more), but most seem to agree that you know when a climate for creativity exists because employees are willing to take risks (Tesluk *et al.*, 1997). However, Ford (1996) suggests that even under conditions which are favorable to employee creativity, creative behavior will be forsaken by employees in organizations when habitual actions remain more attractive. This leads Pfeffer and Sutton (2000) to suggest that managers must drive fear out of the organization, treat failure to act as the only true failure, and never punish people for trying new things.

In fact, recent research examining electronic brainstorming suggests the importance of WTR. For a variety of reasons, group brainstorming has not provided the benefits its creators envisioned (Stein, 1975). One reason is the perceived risk that group members face when offering potential solutions that might be viewed negatively, damaging their standing in the group. Electronic brainstorming has begun to address this issue by offering anonymity to participants. Early studies clearly show that groups using computer assisted idea generation techniques outperform equivalent nominal groups in idea generation tasks (Valacich *et al.*, 1994). Clearly, one potential explanation for these results is that the anonymity afforded by the software reduces the risk of participation.

Thus, based on the above reasoning, comments from scholars concerning the risk involved in creativity (e.g. Fidler and Johnson, 1984; Jalan and Kleiner, 1995; Shalley, 1995; Tesluk *et al.*, 1997), and the evidence suggesting that such perceived risks affect creativity- related behaviors (e.g. Pfeffer and Sutton, 2000; Valacich *et al.*, 1994), I propose:

P1. WTR is positively related to creative efforts.

Exploring the cycle of creative engagement

As depicted in Figure 1, the cycle of employee creative behavior involves a series of relationships.

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It will be argued that employee creative efforts are preceded by a WTR, creative efforts produce behavioral consequences, and these consequences influence both the subsequent WTR as well as the type of creative effort considered. Above, the effort/outcome link and the effort/consequences link were discussed. The consequences resulting from creative efforts were briefly mentioned, but are deserving of further elaboration given the contention that to be creative at work is not a risk free proposition. An employee might experience several types of personal consequences, either affirming or nonaffirming, following creative efforts. For example, affirming consequences might include supportive comments, formal evaluation acknowledging the value of the creative effort, or praise. However, given that creative efforts lack utility and occur more frequently than creative outcomes, the potential non-affirming consequences may be more important. These might include being negatively evaluated, being ridiculed or reprimanded, or even being taken seriously only to see one's idea fail.

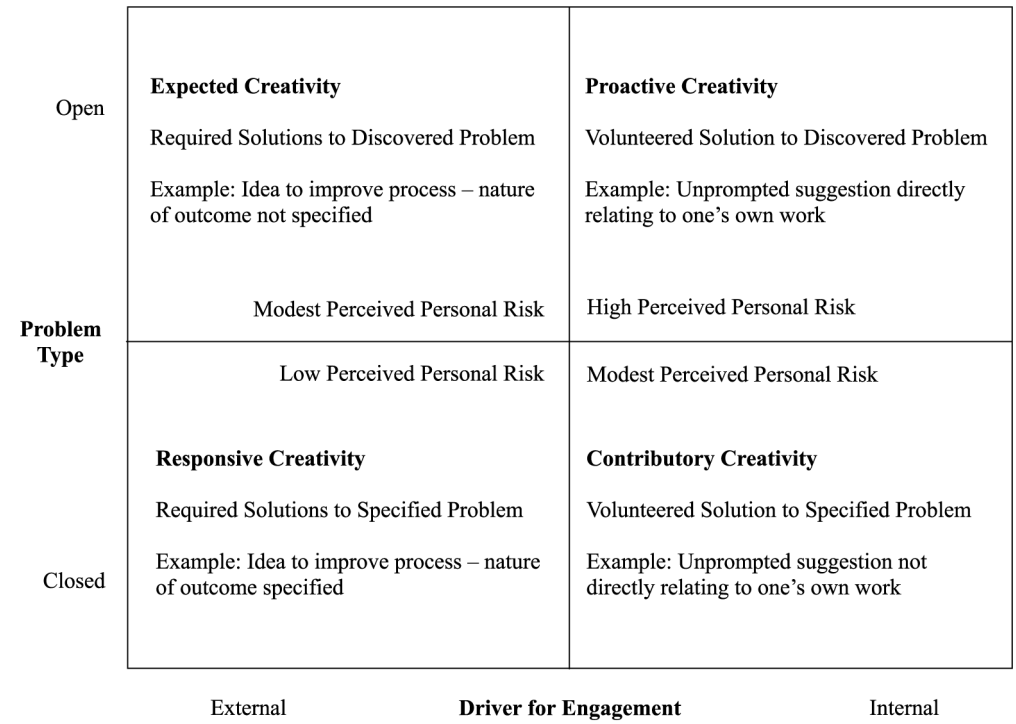
Thus, as one considers the potential consequences that an employee might face, it becomes necessary to consider the relationship between these consequences and the employee's subsequent WTR. This is vital because an employee cannot have a priori knowledge of the outcomes of their behavior, suggesting that one of the clearest indicators the employee may consider is how they have been treated following past incidents of creative effort. Did anyone listen to them? Were they taken seriously? Was their effort applauded as valuable? Were they encouraged to maintain these types of efforts? Stated simply, aside from the ambiguity associated with any potential creative effort being considered, an employee's WTR will be influenced by the consequences they have experienced following past creative efforts. For example, research indicates that reward and recognition for creative acts supports continued creative behavior (e.g. Amabile, 1988; Livingstone *et al.*, 1997; Mumford and Gustafson, 1988). Following Figure 1, this type of management response should subsequently bolster the employee's willingness to take risks. Thus, if an employee perceives, on balance, that their creative efforts have been valued and affirmed they should be more willing to risk future creative efforts. Conversely, if they perceive that their creative efforts have not been valued and affirmed, they will be less willing to risk future creative efforts. Thus I propose:

P2. The behavioral consequences that an employee has experienced as a result of creative efforts will be related to WTR such that affirming consequences will be associated with stronger WTR and non-affirming consequences will be associated with lower WTR.

Beyond the relationship between behavioral consequences and WTR, these consequences should also influence the type of subsequent creative effort the employee considers. At this point, the discussion of the cycle of creative engagement becomes more complex because of the need to recognize the multidimensional nature of creativity. It has already been noted that creative outcomes are comprised of both novelty and a utility in the most general sense. However, this description does not address different forms of creativity. Unsworth's (2001) typology of creativity provides a much needed elaboration of the creativity construct by describing four qualitatively different types of creative outcomes that have often been subsumed and unexamined in the discussion of what constitutes creative performance. The four types she describes are based on the juxtaposition of two primary reasons that one might engage in creative action: the behavioral trigger (is the person internally or externally driven) and the type of problem to be addressed (open versus closed). Below, each of these creative outcomes will be briefly considered in terms of the potential perceived risks each presents for the employee, how the type of creative effort considered may be influenced by prior behavioral consequences, and how the types of creativity might relate to the employee's WTR.

Figure 2 presents a slightly modified version of Unsworth's (2001) typology. Responsive creativity refers to situations in which employees are responding to an environmental demand to solve a particular problem that has a known or accepted path that can be used to solve the problem. An example might be a directive from a superior to a employee to consider ways that the speed of a particular process can be increased using variations of solutions that have worked in the past. Expected creativity is also externally driven but occurs in response to a self-discovered open-ended problem. The example in this case would require the employee to discover or create a solution for the process improvement task. Contributory creativity is said to be self-determined and based on a clearly formulated problem. The key difference in the case of contributory creativity is the lack of external direction. Thus, in this example the employee initiates the action for a process improvement and applies some variation of a known solution in an effort to accomplish their goal. Finally, proactive creativity occurs when the individual is internally motivated and is actively searching for open-ended problems to solve. Here again, the employee is initiating the effort to

Figure 2 Modified version of Unsworth's (2001) typology of creativity



improve the process, but in this case they do not have a known solution and must create a way to solve the problem.

The one key difference between Figure 2 and the figure provided by Unsworth (2001) is that each quadrant now notes some level of perceived personal risk. Thus, while it is clear that employees faced with any given type of creativity, as argued above, will perceive some amount of personal risk, the task becomes understanding whether or not different types of creative outcomes, which require different types of creative efforts, will influence WTR in meaningfully different ways.

When the four types of creative outcomes in Figure 2 are evaluated from this perspective, it can be argued that there are, in fact, systematic differences across the quadrants. Specifically, it is likely that open problems, as opposed to closed problems, and internal drivers, as opposed to external drivers, will generate greater levels of perceived personal risk as employees consider the effort that will be required. In the first case, open problems do not provide employees with known paths to solutions. Thus, by definition, they require one to consider untested ideas, untested means of solving the problem, and unknown probabilities associated with each effort to find a solution. Conversely, closed problems typically provide some known paths useful for generating solutions (e.g. Getzels and Csikszentmihalyi, 1967). In short, it is likely that when facing open-ended problems, employees are likely to perceive a higher likelihood of negative personal outcomes - that is, higher perceived personal risk.

Similarly, in the case of externally driven engagement with creativity there is a sanctioned reason to act – permission has been granted to behave creatively. Presumably, the employee is thus aware that some relevant other (e.g. a supervisor responsible for charging them with the task) expects and understands that the employee will provide a creative effort which may or may not immediately bear fruit. As opposed to an external trigger, when an employee acts based on an internal driver they are likely to be aware that they have not been specifically sanctioned to behave in such a manner and as such they have less ability to predict the reaction that a relevant other might have. The importance of intrinsic motivation (e.g. Amabile, 1996) aside, this suggests that perceived personal risk may be higher in the case of an internal trigger. While the risk an employee will perceive in a given situation will vary by individual, the above logic was used to suggest that, in general, perceived risk will be modest in the open/external and closed/internal situations quadrants, low in the closed/external quadrant, and high in the open/internal quadrant.

Beyond suggesting that open problems versus closed problems and internal drivers versus external drivers might lead to different amounts of perceived personal risk, it is important to note that this typology can be seen to offer a paradox. Responsive creativity is the most studied form of

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creativity – and typically applies to explicitly creative roles such as R&D positions (Unsworth, 2001). While obviously important, these types of roles in organizations are in the minority and many authors have called for a broader examination of creativity that applies to all employees. Thus a truly creative and innovative organization would desire a high amount of proactive creativity – they very type of creativity in Figure 2 (based on the discussion of open/closed problems and internal/external drivers) which is likely to lead an employee to perceive the highest amount of personal risk. Stated differently, the type of creativity that managers desire for positive changes and improvements inside organizations may be the least likely to occur. Accordingly, it is when this form of creativity is considered by an employee that the implications for WTR are most salient.

Following Figure 1, and given the different forms of creativity, it becomes necessary to consider how affirming and non-affirming behavioral consequences might influence the subsequent type of creativity considered by an employee. This discussion is of course bound by the issue of employee control – that is, if the effort is externally triggered via a job mandate handed down by a supervisor, the employee has no choice as to whether or not to engage the task as charged. Thus, the challenge is to describe the relationship between behavioral consequences and the consideration of internally driven creative efforts, labeled contributory and proactive creativity in Figure 2. This highlights the issue of volition. If internally driven creativity can said to be voluntary, under what conditions will the employee actively consider this form of creative effort? Given substantial research linking encouraging and supportive management to employee creativity (e.g. Abbey and Dickson, 1983; Amabile, 1988; Delbecq and Mills, 1985; Farr and Ford, 1990; Kanter, 1983; Tesluk *et al.*, 1997; West and Farr, 1989) it would appear that affirming behavioral consequences are likely to produce this result. As an extreme negative example, if an employee's well-intentioned creative effort results in a reprimand from his or her supervisor, one would not expect that employee to be as likely to consider voluntary creative efforts in the future. Thus I propose:

P3. Affirming behavioral consequences are positively related to the consideration of internally-driven (voluntary) creative efforts.

Continuing with Figure 1, the type of creativity considered should influence WTR. Building on the general levels of perceived risk likely associated with each form of creativity noted in Figure 2, responsive creativity, expected and contributory creativity, and proactive creativity will each be considered in turn. Responsive creativity (closed problem, externally driven) poses the lowest theoretical risk to an employee. The employee has been told to engage a particular task and the path to solution is well defined. Given that their actions are sanctioned and the degree of creativity required of them is relatively low, this situation should be associated with a higher WTR in the service of this task. Expected and contributory creativity, resulting from open-ended problems with external drivers and closed problems with internal drivers respectively, carry a modest risk. In turn, it is expected that these situations would be generally associated with a moderate level of WTR. Finally, proactive creativity, resulting from open-ended problems and internal drivers, is the most ambiguous form of creativity to consider in terms of the potential consequences and should generally be associated with a lower level of WTR. Summarizing the above comments, I propose:

P4. The type of creative effort considered by an employee will be related to WTR such that creative efforts associated with higher amounts of perceived risk will be associated with lower levels of WTR.

Finally, antecedents are included in Figure 1 in order to provide a link to the current literature on creativity and an opportunity to begin exploring the link between common antecedents and WTR. At one level of abstraction, the literature on the antecedents of creativity, particularly in the organizational arena, comprises various contextual factors at work as well as various individual differences. While the discussion here will be far from exhaustive, it is instructive to consider a few cases which highlight the role of WTR as depicted in the conceptual model.

For example, autonomy is the degree to which a task provides substantial freedom, independence, and discretion to employees in determining the specific procedures to be used in carrying out their work (Hackman and Oldham, 1980). Several researchers have stated that in order for employees to be creative, they require freedom so they can experiment with ideas and enlarge the range of possibilities and potential solutions to a problem (e.g. Abbey and Dickson, 1983; Amabile, 1988, 1996; Deci and Ryan, 1987; Mumford and Gustafson, 1988; Scott and Bruce, 1994; Shalley, 1991; Shalley *et al.*, 2000). Autonomy has often been considered as a direct influence on creativity, although there is reason to believe that the effect is actually indirect, via an increased WTR. For example, Kahn's (1990) research indicates that when employees view themselves as having autonomy, their WTR will increase. This naturally follows from Amabile and Gryskiewicz's (1987) suggestion that increased autonomy allows

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individuals freedom from rigid work rules and the ability to pursue novel considerations.

Similarly, consider the case of self-efficacy as an individual difference often linked to creativity. Self-efficacy influences choice behavior, i.e. the situations and activities that individuals choose for themselves, as well as the extent to which individuals will exert the effort required to overcome obstacles and persist through aversive circumstances (Bandura, 1986). A significant amount of research has developed the relationship between self-efficacy and creativity (Barron and Harrington, 1981; Farr and Ford, 1990; Getzels and Csikszentmihalyi, 1976; Gist, 1989; Redmond *et al.*, 1993; Tierney and Farmer, 2002). Interestingly, it may be partially through an increased WTR that self-efficacy influences creativity. For example, drawing on the work of Bandura and Wood (1989), Krueger and Dickson (1994) note that managers with high self-efficacy tend to see setbacks as learning experiences and thus they persevere. Conversely, for managers with low self-efficacy, setbacks are cause to become preoccupied with the risk of failure. This aligns well with research indicating that threat perceptions in organizations lead to a lower WTR (Dutton, 1993).

Implications and conclusions

While supporting the current direction in the creativity literature, this paper also supports Woodman *et al.*'s (1993) suggestion that creativity is a complex construct and the notion that we still have much to discover about creativity in organizations (Amabile, 1996). An argument has been provided suggesting the need to separate the treatment of creative efforts from creative outcomes. The more frequent occurrence of, and the risk associated with creative efforts suggests that they are qualitatively different than the creative outcomes that are sometimes realized. Consequently, the issue of perceived risk must be central to the discussion of employee creative efforts. While this topic has received some attention in the study of work roles explicitly requiring creativity, it has received scant attention in the examination of employee creativity among employees in general. Specifically, it was suggested that one's WTR should be a central predictor of employee creative efforts and that the behavioral consequences an employee experiences as a result of a creative effort will have implications for the subsequent type of creative efforts they consider as well as the level of WTR they will subsequently possess.

Moving forward, several areas of investigation are imperative. First, future empirical studies of creativity will benefit from attempting to develop and measure the relationships among the variables presented in the Figure 1 and described in the propositions noted earlier. While the theoretical support for these constructs appears to be adequate, they have yet to be empirically developed or verified. For example, building on Unsworth's (2001) typology, research will benefit by attempting to specify the type of creativity that is being studied. Earlier it was suggested that different types of creativity should carry with them different amounts of personal perceived risk. However, this is clearly a contention in need of empirical support. For example, by devising a measure of creativity which encompasses each of the four quadrants of Unsworth's (2001) typology, field research could begin to uncover the relative frequency of occurrence of the different types of creativity in the workplace and the perception of risk that employees attach to each form of creativity.

It is also important to note that creativity is a process – creative outcomes do not randomly appear, but are the result of a protracted process of creative engagement (Drazin *et al.*, 1999). The typical approach to measurement in the literature to date has been cross-sectional. However, several authors have noted the longitudinal nature of creativity (Amabile and Gryskiewicz, 1987; Burnside *et al.*, 1988; Gruber and Davis, 1988; Sethia, 1989) which suggests that it will be worthwhile to measure creativity over time. As the conceptual model presented here suggests, a longitudinal approach may in fact be explicitly required to test the temporal nature of the relationships involved in the process.

Employee creativity is indeed vital for the ongoing health of organizations. While scholars have noted that creative employee behaviors imply risk, the issue has not yet assumed a central role in the discussion nor has it been empirically assessed. If we desire to understand why employees will engage in creative efforts we must address the risks they are sure to perceive. To that end, it is hoped that the ideas presented here can contribute to our evolving understanding of creativity in organizations.

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