

Measuring entrepreneurship – a collection of valid scales

Part of the success of entrepreneurship research is its widespread use of empirical approaches to illustrate and understand entrepreneurial phenomena. In this regard, our understanding of statistical methods and applied rigour has increased every year. An important part of rigorous empirical research should be the use of valid and reliable measurement instruments that are grounded in a reasonable theoretical base. Reviewing the literature reveals that approximately half of all published entrepreneurship research relies on collecting primary data and again half of this primary data research collects data by utilising surveys (McDonald *et al.*, 2015). That is, a substantial part of entrepreneurship research needs valid and reliable multi-item measurement scales. However, measurement instruments employed in surveys are far too often conceptualised on an ad hoc basis and frequently lack a solid theoretical grounding, thus inhibiting further theory building and replication. The academic discussion of entrepreneurial phenomena therefore fails to tap its full potential. There is consequently a need to develop more reliable and valid scales that can serve the community of entrepreneurship scholars seeking to produce rigorous and relevant research.

This special section of the *International Journal of Entrepreneurial Behaviour & Research* was conceptualised with the explicit goal of helping to address this problematic status quo. Readers will learn that the process of scale development can be a tiresome and very laborious process involving many iterations before a final, valid and reliable measure becomes available. Measurement instruments need to be theoretically grounded, conceptualised, refined, tested and retested in alternative settings (sometimes even across different cultures), which, in many cases, involves several rounds of data collection with an uncertain outcome. For this reason, I am extremely grateful to the colleagues who responded to my call and who have accepted my challenge by submitting their work to this special section. My thanks also extend to everyone who has reviewed submissions for this special section and contributed their ideas, insights and experience to develop the original manuscripts. Equally, I am much obliged to the Editor-in Chief of the *International Journal of Entrepreneurial Behaviour & Research*, Paul Jones, who was extremely receptive to my ideas regarding this special section and sensed the gap in the literature right away.

The special section contains five papers presenting newly developed, rigorously tested measurement instruments which I am confident will inspire much future research. In line with the mission of the *International Journal of Entrepreneurial Behaviour & Research*, the section focusses on the human side (as opposed to the organisational side) of entrepreneurship and presents measures that are primarily targeted at the individual level of analysis, but that can nonetheless be utilised in a plethora of different settings, such as nascent entrepreneurship or corporate entrepreneurship.

Valliere (2017) leads the special section with an account of the development of a new instrument measuring entrepreneurial intent. Based on the observation that intent is quite often confused with related but distinct concepts such as attitudes or beliefs, the paper sets out to theoretically clarify the concept and to make an appropriate measurement instrument available. Valliere argues for a two-dimensional structure of entrepreneurial intent, with one dimension targeting the intent to discover entrepreneurial problems and the second dimension targeting the intent to identify entrepreneurial solutions. The measurement scales are tested on a large sample and prove reliable in eight different countries.

Following this, Kuckertz *et al.* (2017) in a similar way to Valliere disentangle another prominent concept in entrepreneurship research: the concept of opportunity. Despite its



prominence, available measures in this stream of research quite often lack a clear specification of their content domain, confuse perception and behaviour, and even reduce complex constructs to single-item measures. Consequently, Kuckertz and colleagues provide clear definitions of two central constructs related to opportunity, namely, opportunity recognition and opportunity exploitation. For both constructs they establish – with the help of a number of different samples from different entrepreneurial contexts – reliability, and construct, discriminant, and nomological validity.

Next, Schjoedt and Craig (2017) turn their attention to another important, individual level concept in entrepreneurship research, self-efficacy. Given the uncertainties and ambiguities of any entrepreneurial process, the psychological concept of self-efficacy, that is, the degree to which an individual believes in their ability to accomplish certain goals, is extremely interesting. What has been missing until now is, however, a specific measurement instrument for self-efficacy tailored to entrepreneurial settings. Schjoedt and Craig present such a measure that is grounded in an analysis of secondary data taken from two waves of the Panel Study of Entrepreneurial Dynamics. Ultimately, they arrive at a reliable, unidimensional scale that is useful to assess a person's belief that they can create a new business successfully, thereby making a broad psychological concept useful especially for researchers interested in nascent entrepreneurial phenomena.

One concept that has attracted increasing attention in the entrepreneurship literature is the concept of bricolage, and this is explored by Davidsson *et al.* (2017). Entrepreneurial bricolage means “making do by applying combinations of the resources at hand to new problems and opportunities” (Baker and Nelson, 2005, p. 333) and is thus a concept with great explanatory power especially in resources-restricted entrepreneurial settings. The suggested measurement instrument solves the problems generally associated with attempts in the literature to operationalise the concept. Utilising a total of eight different samples, Davidsson and colleagues are able to establish the content, discriminant and nomological validity of their scale, alongside its reliability and internal consistency. The present scale is thus a helpful tool to be used in a rising research field that has so far been dominated by ad hoc and unreproducible operationalisations.

The section closes with a piece by Lukeš and Stephan (2017) who focus on the individual level of analysis in the corporate setting. Established corporations have for quite some time been interested in fostering entrepreneurial behaviour among their employees (intrapreneurship). This intrapreneurial behaviour is closely related to innovation and existing measures tend to focus only on partial aspects of the phenomenon, while at the same time being rather long which reduces their applicability and practicality in many research contexts. The measurement scales suggested by Lukeš and Stephan operationalise innovative behaviour and innovation support in the intrapreneurial context, and satisfy the criterion of capturing the phenomenon in a concise but nuanced way. The scales were validated with four different studies over a number of different countries, confirming their applicability and usefulness for both researchers conducting theory-driven research and practitioners assessing their respective organisations.

Taken together, the papers in the special section illustrate that there is no standard, one-size-fits-all approach to creating a convincing measurement instrument. What they have in common, however, is that one obviously has to go to great lengths to establish the numerous forms of reliability and validity – conceptualising a scale on an ad hoc basis seems only superficially efficient, but is actually potentially detrimental to the success of any research project. The suggested measurement scales in this section are consequently useful tools to help researchers interested in the respective topic domains to conduct rigorous and credible entrepreneurship research.

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