

## Process improvement in SMEs: The impact of harmonious passion for entrepreneurship, employee creative self-efficacy, and time spent innovating

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### ABSTRACT

Harmonious passion, creative self-efficacy, and time spent innovating are examined as antecedents to innovative process improvement suggestions in a field study of 213 employees in an SME. Results show that time spent innovating, or thinking about and experimenting with new ideas, predicts the number of process improvement suggestions. Time spent innovating is, itself, influenced by the employee's level of harmonious passion for entrepreneurship, moderated by creative self-efficacy. Counter to expectations, the moderation was negative; such that the positive relationship between harmonious passion and time spent innovating became weaker as creative self-efficacy became stronger. The results provide insight into the complex relationships between passion, competency, and entrepreneurial behavior and suggest the need for additional focus on the processes employees follow to engage in workplace innovation. In doing so, this study makes three specific contributions. First, it provides a fundamental step toward understanding the role harmonious passion plays in innovation in an SME context. Second, it begins to explain the relationship between individuals' thoughts, behaviors, and outcomes in the nascent stages of innovation in SMEs. Finally, it provides insight into the heretofore unexplored link between passion and creative self-efficacy in fostering innovative behavior.

### Introduction

Innovation through new products, processes, and services is arguably the chief potential means for small and medium size enterprises (SMEs) to confront and overcome significant capital barriers and wage gaps. Traditionally, SMEs operate with flatter structures, broader and sometimes more amorphous roles, less bureaucracy, and less routinization (Perrow, 1967) than larger firms. Such qualities enable SMEs to develop the potential for financial performance and achieving competitive advantage in relation to larger counterparts (Rosenbusch, Brinckmann, & Bausch, 2011). But what compels individuals in SMEs to engage in innovative activity?

An emerging body of scholarly work turns attention to the concept of passion as one potentially unique individual

characteristic for understanding and providing insight into the question of what drives innovative activity in SMEs. Passion is argued to be at the very heart of entrepreneurship (Cardon, Gregoire, Stevens, & Patel, 2013) because it fosters the recognition of new information patterns that lead to the discovery of new and promising opportunity (Baron, 2008) and the propensity to exploit it (Klauckien, Shepherd, & Patzelt, 2013). Passion among founders and leaders acts as a source of emotional contagion (Cardon, Wincent, Singh, & Drnovsek, 2009) and shared vision (Strese, Keller, Flatten, & Brettel, 2018) for activities that underpin and foster enthusiasm, effort, and persistence in SMEs. Yet we still know relatively little about how employees' own passions for "being entrepreneurial" affect their innovative efforts in an SME. Such insight is crucial for two reasons. First, the inevitability of founding leadership transitions can have a profound impact on enduring operations and venture outcomes (Schenkel, Yoo, & Kim, 2016). Family businesses scholars, for instance, observe that value creation and improved

performance depend on the extent to which founding leadership imbues beliefs, values, and attitudes toward entrepreneurship that foster the permeation of a combination of optimism, hope, resilience and perseverance throughout the firm over time (Hoy & Sharma, 2010). Given this, the extent to which employee passion matters as SMEs transition toward professionalization likely goes beyond perceptions of their founding leaders' passion (Breugst, Domurath, Patzelt, & Klaukien, 2012). This makes employee passion important to understand in its own right. Second, it is axiomatic that before there can be innovation there must be the potential for innovation, and such potential requires willing and able individuals (Krueger Jr. & Brazeal, 1994).

Our objective in this study is to extend this emerging body of work by examining the influence of harmonious passion, an agent-based construct shown to be related to innovative activity in larger organizational settings (Liu, Chen, & Yao, 2011), yet largely unconsidered in SMEs. We draw on self-determination theory (Deci & Ryan, 2011) to investigate the role harmonious passion for being entrepreneurial plays as a driver of an employee's time spent innovating, along with the mediating role of time spent innovating on making new and innovative process suggestions. Further, while passion represents a desire to engage in an activity, the unstructured and often counter-normative nature of innovative activities also requires persistence in the face of these challenges (Tierney & Farmer, 2002). Thus, we also investigate the interplay between harmonious passion (representing "want to") and creative self-efficacy (representing "can do") (Tierney & Farmer, 2002) on each of these outcomes.

We reason that harmonious passion, particularly in the presence of creative self-efficacy, is likely to lead individuals to spend time personally thinking about and experimenting with innovative ideas. Doing so allows them to develop knowledge depth and breadth independently, avoiding issues like the ideas being subjected to the emotional embeddedness of others' professional envy (Biniari, 2012). It also helps avoid challenges of others applying progressively subjective (e.g., feelings, tastes) and excessively pragmatic criteria in the early stages of knowledge creation (Floyd & Wooldridge, 1999), along with centrality effects associated with existing information and decision-making networks (Ho & Pollack, 2014). Collectively, then, harmonious passion facilitates the time and space needed to formulate to one's own conclusions with respect to the economic value each reflects before choosing to overtly suggest what are believed to be innovative ideas.

This study makes three key contributions to the litera-

ture. First, it provides an important step toward understanding the role passion plays in innovation in an SME context. Second, by examining time spent innovating as a mediator of the passion-innovation relationships this investigation starts to explore the relationship between the individuals' thoughts, behaviors, and outcomes involved in the nascent stages of innovation in SMEs. Third, while creative self-efficacy has been consistently linked to innovative efforts (Farmer & Tierney, 2017), its role in combination with entrepreneurial passion is surprisingly uninvestigated. Thus, we examine the interaction between individuals' harmonious passion and creative self-efficacy while acknowledging and controlling for other facets previously considered like autonomy (Hornsby, Kuratko, & Montagnano, 1999) and supervisory relations (Graen & Uhl-Bien, 1995).

## Theory and Hypotheses

Vallerand et al. (2003) note that a passion for something can be considered as a strong emotion with inherent behavioral tendencies. This is particularly true in an entrepreneurial organization where people can be inspired and steadfast toward creating or inventing new products and services based on ideas for which they have strong feelings toward (Cardon et al., 2013). Passion alone, however, and particularly in the absence of reason, is rarely sufficient to bring innovative new ideas to the marketplace (Vallerand et al., 2003) since ideas rarely come to individuals in a form that can be considered fully developed in a commercial sense (Casson, 2005). Further, passion, when obsessive in nature or extent, can be counterproductive or even destructive nature (Vallerand, Paquet, Philippe, & Charest, 2010). When ideas are generated inside existing organizations they inherently collide with existing systems and structures (Fiol, 1995), often contradicting current organizational norms and controls (de Jong, 2013). In SMEs, where the organizations may be characterized as particularly prominent reflections of their leaders, what ultimately turned out to be good innovative ideas may arguably be rejected prematurely based on being perceived as inconsistent, or even incongruent, with leaders' passions (Strese et al., 2018). Those passionate about such ideas then confront a choice between giving up on them or pursuing them independently until such time they might be able to assess, shape, articulate and work with others to demonstrate alignment more clearly, or why and how such ideas are in the interest of the organization's long term health and performance despite immediate perceptions of misalignment with leaders' passions.

Harmonious passion's effects on innovative activity

in a SME setting are particularly relevant for two reasons. First, passion-focused innovative activity is rooted in a long-standing psychological perspective in which at its core reflects the need for “a person, in whose mind all of the possibilities come together, who believes that innovation is possible, and who has the motivation to persist until the job is done” (Shaver & Scott, 1991, p. 39). It is consistent with the idea that innovation begins with the actions of individuals (Casson, 2005; Krueger Jr. & Brazeal, 1994; Rutherford & Holt, 2007). Second, innovative activity driven by harmonious passion reflects a distinct interest in a self-defining activity individuals value, enjoy, and in which they invest time and energy (Vallerand et al., 2003). The fact that such actions emanate from intrinsic and integrative tendencies of the self that are internalized (Deci & Ryan, 2000) engenders a willing and enduring (but not excessively rigid or inflexible) motivational force in the pursuit of such activity (Vallerand, 2010). Coupled with observations noting the disproportionately greater relative impact of individuals’ efforts and contributions on firm outcomes in SMEs than in larger organizational contexts, the importance of understanding and weighing the potential of individuals’ passion as a driver of internal innovation against externally-based alternatives is underscored (Maes & Sels, 2014; Prajogo & McDermott, 2014).

Figure 1 illustrates the conceptualized framework guiding this investigation. It focuses on extending prior insights into how passion acts to influence innovative activity within the broader SME context. We begin the discussion of our proposed model by concentrating on the direct effects of harmonious passion as the primary and initial stimulus for entrepreneurial activity.

**Harmonious Passion: Direct Effects**

Passion, defined as consciously accessible intense pos-

itive feelings experienced through engaging in activities of particular interest (Cardon et al., 2009), is considered a source of intrinsic motivation (Vallerand et al., 2003). More specifically, the harmonious form of passion is defined as “a motivational force that leads the person to engage in the activity willingly and engenders a sense of volition and personal endorsement about pursuing the activity” (Vallerand & Houlfort, 2003, p. 178). As such, it can be considered as originating from an autonomous internalization of a given activity into one’s identity and expected to generally lead to adaptive outcomes. It is important to note that harmonious passion is often contrasted with obsessive passion, a form of passion which is associated with an uncontrollable need to excessively or compulsively engage in an activity and is ultimately expected to lead to less adaptive, or even maladaptive, outcomes (Vallerand, 2010).

Harmonious passion extends beyond simple interest and affect, becoming attached to the very core identity of the person (Cardon et al., 2013; Vallerand et al., 2003; Vallerand & Miquelon, 2007). When individuals freely accept the focal activity (e.g., being entrepreneurial) as significant, and without contingency, it fosters a “harmonious” or unforced sense of free choice focused on engaging in the activity consistent with one’s full, internalized sense of identity (Vallerand, 2010). As such, it comes as no surprise harmonious passion has been linked to innovative activity engagement (Liu et al., 2011). The construct reflects the identification of individuals with the task itself, and is experienced as interest, involvement, curiosity, satisfaction, and positive challenge (Amabile, 1996).

We base our theorizing in large part on self-determination theory (SDT). SDT focuses on the degree to which individuals’ behavior is self-motivated, or the nature of choices people make without external influence or interference (Ryan & Deci, 2000). It distinguishes activities that are inherently enjoyable (intrinsically motivating) from activi-

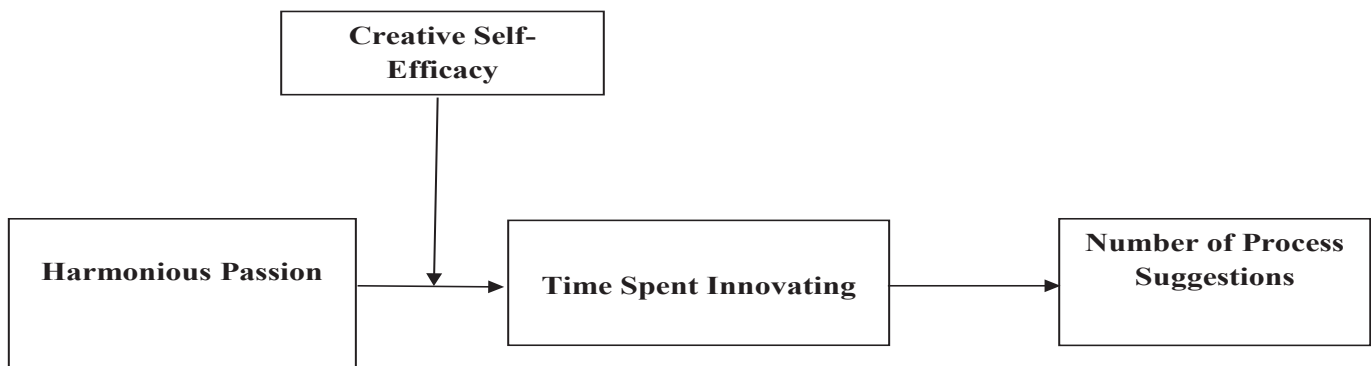


Figure 1. Conceptual Model

ties that are undertaken because of an externalized reason (norms, rewards, etc.). Passion for the former reflects a harmonious type in which individuals can readily integrate that activity with other life activities and disengage when necessary. Passion for the latter activities is considered obsessive (reflecting emotional dependence on the activity; Vallerand, 2003), it can psychologically or behaviorally crowd out other activities and may be very difficult to quit. The key difference between the two is a sense of choice. While research suggests that the two types of passion tend to be positively correlated (Curran, Hill, Appleton, Vallerand, & Standage, 2015; Vallerand, 2015), it also indicates convergent and divergent validity for the two constructs (Marsh et al., 2013). Given our interest in creativity and innovation we focused exclusively on harmonious passion.

Drawing on this prior research, we postulate that harmonious passion will predict the initiation of personal time spent on innovative activity because it leads individuals to seek out opportunities for self-determination and choice (Ryan & Deci, 2000). In other words, time spent thinking about and experimenting with innovative ideas enables the pursuit of pleasurable affect experienced through the act of creating in a value-centric way (Fisher & Amabile, 2009). This line of reasoning is consistent with the level of persistence observed in prior work (Deci & Ryan, 2000), particularly where focused on independent new venture creation (Cardon & Kirk, 2013). Based on this evidence and reasoning, we suggest the following hypothesis:

**Hypothesis 1.** Harmonious passion for being entrepreneurial will positively predict time spent innovating.

### Harmonious Passion: Mediated Effects

Ardichvili, Cardozo, and Ray (2003) argue that an “opportunity” may first appear as a chance to fulfill what is otherwise an imprecisely-defined market need, or to create and deliver something new that represents value by putting to work what otherwise were un- or under-utilized or employed resources. Yet they conclude opportunity is best conceptualized as something being “developed” over time versus being “identified” at a discrete point in time. This distinction is consistent with the notion that the recognition of entrepreneurial opportunity involves a two-phase process that begins with individual preparation, incubation, and insight, followed by a formation stage in which prospective entrepreneurs elaborate and evaluate the quality of their ideas by sharing them with others (Lumpkin, Hills, & Shrader, 2001).

We theorize that time spent innovating enables individuals to prepare, incubate, and gain insight into their innovative ideas in a self-determinant way (Ryan & Deci, 2000). Research in cognitive neuroscience has found this sort of incubation to be a necessary precondition for the sort of sudden comprehension we call “insight” (Kounios & Beeman, 2009). As noted above, time spent innovating facilitates generating ideas in a way that is not only a personally value-centric way at the outset (Fisher & Amabile, 2009) but also at a time in the innovation process in which they largely have autonomy over their own efforts (Holt, Rutherford, & Clohessy, 2007; Kuratko, Montagnano, & Hornsby, 1990). As a result, individuals will feel a strong sense of personal control over immediate outcomes of their efforts (de Jong, 2013).

As individuals incubate their ideas, they likely begin to informally share pieces of information with others and receive feedback with the goal of developing knowledge and competence depth (Zahra, Nielsen, & Bogner, 1998). From such informal interactions, they are likely to become familiar with the emotional tensions that their ideas are likely to raise as they are exposed to the subjective judgments of others and socio-political structures embedded in the organization (Biniari, 2012). Yet because these efforts are likely informal, and uniquely magnified given the characteristics of the SME context (Perrow, 1967), the prospective entrepreneurial individual still largely enjoys the freedom to think about how their respective idea(s) can be shaped within the organization’s broader strategies and structures (Zahra et al., 1998). In this way, they are able to manage the tension between the internal exploration and exploitation of innovative ideas. Stated differently, time spent innovating helps to foster deeper processing and conceptual learning that might otherwise be short-circuited prematurely (Gagné & Deci, 2005). This line of reasoning is consistent with research findings that creative process engagement (i.e., employee involvement in creativity-relevant methods or processes) predicts innovative outcomes (Zhang & Bartol, 2010). For these reasons, we hypothesize:

**Hypothesis 2.** Time spent innovating mediates the positive relationship between harmonious passion for being entrepreneurial and the number of process innovations suggested.

### Harmonious Passion & Creative Self-Efficacy: Moderated Effects

Self-determination theory suggests that people need

to feel competent in their abilities to make important decisions without interference or external influences (Gagné & Deci, 2005). Consistent with this reasoning, Tierney and Farmer (2002, p. 1140) argue that creative endeavors are such that “some internal, sustaining force [is needed] that propels individuals to persevere in the face of challenges”. For example, “being creative” not only requires an ability to challenge existing mental schema sets but also a comfort level with one’s abilities to handle the corresponding challenges and ambiguities that can arise (Amabile, 1988). In organizations, it also requires the confidence to champion ideas that can challenge existing problems in novel ways (Kanter, 1983), which can mean being willing to visibly act as a nonconformist (Amabile, 1988). Tierney and Farmer (2002) point to the resistance of employee engagement in creative behavior to underscore the relevance of these motivational underpinnings. In SMEs, the relative impact of any one individual’s impact across others is likely to magnify such conditions.

Given these observations, we posit that creative self-efficacy, defined as “the belief one has the ability to produce creative outcomes” (Tierney & Farmer, 2002, p. 1138), will have an amplifying effect on the relationship between harmonious passion and innovative activity. Specifically, we theorize that creative self-efficacy in the presence of harmonious passion should intensify the likelihood individuals will initiate efforts to spend time on innovative activity for two reasons. First, the ability to challenge existing mental schema should complement efforts to seek out opportunities for self-determination and choice. It does so by creating additional cognitive variability during the preparation and incubation stages, both of which are associated with opportunity recognition in turn. In other words, because it is informed by task knowledge (Tierney & Farmer, 2002), it should make efforts driven by affect and identity more efficient, thereby increasing the probability of generating potentially effective ideas. Second, it should instill a sense of confidence for the subsequent management and overcoming of nonconformity pressures that could result if the time is spent. We believe this line of reasoning is consistent with the idea that identity management involves a sense of hierarchical ordering whereby the likelihood of engagement increases with a closer alignment of self and behavior (Cardon et al., 2013).

**Hypothesis 3.** Creative self-efficacy positively moderates the relationship between harmonious passion for being entrepreneurial and time spent innovating, such that the greater the sense of creative self-efficacy, the stronger the rela-

tionship.

## Method

### Research Context

Our ideas are based on the noted challenges that can be faced in innovating in SME environments in competing with larger organizations (Rosenbusch et al., 2011). Thus, we chose to conduct this study in the insurance claims processing industry, an industry generally dominated by large organizations. The particular firm sampled qualified as a “small business” based on the Small Business Administration’s size standards. These standards focus employee and revenue number comparisons of a given firm against others in the same industry. Departments in this organization included accounts receivable, business development, customer contact, product development, IT support, client services, training and quality improvement, human resources, administrative services, claims processing, third-party liability, and payments. Until a year before our study, this firm had been founder-controlled and at the time of the study was working to transition toward professionalization. The nature of the work environment was generally bureaucratic, reflecting, at least in part, the regulated nature of this service industry, but organizational leadership indicated an explicit interest in improving innovation throughout the organization. The challenge of innovating reflected in this balance is particularly acute for many SMEs as competitive pressures continue to increase (Parida, Westerberg, & Frishammar, 2012).

### Procedure

We used survey sampling to collect data. An on-line survey was conducted through organizational email, with surveys distributed to all employees (both managerial and non-managerial; all were full-time). Employees were notified in advance of the upcoming survey and survey process, and managers were asked to allow employees time during work hours to complete the survey. The survey asked questions regarding personal practices concerning being innovative at work, personality characteristics, manager-subordinate relationship quality, and demographic characteristics.

Of two hundred thirteen employees, 80% completed surveys. Seventy-eight percent of the sample was female, with an average 13.8 years of full-time work experience. Forty-five percent reported their level of education as high school diploma or some college and 55% reported earning a

college degree or above. Responses regarding participant's age were grouped approximately by decade with a modal age of 31-40 years (mean age was 2.16 on a 5-point scale with a range from 18 to greater than 61 years).

## Measures

Participant responses were provided on a 5-point Likert format for measures of harmonious passion for entrepreneurship, creative self-efficacy, job autonomy, and leader-member exchange. Assessment of time spent innovating and the number of process suggestions were each open-ended and filled in by participants.

**Harmonious passion.** The Vallerand et al. (2003) harmonious passion scale was adapted to reflect a passion for activities associated with being entrepreneurial. Consistent with our reasoning, connecting passion and innovative actions such as process improvement suggestions, the harmonious, as opposed to obsessive type of passion has been shown in a meta-analysis to be positively related to positive affect, intrinsic motivation, mastery approach goals, and flow, while obsessive passion is not significantly related to any of these (Curran et al., 2015). The Vallerand et al. (2003) harmonious passion subscale has construct validity and is empirically distinguishable from obsessive passion (Marsh et al., 2013). Survey directions defined being entrepreneurial as pursuing innovative ideas for new work process(es), product(s), or service(s), or improvement(s) to an existing work process(es), product(s), or service(s). Because Vallerand et al. (2003) scale development work utilized item wording to represent passion for activities, generally we chose those items with the best conceptual fit with the focus in this investigation (being entrepreneurial in one's job). In total, five of the seven items were used ( $\alpha = .93$ ). Sample items include "Being entrepreneurial in my job reflects the qualities I like about myself," "The new things I discover by being entrepreneurial in my job allow me to appreciate innovation even more," and "I am enthusiastic about being entrepreneurial in my job."

**Creative self-efficacy.** We used the three-item Likert scale from Tierney and Farmer (2002) to assess creative self-efficacy ( $\alpha = .84$ ). A sample item is "I have confidence in my ability to solve problems creatively."

**Time spent innovating.** Drawing broadly on research suggesting the significance of internal strategic focus on firm performance (Harris, Gibson, & McDowell, 2014) and

more specifically from a group of studies focused on assessing the impact of various innovation-related constructs (Brazeal, Schenkel, & Kumar, 2014; Murnieks, Mosakowski, & Cardon, 2014; Vallerand et al., 2003), participants were asked to report the number of hours in a typical week they spent, both inside and outside of the workplace, thinking about, planning, or experimenting with new ideas or improvements for work processes. The hours were added together and the resulting reported range of time varied from zero to 60 hours per week.

**Process improvement suggestions.** Given the service basis of the industry, participants were asked how many specific job-related innovative ideas, defined as any new work process or an improvement to an existing work process, they have suggested to their organization through their supervisor, suggestion program, or other means over the course of the past year. This measure is consistent with observations that process improvements are an important source of SME growth and profitability (Wolff & Pett, 2006) as a means of compensating for the lack of resource endowments. Being agile, flexible, and hence innovative, are important in confronting the unpredictability, instability, or general unfavorableness often reflected SME's respective competitive operating environments. The reported range was from zero to 100 suggestions per year.

**Control variables.** With our main focus on how the basic self-determination need for competence factors into the passion-innovativeness relationship, we control for self-determination needs for autonomy and relatedness (Gagné & Deci, 2005) to better isolate the unexplored effect of creativity self-efficacy as a form of competence. Three items from Hornsby, Holt, and Kuratko (2008) were used to assess autonomy on the job. Sample items include "It is basically my own responsibility to decide how my job gets done" and "I have much autonomy on my job and am left on my own to do my own work" ( $\alpha = .73$ ). We used a measure of leader-member exchange (LMX) to tap relatedness. LMX was assessed with the 12-item LMX-MDM (Liden & Maslyn, 1998). This measure is designed to assess follower perceptions of manager-follower relationship quality and reflects the LMX dimensions of loyalty, professional respect, contribution, and affect ( $\alpha = .94$ ). Gender (coded 1 = male, 2 = female) has also been found to predict entry into nascent entrepreneurial activity (Davidsson & Honig, 2003) and has been correlated with perceptions of entrepreneurial passion (Breugst et al., 2012). Accordingly, we controlled for its influence. Additionally, we controlled for educational level

as it has been shown to be related to creative engagement as well as creative self-efficacy (Tierney & Farmer, 2002). This variable was coded as 1 = High school or below to 5 = Graduate degree. Finally, years of full-time work experience was included as a control, with the consideration that domain-relevant knowledge is an important predictor of innovative activity (Amabile, 1996).

## Results

Descriptive statistics and correlations are shown in Table 1. Prior to hypothesis testing, we assessed factor structure, discriminant and convergent validity of the multi-item self-rated scales (harmonious passion, creative self-efficacy, LMX, and job autonomy) with confirmatory factor analysis. To maintain a favorable estimator to sample size ratio, for LMX we used scores on each of the four subscales as indicators. Because the assumption of multivariate normality was violated per the normalized Mardia coefficient, we reported results using statistics designed to adjust for non-normality (Satorra & Bentler, 1994): a scaled chi-square statistic for overall model fit, robust versions of the comparative fit index (CFI) and the root mean square error of approximation (RMSEA), and robust estimates of standard error.

The proposed four-factor model had adequate fit to the observed covariance matrix,  $\chi^2 = 152.70$ ,  $df = 71$ ,  $p < .001$ , comparative fit index (CFI) = .94, root-mean-square error of approximation (RMSEA) = .07, with all standardized loadings significant. This model was compared to a model collapsing harmonious passion and creative self-efficacy together, with that model showing poor fit ( $\chi^2 = 224.62$ ,  $df = 72$ ,  $p < .001$ , CFI = .87, RMSEA = .10; scaled  $\chi^2$  difference with hypothesized model = 221.15,  $df = 1$ ,  $p < .01$ ). The hypothesized model was also compared to a two-factor model collapsing job autonomy and LMX, with that model showing poor fit ( $\chi^2 = 195.28$ ,  $df = 72$ ,  $p < .001$ , CFI = .91, RMSEA = .09; scaled  $\chi^2$  difference with hypothesized model = 43.14,  $df = 1$ ,  $p < .01$ ). A single factor model was assessed ( $\chi^2 = 268.08$ ,  $df = 77$ ,  $p < .001$ , CFI = .86, RMSEA = .11). This model also fit significantly worse than the hypothesized model (scaled  $\chi^2$  difference with hypothesized model = 136.424,  $df = 5$ ,  $p < .001$ ). These results suggest adequate measurement characteristics for the multi-item scales.

Because the time spent innovating and number of process suggestions dependent variables had the distributional form of event counts, regression equations testing hypotheses were modeled with the SPSS GENLIN procedure, a procedure which allows unbiased maximum likelihood estimation of regression models with response variables from

any member of an exponential family of distributions. The distributions for these variables were over-dispersed (that is, the variance was greater than the mean), so a negative binomial distribution was used to model the regression equations (Gardner, Mulvey, & Shaw, 1995).

Negative binomial regression analyses are shown in Table 2. Choice of hierarchical entry steps tracked the model in Figure 1. Model fit was assessed by changes in model deviance, changes which are distributed as chi-squares and indicate the extent of improvement over the previous model. We also utilized the McFadden pseudo  $R$ -squared to estimate model fit (Hilbe, 2011). The pseudo  $R$ -squared statistic measures the improvement of the given model over one with only a constant term in terms of model log likelihood, and thus is appropriate for this functional form. McFadden (1978, p. 307) notes that pseudo  $r$ -squared values “tend to be considered lower than those of the  $R^2$  index and should not be judged by the standards for a ‘good fit’ in ordinary regression analysis”.

For the time spent innovating dependent variable, controls of gender ( $-.42$ ,  $p < .05$ ) and educational level ( $-.18$ ,  $p < .05$ ) were significant predictors in the first step. At the next step, higher levels of autonomy ( $.47$ ,  $p < .01$ ) and creative self-efficacy ( $.66$ ,  $p < .01$ ) were associated with more time spent innovating. At the third step, the inclusion of harmonious passion as a significant predictor ( $.64$ ,  $p < .01$ ) resulted in additional model fit improvement. Thus, Hypothesis 1 was supported. Finally, the last step included the harmonious passion by creative self-efficacy product term, which was significant ( $-.37$ ,  $p < .01$ ) and resulted in an incremental improvement in model fit, significant per the reduction in deviance.

The graph of this interaction is plotted in Figure 2. The plot shows little effect of creative self-efficacy on the harmonious passion—time spent innovating relationship at low levels of efficacy, but a more pronounced effect at higher levels of creative self-efficacy. Hypothesis 3 predicted that creative self-efficacy would strengthen the relationship but the graph shows that the reverse was true; at higher levels of harmonious passion, creative self-efficacy resulted in less time spent innovating. Thus, Hypothesis 3 was not supported. This result, however, is quite interesting in that it tracks recent conceptual arguments that high levels of efficacy can actually result in reduced levels of resources allocated toward accepted goals (Vancouver, More, & Yoder, 2008; Yeo & Neal, 2013). This finding will be discussed at greater length later.

For the number of process suggestions, the results for control variables in step 1 showed only gender ( $-.82$ ,  $p <$

Table 1  
Means, standard deviations, and intercorrelations

Variable	M	SD	1	2	3	4	5	6	7	8
1. Gender (1 = male, 2 = female)	1.76	0.43								
2. Educational level	2.76	1.12	-.21**							
3. Work experience (years)	13.82	9.62	.13	.02						
4. Job autonomy	3.43	0.86	-.27**	.05	.10	(.73)				
5. Leader-member exchange	3.94	0.76	-.11	.09	-.09	.09	(.94)			
6. Harmonious passion	3.43	0.78	-.16*	.06	.08	.22**	.40**	(.93)		
7. Creative self-efficacy	3.88	0.63	-.16*	.07	-.03	.09	.09	.40**	(.84)	
8. Time spent innovating	6.57	11.52	-.17*	-.06	.04	.21*	.09	.28**	.15*	
9. Number of process suggestions	5.14	12.14	-.18*	.00	-.02	.08	.00	.15*	.18*	.26**

Notes: *n* = 172 after list wise deletion; reliabilities in parentheses on diagonal; \* *p* < .05 \*\* *p* < .01

Table 2  
Negative binomial regression analyses for time spent on ideas and number of process suggestions

Independent Variable	Time Spent Innovating				Number of Process Suggestions			
	Step 1	Step 2	Step 3	Step 4	Step 1	Step 2	Step 3	Step 4
Gender	-.42*	-.54**	-.61**	-.61**	-.82**	-.85**	-.83**	-.56*
Educational level	-.18*	-.23*	-.20*	-.20*	-.09	-.09	-.11	-.02
Work experience (years)	.01	.01	.01	.01	.00	.00	.01	.01
Job autonomy	.49**	.47**	.37**	.36**	.12	-.06	-.06	-.10
LMX	.08	.06	-.07	-.04	-.08	-.07	-.10	-.04
Creative self-efficacy		.66**	.33*	.28		.34*	.65**	.64**
Harmonious passion			.64**	.74**			.46**	.23
Harmonious passion by creative self-efficacy				-.37*			-.41*	-.27
Time Spent Innovating								.05**
Pseudo <i>R</i> <sup>2</sup>	.05	.07	.09	.10	.03	.06	.07	.10
Δ Pseudo <i>R</i> <sup>2</sup>	.05	.02	.02	.01	.03	.03	.01	.03
Deviance	298.06 (166df)	278.44 (165df)	258.04 (164df)	254.00 (163df)	321.40 (166df)	291.99 (165df)	282.77 (163df)	255.81 (162df)
Deviance change as <i>x</i> <sup>2</sup> difference vs. prior model	42.62**	19.62**	20.40**	4.04*	23.68**	29.41**	3.18*	26.96**

Notes. *N* = 172 after list wise deletion. Pseudo *R*<sup>2</sup> is based on 1 – (log likelihood of model / log likelihood intercept only model) (Hilbe, 2011). Deviance change *x*<sup>2</sup> for step 1 model is based on a comparison with a null model (intercept only). Unstandardized regression coefficients are at each step. \* *p* < .05 \*\* *p* < .01



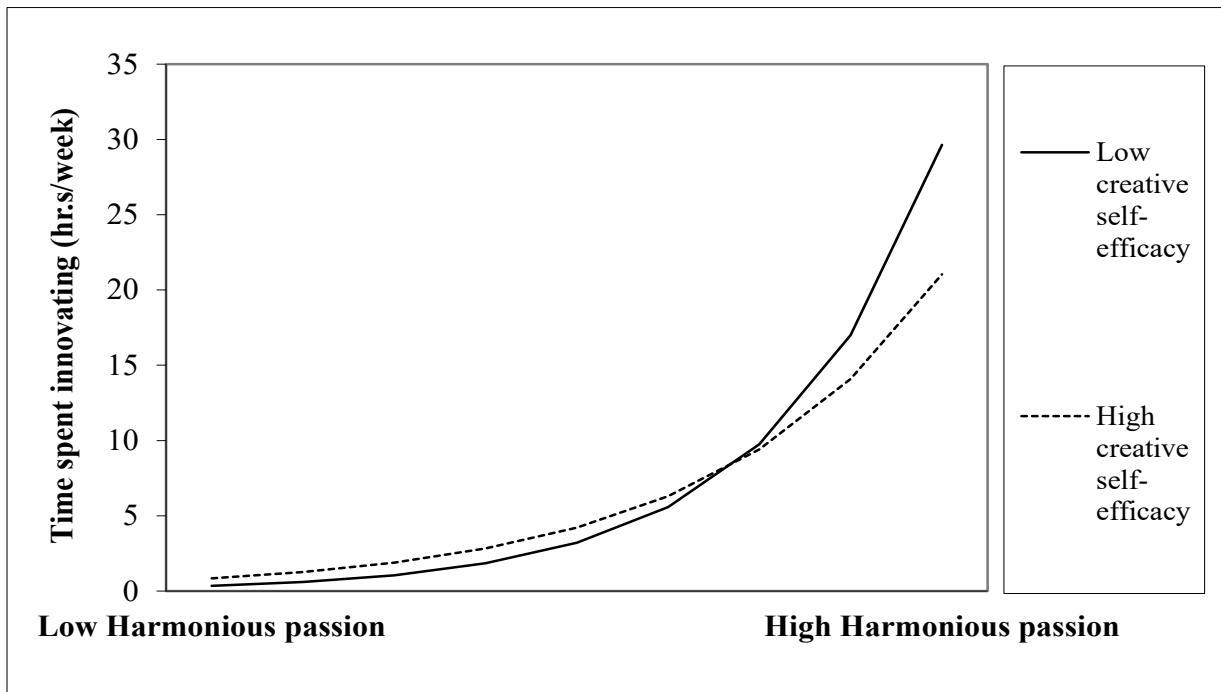


Figure 2. Interaction of harmonious passion and creative self-efficacy for time spent innovating

.01) as a significant predictor (pseudo  $R$ -squared = .03, deviance change from the null model significant at  $p < .05$ ). At the second step, creative self-efficacy was associated with process suggestions (.34,  $p < .01$ ), accounting for an additional improvement in model fit per pseudo  $r$ -square, deviance change  $p < .05$ . Harmonious passion and its interaction with creative self-efficacy were entered in the next step, with the product term being significant (-.41,  $p < .05$ ), adding another model fit improvement based on significant reduction in the deviance parameter. In the fourth step, time spent innovating (.05,  $p < .01$ ) accounted for incrementally significant deviance reduction at  $p < .01$ , and additional model fit improvement. This suggests possible mediation in line with Hypothesis 2.

As noted above, Hypothesis 2 positioned time spent innovating as mediating the effects of harmonious passion on the number of process innovations suggested. This prediction, along with the possibility that the indirect effect is conditional on the first stage interaction of harmonious passion and creative self-efficacy, was tested using bootstrap procedures from Preacher and Hayes (2008). Analysis indicated that the overall indirect effect of harmonious passion on process suggestions via time spent innovating was significant (indirect effect = 1.08,  $SE = .51$ ,  $p < .05$ ), supporting Hypothesis 2. This effect, however, was not significant when creative self-efficacy was low (-1  $SD$ , indirect effect = 1.18,  $SE = .66$ ,  $p > .05$ ) but was significant only when creative self-efficacy was high (+1  $SD$ , indirect effect = .96,  $SE = .46$ ,  $p < .05$ ).

## Discussion

This study makes a number of contributions to the theoretical literature. First, it extends prior studies suggesting passion may play a key role as an impetus for innovative activity, independent of other influences in SMEs. Specifically, our findings show that variation in the harmonious passion of individuals for being entrepreneurial significantly and positively predicts innovative activity and outcomes, irrespective of other predictors extant theory suggests. Harmonious passion is a stronger predictor of time spent innovating than other main effects of job autonomy and leader-member relations, factors which prior research has shown to be associated with leader communication and promotion of strategic vision for innovative activity (Rutherford & Holt, 2007). This finding is particularly interesting because it suggests harmonious passion may be more closely aligned to the employee's personal affect (Breugst et al., 2012) and, in turn, the potentially greater explanatory power for innovative outcomes reflecting a bias (Vallerand et al., 2003) and intent (Biraglia & Kadile, 2017) toward engaging intrinsically valued activity such as being entrepreneurial. As such, and coupled with Hoy and Sharma's (2010) observation of the centrality of beliefs, values, and attitudes toward entrepreneurship beyond founding leadership control, it suggests employee harmonious passion may be an essential focal point in future research toward understanding what enables SMEs to persist and move toward professionalization.

A second core contribution is found in the mediation insights. Specifically, by theoretically incorporating the concept of time spent thinking, planning, or experimenting with new ideas or improvements, this study starts to reveal the relationship between the individuals' thoughts, behaviors, and outcomes involved in the nascent stages of innovation in SMEs. Prior theorizing focuses on CEO passion as an important driver of innovative outcomes in SMEs (Strese et al., 2018) noting its potential as a contagious quality (Cardon, 2008). Yet such an explanation is insufficient in that it fails to consider, and hence provide, a bottom up basis for understanding the origins of why and how such contagiousness may also occur. Equally important, the mediational effect observed suggests the transition from thoughtful consideration of one's ideas to committed overt action is dependent upon the expenditure of such time. For scholars, this suggests that a fruitful area for future research is teasing out the influence of harmonious passion on the identification of viable business opportunities (Casson, 2005), particularly with respect to how it may or may not take on a more contagious quality among other SME stakeholders (Cardon, 2008). For example, studies focusing on SMEs transitioning from family founding-control (e.g., Randøy & Goel, 2003), one interesting area where further insight is needed is in understanding how choices in (and changing) structural relationships like family involvement and outside governance mechanisms might influence the extent to which employees perceive distance between founding and future management objectives, and in turn, if and how such distance impacts willingness to spend time on ideas that might lead to new opportunity identification.

A third and closely related contribution is found in the moderation findings. The main effect findings lend support to the idea that competency with creative activity (Tierney & Farmer, 2002, 2004) is an important motivation-based complement to developing a sense of self-determination (Deci & Ryan, 2000; Gagné & Deci, 2005) leading to innovative activity engagement in SMEs. Interestingly, however, the moderating influence we find is in contrast with the augmenting influence hypothesized. Specifically, we find that when creative self-efficacy is low, it bears little effect on the harmonious passion—time spent innovating relationship. By contrast, higher levels of creative self-efficacy have a more pronounced effect but in an adverse way – that is, creative self-efficacy results in less time spent innovating. This raises the possibility that creative self-efficacy could serve to lessen the otherwise positive influence of harmonious passion, particularly in an SME context involving innovation of some sort. For example, drawing on a

combination of socio-cognitive and resource allocation theory, Yeo and Neal (2013) summarize a stream of research that finds that people act to conserve resources, particularly in situations in which people have competing demands and limited resources (SMEs, for instance). In such cases, high self-efficacy can have a negative, not positive relationship with some outcomes, as individuals (sometimes mistakenly) believe such efforts are not necessary for success. Thus, one interesting question for future SME research revolves around the extent to which choices in important factors like leadership (e.g., Schenkel et al., 2016) and structure (e.g., Randøy & Goel, 2003) influence the self-regulatory nature of purposive innovative behavior (Bandura, 1991) as SMEs professionalize beyond founding leadership. One potentially fruitful approach could be the design of studies intended to examine dynamic within-person differences in harmonious passion and creative self-efficacy, both independently and in combination, and the influence of these factors on innovation engagement (Yeo & Neal, 2013) in SME settings.

### **Practical implications**

Our results also have at least three important practical implications for SME leaders. First, the positive relation observed between harmonious passion and entrepreneurial behavior here is strikingly consistent with findings in studies of independent entrepreneurs (Murnieks et al., 2014). The message for SME managers here is fostering innovation involves more than relying on basic skills proficiency (Franklin, 2015) or external factors such as tangible rewards and deadlines (Gagné & Deci, 2005). These approaches may be insufficient or even undermine the intent to spur innovation. A more robust approach also involves understanding employees' passion with innovative activity in order to gain insight into how to leverage intrinsic sources of motivation. Such an approach may serve as a means for SMEs to better compete against larger, more resource-endowed firms. Second, for managers, our mediation results suggest caution must be exercised to avoid creating systems, structures, and processes that promote employees prematurely confounding the incubation and formation stages of opportunity identification. Such caution is particularly important in cases where a novel idea might feasibly be developed despite perceived uncertainty and risk that may otherwise inhibit an employee from suggesting it (Ardichvili et al., 2003; Fisher & Amabile, 2009; Prajogo & McDermott, 2014; Sarasvathy, 2001). Third, the present results suggest the importance of managers proactively seeking to understand and differentiate when innovative ideas may be driven by an appropriate

sense of confidence versus a potentially false sense of overconfidence. One way this may be achieved is through questioning focused on drawing out assumptions, particularly in cases where those suggesting innovative ideas appear both passionate in their ideas and confident in creative capability.

### Limitations

Our study is limited in several important ways. First, our results should be treated cautiously because they are based on a single organization. Although our sample is similar in nature to those including service-based firms in past research (Hornsby, Kuratko, & Zahra, 2002), it is possible that our results were systematically influenced by unspecified firm-level characteristics. It has become increasingly clear that entrepreneurial and innovative activities are heterogeneous within and across firms and that more knowledge about such variation is needed (Phan, Wright, Ucbasaran, & Tan, 2009). Therefore, it is important for future research to validate and extend the present results. A second potential limitation rests in our measure of the number of process suggestions. Specifically, this measure was based on a time frame “in the past year.” The approach of using number per week is consistent with prior research (Brazeal et al., 2014; Murnieks et al., 2014; Vallerand et al., 2003) and with the idea that the extent to which innovative activities are central and meaningful to an individual’s self-identity differentiates individuals from one another (Tierney & Farmer, 2002; Vallerand et al., 2003). Yet it is possible that the variability in process suggestions could be systematically influenced by participants that have less than a year of tenure in the organization (Tierney & Farmer, 2002). We do not have an assessment of organizational tenure to use as a control variable to account for this possibility. However, we believe such a possibility is likely to attenuate the average number of ideas for participants, resulting in an overly conservative test of our model. Third, we measured harmonious passion but not obsessive passion, so we cannot fully discount its potential effects. However, strong evidence exists that indicates discriminant validity between the two constructs (Marsh et al., 2013), and a meta-analysis of 94 studies indicates the two types of passion show very different patterns of relationships with well-being, motivational, cognitive, and performance factors (Curran et al., 2015).

Additionally, we relied on a cross-sectional design to test our ideas, raising concerns about causal sequencing. For instance, spending more time thinking of and generating innovative ideas could result in autonomous internalization of this activity into identity, thereby enhancing

harmonious passion. We do not discount this ordering but remind that such identity-based sequencing is likely to be reciprocal, such that as a passion for innovative activity increases, so will passion-relevant efforts such as spending more time thinking about new ideas. The limitation here is not so much that the sequence we propose is wrong, but that it is incomplete and so future research ought to examine reciprocal causation longitudinally. A closely related final concern is the use of self-report data. Self-reporting of harmonious passion and the three self-determination variables (creative self-efficacy, job autonomy, and LMX), as well as time spent innovating, was appropriate as these are only internally accessible to individuals. It would have been preferable to have independent reports of suggested process innovations in order to mitigate possible common method bias. However the organization had no formal system in place for this and, as a result, we used self-report measurements. Self-reports of suggestions have been used before, though, with substantive validation with independent reports (Axtell, Holman, & Wall, 2006). Also, because “interaction effects cannot be artifacts of CMV” [common method variance] (Siemsen, Roth, & Oliveira, 2010, p. 456; Evans, 1985), this possibility is mitigated for our moderation and conditional indirect relationship findings.

### Conclusion

Notwithstanding the noted limitations, this study constitutes and informative investigation of how harmonious passion factors into the nascent stages of innovation in SMEs. The study reveals harmonious passion reflects the capacity to serve as a unique and vital source of innovative process suggestions, beyond other notable structural and contextual factors observed previously and often suggested as essential to SMEs’ ability to achieve and sustain advantage. It reveals the simultaneous need for awareness that harmonious passion also introduces complexities into the innovation process. Such insights into the nascent processes whereby individuals choose to engage innovative aspects of their work lives provide SME leaders with practical possibilities for harnessing the power of individual affect while avoiding its pitfalls.

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