

How to cite:

Pisapia, J., Feit, K., Morris, J. & Jelenc, L. (2016) **Strengthening the link between entrepreneurial proclivities and entrepreneurial outcomes: A Confirmatory Factor Analysis of the Entrepreneurial Dispositions Scale (EDS)**, SEAANZ (Small Enterprise Association of Australia and New Zealand) National Small Business Conference, 29th Annual Conference, Melbourne, Australia, August 10-12

Strengthening the link between entrepreneurial proclivities and entrepreneurial outcomes: A Confirmatory Factor Analysis of the Entrepreneurial Dispositions Scale (EDS)¹

John Pisapia²

Keith Feit¹

John Morris¹

Lara Jelenc³

Abstract

The application of entrepreneurial orientation constructs to the individual level is a contested space in entrepreneurial research circles. This paper examines this space by reviewing the origins of the Entrepreneurial Orientation scale (EO), and subsequent attempts to adapt it at the individual level. We argue that the entrepreneurial business setting resembles the personal inclinations of founder/owners or members of the top management team (TMT). In entrepreneur led small firms, as well as schools and nonprofits, the behaviors of the organization and that of the entrepreneur are likely to be the similar.

The EO may not be the appropriate measure of individual orientation. We report the development and validation of a new scale to meet this need. The Entrepreneurial Dispositions Scale (EDS) measures individual dispositions to engage in entrepreneurial activities. Two data sets were utilized in the study. First, data from a combined sample of 218 small firm entrepreneurs from the United States and Croatia were examined. Then, using a data set of 60 cases of school principals, a confirmatory factor analysis of this new scale to measure an individual's dispositions toward risk-taking, proactiveness, and innovativeness was achieved.

The present research addresses concerns regarding the adoption of the EO to the individual level without examining its underlying nomological network and psychometric properties (Zahra, et al., 1999) and provides an additional tool to investigate the causal nature of entrepreneurial dispositions, entrepreneurial orientation, and entrepreneurial outcomes.

Acknowledgements

We wish to thank the anonymous reviewers who provided suggestions that strengthened the paper.

¹ Best Conference Paper Award

² Florida Atlantic University, USA

³ University of Rijeka, Croatia

Introduction

The application of entrepreneurial orientation constructs to the individual level is a contested space in entrepreneurial research circles. Those who resist such a transfer do not clearly enunciate their concern in the extant literature, other than to say the two constructs are functionally distinct and are predicted by different antecedents (Anderson, et al, 2015), or just that such use is problematic (Slevin & Terjesen, 2011). These claims are first examined by reviewing the history of the entrepreneurial orientation scale (EO). Then, attempts to build scales oriented to the individual level are explored. Finally, each step of the psychometric testing of the Entrepreneurial Dispositions Scale (EDS) is presented.

The Entrepreneurial Orientation (EO) scale is the most widely accepted instrument for capturing a firm's inclination toward entrepreneurship (Covin & Wales, 2011; Rauch et al., 2009; Wiklund, 1999). Based on the early work of Miller (1983), it successfully distinguished three dimensions of the concept: risk taking, innovativeness, and proactiveness, which formed a unidimensional construct, EO, which can be defined as the "willingness of a firm to engage in entrepreneurial behavior" (Wiklund, 1998, p. 65), and reflects how a company operates; its processes and routines (Lumpkin & Dess (1996). In this conceptualization, an organization is "entrepreneurial *because* it exhibits entrepreneurial behaviors. . ." (Anderson, et al., 2015). Research findings suggest that EO shapes organizational strategy and the attitudes and behaviors of employees (Covin & Slevin, 1989), and organizational performance (Covin & Slevin, 1988, 1989; Naman & Slevin, 1993; Poon et al, 2006; Rauch et al., 2009; Sharma & Dave, 2011; Wiklund, 1999; Yang, 2008; Zahra & Covin, 1995).

Fueled by the work of Miller (1983) the focus shifted to firm level processes, which became known as entrepreneurial orientation (EO) rather than the actions of individuals (Jantunen, et al., 2005; Quince & Whittaker, 2003). Academic interest in EO dramatically increased since Miller's (1983) conceptualization; primarily due to Covin and Slevin's (1986; 1988; 1989) operationalization of the constructs through a nine item self-response instrument subsequently called the Entrepreneurial Orientation Questionnaire (EO).

The EO scale has exhibited high levels of validity and reliability (Chadwick et al., 2008; Covin & Slevin, 1989; Knight, 1997; Kreiser et al., 2002; Naman & Slevin, 1993; Yang, 2008). Based on the psychometric properties and its propensity to predict performance, EO quickly became the predominant construct used in entrepreneurship research, and is an accepted construct to measure an organization's entrepreneurial orientation (e.g., Miller, 1983; Covin & Slevin, 1989; Lumpkin & Dess, 1996; Poon et al., 2006; Richard et al., 2004).

There have been several attempts to improve upon the scale (See Wales, 2016). For instance, Lumpkin and Dess (1996) asserted that EO could be viewed as a multidimensional construct with each characteristic acting individually as well as in combinations. Along these same lines, several earlier researchers conceptualized EO as being comprised of only two components (Merz & Sauber, 1995; Knight, 1997; Avlonitis & Salavou, 2007). Lumpkin and Dess (1996) added competitive aggressiveness, and autonomy to the original Miller dimensions.

Anderson and his colleagues (2015) claimed that ontological assumptions and measurement inconsistencies have limited the development of EO's nomological network and questioned whether the EO scale is of behavioral, attitudinal, philosophical, or dispositional characteristic.

They argue that since they do not share similar antecedents that encourage behavior they are causally related to attitude leading to a Type II nomological error. Hence, they offer a reconceptualization of EO which they define as a second-order, firm-level construct comprised of two lower-order dimensions: entrepreneurial behaviors (encompassing innovativeness and proactiveness), and managerial attitude towards risk taking, which are functionally distinct and are predicted by different antecedents.

Other suggestions include refocusing research attention on specific entrepreneurial behaviors (Bird, Schjoedt, & Baum, 2012; De Jong, Parker, Wennekers, & Wu, 2011), attitudes (Harris et al., 2008; Robinson, Stimpson, Huefner, & Hunt, 1991), and cognition (Huefner, Hunt, & Robinson, 1996). Attempts have also been made to improve the measurement of the three central constructs: risk-taking, proactiveness, and innovativeness. For example, Keil, Maula, and Syrigos (2015) used a content analysis procedure with a word list that reflected the three constructs. In 2011, Miller reviewed his seminal paper and suggested that attempts should be made to develop “alternative operationalization’s of the EO construct” in order to step away from the “tendency to adhere to the same measures of EO year after year, based on instruments that were developed decades ago” (p. 879). Miller further suggested that it is important to connect EO to current theories in strategy (p.13), and work on neglected paths (p.16). Miller’s call was quickly answered.

A second sphere of contentious activity characterizes entrepreneurial orientation at the individual level (IEO). Slevin and Terjesen (2011) strongly suggest that the EO components should not be construed as an individual construct saying such use is problematic. While they do not clearly enunciate their concern, they further suggest that entrepreneurial awareness, self-efficacy, and effectuation are more appropriate measures at the individual level. Thus, initially this concept was resisted but currently receives increased conceptual attention (Joardar & Wu, 2011; Kolman, Christofor, & Kuckertz, 2007; Kuratko et al., 2005; Lau, Schaffer, & Au, 2007, Lumpkin & Erdogan, 2004; Poon, Ainuddin, & Junit, 2006; Shane & Venkataraman, 2000). Although IEO is considered an under researched area, empirical attention is rising (Bolton & Lane, 2012; Huang & Wang, 2011; Joardar & Wu, 2011; Krueger, 2005; Lumpkin & Erdogan, 2004; Marino et. al., 2002; Monsen & Boss, 2004; Shane & Venkataraman, 2000; Quince & Whittaker, 2003).

We argue, as do Poon et al. (2006), Baum and Locke (2004), Markman and Baron (2003), and Rauch and Frese (2007) that the entrepreneurial business setting is enacted by, and resembles the personal inclinations of founder/owners or members of the top management team (TMT). In entrepreneur led small firms, as well as schools and nonprofits, the behaviors of the organization and that of the entrepreneur are likely to be the same. Therefore, the EO may not be the appropriate measure of individual orientation. A new scale was preferred to meet this unmet need.

The Aim of the Study

The purpose of this study was to describe the dispositions of individuals with a proclivity for entrepreneurial behavior and then investigate the psychometric properties of a scale to measure those dispositions. We are aware that entrepreneurial behavior at the organizational level is affected by group dynamics and is much more than just the sum of the individual inclinations. Good science starts with good definitions (Bygrave & Hofer, 1991). At the organization level, good definitions exist and validated instruments have been developed to foster research activity.

At the individual level, the lack of a reliable scale for identifying individual entrepreneurial dispositions hinders theoretical and empirical process in identifying individuals with entrepreneurial proclivity (Thompson 2009).

Theoretical Considerations

An attempt to identify individual entrepreneurial orientation is found in the work of Kollman, Christofor and Kuckertz (2007), and Bolton and Lane (2012) who simply transformed the original entrepreneurial orientation constructs directly to entrepreneurs, members of the TMT, non-managers, and students. While proponents of this stream identify it with the term Individual Entrepreneurial Orientation (IEO), they in fact are using the Miller, Colvin, Slevin, Lumpkin, and Dess firm level dimensions of risk taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy to measure individual entrepreneurial dispositions.

As IEO research activity increased, so have concerns. Even though reasonable arguments can be made to transfer the EO measures to the individual level, as Bolton and Lane (2012), and Kollman et al. (2007) suggest, concerns remain about applying a theoretical construct to a field for which it was not originally designed, unless it is properly measured and managed (Covin & Wales, 2012). In this regard, several issues have been raised in the literature regarding the Bolton and Lane scale in particular. A major concern was the lack of a confirmatory factor analysis which could aid in the description of the scale's nomological network. Similarly, George and Marino (2011) assert that our ability to build on previous work and create a body of comparable research findings demands that our conceptualizations and definitions maintain an element of consistency. Furthermore, despite proposing that individual entrepreneurial orientation has the same dimensions as firm-level EO, even Joardar and Wu (2011) question the validity of using a firm-level scale to measure an individual construct, citing the need for the development of "an independent construct of IEO and scale to measure it at this level" (p. 337).

We chose to base our scale on dispositions for several reasons. We define disposition as the inclination of a person to act or think in a certain way. It equates with Stewart, Carland, Carland, Watson, and Sweo's (2003) notion of entrepreneurial proclivity to act entrepreneurially. Proclivity does not necessarily equate with entrepreneurial action but it gives clues to those who lean toward entrepreneurial action and therefore can distinguish from those who do not have such inclinations. This proclivity towards action differs from attitudes which leads to a settled way of thinking or feeling about someone or something (Attitude, 2016).

There are strong clues in the extant literature of the predispositions that lead one to think and act entrepreneurially. The research points to self-efficacy (Ajzen, 1991; Bandura, 1997; Markman, Balkin, & Baron, 2002), cognition (Baron, 1998; Busenitz & Barney, 1997; Grégoire, Corbett, & McMullen, 2011; Jelenc & Pisapia, 2015), innovativeness, and autonomy (Ajzen, 1991; Lumpkin & Dess, 1996; Lumpkin, Cogliser, & Schneider, 2009) as strong predictors of entrepreneurial work. In regards to locus of control (Mueller & Thomas, 2001), and risk perceptions (Busenitz & Barney, 1997; Caird, 1991; Douglas & Shepherd, 2000; Palich & Bagby, 1995), results are more nuanced. These findings led us to identify four dispositions that we believe lead to entrepreneurial activity: risk-taking, proactiveness, innovativeness, and autonomy. They are further described in Table 1 which follows.

[Table 1 about here]

Table 1
The Dimensions of the Entrepreneurial Dispositions Scale

Theories	Dispositions	Definition
Locus of Control Effectuation/ Awareness	Risk Taking	Entrepreneurial risk taking is a predisposition to take action in pursuit of an opportunity where decision costs outweigh benefits and might have undesirable consequences and/or uncertain outcome.
Self Efficacy	Proactiveness	Entrepreneurial proactiveness is a predisposition to anticipate and acting in advance of future demand by seizing opportunities, shaping the environment, launching new products or services, and outmaneuvering rivals.
Cognition Awareness/Effectuation	Innovativeness	Entrepreneurial innovativeness is a predisposition to suspend beliefs in order to try new things; exploring new avenues; and pursue creative novel solutions to challenges.
Locus of Control Self Efficacy	Autonomy	Entrepreneurial autonomy is a predisposition to act without prior approval or direction.

Methods and Results

First we defined our constructs from our review of the extant literature as seen in Table 1. Then, we reviewed items from the Entrepreneurial Attitude Orientation scale (EAO), and the previously mentioned EO, and IEO for measures of entrepreneurial dispositions that met our definition. We ended with a parsimonious scale of 14 items which met our goals to reduce respondent fatigue and the unique attention spans of the target population. The items were arrayed across a five point Likert-type scale. We proceeded in two steps to validate the EDS. The first attempt at validation was made by using a combined sample of 218 entrepreneurs from the United States and Croatia who completed the EDS 14-item instrument. The test resulted in a three factor solution of risk-taking, proactiveness, and innovation. Autonomy failed to maintain factorial integrity. Confirmatory factor analysis procedures were then applied using structural equation modeling (SEM) with AMOS software. These tests yielded a significant, chi-square statistic that required us to reject the null hypothesis for good fit of the model. In terms of descriptive fit indices, the comparative fit index (CFI=.915) fell below the .95 standard. The model had a root mean square error of approximation (RMSEA=.078) falling between Browne and Cudeck's (1993) good (.05) and adequate (.08) range resulting in a less than adequate fit.

The second attempt to confirm the EDS was undertaken with different data gathered from a study of the relationship of the entrepreneurial dispositions of 60 school principals to confirm the previously derived factor structure. For this study the EDS was subjected to confirmatory factor analysis to determine its reliability and validity. Each principal's self-reported rating of each of the 14 items generated summed ratings for risk-taking, proactiveness, and innovativeness as well as an aggregate score representing the principal's overall entrepreneurial orientation. Autonomy again failed to maintain factorial integrity and was not considered further as a part of the EDS.

The analysis of this data set proceeded in two parts. First an exploratory factor analysis was conducted a priori to allow us to determine the factors and associated variables. Principal axis factor analysis (PAF) was used to extract the common factors in the EDS, with communalities estimated by iteration from initial squared multiple correlations. Factors were retained with eigenvalues greater than 1.0. An Oblimin rotation was selected because it allows the factors to correlate and entrepreneurial orientation anticipates some correlation among subscales.

The exploratory factor analysis revealed a three factor solution as seen in Table 2. The results supported construct validity of three EDS subscales: risk taking (2 items), proactiveness (3 items), and innovativeness (3 items). Thus, six of the original fourteen items, one for risk taking, one for innovativeness, and four for autonomy did not load properly and were removed from the instrument. Each of the item sum scales resulted in high Cronbach α – risk taking (.827), innovativeness (.791), and proactiveness (.869) thus demonstrating strong internal reliability for the resulting 8-item instrument. The items remaining in the scale are presented in Table 2.

Table 2

Pattern matrix from the principal axis factor analysis with direct Oblimin rotation for Modified IEO

ITEM	1 Risk Taking	2 Proactiveness	3 Innovativeness
... take bold action . . .	-.926	-	-
...act “boldly”	-.709	-	-
...anticipate future problems, needs, or changes.		-.872	-
...plan ahead on projects.	.101	-.818	.109
... get things going ... rather than sit and wait....	-	-.778	.124
... unique, one-of-a-kind approaches...	-	-	1.04
... try my own unique way when learning new things. . .	-	-	.613
...favor experimentation and original approaches to problem solving...	-	-	.573
% of Variance Explained – (Scale = 78.2)	10.2	18.6	49.4
Reliability	.827	.869	.791

Extraction Method Principal Axis Factoring. Oblimin with Kaiser Normalization Rotation Converged in 6 iterations. Values less than .10 were suppressed.

A confirmatory factor analysis (CFA) was then used to validate our proposed factor model and to test emergent factor solutions from the exploratory factor analysis and to find a best fit model. Confirmatory factor analysis was conducted using SPSS Amos software. As seen in Table 3, the χ^2 value of 9.102 was not significant, leading the researchers to accept the null hypothesis for good fit. Based on Hu and Bentler’s (1999) acceptable model fit indices: Comparative Fit Index (CFI) >.95, Root Mean Square Error of Approximation (RMSEA) <.10, Good Fit Index (CFI) >.90, we concluded that the model demonstrated a good fit to the data.

Table 3

Confirmatory Factor Analysis: Construct Validity Test of Entrepreneurial Dispositions

Model	χ^2	df	GFI	CFI	RMSEA
	9.102	17	.963	1.000	<.001

χ^2 is not statistically significant at 0.05. df=degrees of freedom, GFI=goodness of fit index, CFI=comparative fit index, RMSEA=root mean square error of approximation.

The path analysis resulting from Structural Equation Modeling (SEM) confirmed the factor structure and it is presented in Figure 1. The paths from latents to variables are all strong and uniform. Further, the paths between latents represented by the scale are not large, demonstrating that each of the dimensions is relatively distinct, thus supporting construct validity.

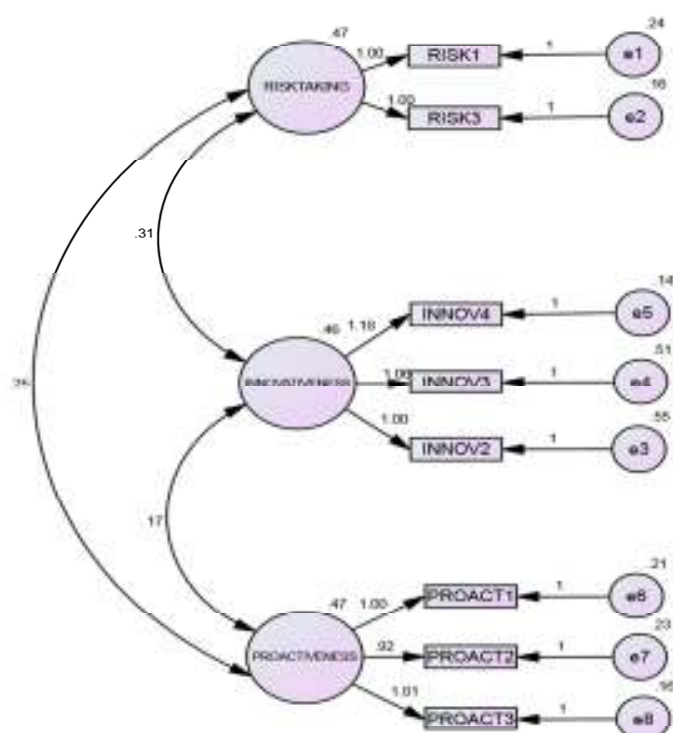


Figure 1. Results of Structural Equation Modeling (SEM): A Simple Framework of Entrepreneurial Dispositions (Model Fit)

Discussion

The importance of entrepreneurship to a society cannot be overemphasized. Creation of new startups which provide economic and social value increases the overall standard of living for the entrepreneur and the society. Thus, developing and validating instruments to assess one's disposition for entrepreneurial work is important since those results may be improved through policy, education, and training. The results are also important because they reinforce and extend prior studies by assessing the reliability, dimensionality, and validity of a new Entrepreneurial Dispositions Scale.

This study provides initial evidence of the validity and reliability of a scale designed to assess individual entrepreneurial dispositions. The exploratory factor analysis produced an eight item three factor solution of risk-taking, innovativeness, and proactiveness. The confirmatory factor analysis and the structural equation modeling provided further support by developing and describing the evolving nomological network, and demonstrating satisfactory construct validity for the instrument. The paths from latents to variables are all strong and uniform. Further, the paths between latents represented by the scale are not large, demonstrating that each of the dimensions is relatively distinct, thus supporting construct validity. Additionally, the internal reliabilities demonstrate satisfactory instrument reliability. Thus, we conclude that the EDS tested through this study is a valid scale that can be used in studies of the relationships of individual dispositions, entrepreneurial behavior and firm performance.

The failure of autonomy to factor out in our tests requires attention. Autonomy, which we defined as the predisposition to act without prior approval or direction, is subject to contextual factors that limit one's decision rights regarding what work is done, when it is done, and/or how it is done. In a sense, it is the extent to which individuals and teams are allowed to "disengage from organizational constraints" (Lumpkin & Dess, 1996, p. 140). Thus in the case of the school principals sample it's understandable that autonomy did not factor out considering the environmental constraints this population works under. Yet, the same result was achieved with the sample of 218 entrepreneurs from the United States and Croatia. Clearly autonomy is a vital aspect of entrepreneurial success as the extant research (Kets de Vries, 1996; Lumpkin, Cogliser, & Schneider, 2009) suggests. Our results do not support it as a predisposition and leads us to conceive of autonomy in future studies as an antecedent or moderator of entrepreneurial dispositions and the linkages to entrepreneurial behavior.

While these results are promising there are some limitations that may affect the generalizability of the results. While the sample for the first study was comprised of entrepreneurs, the confirmatory analysis was conducted on school principals. Although they are capable of working entrepreneurially, limitations within their context mitigate the use of their entrepreneurial dispositions. This study also relies on self-report data which have been shown to be troublesome. We assumed that the responses were truthful and have no indication that they were not. To reinforce this feeling we suggest further testing with entrepreneurs or organizations who enjoy varying degrees of autonomy.

Even with these limitation, the EDS is an important tool to conduct studies attempting to link dispositions and entrepreneurial outcomes. It is an equally important tool that aspiring entrepreneurs can use to understand and then shape their entrepreneurial proclivity. Using the EDS as a self-assessment combined with direct contact and comparison with a live entrepreneur,

enables aspiring entrepreneurs to understand and then develop the necessary dispositions that will make them successful.

Conclusion

Our purpose was to describe the dispositions of individuals with a proclivity for entrepreneurial behavior and then investigate the psychometric properties of a scale to measure those dispositions. We sought and achieved definitional clarification to guide future inquiry into the dimensionality of the instrument. Additionally, the present research serves to address concerns regarding the adoption of the EO to the individual level without examining its underlying nomological network and psychometric properties (Zahra, et al., 1999) and provides an additional tool to investigate the causal nature of entrepreneurial dispositions, entrepreneurial orientation, and entrepreneurial outcomes.

The results support the concept that entrepreneurs, not just organizations, have entrepreneurial orientations that can be used in selection, training, and development since they are couched as dispositions. We have provided a refined definition of entrepreneurial dispositions at the individual level in the EO context. Future studies should examine whether all the dispositions are theoretically important. Are they too narrowly defined? Would EDS benefit from additional dispositions added to the scale to address certain types of opportunities. Scale improvement should also focus on increasing the number of validated items for each subscale to at least five items to give greater face validity even though the reliabilities achieved with the current items were more than sufficient. Finally, further research is also needed to discover the impact of one disposition or the other on entrepreneurial orientation and outcomes.

References

- Ajzen, I. (1991). Theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.
- Anderson, B., Kreiser, P., Kuratko, D., Hornsby, J., & Eshima, Y. (2015). Reconceptualizing entrepreneurial orientation. *Strategic Management Journal*, 36: 1579–1596.
- Attitude. 2016. In Merriam-Webster.com. Retrieved April 15, 2016, from <http://www.merriam-webster.com/dictionary/attitude>
- Avlonitis, G. & Salavou, H. (2007). Entrepreneurial orientation of SMEs, product innovativeness, and performance. *Journal of Business Research*, 60, 566–575.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Baron, R. (1998). Cognitive mechanisms in entrepreneurship: Why and when entrepreneurs think differently than other people. *Journal of Business Venturing*, 13(4), 275-294.
- Baron, R. (2000). Psychological perspectives on entrepreneurship: Cognitive and social factors in entrepreneur's success. *Current Directions in Psychological Science*, 9 (1), 15-18.
- Baron, R. M. & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.

- Baum, R. & Locke, E. (2004), The Relationship of Entrepreneurial Traits, Skill, and Motivation to Subsequent Venture Growth. *Journal of Applied Psychology*, 89(4), 587-598.
- Bird, B., Schjoedt, L. and Baum, J. (2012), Editor's Introduction. Entrepreneurs' Behavior: Elucidation and Measurement. *Entrepreneurship: Theory and Practice*, 36: 889–913.
- Bolton, D. & Lane, M (2012). Individual entrepreneurial orientation: development of a measurement instrument. *Education + Training*, 54(2/3), 219 – 233.
- Bolton, D. (2012). Individual entrepreneurial orientation: Further investigation of a measurement instrument. *Academy of Entrepreneurship Journal*, 18 (1), 91-98.
- Browne, M. & Cudeck, R. (1993). Alternative ways of assessing model fit. In Bollen, K. & Long, J. (Eds.) *Testing Structural Equation Models*, pp. 136–162. Beverly Hills, CA: Sage.
- Busenitz, L.W., & Barney, J.B. 1997. Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making. *Journal of Business Venturing*, 12: 9–30.
- Bygrave, W., & Hofer, C. (1991). Theorizing about entrepreneurship. *Entrepreneurship Theory and Practice*, 16 (2), 13-22.
- Caird, S. (1991). Testing Enterprising Tendency in Occupational Groups. *British Journal of Management*, 2(4), 177-187.
- Chadwick, K., Barnett, T., & Dwyer, S. (2008). An empirical analysis of the entrepreneurial orientation scale. *Journal of Applied Management and Entrepreneurship*, 13(4), 64-85.
- Covin, J. G. and Wales, W. J. (2012). The Measurement of Entrepreneurial Orientation. *Entrepreneurship: Theory and Practice*, 36, 677–702.
- Covin, J., & Slevin, D. (1986). The development and testing of an organization-level entrepreneurship scale. In R. Ronstadt, J.A. Hornaday, R. Peterson, and K. Vesper (Eds.), *Frontiers of Entrepreneurship Research*, pp. 628-639. Wellesley, MA: Babson College.
- Covin, J., & Slevin, D. (1988). The influence of organization structure on the utility of an entrepreneurial top management style. *Journal of Management Studies*, 25 (3), 217-234.
- Covin, J., & Slevin, D. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10, 75-87.
- Covin, J., & Slevin, D. (1991). A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship: Theory and Practice*, 16 (1), 7-25.
- De Jong, J., Parker, S., Wennekers, S. & Wu, C. (2011). *Corporate Entrepreneurship at the individual Level: Measurement and Determinants*. (Working Paper). Scientific Analysis of Entrepreneurship and SMEs. Erasmus University & EIM Business and Policy Research
- Douglas, E., Fitzsimmons, J. (2005), “Entrepreneurial Intentions towards Individual vs. Corporate Entrepreneurship”, Paper presented at the SEAANZ 2005 Conference, Armidale, N.S.W., September 2005.
- Douglas, E., & Shepherd, D. (2000). Entrepreneurship as a utility maximizing response. *Journal of Business Venturing*, 15(3), 231-251

- George, B., & Marino, L. (2011). The Epistemology of Entrepreneurial Orientation: Conceptual Formation, Modeling, and Operationalization. *Entrepreneurship: Theory & Practice*, 35(5), 989-1024.
- Grégoire, D., Corbett, A., & McMullen, J. (2011). The cognitive perspective in entrepreneurship: An agenda for future research. *Journal of Management Studies*, 48(6), 1443-1477.
- Harris, M. & Gibson, S. (2008). Examining the entrepreneurial attitudes of U.S. business students. *Education + Training*, 50(7), 568-581.
- Hu, L. & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55.
- Huang, S., & Wang, Y. (2011). Entrepreneurial orientation, learning orientation, and innovation in small and medium enterprises. *Procedia Social and Behavioral Sciences*, 24, 563-570.
- Huefner, J., Hunt, H., & Robinson, P. (1996). A comparison of four scales predicting entrepreneurship. *Academy of Entrepreneurship Journal*, 1, 56-80.
- Jantunen, A., Puumalainen, K., Saarenketo, S., & Kylaheiko, K. (2005). Entrepreneurial orientation, dynamic capabilities and international performance. *Journal of International Entrepreneurship*, 3(3), 223-243
- Jelenc, L., & Pisapia, J. (2015). Individual Entrepreneurial Behavior in Croatian IT Firms: The Contribution of Strategic Thinking Skills. *Journal of Information and Organizational Sciences*, 39(2), 163-182.
- Joardar, A., & Wu, S. (2011). Examining the dual forces of individual entrepreneurial orientation and liability of foreignness on international entrepreneurs. *Canadian Journal of Administrative Sciences*, 28 (3), 328-340.
- Keil, T., Maula, M. & Syrigos, E. (2015). CEO Entrepreneurial orientation, entrenchment, and firm value creation. *Entrepreneurship: Theory and Practice*, 1042-2587
- Knight, G. (1997). Cross-cultural reliability and validity of a scale to measure firm entrepreneurial orientation. *Journal of Business Venturing*, 12 (3), 213-225.
- Kollman, T., Christofor, J., & Kuckertz, A. (2007). Explaining individual entrepreneurial orientation: conceptualization of a cross-cultural research framework. *International Journal of Entrepreneurship and Small Business*, 4 (3), 325-340.
- Kreiser, P.M., Marino, L.D., & Weaver, K.M. (2002). Assessing the psychometric properties of the entrepreneurial orientation. *Entrepreneurship: Theory and Practice*, 26 (4), 71-95.
- Krueger, N. (2005). *Identifying growth opportunities: Testing a personal 'entrepreneurial orientation.'* *Entrepreneurship in a Diverse World*, 7pp.
- Kuratko, D., Ireland, D., Covin, J. and Hornsby, J. (2005). A model of middle-level managers' entrepreneurial behavior. *Entrepreneurship: Theory and Practice*, 13 (4), 62-72.
- Lau, V., Shaffer, M., & Au, K. (2007). Entrepreneurial career success from a Chinese perspective: conceptualization, operationalization, and validation. *Journal of International Business Studies*, 38 (1), 126-146.
- Lumpkin, G., & Dess, G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *The Academy of Management Review*, 21 (1), 135-172.

- Lumpkin, G., & Erdogan, B. (2004). If not entrepreneurship, can psychological characteristics predict entrepreneurial orientation? – A pilot study. *The ICFAI Journal of Entrepreneurship Development*, 1, 21-33.
- Lumpkin, G., Coglisier C. & Schneider, D. (2009). Understanding and measuring autonomy: An entrepreneurial orientation perspective. *Entrepreneurship Theory and Practice*, January: 47-69
- Markman, G. & Baron, R. (2003). Person-entrepreneurship fit: Why some people are more successful as entrepreneurs than others. *Human Resource Management Review*, 13(4): 1-21.
- Markman, G., Balkin, D., & Baron R. (2002). Inventors and new venture formation: The effects of general self-efficacy and regretful thinking. *Entrepreneurship Theory & Practice*, Winter, 149-165.
- Marino, L., Strandholm, K., Steensma, H., & Weaver, K. (2002). The moderating effect of national culture on the relationship between entrepreneurial orientation and strategic alliance portfolio extensiveness. *Entrepreneurship: Theory and Practice*, 26(4), 145-160.
- Merz, G. and Sauber, M. (1995), Profiles of managerial activities in small firms. *Strategic Management Journal*, 16: 551–564.
- Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science*, 29 (7), 770-791.
- Miller, D. (2011). Miller (1983) revisited: A reflection on EO research and some suggestions for the future. *Entrepreneurship: Theory and Practice*, 35(5), 873–894.
- Monsen, E. & Boss, R. (2004). *Mapping the differential impact of entrepreneurial orientation on performance in a healthcare organization*. Paper presented at the Babson-Kauffman Entrepreneurship Research Conference, University of Strathclyde, Glasgow, Scotland
- Muller, S. & Thomas, A. (2000). Entrepreneurial potential: A nine country study of locus of control and innovativeness. *Journal of Business Venturing* **16**, 51–75
- Naman, J., & Slevin, D. (1993). Entrepreneurship and the concept of fit: A model and empirical tests. *Strategic Management Journal*, 14 (1), 137-153.
- Palich, L., & Bagby, D. (1995). Using cognitive theory to explain entrepreneurial risk-taking: Challenging conventional wisdom. *Journal of Business Venturing*, 10(6), 425-438.
- Poon, J., Ainuddin, R., & Junit, S. (2006). Effects of self-concept traits and entrepreneurial orientation on firm performance. *International Small Business Journal*, 24 (1), 61-82.
- Quince, T. & Whittaker, H. (2003). *Entrepreneurial orientation and entrepreneurs' intentions and objectives. A CBR research program 3 on small and medium-sized enterprises*, Working Paper No. 271, ESRC Centre for Business Research, University of Cambridge.
- Rauch, A. & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology*, 16(4), 353-385.

- Rauch, A., Wiklund, J., Lumpkin, G., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship: Theory and Practice*, 33 (3), 761-787.
- Richard, O., Barnett, T., Dwyer, S., & Chadwick, K. (2004). Cultural diversity in management, firm performance, and the moderating role of entrepreneurial orientation dimensions. *Academy of Management Journal*, 47, 255–266.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *The Academy of Management Review*, 25 (1), 217-228.
- Sharma, A., & Dave, S. (2011). Entrepreneurial orientation: Performance Level. *SCMS Journal of Indian Management*, 43-53.
- Slevin, D. & Terjesen, S. (2011). Entrepreneurial orientation: Reviewing three papers and implications for further theoretical and methodological development. *Entrepreneurship: Theory and Practice*, 35(5), 973–987.
- Stewart Jr, W., Carland, J., Carland, J., Watson, W., & Sweo, R. (2003). Entrepreneurial dispositions and goal orientations. A comparative exploration of United States and Russian entrepreneurs. *Journal of Small Business Management*, 41(4): 27-46.
- Thompson, E. (2009). Individual entrepreneurial intent: Construct clarification and development of an internationally reliable metric. *Entrepreneurship Theory & Practice*, 33(3), 669-94.
- Wales, W. (2016). Entrepreneurial orientation: A review and synthesis of promising research directions. *International Small Business Journal*, 34(1), 3-15.
- Wiklund, J. (1998). Entrepreneurial orientation as predictor of performance and entrepreneurial behavior in small firms. In P. Reynolds, W. Bygrave, N. Carter, S. Manigart, C. Mason, G. Meyer, & K. Shaver (Eds.), *Frontiers of entrepreneurship research* (pp. 281-296). Babson Park, MS: Babson College
- Wiklund, J. (1999). The sustainability of the entrepreneurial orientation-performance relationship. *Entrepreneurship: Theory and Practice*, 24 (1), 37-51.
- Yang, C. (2008). The relationships among leadership styles, entrepreneurial orientation, and business performance. *Managing Global Transitions*, 6 (3), 257-275.
- Zahra, S., & Covin, J. (1995). Contextual influences on the corporate entrepreneurship-performance relationship. *Journal of Business Venturing*, 10 (1), 43-58.
- Zahra, S. Jennings, D. & Kuratko, D. (1999). The antecedents and consequences of firm-level entrepreneurship: The state of the field. *Entrepreneurship: Theory and Practice*, 24, 45-65.