

**ENTREPRENEURIAL ORIENTATION AND LEARNING IN HIGH AND LOW-
PERFORMING SMES**

Timothy Pett
Rollins College
tpett@rollins.edu

Jim A. Wolff
Wichita State University
Jim.wolff@wichita.edu

ABSTRACT

This paper examines the relationship between an organization's learning orientation, its information technology competency and entrepreneurial orientation. It is proposed that a commitment to learning and a culture of learning coupled with the tools and capabilities to gather and compile information and knowledge from outside organizational boundaries facilitates the identification of opportunities. Small and medium-sized firms with high levels of an entrepreneurial orientation in turn are able to capitalize on opportunities yielding higher performance levels for the firm. Data from a sample of manufacturing SMEs tends to support these propositions. Conclusions and recommendations for SME management practice is discussed.

Key Words: Small and Medium-sized enterprises; Entrepreneurial Orientation; Learning Orientation; Information Technology Competency

INTRODUCTION

Small firms when compared to their larger counterparts have been described as resource constrained (Acs & Audretsch, 2003). The liability of smallness (Freeman, Carroll, & Hannan, 1983) presents unique challenges with which small firms must cope to survive, grow, and prosper. Yet every year we are provided evidence from various sources (for example the Deloitte Technology Fast 500) that small firms and start-ups are able to overcome the liability of smallness and grow at amazing rates. Since the inception of the Deloitte Technology Fast 500 the average growth rate of these high performing firms exceeds 4000%. Clearly these are exceptional firms that perform well beyond the expectations for the average small and medium-sized enterprises (SMEs) that make up the vast majority of firms. However, these exceptional firms give rise to the question about what factors might distinguish higher performing SMEs from those with lower performance levels.

Academic researchers (e.g., Covin & Slevin, 1991) and the popular press (e.g., Peters & Waterman, 1982) have argued that an essential element for the presence of high performing firms is entrepreneurship or entrepreneurial behavior. It is a self-evident premise that high performing firms of the nature discussed above are able to exploit significant opportunities in the marketplace to achieve such levels of growth. If one accepts that the recognition and exploitation of opportunities represent essential acts of entrepreneurship (Shane & Venkataraman, 2000), then following the logic of Lumpkin & Dess (1996) high performing SMEs will exhibit the characteristics of an entrepreneurial orientation (EO). The EO construct is a

multidimensional notion consisting of innovativeness, risk taking, and proactiveness on the part of firms (Covin & Slevin, 1991; Miller, 1983). “An EO refers to the processes, practices, and decision-making activities that lead to new entry” (Lumpkin & Dess, 1996: 136).

The notion of a high performing firm having an orientation toward acting entrepreneurially is likely a necessary condition, however, an EO may not be the only characteristic related to high performance (Brettel & Rottenberger, 2013). The willingness and capability of a firm to be proactive, risk taking and innovative to exploit opportunities in the marketplace may require the firm and its decision makers be able to gather information about potential opportunities and translate information into new knowledge (i.e., to learn) about potential opportunities (Vora, Vora, & Polley, 2012). Hence, two additional characteristics may work with EO to contribute to high performance levels in SMEs: Information technology competency (ITC) (Tippins & Sohi, 2003) and a learning orientation (LO) (Lonial & Carter, 2013; Sinkula, Baker & Noordewier, 1997).

The purpose of this paper is to examine the relationship between EO, LO, and ITC in the context of SMEs to provide managers suggestions and guidance in balancing these dimensions within their firms to yield higher levels of firm performance. Specifically the paper presents arguments for the presence of a positive relationship among the constructs of interest and the performance levels of SMEs. Through this examination and the analysis of data derived from a sample of SME manufacturing firms the paper adds to the understanding of the entrepreneurial process in higher performing SMEs. The organization

of the paper is as follows. The first section discusses the background of the constructs used in this study and develops the arguments for the hypothesized relationships that are ultimately tested. Next is discussed the research methodology and analytical method employed to test the hypotheses. The third section presents the results of the data analysis and the last section provides a discussion of the study's outcomes, the practical implications for high-level SME managers, and conclusions and recommendations that can be drawn from this study.

BACKGROUND AND HYPOTHESES

Entrepreneurial Orientation

The fundamental proposition that underpins entrepreneurial orientation (EO) as a significant theoretical construct is that entrepreneurial firms behave in ways different from other types of firms. Within the field of entrepreneurship and, to a somewhat lesser extent, strategic management research, EO has come to be an important construct in the study of entrepreneurial firms or corporate entrepreneurship and performance (Wang, 2008). Miller's (1983) conceptualization of EO was operationalized (Covin & Slevin, 1989), refined and developed (Lumpkin & Dess, 1996) and has a substantial literature taking shape around the construct (e.g., Covin, Green, & Slevin, 2006; Lumpkin & Dess, 2001; Wiklund & Shepherd 2003; 2005; Entrepreneurship Theory and Practice 2011 dedicated issue). Indeed, the EO notion and its component dimensions has been one of the most researched theoretical and empirical topics within entrepreneurship over the past 30 years. The dimensions most closely associated with the EO construct—those at the heart of Miller's (1983) original conceptualization of the notion of

entrepreneurial firms—are risk taking, innovativeness, and being proactive.

Risk Taking. Entrepreneurs are generally regarded as risk takers in terms of their decision-making and business activities. Brockhaus (1980) described entrepreneurs as willing to take calculated business risks that non-entrepreneurs viewed as higher risk. Later research on risk taking proposes that entrepreneurs view certain business situations more optimistically and with more confidence than do non-entrepreneurs (Busenitz, 1999) leading to the contention that entrepreneurs may view risk differently than non-entrepreneurs. However, consistent with Miller (1983) and Covin and Slevin (1989), firm-level entrepreneurial characteristics are exhibited by a pioneering pattern of decision making under uncertainty reflective of risk at a level greater than that exhibited by a conservative, follower pattern.

Innovativeness. A fundamental element of entrepreneurship is innovation which is captured in the form of creating new products or processes (Covin & Miles, 1999; Schumpeter, 1934). Lumpkin and Dess (2001) define entrepreneurial innovation as “. . . creativity and experimentation in introducing new products/services, and novelty, technological leadership and R&D in developing new processes” (p.431). With respect to corporate entrepreneurship, Covin and Miles (1999) argue that innovation is central without which the notion does not exist. Hence, to be entrepreneurial or exhibit an EO, firms must exhibit behavioral actions that are exemplars of innovation irrespective the presence of other dimensions of entrepreneurial behavior.

Proactiveness. Being proactive implies behaviors that can be interpreted as taking the

lead *vis-a-vis* competitors and perceived business opportunities. Covin and Slevin (1989) related proactiveness to aggressive action toward competitors when trying to gain or maintain competitive advantage. They compared this stance to that of a passive and reactive approach that might be taken by a more conservative firm. In a similar way Lumpkin and Dess (2001) articulated that proactiveness exhibits characteristics of leadership in the market place working to influence the task environment. Venkatraman (1989) defined proactiveness as opportunity seeking related or not to existing business activity, new product or brand introductions before competitors, and strategic discontinuance of operations in the face of declining markets. Entrepreneurs act ahead of non-entrepreneurs and entrepreneurial firms are similarly proactive.

This paper adopts the notion that EO is a behavioral action construct (Wolff, Pett, & Ring, 2015). Miller's (1983) seminal work on EO proposed that specific firm-level behaviors captured the essence of entrepreneurship within established firms. Extending and building on Miller's work, Covin & Slevin (1986, 1989, and 1991) developed and refined a survey scale with which to measure a firm's EO. The Covin and Slevin scale has been used by researchers to examine EO in the context of a varied set of firm-level objectives including performance. The relationship to performance (Brettel & Rottenberger, 2013) will be discussed further in the development of the hypotheses in a subsequent section.

Learning Orientation

Organizational scholars have devoted significant attention to the topic of learning at the organization level during the last several

decades. Since the seminal work of Argyris and Shön (1978) research into organizational learning has grown exponentially with many significant contributions occurring in the latter half of this period. One of the key beliefs driving this interest is the importance that learning has to a firm's adaptability in dynamic environmental or competitive conditions (Moingeon & Edmundson, 1996). "Organizational learning occurs when members of the organization act as learning agents for the organization, responding to changes in the internal and external environments of the organization by detecting and correcting errors in organizational theory in use, and embedding the results of their inquiry in private images and shared maps of the organization" (Argyris & Shön, 1978: 23).

Conceptually, organizational learning is a meta-construct comprised of three constituent elements: a pre-disposition to learn; learning facilitation; and exploitation of learning through organizational adaptation (Sinkula et al., 1997). A pre-disposition to learn at the organization level is expressed by the philosophy-in-use and culture regarding learning (Lonial & Carter, 2013). Sinkula et al. (1997) articulated this predisposition as a values-based cultural construct and termed it a 'learning orientation' (LO). In this paper the pre-disposition to learn is the focal notion of the research. Organization-level learning begins with the commonly held firm values of open-mindedness and commitment to learning that Sinkula, et al. (1997) articulated as the elements of LO. Open-mindedness is a precondition to the learning process because firms must be willing to question routines and assumptions that comprise mental models (Senge, 1990) driving thought and action. The willingness to question deeply held assumptions and beliefs may facilitate

heuristics and non-routine mechanisms to divine insights and counter-intuitive patterns that solve ambiguous challenges, i.e., double-loop learning (Lei, Hitt, & Bettis, 1996).

Concomitant with open-mindedness is the value that the collective of individuals comprising a firm places on learning, in other words a commitment to learning (Sinkula, et al., 1997). Just as firms are not homogeneous with respect to structural organization they are likely to have very different views with respect to learning. Morgan (1986) conceptualized the culture dimension as a continuum anchored by hierarchical mechanistic organizations on one end and heterarchical network organizations at the other. The cultural values with respect to learning in a machine organization are likely much weaker than in the more organic network organization. Absent the values that reflect a commitment to learning, learning and adaptation is not likely. Hence, LO, at minimum, requires the elements of open-mindedness and a commitment to learning as a precursor for organizational learning and ultimately successful adaptation.

Information Technology Competency

ITC is a multidimensional construct comprised of three co-varying measures—IT knowledge, IT operations and IT objects (Tippins & Sohi, 2003). Previous research suggests that appropriate application of information technology promotes collaboration and information sharing both inside the organization and across organizational boundaries that ultimately may improve firm performance (Celuch, Bourdeau, Saxby & Ehlen, 2014; (Pett, Wolff, & Perry, 2010); Pickering & King, 1995). Thornhill (2006) proposes that the understanding and implementation of

knowledge assets (e.g., technologies) are critical elements that can assist management in disseminating the information flows for the firm. From these perspectives it can be concluded that the creation and use of an ITC (Tippins & Sohi, 2003) may facilitate information gathering, analysis, and dissemination crucial for SME growth and performance success.

IT Knowledge. Knowledge, as a concept, implies knowing about something. Some types of knowledge can be articulated and codified as the content of documents. Other types of knowledge are tacit, difficult to articulate and, hence, difficult to measure (Davenport, DeLong & Beers, 1998). IT knowledge is relatively context specific and implies knowledge of and about information technology, its tools and processes; or as Tippins and Sohi (2003) articulate, IT knowledge is “contextually based know-how” (p. 748). Therefore, this paper adopts the Tippins and Sohi (2003) conceptualization of IT knowledge as the technical knowledge that a firm possesses with respect to its computer-based systems.

IT Operations. While IT knowledge represents the know-how that resides in firms, IT operations represent the processes that a firm uses in the application of its know-how. IT operations are the firm’s techniques, systems and/or processes undertaken to complete a task to achieve a desired outcome (Granstrand, 1982). Tippins and Sohi (2003) articulate IT operations “as the extent to which a firm utilizes IT to manage market and customer information” (p. 748). As such, IT operations represent the capability to manage external and internal information flows, analyze information, and direct information to the appropriate decision makers in a form that generates effective action.

SMEs are resource constrained and so must make effective choices with regard to the processes they develop. In turn they may have a difficult time pursuing all the systematic approaches available that are related to IT operations. However, working to capture or possess only the critical elements for the firm based on a specific industry's related needs, given the limited resources and budget, may prove to be an effective strategy for SMEs to reap the benefits of IT operations.

IT Objects. The final dimension of an ITC is referred to as IT objects. IT objects are the tools with which IT knowledge is processed through IT operations. Minus the appropriate tools, a knowledge-based system will accomplish little. Tools are enablers used to acquire, process, store, disseminate, and use information (Martin, 1988) coming into a firm. Tippins and Sohi (2003) specified IT objects as a firm's computer-based hardware, software, and the associated technical personnel necessary to complete information processing and knowledge creation through the firms IT operations.

Hypotheses

As was indicated above a recurring theme in the research literature is EO's relationship to various dimensions of firm performance (Lee, Lee & Pennings, 2001; Wiklund, 1999; Zahra & Covin, 1995). The expectation of a positive link between EO and performance derives primarily from the recognition that globalization, technological change, shortened product life-cycles and competitive dynamics have driven firms to be more creative, innovative, and entrepreneurial in their approach to markets (Ireland & Hitt, 1999). Therefore, firms that undertake the actions represented by EO may be able to negotiate environmental dynamics more successfully

which should yield higher levels of firm performance.

Following this logic and the results of many studies that have empirically examined the relationship between EO and performance (Brettel & Rottenberger, 2013; Covin, Green, & Slevin, 2006), this paper assumes a positive relationship between EO and performance. This assumption is tested in our data analysis by dividing the sample along the dimensions of high performing firms and low performing firms. There is an expectation that higher levels of EO will be positively associated with performance in that the subset of higher performing firms will exhibit higher levels of EO. However, the primary hypotheses that we seek to test are the relationships between EO, LO, and a firm's ITC. The premise of this examination is that learning is a prerequisite for opportunity recognition and LO in conjunction with ITC represent elements of learning in the organizational setting. In the presence of opportunity an EO is necessary to act on the opportunity which in turn may yield higher levels of performance (Brettel & Rottenberger, 2013). In the following discussion we develop this underlying rationale.

Given the globalization of markets and the pace of technological change (Ireland & Hitt 1999), firms face the very real prospect of trying to outpace, keep abreast of, or fall behind competitors. In the strategic management literature environmental scanning or understanding industry dynamics (Porter, 1980) has been part of the foundation of research in the field. The process of information gathering, analysis and gaining insight into changing conditions is organization learning (Fiol & Lyles, 1985). Researchers propose that organization learning in various configurations is an

essential antecedent to opportunity recognition (e.g., Dutta & Crossan 2005; Lumpkin & Lichtenstein 2005) by entrepreneurs or entrepreneurial firms. Recognized opportunities provide options for strategic renewal or growth (Lumpkin & Lichtenstein 2005), both of which may provide a firm the path to enhanced performance (Wang, 2008).

Therefore, SME firms exhibiting an active orientation to learning (Sinkula et al., 1997) will likely reveal and recognize opportunities. Because SMEs in general may be more susceptible to the liability of smallness (Freeman et al., 1983) they may be open to learning. The “razor’s edge” analogy applies requiring SMEs to absorb information and knowledge quickly to reasonably assure continued survival if not growth. Due to resource constraints in SMEs, knowledge acquisition through learning may be a critical element in their continued existence (Vora, Vora, & Polley, 2012). Further, SMEs must be able to act on the learning that they experience (Wang, 2008). To act requires a willingness to take risks, innovate by thinking differently, and be proactive in the face of daunting competition. Thus, learning may require an orientation to act entrepreneurially.

Hypothesis 1: *A learning orientation will be positively related to an entrepreneurial orientation in SMEs.*

Information technology is viewed as a crucial resource useful to gather, store, and analyze information helpful to the strategic management of firms (Bharadwaj, 2000). Implicit in this view of information technology, as a crucial resource—and consistent with the resource-based view of the firm (Barney, 1991)—is that the gathering,

storing and processing of information will yield some contribution to a firm’s competitive effectiveness and potentially to competitive advantage. A firm’s ability to use information technology effectively to obtain, store, analyze and convey meaningful information necessary for effective decision making has implications for the performance of the firm (Pett, Wolff, & Perry, 2010). As discussed above Tippins and Sohi (2003) termed this ability ITC.

Though theoretically appealing, the connection between IT activities and enhanced performance outcomes may be weakened by what Lucas (1999) termed the technology productivity paradox. Tippins and Sohi (2003) hypothesized and found support for the proposition that the connection between ITC and performance was indirect through organizational learning. In other words the mechanisms and capabilities to gather and analyze information require gaining a different perspective concerning the actions necessary for moving an organization forward. Like the idea expressed above with respect to LO, information gathering and analysis need action or a willingness to take action to affect the prospects of an organization. Thus, a capability to gather information may require and orientation to act entrepreneurially.

Hypothesis 2: *Information technology competency will be positively related to entrepreneurially orientated SMEs.*

It is apparent from the discussion above that LO and ITC may be complementary elements that together are necessary for learning to take place in an organization. Each of these requisite elements for learning in an organization may be mutually reinforcing. In

other words the presence of these dimensions in greater amounts within a firm may exhibit a multiplier effect for each other. This multiplier effect can be demonstrated as an interaction of the two elements.

Hypothesis 3: *The interaction between learning orientation and information technology competency will be positively related to entrepreneurial orientation in SMEs.*

METHODOLOGY

Research Design

The research design employed the survey method for data gathering in this study. A random sample of 700 small- and medium-sized manufacturing firms were identified and selected, all from a mid-western state. The random sample represented a broad cross-section of firms from a wide array of industries. A cover letter soliciting a response to an enclosed questionnaire was addressed to the owner, CEO or president from each firm in the sample. A total of 138 key-informants responded to the survey, 117 of which provided complete information. This provided an approximate overall usable response rate of 17 percent, which is consistent with similar studies that survey top management (Hambrick, Geletkanycz, & Fredrickson, 1993).

Measures

Performance. With respect to the performance measures in this study we followed the caution of Lumpkin and Dess (1996) regarding the multidimensionality of the performance construct. "In investigating the EO-performance relationship, it is essential to recognize the multidimensional nature of the performance construct

(Cameron, 1978; Chakravarthy, 1986). That is, entrepreneurial activity or processes may, at times, lead to favorable outcomes on one performance dimension and unfavorable outcomes on a different performance dimension (p. 153).

Small- and medium-sized private firms are often reluctant to provide specific information regarding performance. Because of the sensitive nature of the performance construct and following prior research (e.g. Chandler & Hanks 1994; Zahra & George 2000) in this area, we employed a categorical approach to assess firm performance. We asked respondents to answer three questions each on two performance dimensions (growth and profitability) concerning their firm's performance level when compared to similar firms in their industry. Each item used a five-point Likert scale format ranging from 1 'lowest 20 percent' to a 5 representing the 'highest 20 percent' which was used as a measure of relative performance levels. The profit dimension questions asked respondents to compare their firm to the industry for growth in gross profit over the past three years, average gross profit over the past three years, and average after-tax return on sales over the past three years. We labeled this construct "profitability" and deemed it a valid measure because of the single factor loading from a confirmatory factor analysis and because it had a high degree of reliability ($\alpha = .93$).

The growth dimension questions asked respondents to compare their firm to the industry for growth in sales during the past three years, growth in assets over the last three years, and growth in number of employees during the last three years. This construct was labeled "growth" and deemed it a valid measure because of the single factor loading

from a confirmatory factor analysis and because of the high coefficient alpha ($\alpha = .82$).

Entrepreneurial Orientation. Entrepreneurial orientation was measured using a modified version from Covin and Slevin (1991) and based on prior works of Miller (1983) and Covin and Slevin (1989). The construct was measured by asking respondents twelve (12) questions relating to each dimension - proactiveness, innovativeness and risk-taking. Each dimension included four items. For example in the case of the innovativeness dimension, we asked respondents 'compared to others in the industry our company emphasizes': 'being first to the market with innovative new products/services'; 'developing new processes'; 'recognizing and developing new markets'; and 'being at the leading edge of technology.' Each of the twelve items used a seven-point Likert scale with 1 representing 'strongly disagree' to 7 representing 'strongly agree'. A confirmatory factor analysis was utilized to establish the presence of the multidimensionality of the construct. As expected and similar to past research (e.g. Covin & Slevin 1991) three dimensions emerged from the analysis with an overall scale reliability of $\alpha = 0.86$. This construct was labeled "entrepreneurial orientation."

Learning Orientation. Similar to Baker and Sinkula (1999), we measured two dimensions of the learning orientation construct, commitment to learning and open-mindedness. The respondents were asked whether they either agreed or disagreed with eight (each of the two dimensions had four) response items each. For example 'commitment to learning' was composed of the following: 'the ability to learn is the key to our competitive advantage'; 'learning is a basic value throughout our organization';

'employee learning is viewed as investment, not an expense'; and 'learning is seen as a necessity to guarantee the firm's survival.' A seven-point Licker scale ranging from 1 - 'strongly disagree' to a 7 'strongly agree' was used. Confirmatory factor analysis yielded two dimensions as expected with an overall reliability of $\alpha = 0.93$. We labeled this construct "learning orientation."

Information Technology Competency. Respondents were asked fourteen (14) questions concerning the computer-based technology used in their firms following the approach used by Tippins and Sohi (2003). ITC is based on three dimensions: knowledge (4 items), operations (6 items) and objectives (4 items). Each item used a seven-point Likert type scale ranging from 1 representing 'strongly disagree' to a 7 'strongly agree.' Respondents were asked how each statement applied to their firm's use of computer-based information technology. For example the knowledge dimension was comprised of the following four statements: 'our technical support staff is knowledgeable about computer-based systems'; 'our firm has a high degree of computer-based technical expertise'; 'we are knowledgeable about new computer-based innovations'; and 'we have the knowledge to develop and maintain computer-based communication links.' A confirmatory factor analysis provided the expected three-factor solution with a high degree of reliability ($\alpha = 0.93$). We labeled this construct "information technology competency."

Firm Size. Firm size was measured by asking the number of employees currently employed by the firm and the log was used as a control variable.

RESULTS

The means, standard deviations and correlations are reported in Table 1. Analysis of the data with respect to skewness and kurtosis in the dependent variables fall within the boundaries of normality (Shapiro & Wilk,

1965) and thus allow for parametric tests of significance. The hypotheses in this study were analyzed using hierarchical regression analysis because an interaction effect exists only if the interaction term yields a significant explanation of variance over and above the direct effects of the independent variables.

Table 1

Means, Standard Deviations and Correlations of Variables

Variable (number of items)	Mean	S.D.	1	2	3	4	5
Size (log emp)	3.99	1.04					
Growth	3.63	0.85	0.18*				
Profitability	3.53	1.01	0.23**	0.57**			
Entrepreneurial Orientation	4.75	0.88	0.15	0.28**	0.12		
Learning Orientation	5.73	0.97	0.01	0.26**	0.08	0.51**	
IT Competency	4.80	1.31	0.34**	0.21*	0.11	0.44**	0.43**

$N = 115$. * $p < .05$; ** $p < .01$.

To test the above hypotheses a mean split for both the growth and profitability performance measures were calculated. The results are reported in Table 2, this process resulted in the creation of low and high groups for growth as well as a low and high groups for profitability. These groupings were used for further analysis and are displayed in Tables 2 and 3. Table 2 provides the results concerning the assumption of a positive relationship between EO and the performance of SMEs. Interesting and as cautioned by Lumpkin and Dess (1996) analysis may sometimes yield different results on different dimensions of the performance construct. In this study there is a strong positive relationship between EO and the growth dimension and no evidence for a relationship between EO and profitability. Further analysis reveals, with respect to the

growth dimension that proactiveness and innovation are the significant contributors to the EO construct. On the profitability dimension of performance there is not a significant difference between low and high profitability firms for the EO construct or any of its dimensions. Our assumption of an overall positive relationship on the performance dimension is only partially substantiated by the data.

The hierarchical regression results displayed in Table 3 provide the results of the hypotheses tests in this study. All three hypotheses are generally supported by the data, though there are some unexpected outcomes that can be considered interesting. On average the LO construct is directly and positively related to EO in a significant way in all analyses with varying levels of significance ($p < .05 - .001$).

Table 2

Comparison of SME Performance Measures on Entrepreneurial Orientation

Dimension	Low Growth (n=51)	High Growth (n=66)	F
Entrepreneurial Orientation	4.26	4.76	8.17**
Proactiveness	4.46	4.92	19.21**
Risk Taking	3.83	4.13	1.02
Innovation	4.32	4.85	4.94*
Dimension	Low Profitability (n=55)	High Profitability (n=62)	F
Entrepreneurial Orientation	4.66	4.87	1.19
Proactiveness	4.94	5.21	2.67
Risk Taking	4.22	4.34	0.32
Innovation	4.83	4.98	0.48

* $p < .05$; ** $p < .01$.

The direct effects for the relationship between ITC and EO are also positive and significant except in the case of low growth firms and high profit firms. When the interaction effect is entered into the analysis the direct effects of LO and ITC disappear (except in the case of high profit firms) confirming hypothesis 3. The increase in R^2 is significant ($p < .05$) in all cases (except low growth firms). Notable also the variance explained in each of the models. Most of the results explain 30-40% of the variance in the EO construct.

DISCUSSION AND IMPLICATIONS

The primary contribution of this article is to illustrate the relationship between EO and the elements of organization learning that were examined in this study: LO and ITC. Wiklund and Shepherd (2003) effectively linked the EO construct with knowledge based resources. This study further examines and links the notion of learning (closely related to knowledge resources) through LO and ITC

with EO. In addition this study adds to the evidence of a relationship between EO and firm performance in SMEs (Brettel & Rottenberger, 2013).

These outcomes are consistent with Barney's (1991) articulation of the resource-based view of the firm. ITC, LO, and EO are organizationally embedded constructs having to do with the philosophies in use, values, and culture of small and medium-sized firms (Vora, Vora, & Polley, 2012). Such resources that are organizationally embedded lend themselves to the possibility of creating competitive advantage and higher levels of performance. For SME managers the findings indicate that attention devoted to espoused positive values regarding learning, supported by information processing tools and infrastructure and combined with entrepreneurial behaviors higher levels of SME performance are likely to be the result.

Table 3 Regression Results for Learning Orientation and IT competency on Entrepreneurial Orientation

Variables	EO		EO (Low Growth)		EO (High Growth)		EO (Low Profit)		EO (High Profit)	
	Constant	1.66***	3.94***	1.69**	3.16*	2.01***	4.16***	1.17	6.99	2.27***
Log of Employees	.05	.06	.19	.18	-.09	-.06	.11	.17	-.03	-.01
Learning Orientation	.35**	-.03	-.26***	.02	-.37**	.01	.25*	-.77	-.41***	.01
IT Competency	.18*	-.49	.14	-.31	.22*	-.43	.35**	-.08	.07	-.68*
Learning Orientation x IT Comp.		.12*		.08		.11*		.23*		.14**
F	18.29***	16.04***	5.10**	4.15*	13.91***	11.58***	10.65***	9.04***	10.73***	11.14***
Adjusted R ²	.31	.35	.20	.20	.37	.40	.35	.38	.33	.40
Change in R ²		.04*		.001		.03*		.03*		.07**

While any one of the elements of this study

and culture may be a poor investment.

may enhance organizational performance independently, the combination adds a significant level of organization-level social complexity that competitors find difficult to imitate or for which they may find effective substitutes. Thus, the combination of EO, LO, and ITC fulfill conditions for Barney's (1991) resource-based sustainable competitive advantage.

Another contribution made concerns the direct relationship to EO of each of the constructs considered. The idea that LO and ITC are complementary is demonstrated. When examined independently there seems to be a relationship but when considered together the direct relationship disappears. The implication of this for research and practice is that it takes both LO and ITC in conjunction combined with EO within the firm. Simply having an orientation to learning is insufficient without the tools to facilitate that learning. Conversely, having the tools to provide information to decision makers in the firm without the concomitant philosophy, values

The third contribution from this study is that the elements of learning embodied in ITC and LO are linked in a significant fashion to the orientation of a firm to act entrepreneurially. The link to higher levels of performance demonstrates that the learning elements complement entrepreneurial action yielding higher levels of performance. It is hoped that this will further encourage research into the linkage of organizational learning, entrepreneurial action and the ultimate performance of firms. In the case of this study there is evidence to support this linkage in small and medium-sized firms.

The findings of this study offer a number of practical implications for owners or leaders of SMEs with respect to the entrepreneurial orientation, learning orientation and information technology competencies as these relate to performance. The findings suggest leaders can certainly implement any one of these activities and experience some improvement in performance. However taken together, when leaders of SMEs take a holistic

approach with decision-making and enhancing firm's learning culture, the findings suggest improvement in performance in a multiple areas. In this study, both growth and profitability improved when leader's actions were broadly implemented (EO, LO, and ITC). Further, our findings suggest for those who work with small business not only is it important to create a risk-taking, innovative and proactive environment (EO) but they should also focus on creating an environment of shared learning (LO) and embraces technology know-how (ITC). These approaches will result in improved performance levels for the businesses over time.

The limitations of this study must be noted. Conclusions drawn are valid if the conditions at the time of data collection persist through time. Also a variety of different industry segments are represented in our response group but the sample was limited to small manufacturing firms. This restricts generalizability of our results and their interpretation. Lastly, the data is self-reported questionnaire responses from a key informant. Careful attention was given to the selection of the key informants from which responses were solicited. Owners and CEOs that are very knowledgeable about the issues in the survey and directly involved in operations of the firm received the solicitation. Our checks of the data revealed similar reliabilities and factor loadings to those of previous published research on which our instrument was based. Though this is the currently accepted standard methodology in SME and entrepreneurial firm research, common method variance may be an issue that cannot be ruled out. However, beyond the limitations noted we believe the paper makes several important contributions as described above.

REFERENCES

- Acs, Z.J. and Audretsch, D.B. (2003). Innovation and technological change. In Z.J. Acs and D.B. Audretsch eds., *Handbook of Entrepreneurship Research: 55-79*. London, UK: Kluwer Academic Publishers.
- Argyris, C. and Schön, D. (1978). *Organizational Learning: A Theory in Action Perspective*. New York: Addison-Wesley.
- Baker, W.E. and Sinkula, J.M. (1999). The synergistic effect of market orientation and learning orientation on organizational performance. *Journal of the Academy of Marketing Science*, 27(4): 411-427.
- Barney, J.B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17: 99-120.
- Bharadwaj, A.S. (2000). A resource-based perspective on information technology capability and firm performance: An empirical investigation. *MIS Quarterly*, 24(1): 169-196.
- Brettel, M and Rottenberger, J. (2013). Examining the Link between Entrepreneurial Orientation and Learning Processes in Small and Medium-Sized Enterprises. *Journal of Small Business Management*, 51(4): 471-490.
- Brockhaus, R. (1980). Risk taking propensity of entrepreneurs. *Academy of Management Journal*, 23 (4): 509-520.
- Busenitz, L. (1999). Entrepreneurial risks and strategic decision making. *The Journal of Applied Behavioral Science*, 35(3): 325-340.
- Cameron, K. (1978). Measuring organizational effectiveness in

- institutions of higher education. *Administrative Science Quarterly*, 23: 604-632.
- Celuch, K., Bourdeau, B., Saxby, C. and Ehlen, C. (2014). SME Internet Use: The Moderating Role of Normative Influence. *Journal of Small Business Strategy*, 24(2): 69-90.
- Chandler, G. and Hanks, S. (1994). Market attractiveness, resource-based capabilities, and venture performance. *Journal of Business Venturing*, 9:331-349.
- Chakravarthy, B. (1986). Measuring strategic performance. *Strategic Management Journal*, 6: 437-458.
- Covin, J.G. and Miles, M.P. (1999). Corporate entrepreneurship and the pursuit of competitive advantage. *Entrepreneurship Theory and Practice*, 23(3): 47-63.
- Covin, J.G. and Slevin, D.P. (1986). The development and testing of an organizational-level entrepreneurship scale. In Ronstadt, R., Hornady, J.A., Peterson, R. & Yesper, K.H. (Eds) *Frontiers of Entrepreneurship Research 1986*. Wellesley, MA: Babson College, 628-639.
- Covin, J.G. and Slevin, D.P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10: 75-87.
- Covin, J.G. and Slevin, D.P. (1991). A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship Theory and Practice*, 16(1): 7-24.
- Covin, J.G., Green, K.M. and Slevin, D.P. (2006). Strategic process effects on the entrepreneurial orientation-sales growth rate relationship. *Entrepreneurship Theory and Practice*, 30(1): 57-81.
- Davenport, T.H., DeLong, D.W., and Beers, M.C. (1998). Successful knowledge management projects. *Sloan Management Review*, winter: 43-57.
- Dutta, D.K. and Crossan, M.M. (2005). The nature of entrepreneurial opportunities: Understanding the process using the 4I organizational learning framework, *Entrepreneurship Theory and Practice*, 29(4): 425-449.
- Fiol, C.M. and Lyles, M.A. (1985). Organizational learning. *Academy of Management Review*, 10: 803-813.
- Freeman, J., Carroll, G.R. and Hannan, M.T. (1983). The liability of newness: Age dependence in organizational death rates. *American Sociological Review*, 48(5): 692-710.
- Granstrand, O. (1982). *Technology, Management, and Markets*. St. Martin's Press: New York.
- Hambrick, D., Geletkanycz, M. and Fredrickson, J. (1993). Top executive commitment to the status quo: Some tests of its determinants. *Strategic Management Journal*, 14(6): 401-418.
- Ireland, R.D. and Hitt, M.A. (1999). Achieving and maintaining strategic competitiveness in the 21st century: The role of strategic leadership. *Academy of Management Executive*, 13(1): 43-57.
- Lee, C., Lee, K. and Pennings, J.M. (2001). Internal capabilities, external networks, and performance: A study on technology-based ventures. *Strategic Management Journal*, 22: 615-640.
- Lei, D., Hitt, M.A. and Bettis, R. (1996). Dynamic core competencies through meta-learning and strategic context. *Journal of Management*, 22(4): 549-569.
- Lonial, S. and Carter, R. (2013). The Impact of Organizational Orientations on Medium and Small Firm Performance: A

- Resource-Based Perspective. *Journal of Small Business Management*, 53 (1), 94-113.
- Lucas, H.C. (1999). *Information Technology and the Productivity Paradox*. Oxford University Press: New York.
- Lumpkin, G.T. and Dess, G.G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1): 135-172.
- Lumpkin, G.T. and Dess, G.G. (2001). Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle. *Journal of Business Venturing*, 16: 429-451.
- Lumpkin, G.T. and Lichtenstein. B.B. (2005). The role of organizational learning in the opportunity recognition process. *Entrepreneurship Theory and Practice*, 29(4): 451-472.
- Martin, W.J. (1988). *The Information Society*. Easter Press: London.
- Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science*, 29: 770-791.
- Moingeon, B. and Edmundson, A. (Eds.) (1996). *Organizational Learning and Competitive Advantage*. London: Sage Publications.
- Morgan, G. (1986). *Images of Organization*. Beverly Hills, CA: Sage.
- Peters, T. and Waterman, R. (1982). *In Search of Excellence*. New York: Harper & Row.
- Pett, T., Wolff, J. and Perry, J. (2010). "Information technology competency in SMEs: An examination in the context of firm performance." *International Journal of Information Technology and Management*, 9(4): 404-422.
- Pickering, J. M. and King, J.L. (1995). Hardwiring weak ties: Interorganizational computer-mediated communication, occupational communities, and organizational change. *Organization Science*, 6(4): 479-486.
- Porter, M. (1980). *Competitive Strategy*. New York: Free Press.
- Richard. O.C., Barnett, T., Dwyer, S., and Chadwick, K. (2004). Cultural diversity in management, firm performance, and the moderating role of entrepreneurial orientation dimensions. *Academy of Management Journal*, 47(2): 255-266.
- Schumpeter, J.A. (1934). *The Theory of Economic Development*. Cambridge, MA: Harvard University Press.
- Senge, P.M. (1990). *The Fifth Discipline: The Art and Practice of the Learning Organization*. Doubleday: New York.
- Shane, S. and Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1): 217-226.
- Sinkula, J.M., Baker, W.E. and Noordewier, T. (1997). A framework for market-based organizational learning: Linking values, knowledge and behavior. *Journal of the Academy of Marketing Science*, 25(4): 305-318.
- Shapiro, S.S. and Wilk, M.B. (1965). An analysis of variance test for normality (complete samples). *Biometrika* 52: 591-611.
- Thornhill, S. (2006). Knowledge, innovation and firm performance in high- and low-technology regimes. *Journal of Business Venturing*, (21) 5: 687- 703.
- Tippins, M.J. and Sohi, R.S. (2003). IT competency and firm performance: Is organizational learning a missing link?

- Strategic Management Journal*, 24(8): 745-761.
- Venkatraman, N. (1989). Strategic orientation of business enterprises: The construct, dimensionality, and measurement. *Management Science*, 35: 942-962.
- Vora, D., Vora, J., and Polley, D. (2012). Applying entrepreneurial orientation to a medium sized firm. *International Journal of Entrepreneurial Behaviour & Research*, 18(3): 352-379.
- Wang, C.L. (2008). Entrepreneurial orientation, learning orientation, and firm performance. *Entrepreneurship Theory and Practice*, 32(4): 635-657.
- Wiklund, J. (1999). The sustainability of the entrepreneurial orientation-performance relationship. *Entrepreneurship Theory and Practice*, 24(1): 37-48.
- Wiklund, J. and Shepard, D. (2003). Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium sized businesses. *Strategic Management Journal*, 24: 1307-1314.
- Wolff, J. and Pett, T. and Ring, K. (2015) Small firm growth as a function of both learning orientation and entrepreneurial orientation: An empirical analysis. *International Journal of Entrepreneurial Behavior & Research*, 21(5): 709 – 730.
- Zahra, S. and Covin, J. (1995). Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal analysis. *Journal of Business Venturing*, 10:43-58.
- Zahra, S.A. and George, G. (2000). Manufacturing strategy and new venture performance: A comparison of independent and corporate ventures in the biotechnology industry. *The Journal of High Technology Management Research*, 10(2): 313-345.

Timothy L. Pett is an Associate Professor and Chair of the Department of Business at Rollins College. His teaching and research interest deal with small and medium-sized businesses, family businesses, high performance organizations as well as entrepreneurship. He has published in numerous journal articles and presented at international conferences.

James Wolff is a Professor in the Management Department at Wichita State University. His research interests include inter-firm cooperation (joint ventures and strategic alliances), organizational learning and adaptation, small and medium-sized business internationalization, international entrepreneurship, and international competitiveness of small firms in manufacturing supply chains.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.