



Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes

Bruce C. Martin ^{a,b,*}, Jeffrey J. McNally ^{a,c}, Michael J. Kay ^d

^a DeGroote School of Business, McMaster University, Canada

^b School of Business, University College Dublin, Ireland

^c Faculty of Business Administration, University of New Brunswick, Canada

^d School of Business and Economics, Wilfrid Laurier University, Canada

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ABSTRACT

Effective human capital formation through the medium of entrepreneurship education and training (EET) is of increasing concern for governments, as EET is growing rapidly across the world. Unfortunately, there is a lack of consistent evidence showing that EET helps to create more or better entrepreneurs. We undertake the first quantitative review of the literature and, in the context of human capital theory, find that there is indeed support for the value of EET. Based on 42 independent samples ($N = 16,657$), we find a significant relationship between EET and entrepreneurship-related human capital assets ($r_w = .217$) and entrepreneurship outcomes ($r_w = .159$). The relationship between EET and entrepreneurship outcomes is stronger for academic-focused EET interventions ($r_w = .238$) than for training-focused EET interventions ($r_w = .151$). We find evidence of heterogeneity in many of our correlations, and recommend that future studies examine potential moderators to more clearly delineate EET effect sizes. We also find a number of methodological weaknesses among the studies analyzed and that those studies with lower methodological rigor are overstating the effect of EET. Recommendations to improve the quality of future work in the field are provided.

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1. Executive summary

Entrepreneurship education and training (EET) is growing rapidly in universities and colleges throughout the world, and governments are supporting it both directly and through funding major investments in advice-provision to would-be entrepreneurs and existing small businesses. Unfortunately, there is little evidence to show that EET helps to create more or better entrepreneurs. Studies in the extant literature have demonstrated both positive and negative outcomes of EET, and qualitative reviews have not adequately addressed these equivocal results. In this paper, we present the first quantitative review of the literature and find that there is indeed support for the value of EET.

Our paper is grounded primarily in human capital theory, which predicts that individuals or groups who possess greater levels of knowledge, skills, and other competencies will achieve greater performance outcomes. Entrepreneurship researchers have studied the relationship between human capital and entrepreneurial outcomes at various levels of analysis and results have been generally supportive of the theory. However, there are gaps in the literature. First, recent work in the field points to a need to investigate the links between entrepreneurship-specific education and both the human capital assets it creates and the entrepreneurial outcomes to which it purportedly leads. Second, most conceptualizations of the relationship between human capital and its outcomes have been static in nature, but recent research suggests there may be value in investigating the dynamics of human capital.

* Corresponding author: School of Business, University College Dublin, Ireland.

E-mail address: bruce.martin@ucd.ie (B.C. Martin).

We addressed these gaps by conducting the first meta-analytic review of the outcomes of EET. A major advantage of conducting a meta-analysis over a narrative review is that it controls for sampling error. Sampling error is random and non-systematic, and, as such, under- and overestimations of population values are equally likely. Our search for primary data included searches of electronic databases in the areas of general business and management education, searching references from published articles, requesting both published and unpublished manuscripts on a variety of electronic listservs, and other methods. The search for primary data yielded a final total of 42 independent studies ($N=16,657$).

Our results indicated a significant positive relationship between EET and entrepreneurship-related human capital assets ($r_w=.217$) and entrepreneurial performance ($r_w=.159$). Moderator analyses indicated that the relationship between EET and entrepreneurship outcomes was stronger for academic-focused EET interventions ($r_w=.238$) than for training-focused EET interventions ($r_w=.151$).

Our results have two important practical implications. First, the positive relationships between EET and both entrepreneurship-related human capital assets and entrepreneurship outcomes should represent good news for governments, universities and colleges, and private organizations that have invested heavily in the development of EET programs over the past several decades. Although more and higher quality data are needed to make strong claims, our findings suggest that those resources are having some positive impact in increasing interest and attitudes toward entrepreneurship among students who attend such courses, and in improving their financial performance as entrepreneurs. Thus public policy and education decision-makers can have more confidence when making future funding decisions related to entrepreneurship-related education and training. Second, our findings on the relative strengths of the two main types of EET – training-focused versus academic-focused – suggests that training-focused programs may benefit from the introduction of more conceptual material, which may help students achieve financial success and maintain a business over an extended period of time.

We found indications of homogeneity in the correlations for academic-focused EET and for training-focused EET, suggesting that it is unlikely that moderators are significantly affecting these results. This was not the case for all of our other analyses, where we found strong indications of heterogeneity in our correlations, suggesting that there are moderators, which might help to better explain the relationships. Future research should explore these moderators, examples of which we identify.

Unfortunately, the EET literature includes many studies that do not meet a high standard of rigor, and there is no clear indication of a trend toward increased methodological rigor at this time. Further, our results suggest that the lower rigor studies tend to overestimate the impact of EET. Many studies do not incorporate both pre- and post-EET intervention measures and treatment and control group comparisons. To improve the value of the EET literature in the future, studies should be designed to include both of these elements (ideally at several points in time post-intervention). Such methodological rigor will greatly improve the ability of researchers to make accurate claims about the impact of EET on entrepreneurship related outcomes.

2. Introduction

Entrepreneurship education and training (EET) is growing rapidly in universities and colleges throughout the world (Katz, 2003; Kuratko, 2005) and governments are supporting it directly and indirectly through funding major investments to would-be entrepreneurs and existing small businesses. This trend is fuelled by a recognition that entrepreneurship can play an important (even critical) role in economic growth and employment (Schumpeter, 1934; Shane and Venkataraman, 2000; Kuratko, 2005), and assertions that entrepreneurship education can play a vital role in developing more and/or more able entrepreneurs (e.g., Gorman et al., 1997; Katz, 2007; Pittaway and Cope, 2007). Unfortunately, as several scholars have noted (e.g., Weaver et al., 2006; Peterman and Kennedy, 2003), there is little consistent evidence to support these claims.

This study contributes to the entrepreneurship literature by providing the first meta-analytic review of extant EET studies linking EET-specific interventions with entrepreneurship outcomes. Our analysis is grounded in human capital theory (Becker, 1964; Mincer, 1958), as it is well suited to the examination of educational outcomes. The use of human capital theory to explain aspects of entrepreneurial success is also well established in the entrepreneurship literature (e.g. Pfeffer, 1994), but almost exclusively as a static model where accumulated education and experience is related to various forms of success (e.g. Chandler and Hanks, 1998; Rauch et al., 2005; Cassar, 2006; Dyke et al., 1992; van der Sluis et al., 2005). In their recent meta-analysis, Unger et al. (2011) make the case for why human capital theory must be considered in less static terms, at least as it relates to the field of entrepreneurship:

Given the dynamics in entrepreneurship and the constant need to learn and to adapt, it may prove useful to look beyond the static concept of human capital and to examine outcomes of actual learning activities... (p. 3)

Our work also addresses the need for a more dynamic depiction of human capital in the entrepreneurship field, by examining the outcomes of educational activities that are specific to entrepreneurship. This dynamic view of human capital for the entrepreneurship field examines the relationships between human capital *investments*, which are inputs, such as the time and money spent taking a course in entrepreneurship; human capital *assets*, which represent the capability that may be garnered from the *investments*, such as knowledge and skills; and entrepreneurship *outcomes*, such as starting or growing a new business. The distinction that we are making between human capital *investments*, human capital *assets*, and entrepreneurship *outcomes* is important to note, because, although our terminology is in line with several researchers (e.g., Hitt et al., 2001; Lepak and Snell, 1999), there is little consistency in terminology in the literature generally (cf. Reuber and Fischer, 1999; Unger et al., 2011).

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