The effects of sellers’ entrepreneurial self-efficacy and remote work self-efficacy in online marketplaces: an empirical investigation

Zeying Wan
Sobey School of Business,
Saint Mary’s University,
Halifax, Nova Scotia, B3H 3C3, Canada
Email: zeying.wan@smu.ca

Yinglei Wang*
Fred C. Manning School of Business,
Acadia University,
Wolfville, Nova Scotia, B4A 2R6, Canada
Email: yinglei.wang@acadiau.ca
*Corresponding author

Abstract: Online marketplaces foster electronic business on a global basis through standardised payment systems, logistics management, and interface designs. However, such standardised processes and features make it difficult for sellers in these marketplaces to differentiate from each other and achieve superior performance. In this study, we posit that entrepreneurial self-efficacy (ESE) and remote work self-efficacy (RWSE) of sellers play a synergistic role in enabling operational creativity, which in turn is a critical antecedent to their performance. We found supportive evidence for these hypotheses by analysing survey data on 267 sellers from Taobao.com, a major online marketplace in China.

Keywords: online marketplaces; e-business; ESE; entrepreneurial self-efficacy; RWSE; remote work self-efficacy; operational creativity.


Biographical notes: Zeying Wan is an Assistant Professor at the Sobey School of Business at Saint Mary’s University. Her current research interests include knowledge management, learning in digital age and e-business. Her research has been published in scholarly journals such as Journal of Management Information Systems, Information & Management, Journal of Information System Education, and Group Decision and Negotiation, as well as in various conference proceedings.

Yinglei Wang teaches at the Fred C. Manning School of Business at Acadia University. His research focuses on the interaction between information technology and individuals – adopting the behavioural approach, he investigates how individuals adapt to and leverage contemporary technologies in organisational settings. He has pursued a number of research interests
in light of this overall theme, including virtual organisations, knowledge management, e-commerce, and information technology diffusion. His work has appeared in scholarly journals such as *MIS Quarterly, Journal of Management Information Systems, and Information Systems Journal*.


## 1 Introduction

Online marketplaces such as eBay and Taobao, where transactions occur on a global scale around the clock, have generated lots of opportunities and promoted considerable growth in electronic business (Pereira et al., 2011; Ye et al., 2013). For instance, for the third quarter of 2016, eBay has been reported to have 165 million active users, 20.1 billion US dollars in gross merchandise volume, and 2.2 billion US dollars in revenue that indicates 8% growth (eBay Inc., 2016). These online marketplaces enable many people to be involved in online business activities and become sellers which otherwise would not be possible — through standardised payment systems, logistics management, and interface designs, these online marketplaces enable individuals with limited resources to launch their ventures and gain access to customers worldwide (Bakos, 1998). However, standardised processes and features also make it difficult for them to differentiate from each other (Bockstedt and Goh, 2011). How to succeed in these online marketplaces remains to be a critical question for researchers and practitioners.

In this research, we approach this question from the perspective of (sellers’) self-efficacy. Self-efficacy has been argued to be one of the major factors that influence people’s behaviours and efforts (Judge and Bono, 2001). It has been shown to be significant in a number of settings, including e-commerce adoption and web service acceptance (Hsu and Chiu, 2004; Pavlou and Fygenson, 2006). In accordance with social cognitive theory (Bandura, 1986), in online marketplaces a seller’s self-efficacy is likely to affect the performance of his or her venture (Mishra and Zachary, 2015). Nevertheless, there has been little research looking into the role of self-efficacy in online marketplaces. This research tries to fill this gap, and we draw upon both the Information Systems literature and the Entrepreneurship literature to do so, as there are different types of self-efficacy at work depending on people’s tasks and contexts (Gong et al., 2009). Considering the key activities required in establishing and running a venture in online marketplaces, we use entrepreneurial self-efficacy (ESE) to capture the task aspect of self-efficacy. Meanwhile, because sellers in online marketplaces face a business environment in which most operations and activities are conducted virtually through the Internet (Ou et al., 2014), we include remote work self-efficacy (RWSE) to capture the context aspect of self-efficacy.
We posit that ESE and RWSE enable risk-taking and improvisation behaviours, two major factors that enhance operational creativity in online marketplaces. Operational creativity (Chen et al., 2015; Vila et al., 2014), in turn, enables differentiation and helps sellers in online marketplaces achieve superior performance. In addition, we suggest that the two types of self-efficacy jointly influence operational creativity and performance such that the effects of ESE appear stronger for sellers with higher levels of RWSE. By analysing data collected from 267 sellers on Taobao.com (one of the largest online marketplaces), we found supportive evidence for these hypotheses.

Findings of this study have several contributions. First, by incorporating operational creativity into the theoretical model, our study reveals a mechanism by which differentiation is achieved in online marketplaces. Second, we introduce ESE and RWSE to electronic business research and offer a new avenue for researchers who are interested in the effects of individuals’ self-concepts in online marketplaces. Third, we further knowledge regarding self-efficacy by examining two types of self-efficacy from different perspectives together. As ESE captures task-related self-efficacy and RWSE captures context-based self-efficacy, this study improves our understanding of how different types of self-efficacy may function jointly.

2 Theory development

The Internet enables firms and individuals to access new markets, develop new products and services, and/or create new employment opportunities globally (Ngai and Wat, 2002). All of these contribute to the generation of wealth and sustainable economic growth, leading to the prosperity of electronic business in today’s economy around the world (Ma, 2010). In particular, the participation of individuals in electronic business via online marketplaces to seek venture opportunities has been growing exponentially over the past 20 years, which is evidenced by the wide adoption of online marketplaces such as eBay.com and Taobao.com (Ye et al., 2013). The power of the Internet to bring people together and its increasing accessibility have made it an appealing business environment for individuals who want to establish new ventures to serve customers (Kathuria and Joshi, 2007).

Nevertheless, the success of such ventures in online marketplaces cannot be taken for granted, partly due to the intensified competition (Bakos, 1998). While the Internet enables entrepreneurial individuals and companies to establish and expand their operations by targeting customers that they would not be able to reach through traditional marketplaces (i.e., physical stores), the standardised payment systems, logistics processes, and interface designs from online marketplaces make it difficult for them to differentiate from each other (Bockstedt and Goh, 2011). How well they leverage the online platforms and tools available to them in unique and creative ways is likely to determine whether they will survive and thrive (Heunks, 1998).

Drawing upon social cognitive theory (Bandura, 1986) and prior research (e.g., Hsu and Chiu, 2004; Pavlou and Fygenson, 2006), we posit that the self-efficacy of sellers in online marketplaces is a key differentiation and success factor. Individuals who create ventures in online marketplaces are indeed entrepreneurs; they identify online marketplaces as a new way to deliver products and services to their customers. According to Schumpeter (1934), such a new way of doing business is innovative and entrepreneurial in nature. Meanwhile, they face a totally different business environment
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compared with traditional physical stores; they need to adopt appropriate technologies and communicate with their clients and suppliers remotely through the internet (Zott et al., 2000). Consequently, the self-efficacy of sellers in entrepreneurial activities and the self-efficacy in remote work/collaboration both bear relevance in determining how they perform in online marketplaces.

Incorporating the key business activities and the business environment of sellers in online marketplaces into consideration, we develop a theoretical model that examines the effects of ESE and RWSE on venture performance. ESE refers to a person’s belief in his or her abilities, skills, and knowledge needed to launch and operate a new venture (McGee et al., 2009; Chen et al., 1998; Zhao et al., 2005). RWSE captures an individual’s belief in his or her knowledge, skills, and abilities that enable him or her to work in an online environment (Staples et al., 1999). As shown in Figure 1, we argue that ESE and RWSE have positive effects on operational creativity, which in turn enhances sellers’ performance in online marketplaces. Operational creativity reflects a seller’s generation and application of novel and useful ideas relating to his or her online venture (Ahlin et al., 2014). In the sections that follow, we develop specific hypotheses about how ESE and RWSE influence sellers’ operational creativity and how operational creativity affects their performance in online marketplaces.

**Figure 1  Theoretical model**

2.1 Entrepreneurial self-efficacy and operational creativity

Our literature review suggests that the majority of prior research on ESE has examined how an individual’s ESE affects his or her intention to become an entrepreneur. While entrepreneurial intention is an important research topic (Fayolle and Linan, 2014), only studying the effect of ESE on entrepreneurial intention may constrain theoretical and practical implications of ESE. Self-efficacy is a fundamental construct that often influences people’s commitments and efforts, suggesting that ESE may affect other outcomes beyond entrepreneurial intention. Some researchers have acknowledged this void in the literature and started to examine how ESE of new venture managers affects firm performance (Hmieleski and Baron, 2008; Hmieleski and Corbett, 2008). As a cognitive construct, self-efficacy is unlikely to affect performance directly; however it may affect performance through individuals’ decision-making and behaviours that determine how they operate. Unfortunately, previous studies of ESE have made few efforts to examine such a cognition-behaviour-outcome consequence.

Building on social cognitive theory (Bandura, 1986), we posit that ESE of sellers in online marketplaces may enhance creativity in operations through two mechanisms. First, ESE is associated with risk-taking, which is often an important factor for creativity to
occur. Risk-taking is subjective in nature – people who believe they can manage and mitigate down side risks are more likely to take risks than those without such a belief (Miller and Leiblein, 1996). Consistent with this rationalisation, researchers find that people with high levels of ESE have a propensity to take high risks. For example, Cassar and Friedman (2009) found that people with high self-efficacy often make aggressive entrepreneurial investments by investing substantial personal wealth in and devoting long working hours to their ventures. Risk-taking is an important factor that drives operational creativity. Generally speaking, creativity means “doing something for the first time anywhere or creating new knowledge” (Woodman et al., 1993, p.293). To develop creative operations, a seller in online marketplaces must adopt new ways of doing things, which may lead to uncertain results. If the seller does not have a high level of ESE, he or she may not be willing to take the risks and uncertainties associated with new ways of running the venture.

Second, sellers with high levels of ESE are also likely to have a propensity to perform improvisational behaviours in online marketplaces, which in turn help enhance operational creativity. Improvisation deviates from well-exercised routines and plans, and being able to improvise reflects an individual’s belief in his or her competence (Kyriakopoulos, 2011). People who have high levels of ESE believe that they possess all-around knowledge and skills to launch and operate a new initiative, and such a belief enables them to improvise when they face business related issues. Consistent with this logic, researchers have reported a strongly positive correlation between ESE and improvisation (Hmieleski and Corbett, 2008). Moreover, improvisation may be a critical factor for operational creativity. One of the major barriers to operational creativity is that people tend to follow established routines and plans (Ahuja and Lampert, 2001). Improvisation helps remove such a creativity barrier by breaking established routines (Kyriakopoulos, 2011). Further, improvisation enables individuals to cope with unexpected challenges through creative and timely action (Magni et al., 2013), which in turn can lead to creative and innovative solutions.

Hypothesis 1: ESE of a seller is positively associated with the operational creativity of his or her venture in online marketplaces.

2.2 Remote work self-efficacy and operational creativity

People with high levels of RWSE believe they are able to handle themselves and cope with remote arrangements well in online settings (Wang and Haggerty, 2009; Staples et al., 1999). The notion of RWSE has been applied to a number of online settings and shown to be an important antecedent to performance outcomes. For instance, Wang and Haggerty (2011) found that RWSE is significantly related to performance and satisfaction in virtual organisations. Similarly, in an e-learning setting learners with higher levels of RWSE seem to learn better than others (Wan et al., 2012).

RWSE may contribute to operational creativity through motivating sellers in online marketplaces to explore the business environments made available to them. Typically in online marketplaces individuals have a variety of options at their disposal, for the purposes of demonstration, communication, transaction, analysis, and so forth (Stockdale and Standing, 2004). This environment may appear unfamiliar and frustrating. Those with high levels of RWSE embrace the unfamiliarity rather than avoid it, making efforts to seek information and acquire help from staff when needed (Wang and
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Haggerty, 2011), which gives them an advantage in adapting to the environments and finding new ways to serve customers. For instance, sellers with high RWSE may opt to interact with customers via the integrated social media instead of traditional email to improve information access; by doing so they change the process from a linear one-on-one mode to a more engaging networked mode (Nambisan and Watt, 2011; Chan and Li, 2010). Also, such sellers may try forums or discussion boards to track what is trending, which helps them identify weaknesses (for example, inconvenient online catalogues) in their operations and come up with new practices to address those weaknesses.

In addition, RWSE is instrumental in establishing the level of involvement/engagement needed for sellers to apply themselves in creative activities in online marketplaces. Compared to traditional business settings, operating online could be challenging, even frustrating at times, due to the remote nature (Gibson and Gibbs, 2006). Sellers with high levels of RWSE are confident in their abilities to deal with customers remotely, arrange work around the clock, and work with service providers (Wang and Haggerty, 2011). This makes them feel comfortable in challenging situations, become more involved, and develop interest in working in online marketplaces (Gist, 1987). Prior research suggests that individuals are more willing to devote their expertise and time to creative activities when they are engaged and interested (Amabile, 1997). In this vein, sellers with high levels of RWSE are likely to be more active and consequently more productive in creating new ideas and practices in online operations.

Hypothesis 2: RWSE of a seller is positively associated with the operational creativity of his or her venture in online marketplaces.

2.3 The moderating effect of remote work self-efficacy

ESE and RWSE pertain to different domains of self-efficacy; however, there may be interaction between them in affecting operational creativity. As discussed above, ESE can affect operational creativity through improvising, which often involves learning (Miner et al., 2001). RWSE is able to facilitate (or hinder if the level is low) improvising in this regard, as it has been found to affect learning in online settings (Wan et al., 2012). When sellers in online marketplaces strongly believe that they can handle themselves and work with others well online, they are more motivated to invest in formal and informal learning and are more likely to experiment with various learning strategies, which in turn facilitates improvising with an extended up-to-date knowledge base of what is routine and insights into what is possible beyond routines. Consequently, they are more likely to see creative outcomes. On the other hand, when they doubt their abilities, they may feel intimidated and overwhelmed when it comes to learning new things in and about online marketplaces though they are motivated to do something different and opt to stick to what they already know, which limits the potential of their improvising endeavours.

RWSE may also facilitate the risk-taking mechanism through which ESE influences operational creativity. In online marketplaces, many risks are associated with their remote nature (Gibson and Gibbs, 2006). For example, introducing new, unfamiliar offerings is risky and one challenge is that it is difficult to establish the authenticity because customers have no chance of reviewing them in person. Individuals with high RWSE tend to view such risks positively as they generally believe in their abilities to perform in online settings and are ready to take on difficulties. This helps translate the willingness to take risks to actual behaviours. Sellers who are interested in taking risks and doing new
things due to ESE are thus more likely to go through with them in online marketplaces when they have high levels of RWSE, demonstrating a stronger link between their levels of ESE and new changes in operations.

_Hypothesis 3: RWSE enhances the association between ESE of a seller and the operational creativity of his or her venture in online marketplaces._

### 2.4 Operational creativity and performance in online marketplaces

Operational creativity is an important success factor in online marketplaces; this is because using the same platform (for example, eBay, Amazon) ventures in online marketplaces often have similar interface designs, logistics, payments, and so on (Heunks, 1998). Under such a situation, most of them look similar in the eyes of customers, and thus lack a differentiation factor that helps a specific seller outcompete rivals. Operational creativity can change this lack of differentiation and allow sellers to obtain competitive advantage.

Operational creativity involves identifying new needs from online customers, delivering new offerings, and cultivating niche markets, which increases sales and contributes to financial performance (Im and Workman, 2004). An example of this is Haoseguan, a business venture established on Taobao.com in 2006 by two college graduates with initial investments of CNY 5000 (equivalent to USD 700 at that time). The owners started selling woman’s skincare and cosmetic products, but struggled among thousands of online stores aiming at the same market and hardly survived the competition. In 2007, they adopted a new operational focus and entered an underdeveloped niche market, man’s skincare and cosmetic products. This endeavour was fruitful in a few years; it became the number one store in this category on Taobao.com with roughly 6 million CNY (USD 840,000) in annual revenue.

Another form of operational creativity involves transforming existing offerings and/or the delivery of existing offerings (for example, by instilling additional meanings and adding personal touch), which results in unique experiences that attract and retain customers. A popular online store on Taobao.com named LRCP demonstrates this notion well. While LRCP sells women’s clothes just as thousands of other online stores, the copywriting for each product is quite creative – there is a short poetic story for everything. Telling such stories directs attention away from utility and makes emotional connections with potential customers, offering a unique shopping experience. Since 2006, LRCP has provided more than a thousand stories. Some people check their online store regularly just for those touching and beautiful stories, and during the browsing of the new products (with new stories) they usually place some orders as well. To some extent, LRCP’s value proposition is changed from offering physical clothes to emotional engagement and entertainment (Morgan-Thomas and Veloutsou, 2013). All these examples suggest that operational creativity is a key factor by which sellers in online marketplaces can achieve differentiation from competition and realise superior returns.

_Hypothesis 4: Operational creativity is positively associated with venture performance in online marketplaces._

In summary, Hypotheses 1 and 2 posit that ESE and RWSE enhance operational creativity, and Hypothesis 4 suggests that operational creativity is an important antecedent to performance. Thus, ESE and RWSE have indirect effects on performance.
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through operational creativity. Hypothesis 3 suggests that RWSE moderates the effect of ESE on operational creativity. To integrate these mechanisms together, we can postulate that operational creativity also mediates the moderation effect of RWSE on the relationship between ESE and performance (i.e., mediated moderation).

3 Sample and data

3.1 Empirical setting

Data for this study were collected using an online survey of individuals who had made sales on Taobao.com, the dominant online marketplace in China with the majority of the market share of customer-to-customer e-commerce. As part of the Alibaba Group (BABA: NYSE), Taobao.com had more than 400 million registered users including both sellers and buyers, and the record one-day sale was 121 billion CNY (nearly 18 billion US dollars) in 2016. We randomly selected 5000 individuals as the sampling frame according to the following criteria. First, they had been using this online marketplace for two to three years. We aimed to target new ventures, given that ESE is mainly about entrepreneurial tasks in new venturing processes. Online ventures four years old or older were likely to have overcome their liabilities of newness and thus ESE might not be much relevant. At the same time, we noticed that some newly established ventures (for example, one year old or younger) did not exhibit stable activities (for example, the individuals only log in their accounts occasionally). When interviewing a senior client manager at Taobao.com, we were informed that some new users’ primary goal was to learn how to do business in this marketplace and were not committed to operating their ventures on a daily basis. To reduce the probability of including many such cases, we excluded those ventures established within one year. Second, we only included the sellers and their ventures that had customer ratings between 3 stars to 4 diamonds. These ratings indicate that they were generally active in the marketplace, thus enabling us to focus on serious sellers by excluding those who did not make real efforts.

We sent an invitation email to the 5000 individuals with a link to our online survey and followed up with two reminder emails. After dropping returned questionnaires that had substantial missing values and/or low quality responses (e.g., answered ‘1’, ‘4’ or ‘7’ to all the questions), we obtained 267 usable observations. The response rate was 5.34%, which seems to be low for surveys conducted through mail or face-to-face interview. However, such a response rate was not uncommon for a web-based survey (Dillman et al., 2009), and the sample was sufficient for the purpose of model testing.

3.2 Measure validations

ESE was measured using the scale developed and validated by McGee et al. (2009). McGee et al.’s (2009) ESE scale was refined by building on previous ESE measures (e.g., Chen et al., 1998; Zhao et al., 2005). The scale contains 19 items about an individual’s confidence in searching (ESE1), planning (ESE2), marshaling (ESE3), implementing people (ESE4), and implementing finance (ESE5) (McGee et al., 2009). As reported in Appendix 1, items used to measure each of the five dimensions exhibited high reliability. We conducted an exploratory factor analysis on each of the five dimensions and then calculated the corresponding factor score. Finally, we used the
factor scores of ESE1, ESE2, ESE3, ESE4, and ESE5 as items to measure ESE as a second-order (reflective) construct.

We measured RWSE by adopting four items proposed and validated by Wang and Haggerty (2011). They derived the items from the work by Staples et al. (1999), which had more items, and kept only four most relevant ones to maintain unidimensionality. These items reflect people’s beliefs with respect to the remote nature of online environments, therefore suit our context and purpose well. This scale had been verified in prior empirical studies in different online contexts (Wan et al., 2012).

We measured operational creativity (OC) by adapting a scale developed by Gong et al. (2009). We used this scale because of its validity and reliability. Gong and colleagues first adopted three creativity items developed in prior research (Oldham and Cummings, 1996). To enhance content validity, they developed four other items through interviews. Because Gong et al.’s (2009) scale focused on workers’ creativity on their jobs, we changed the wording to capture operational creativity of ventures in online marketplaces. We measured venture performance in online marketplaces (PERF) by using six items validated by Stam and Elfring (2008).

Table 1 Loadings and cross loadings of ESE, RWSE, operational creativity, and performance

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1 Principal component analysis.
2 Varimax rotation with Kaiser normalisation.
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<td>4.74</td>
<td>1.34</td>
<td>0.21</td>
<td>0.09</td>
<td>0.06</td>
<td>0.19</td>
<td>-0.09</td>
<td>0.05</td>
<td>N/A</td>
<td></td>
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<td>8.</td>
<td></td>
<td></td>
<td>3.16</td>
<td>1.90</td>
<td>0.39</td>
<td>0.42</td>
<td>0.39</td>
<td>0.36</td>
<td>0.07</td>
<td>-0.03</td>
<td>0.11</td>
<td>N/A</td>
<td></td>
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<td>9.</td>
<td></td>
<td></td>
<td>0.32</td>
<td>0.47</td>
<td>0.16</td>
<td>0.06</td>
<td>0.10</td>
<td>0.02</td>
<td>0.09</td>
<td>0.00</td>
<td>-0.08</td>
<td>0.07</td>
<td>N/A</td>
<td></td>
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<td>10.</td>
<td></td>
<td></td>
<td>0.80</td>
<td>0.40</td>
<td>-0.05</td>
<td>-0.06</td>
<td>-0.03</td>
<td>0.01</td>
<td>-0.02</td>
<td>-0.02</td>
<td>-0.09</td>
<td>-0.38</td>
<td>-0.08</td>
<td>N/A</td>
<td></td>
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<tr>
<td>11.</td>
<td></td>
<td></td>
<td>2.69</td>
<td>0.78</td>
<td>0.18</td>
<td>0.05</td>
<td>0.04</td>
<td>0.08</td>
<td>0.05</td>
<td>0.00</td>
<td>0.05</td>
<td>0.23</td>
<td>-0.03</td>
<td>-0.02</td>
<td>N/A</td>
<td></td>
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<tr>
<td>12.</td>
<td></td>
<td></td>
<td>1.83</td>
<td>2.29</td>
<td>0.30</td>
<td>0.16</td>
<td>0.14</td>
<td>0.11</td>
<td>0.13</td>
<td>-0.07</td>
<td>0.04</td>
<td>0.25</td>
<td>0.38</td>
<td>-0.22</td>
<td>0.03</td>
<td>N/A</td>
</tr>
<tr>
<td>13.</td>
<td></td>
<td></td>
<td>1.76</td>
<td>1.12</td>
<td>0.22</td>
<td>0.10</td>
<td>0.14</td>
<td>0.08</td>
<td>0.08</td>
<td>0.02</td>
<td>0.02</td>
<td>0.22</td>
<td>0.42</td>
<td>-0.16</td>
<td>0.05</td>
<td>0.54</td>
</tr>
<tr>
<td>14.</td>
<td></td>
<td></td>
<td>0.32</td>
<td>0.47</td>
<td>0.04</td>
<td>-0.09</td>
<td>0.02</td>
<td>0.10</td>
<td>-0.04</td>
<td>-0.13</td>
<td>0.06</td>
<td>0.01</td>
<td>0.05</td>
<td>-0.04</td>
<td>-0.01</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Correlations with absolute value larger than 0.13 were significant at p < 0.05, two-tailed tests. N/A – not applicable.
By definition, both ESE and RWSE reflect self-efficacy. Therefore, it is important to examine the discriminant validity between them. Meanwhile, some researchers explicitly included items on innovativeness and creativity in the measure of ESE (e.g., Chen et al., 1998; Zhao et al., 2005). It is thus also important to examine the distinctiveness between ESE and operational creativity. As shown in Table 1, we conducted exploratory factory analyses by including the factor scores of the five ESE dimensions, the four RWSE items, the seven items used to measure operational creativity, and the six performance items. These items loaded on four constructs respectively (ESE, RWSE, operational creativity, and performance). Loadings of these items were substantially higher than cross loadings, indicating reliability, convergent validity as well as discriminant validity among them. In addition, we calculated the square root of average variance extracted (AVE) for each construct, as shown in Table 2 when applicable. The square root of AVE of each construct was bigger than any correlation coefficient in its respective row and column, which provided further confidence in discriminant validity (Chin, 1998). Finally, we calculated and stored factor scores from factor analyses, which were weighted sums of the items, for model testing purposes (Ford et al., 1986).

We controlled for the effects of major characteristics of sellers and their ventures that might influence their performance in online marketplaces. We first controlled for the gender (a binary variable with male = ‘1’ and female = ‘0’), age, and education level of the seller (an 8-point scale with ‘1’ for primary school, ‘2’ for middle school, ‘3’ for high school, ‘4’ for vocational school diploma, ‘5’ for college diploma, ‘6’ for undergraduate, ‘7’ for masters, and ‘8’ for doctoral degree). Individuals with previous entrepreneurial experiences are likely to have the skills and knowledge needed for their current ventures. We thus controlled for entrepreneurial experience, which was measured by a survey item where ‘1’ indicates no prior experiences and ‘7’ indicates substantial prior experiences in new business venturing.

Moreover, we examined whether the venture was founded by only the seller responding to our survey (sole founder) and whether the seller committed to his or her online venture on a full-time basis or not. We also controlled for new venture age, measured by the number of years since the business was established, and the number of employees hired by the venture, as a proxy for new venture size. New ventures with more investments were likely to have more resources for their operations than those with fewer investments. We thus controlled for investment size, which was measured by a scale coded as ‘1’ if the venture had less than 10,000 CNY, ‘2’ if the venture had 10,000–50,000 CNY, ‘3’ if the venture had 50,000–100,000 CNY, ‘4’ if the venture had 100,000–150,000 CNY, ‘5’ if the venture had 150,000–200,000 CNY, and ‘6’ if the venture had more than 200,000 CNY of initial investments. Finally, selling different types of products often requires different knowledge and skills. Among the most popular types, clothes and shoes often differ in their measuring and colour systems. As a result, information asymmetry between clothes/shoes sellers and buyers via online marketplaces was likely to be high. In contrast, standardised products such as electronic products often have clearly described features. To control for this difference, we added a dummy variable of product type (clothes), which was assigned ‘1’ if the venture focused on clothes or shoes and ‘0’ otherwise.

One of the common issues of using survey to collect data from individual respondents is common method bias. We conducted a Harman’s single-factor analysis to detect common method bias, and did not find a single factor that would account for most of the
The effects of sellers’ entrepreneurial self-efficacy variance (Podsakoff et al., 2003). Therefore, common method bias should not be a serious issue for this study.

4 Analyses and results

Descriptive statistics and bivariate correlations among all the variables are reported in Table 2. These sellers, on average, were 27.54 years old. Males represented 58%, and the majority of the respondents had vocational school diploma or higher formal education. We also consulted with our contacts at Taobao.com and were informed that such demographical information collected through our survey was consistent with the population of sellers on Taobao.com.

RWSE and ESE were highly correlated ($r = 0.67, p < 0.001$). This high correlation is understandable, given that both ESE and RWSE conceptually reflect self-efficacy. However, the correlation between RWSE and ESE was still lower than the cutoff value of 0.70 (Nunnally, 1978), suggesting the distinctiveness between them.

Table 3  Regression coefficients (standard errors in parentheses) and variance inflation factors

<table>
<thead>
<tr>
<th>Outcome variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operational creativity</td>
<td>Operational creativity</td>
<td>Performance</td>
</tr>
<tr>
<td>Coefficients</td>
<td>VIF</td>
<td>Coefficients</td>
<td>VIF</td>
</tr>
<tr>
<td>Constant</td>
<td>0.01 (0.04)</td>
<td>–0.08 (0.05)$^\dagger$</td>
<td>0.00 (0.05)</td>
</tr>
<tr>
<td>Gender</td>
<td>0.05 (0.04)</td>
<td>1.04</td>
<td>0.06 (0.04)</td>
</tr>
<tr>
<td>Age</td>
<td>–0.12 (0.04)**</td>
<td>1.04</td>
<td>–0.11 (0.04)**</td>
</tr>
<tr>
<td>Education</td>
<td>–0.01 (0.04)</td>
<td>1.07</td>
<td>0.01 (0.04)</td>
</tr>
<tr>
<td>Entrepreneurial exp.</td>
<td>0.15 (0.05)**</td>
<td>1.32</td>
<td>0.15 (0.05)**</td>
</tr>
<tr>
<td>Full time</td>
<td>0.03 (0.05)</td>
<td>1.28</td>
<td>0.03 (0.05)</td>
</tr>
<tr>
<td>Sole partner</td>
<td>–0.04 (0.04)</td>
<td>1.11</td>
<td>–0.04 (0.04)</td>
</tr>
<tr>
<td>New venture age</td>
<td>–0.04 (0.04)</td>
<td>1.06</td>
<td>–0.07 (0.05)</td>
</tr>
<tr>
<td>Number of employees</td>
<td>0.05 (0.06)</td>
<td>1.62</td>
<td>0.05 (0.06)</td>
</tr>
<tr>
<td>Investment size</td>
<td>–0.08 (0.05)</td>
<td>1.60</td>
<td>–0.08 (0.05)</td>
</tr>
<tr>
<td>Product type (clothes)</td>
<td>–0.18 (0.04)***</td>
<td>1.06</td>
<td>–0.17 (0.04)***</td>
</tr>
<tr>
<td>ESE</td>
<td>0.41 (0.06)***</td>
<td>2.15</td>
<td>0.42 (0.06)***</td>
</tr>
<tr>
<td>RWSE</td>
<td>0.29 (0.06)***</td>
<td>2.15</td>
<td>0.34 (0.06)***</td>
</tr>
<tr>
<td>ESE×RWSE</td>
<td>0.12 (0.03)***</td>
<td>1.30</td>
<td></td>
</tr>
<tr>
<td>Operational creativity</td>
<td>0.32 (0.08)***</td>
<td>2.29</td>
<td></td>
</tr>
<tr>
<td>$R^2$-squared</td>
<td>0.56</td>
<td>0.58</td>
<td>0.37</td>
</tr>
</tbody>
</table>

Standardised regression coefficients, $^\dagger p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$, two-tailed tests.

We used multiple regressions to test the hypotheses. As reported in Table 3, Model 1 examines the main effects of ESE and RWSE on operational creativity. Both ESE and RWSE produced positive and significant coefficients with operational creativity, supporting Hypotheses 1 and 2. Model 2 estimates the coefficient of the interaction
term between ESE and RWSE, which was positive and statistically significant. Thus, Hypothesis 3 was supported. In Model 3, operational creativity was used to predict performance and exhibited a positive and significant coefficient, providing supportive evidence for Hypothesis 4. We also calculated variance inflation factors (VIFs) to detect potential multicollinearity issues when testing the models. The largest VIF was 2.55, which satisfied the cutoffs (e.g., 3.33, 5, or 10) used by prior research (Cenfetelli and Bassellier, 2009). Therefore, multicollinearity did not appear to be a concern.

Our theoretical model indicates that operational creativity mediates the effects of ESE and RWSE on venture performance in online marketplaces. Further, operational creativity mediates the moderation effect of RWSE on the relationship between ESE and venture performance. To examine these mediation and moderation effects, we adopted the PROCESS package developed by Preacher and Hayes (2008). Using bootstrap of 10,000 resampling, we used PROCESS to estimate the mean value of the indirect coefficient from ESE to performance through operational creativity. As shown in Table 4, at different values of RWSE, the indirect effect of ESE on performance through operational creativity varied significantly. To provide visual interpretations, we also plotted the contingent indirect effect of ESE at different RWSE values in Figure 2.

Table 4  Contingent indirect effect of ESE on venture performance (through operational creativity) at different RWSE values

<table>
<thead>
<tr>
<th>RWSE values (percentile)</th>
<th>Estimate</th>
<th>95% upper limit</th>
<th>95% lower limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>10th</td>
<td>0.08</td>
<td>0.24</td>
<td>0.02</td>
</tr>
<tr>
<td>50th</td>
<td>0.14</td>
<td>0.26</td>
<td>0.07</td>
</tr>
<tr>
<td>90th</td>
<td>0.18</td>
<td>0.30</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Figure 2  Contingent indirect effect of ESE on venture performance (through operational creativity) at different RWSE values

Some control variables produced significant effects on operational creativity and/or online business performance. As shown in models 1 and 2, age had a negative effect on operational creativity. It seems that younger sellers, generally speaking, reported better
The effects of sellers’ entrepreneurial self-efficacy

performance than older peers in terms of building and developing creative ventures online. Entrepreneurial experience exhibited positive coefficients in all the three models, suggesting that sellers with more entrepreneurial experiences outperformed those with less entrepreneurial experiences. Finally, ventures focusing on clothes and shoes exhibited a lower level of operational creativity than those focusing on other types of products. It may be that because manufacturers of clothes and shoes often differ in their measuring and colour systems, buyers perceive this as a barrier to purchasing clothes and shoes via online marketplaces. To address this concern, many online buyers try clothes and shoes in physical stores in person. After they find the right colour and size, they simply place orders online for lower prices. As a result, the majority of online ventures focusing on clothes and shoes seem to have emphasised price as a major driver for sales, rather than paying substantial attention to operational creativity.

5 Discussion

We set out to explore the role of sellers’ self-efficacy in determining their success in online marketplaces. Considering the situated nature of self-efficacy (Gong et al., 2009), we focused on two types of self-efficacy, ESE and RWSE, that are of great relevance to ventures in online marketplaces. The results revealed meaningful insights, providing strong support for all the hypotheses.

5.1 Theoretical contributions and managerial implications

Operational creativity appeared to have significant influence on venture performance in online marketplaces. While not being able to participate in designing and manufacturing innovative products or change the infrastructure of the marketplace, sellers in online marketplaces have control over the layouts of their pages, how they engage customers, and so on. When they cannot differentiate themselves from others by having a unique location (for example, a catchy domain name) or having exclusive rights to certain products, approaching operations differently offers a viable option to obtain a unique position in online marketplaces. As seen in the examples discussed earlier, changing the offerings to cater to the need of a niche market and transforming shopping experiences with an artistic touch would help attract customers and achieve superior performance. Our analysis provided empirical evidence for the importance of operational creativity.

As expected, ESE was found to be a crucial success factor in online marketplaces. In the literature, a number of studies have examined ESE in general business settings and demonstrated its importance; essentially it motivates individuals to launch new initiatives and make the effort when encountering difficulties (McGee et al., 2009). The results of this research showed that the same mechanisms would apply to the specific business setting in question, online marketplaces, as well. Despite the differences between online operations and brick-mortar operations, sellers who have high ESE are likely to outperform those with low ESE.

RWSE was also found to be important. Online marketplaces are different from traditional business settings and require individuals to conduct transactions without face-to-face interactions. Accordingly, the belief that they can operate effectively in remote
online settings helps sellers cope with this environment. The moderating effect of RWSE was particularly novel in this study. Prior research has investigated the moderating effects of self-efficacy on the relationships between behaviours/attitudes and performance in a number of contexts and provided positive evidence (e.g., Jones, 1986). However, little research has examined the interaction between different types of self-efficacy, partly because self-efficacy is context dependent and a single conceptualisation is often employed to suit the research context. Online marketplaces present a setting where two types of self-efficacy (ESE and RWSE) are both relevant, allowing for the examination of potential interaction effects. Our results showed that in the sample the two types of self-efficacy were in fact two complementary beliefs of sellers that functioned interdependently. It appears that task-specific and context-specific self-efficacy cannot be separated; the effect of one type of self-efficacy depends on the other type of self-efficacy.

The findings of this research are meaningful to practitioners. Given the effect of operational creativity, it is beneficial for sellers in online marketplaces to explore new ways to approach, interact with, and serve customers. While this may not be surprising news, it is important to know, especially for those who have just started or who would like to start their online ventures. It may be easy to start selling in an online marketplace, but it requires a lot of work and creativity to survive and prosper. Sellers would be better off if they are prepared accordingly. The results about ESE and RWSE provide directions in this regard. The confidence in dealing with the remote way of working, coming up with new initiatives, and implementing them goes a long way. Sellers could gain such confidence before and during operating online, through a number of mechanisms such as training and acquiring relevant information about the tasks on hand (Gist and Mitchell, 1992). Since self-efficacy can be developed through mastery experience (Bandura, 1982), taking small but successful steps is likely to generate desired outcomes.

5.2 Limitations and future research

There are limitations with this research that suggest future research opportunities. First, given our interest in online marketplaces, we only considered two types of self-efficacy while there are others in the literature. It would be fruitful for future research to include other types, based on the context of interest. Second, besides operational creativity there may be other important factors in online marketplaces that are affected by self-efficacy. Future research exploring those factors would provide richer explanations and enhance the understanding of the role of self-efficacy. Third, we treated ESE as a second-order construct. However, the five dimensions of ESE may exhibit different degrees of effect on operational creativity and venture performance. For example, sellers in online marketplaces rely on themselves and have few employees to manage. As a result, compared with other ESE dimensions, implementing people may be less important for operational creativity and online business venture performance. We encourage researchers to examine the differential effects of ESE dimensions. Lastly, we collected data from only one online platform in China using only one method, and though adequate, the response rate was relatively low, which limits our ability to generalise the findings. Future research with more data using multiple methods from multiple countries would help verify the findings and examine the effects of market-related factors (e.g., cross-country social, business, and institutional environments).
6 Concluding remarks

Integrating insights from prior research, this research investigated the effects of ESE and RWSE in online marketplaces. We found that both ESE and RWSE play important roles in enhancing operational creativity, which in turn improves venture performance. In addition, RWSE moderates the relationship between ESE and operational creativity. These findings highlight a mechanism by which superior performance could be achieved in online marketplaces, and thus contribute to the understanding of the success (or failure) of sellers in them. In addition, the findings add to the understanding of ESE by providing evidence and triangulation for its effect in a specific online setting, which has been only examined in general business settings. They depict a path other than the commonly discussed entrepreneurial intention through which ESE takes effect. Furthermore, the findings demonstrate the relevance of RWSE, a construct developed to study online virtual teams and organisations, in the study of electronic business, and thus enrich the toolkits of the researchers interested in this phenomenon. The discussion and empirical test of the moderating effect of RWSE also provide insights into the interplay between different types of self-efficacy, which adds to the self-efficacy literature.

References


eBay Inc. (2016) http://www.ebayinc.com/in_the_news/story/ebay-inc-reports-second-quarter-


Notes


Appendix 1: Survey questionnaire

Entrepreneurial self-efficacy (ESE) (McGee et al., 2009): How are you confident in the following tasks (1-'not at all confident’… 7-'totally confident’)? (Second-order factor, Alpha = 0.91).

ESE1 (Searching): how much confidence do you have in your ability to …? (Alpha = 0.86)

- ESE1_1: Brainstorm (come up with) a new idea for a product or service
- ESE1_2: Identify the need for a new product or service
- ESE1_3: Design a product or service that will satisfy customer needs and wants

ESE2 (Planning): how much confidence do you have in your ability to …? (Alpha = 0.87)

- ESE2_1: Estimate customer demand for a new product or service
- ESE2_2: Determine a competitive price for a new product or service
- ESE2_3: Estimate the amount of start-up funds and working capital necessary to start my business
- ESE2_4: Design an effective marketing/advertising campaign for a new product or service

ESE3 (Marshalling): how much confidence do you have in your ability to …? (Alpha = 0.88)
The effects of sellers’ entrepreneurial self-efficacy

ESE3_1: Get others to identify with and believe in my vision and plans for a new business
ESE3_2: Network – i.e., make contact with and exchange information with others
ESE3_3: Clearly and concisely explain verbally/in writing my business idea in everyday terms

ESE4 (Implementing people): how much confidence do you have in your ability to …? (Alpha = 0.96)
ESE4_1: Supervise employees
ESE4_2: Recruit and hire employees
ESE4_3: Delegate tasks and responsibilities to employees in my business
ESE4_4: Deal effectively with day-to-day problems and crises
ESE4_5: Inspire, encourage, and motivate my employees
ESE4_6: Train employees

ESE5 (Implementing finance): how much confidence do you have in your ability to …? (Alpha = 0.91)
ESE5_1: Organise and maintain the financial records of my business
ESE5_2: Manage the financial assets of my business
ESE5_3: Read and interpret financial statements

Remote work self-efficacy (RWSE) (Staples et al., 1999; Wang and Haggerty, 2011): How do you agree with the following statements (1-‘strongly disagree’…7-‘strongly agree’)? (Alpha = 0.94)
RWSE1: In virtual settings, I have confidence that I can complete my task because I can access appropriate support staff readily.
RWSE2: In virtual settings, I have confidence that I can complete my task because I can access information needed.
RWSE3: In virtual settings, I have confidence that I can complete my task because I can prioritise tasks to use my time effectively.
RWSE4: In virtual settings, I have confidence that I can complete my task because I can complete my daily priority tasks.

Operational creativity (OC) (Gong et al., 2009): How do you agree with the following statements about your online business (1-‘strongly disagree’…7-‘strongly agree’)? (Alpha = 0.95)
OC1: My online business has creative custom-made product/service packages for clients.
OC2: My store uses creativity to develop new clients through different means and channels.
OC3: My online business uses creativity to increase sales forces in different ways.

OC4: My online business develops creative methods for promotion and sales.

OC5: My online business is creative.

OC6: My online business is original and practical.

OC7: My online business is adaptive and practical.

Performance (PERF) (Stam and Elfring, 2008): How do you agree with the following statements about the performance of your online business (1-'strongly disagree’ …7-'strongly agree’)? (Alpha = 0.98)

My online business outperforms major competitors in:

PERF1: Sales level.

PERF2: Market share.

PERF3: Sales growth.

PERF4: Cash flow.

PERF5: Ability to fund business growth from profits.