

The malleability of international entrepreneurial cognitions: a natural quasi-experimental study on voluntary and involuntary shocks

IEOD,
cognitive
shocks, and
intentions

Daniel R. Clark

Ivey Business School, Western University, London, Canada

Robert J. Pidduck

*Department of Management, Strome College of Business, Old Dominion University,
Norfolk, Virginia, USA, and*

Matthias A. Tietz

*St.Gallen Institute of Management in Asia, University of St.Gallen, Singapore,
Singapore*

Received 10 August 2021
Revised 19 September 2021
10 November 2021
14 November 2021
Accepted 15 November 2021

Abstract

Purpose – The authors investigate the durability of international entrepreneurial cognitions. Specifically, they examine how advanced business education and the Covid-19 pandemic influence international entrepreneurial orientation disposition (IEOD), and subsequently entrepreneurial intentions (EIs), to better understand the psychological dynamics underpinning the drivers of international entrepreneurship.

Design/methodology/approach – Against the backdrop of emerging entrepreneurial cognition and international entrepreneurial orientation research, the authors theorize that both a planned business education intervention (voluntary) and an unforeseeable radical environmental (involuntary) change constitute cognitive shocks impacting the disposition and intention to engage in entrepreneurial efforts. The authors use pre- and post-Covid-19 panel data ($n = 233$) and uniquely identify the idiosyncratic cognitive effects of Covid-19 through changes in the OCEAN personality assessment.

Findings – Findings demonstrate that when individuals' perceived psychological impact of Covid-19 is low, business education increases IEOD. Conversely, the effects of a strongly perceived Covid-19 impact reduce the risk-taking and proactiveness components of the IEOD scale. The authors trace the same effects forward to EIs.

Research limitations/implications – This paper contributes to a greater understanding of the resilience of entrepreneurial dispositions through an empirical test of the IEOD scale and shows its boundary conditions under planned intervention as well as unplanned externally induced shock.

Practical implications – The study offers a first benchmark to practitioners of the malleability of international entrepreneurial dispositions and discusses the potential to encourage international entrepreneurial behaviour and the individual-level dispositional risk posed by exogenous shocks.

Originality/value – The study uniquely employs a baseline measure of all our constructs pre-Covid-19 to discern and isolate the pandemic impact on entrepreneurial dispositions and intentions, responding to recent calls for more experimental designs in entrepreneurship research.

Keywords Cognition, Entrepreneurial intention, Entrepreneurial orientation, International entrepreneurship
Paper type Research paper

Introduction

Little is known about the emergence or malleability of cognitions that drive international entrepreneurship (Pidduck *et al.*, 2022; Zahra *et al.*, 2005). To this end, the international entrepreneurial orientation disposition (IEOD) concerns “individuals’ beliefs, biases, and preferences suggesting their inclination toward engaging in international entrepreneurial behaviour” (p. 89) and is valuable for understanding the cognitive origins of international entrepreneurial orientation and, ultimately, internationalisation outcomes (Clark and Covin, 2021).



As international entrepreneurial orientation follows entrepreneurial orientation theory at the firm level (Covin and Miller, 2014), IEOD extends this perspective at the individual cognition-level reflecting attitudes and beliefs towards international risk-taking, proactiveness and innovation behaviour (Clark and Covin, 2021). In doing so, IEOD is consistent with recent research extending the family of entrepreneurial orientation constructs to the individual (Lumpkin and Pidduck, 2021; Covin *et al.*, 2020). However, the initial work on IEOD was conducted under controlled conditions with assumptions of relative stability. The recent Covid-19 pandemic has demonstrated the need to understand how both individual experiences and real-world events may function as shocks to, or catalysts for, entrepreneurial cognitions.

IEOD draws on dispositional theory in entrepreneurship, which deduces that dispositions are powerful because they represent an individual's core value beliefs about entrepreneurship (Pidduck *et al.*, 2021). Those beliefs, for the most part, are stable over time (Rhodes *et al.*, 1988). Indeed, the value in understanding dispositions is that the durability of a specific disposition, or a cluster of them, helps inform more reliable predictions (Ajzen and Cote, 2008). That said, while dispositions are generally stable, they are, to some extent, situationally dependent and thus malleable (Diez, 2006). As dispositions reflect core values that inform daily actions and reactions, when events cause those values to change, behavioural dispositions must change as well. The magnitude and impact of those same events, though, can either have a slow guiding effect on dispositions (Curl *et al.*, 2018) or provoke a more seismic immediate change (Chen *et al.*, 2021). However, the degree to which specific international entrepreneurship dispositions can and do change, and their effect, remain largely unknown.

In this study, we examine two major life interventions with the potential to meaningfully impact the stability of entrepreneurial cognitions, and in particular dispositions towards international venturing: (1) a planned business master's degree with a focus on entrepreneurship, and (2) an unplanned exogenous shock, the Covid-19 pandemic. Given that the IEOD is founded on an individual's attitudes towards international risk-taking, innovation and proactiveness, the three areas that have long featured prominently in managerial education around the world (e.g. Bandera *et al.*, 2018; Druskat and Kayes, 2000), there are compelling reasons to believe that internationally focused graduate education in entrepreneurship, comprised also of rich social exchanges between international participants, is likely to impact an individual's IEOD [1]. Further, global pandemics are one prominent form of exogenous environmental shock (Giones *et al.*, 2020) which have vast impact on individuals around the world, Covid-19 being a prime example (Nicola *et al.*, 2020; Padhan and Prabheesh, 2021). For many, the combination of fear from the disease, the effects of confinement, economic insecurity and the disruption of general social stability is a form of psychological shock (Horesh and Brown, 2020; Masiero *et al.*, 2020).

Alongside psychological shocks on an individual cognition level, physical global exchange opportunities are also severely impaired (Verschuur *et al.*, 2021), which warrants asking whether the general disposition to pursue international opportunities is also reduced or, instead, more desirable. This is an interesting consideration given that a restriction on traditional opportunity and psychological stability might challenge IEOD and the entrepreneurial intentions (EIs) that follow. Concurrently, it could feasibly spur the disposition to act entrepreneurially in the future, by virtue of either the present inability to do so or the recognition that within perceived chaos lie new opportunities (Jafari-Sadeghi *et al.*, 2021; Jensen, 2002).

This paper addresses these gaps in knowledge by asking the following question: *How malleable is the entrepreneurial disposition to pursue international opportunities in the face of voluntary and involuntary cognitive shocks?* Specifically, we probe the individual-level effects of planned business education and an unplanned global exogenous shock on IEOD and EIs. While EI is not the same as entrepreneurial action, it is a foundational cognitive outcome

that serves as a necessary precursor to action (Shepherd *et al.*, 2019). It is also free from the practical constraints and temporal ambiguity (Bird *et al.*, 2015) regarding a specific engagement in entrepreneurship (e.g. money, time, opportunity costs and nonlinear or multiple launch attempts), which surround the EI-behaviour gap (Adam and Fayolle, 2015; Harima *et al.*, 2021). We propose that focusing on delineating the IEOD linkages to EIs helps to generalise understanding of international entrepreneurial cognitions of individual actors. It also avoids the plethora of external enablers or opportunity-specific confidence also driving any business launch (Davidsson, 2020; Davidsson *et al.*, 2020; Kimjeon and Davidsson, 2021).

Empirically, we employ a time-lagged natural quasi-experimental approach. We sample 233 graduate students [2] at one of Europe's top business schools (located in Spain), twice: first, at the beginning of their programme, which occurred in January 2020, one month prior to the first European outbreak of Covid-19; second, after the end of Spain's first lockdown (June 2020), coinciding with the conclusion of the mandatory core education (including three entrepreneurship classes). To disentangle the potentially competing effects of education and Covid-19 on individual cognition, we employ a novel technique of measuring the change in an individual's OCEAN [3] personality model (Goldberg, 1990).

This study makes several contributions to the international entrepreneurship and cognition literatures. First, we expand the growing focus on individual agents in international entrepreneurship (e.g. González-López *et al.*, 2021) and explore how exogenous shocks affect individual international cognition and the disposition towards opportunity pursuit. Prior research has generally argued that individuals form intentions because of their international experience and knowledge (e.g. Pidduck *et al.*, 2020a, b; Pidduck and Zhang, 2021), but we find that those intentions likely rest on the assumption of perpetuated stability. When, as with the Covid-19 pandemic, uncertainties magnify or are more apparent, individuals' disposition towards international endeavours shrinks dramatically, as does their intentions towards entrepreneurial behaviour. Thus, we advance the broader entrepreneurship literature surrounding individual entrepreneurs' perceptions of uncertainty and the role cognitive resources can play in helping or hindering nascent venturing activity (e.g. McMullen and Shepherd, 2006; Townsend *et al.*, 2018).

Second, and related, we demonstrate how the disposition to pursue international opportunity is not absolute and can be cultivated and informed by business education (Jafari-Sadeghi *et al.*, 2019), separate from previously theorised effects on self-efficacy (Piperopoulos and Dimov, 2015; Wilson *et al.*, 2007). In doing so, we find evidence to support recent theoretical work (Clark, 2016; Pidduck *et al.*, 2021) that entrepreneurial dispositions are the product of individual-level experiences, both direct and indirect. Further, we examine the external validity of the new IEOD scale (Clark and Covin, 2021; Clark, 2016) following one voluntary (graduate business degree programme) and one involuntary (a pandemic) cognitive shock and find it robust. The scale demonstrates its utility to both predict intentions and to vary predictably and reliably through intervention. In business environments where renewed economic growth relies heavily on international entrepreneurs to place faith in international trade and cooperation (Zahra, 2021), the IEOD scale is a helpful tool for researchers to practically probe growth drivers.

Finally, we answer calls in both the entrepreneurship (e.g. Grégoire *et al.*, 2019; Williams *et al.*, 2019) and international business (Cuervo-Cazurra *et al.*, 2020; Zellmer-Bruhn *et al.*, 2016) literatures for more experimental studies on entrepreneurial cognition processes. Our natural quasi-experimental design helps to alleviate some of the common critiques surrounding cross-sectional studies (Kraus *et al.*, 2016) and provides compelling evidence that cognitive shocks do indeed influence key international entrepreneurial cognitions. We elaborate on the numerous theoretical and practical implications in the discussion. Next, we turn to dispositional theory in entrepreneurship and delineate our hypotheses.

Theory and model

Dispositional theory in entrepreneurship states that a combination of value beliefs and personal characteristics form dispositions that directly precede forms of entrepreneurial action (Pidduck *et al.*, 2021). While consensus exists that there is no such thing as a single “entrepreneurial trait” capable of fully explaining or predicting entrepreneurial behaviours (e.g. Begley and Boyd, 1987; Shaver and Scott, 1992), there is renewed interest in probing the role of dispositions, more broadly, as clusters of personal factors predicting entrepreneurial outcomes. Derived from Bourdieu’s theory of social fields (1987), a disposition is one’s natural tendency to adopt a specific stance. It originates from an individual’s cognition as they develop schema to reconcile their value beliefs with external stimuli and response behaviours. As such, an individual may have many dispositions in different fields (Hilgers and Mangez, 2011). Research has found that temporal disposition influences goal-setting, decision-making and learning behaviours, and ultimately firm propensity for corporate entrepreneurship (Chen and Nadkarni, 2017). Just as entrepreneurial personality dispositions result in entrepreneurial behaviours influencing how new firms are managed (Staniewski *et al.*, 2016), critical thinking dispositions influence how individuals apply information, make decisions and consequently act entrepreneurially (Kirbaşlar and Özsoy-Güneş, 2015). This research demonstrates that through a variety of different cognitive, motivational and behavioural pathways, individual dispositions influence a person’s intention to pursue international entrepreneurial action (Lumpkin and Pidduck, 2021).

Dispositions, then, theoretically encompass durable patterns of cognitions and beliefs reflecting a range of influences in an entrepreneur’s background and environment. Given many potential dispositions that influence entrepreneurial outcomes, it becomes important – both theoretically and empirically – to recognise the constraints and effects of an individual’s disposition. Renewed attention discusses entrepreneurial orientation as a potential model of entrepreneurial value beliefs resulting in a general disposition towards venturing (Pidduck *et al.*, 2021). Similarly, Clark and Covin (2021) develop a model of international entrepreneurial disposition based on entrepreneurial orientation.

As we study entrepreneurial dispositions and internationalisation (i.e. IEOD), there is compelling theoretical rationale for expecting dispositions to be relatively stable and constructive, hence predicting EIs and, consequently, behaviours. However, there is also an argument that combinations of voluntary (i.e. education) and involuntary (i.e. exogenous shocks) personal experiences are likely to have proximal effects on the strength and makeup of IEOD. To that end, being able to predict how major life events likely influence IEOD and its malleability holds substantial practical implications for international entrepreneurship.

Hypotheses development

Voluntary intervention: graduate management programme

Management education provides learners with technical knowledge of various functions and components of business and the entrepreneurship landscape, and it offers experiential learning opportunities (Brown and Rubin, 2017) as well as opportunities for social exchange. We address both. Experiential learning opportunities are common approaches for inculcating students into real-world business scenarios through case studies, team projects and internships, whereby students apply their technical knowledge to local or international client organisations (Choudaha, 2020). The combination of new knowledge, especially for foreign students, and the socialisation into utilising this knowledge are designed to help shape enduring understanding of the core aspects and processes of international entrepreneurship, so that students are equipped to engage in a global business. By extension, the dispositions based on these fundamental components of entrepreneurship are likely cultivated and enhanced.

Regarding opportunities for social exchange, graduate programmes in management, especially those focusing on different entrepreneurship types, provide experiences and engagement with the entrepreneurial community (Choudaha, 2020; Delgado-Márquez *et al.*, 2012). As many leading programmes across the world are global in both their student intakes and outlook, there is often an international lens from which entrepreneurial behaviours are developed. This is even more pronounced in highly international master programmes, where the chance for social exchange often implies intercultural exchange. Indeed, while top European MBA programmes boast international student populations of >90%, in the US, top-10 MBA programmes average 30% international students (Ethier, 2021). The resulting diversity is highly sought after and contributes to the opportunity generation and perception skills that get honed during entrepreneurship classes. It is hence no coincidence that many of the case studies and group projects entail developing strategies for growth and internationalisation. Employers recruiting graduates specifically from such international programmes highly value the international exposure to distinct problem-solving skills and the commensurate increase in international entrepreneurial aptitudes (Crossman and Clarke, 2010). This provides an intentional impetus to deeply engage in and understand dispositions towards entrepreneurial internationalisation.

Considering the components of IEOD as innovativeness, risk-taking and proactiveness, we discuss the value placed on each through managerial education. Innovativeness is heavily prioritised in most graduate business courses, with cases involving valuable new technologies or strategies in rapidly internationalising “winner takes it all” business models (Kuratko *et al.*, 2020), such as Zoom, Netflix or Airbnb. Risk-taking is taught as inevitable, yet distinct from uncertainty in that students can quantify such risk and manage the potential downsides (Ndofirepi, 2020). Finally, proactiveness is often an archetypically positive situational response to global opportunities (Lumpkin and Pidduck, 2021). Widespread sentiments in both textbooks and popular business press reflect Thomas Friedman’s globalised entrepreneurial environment epitomised by the notion: “If it can be done, it will be done”, and the follow-on question: “... will it be done by you, or to you?” (Friedman, 2006); such sentiments stress proactiveness in order to grow or survive. Taken together, drawing on dispositional theory, we posit that:

- H1a-c.* Individuals in a master’s programme, all else equal, will increase their IEOD, comprising (a) international risk-taking disposition, (b), international proactiveness disposition and (c) international innovation disposition.

Involuntary intervention: Covid-19 pandemic

Despite being relatively stable over time, dispositions are also situationally embedded in nature, such that external stimuli can serve as temporary shocks, heightening or attenuating the strength of relevant dispositions (Alexander and Wiley, 2017). An international management education functions as an intentional and voluntary stimulating force. Yet there are also unintentional and involuntary exogenous shocks that can influence dispositional strength and salience (Alexander and Wiley, 2017). Global pandemics (e.g. Covid-19) are a prime example. Studies show that while the negative individual economic effects were not shared equally, disproportionately affecting low-paid and wage-earning workers (Ossimetha, 2021), the psychological (i.e. mental health) effects were more widespread, reaching across borders (e.g. Holmes *et al.*, 2020; Kola *et al.*, 2021). Research suggests that during such turbulent times, people tend to psychologically retreat to their most proximate, tried and tested knowledge, seeking safety and retaining the status quo, as opposed to risking loss that disruptions can bring (Lombard, 2014; Van der Kolk, 1987).

While international graduate business school students are, arguably, partially psychologically prepared to face some degree of personal, transitory disruption during

normal circumstances by foregoing salaried jobs and taking on debt to attain higher-status roles upon graduation, the unprecedented global nature of the Covid-19 pandemic and the still largely unknown negative effects on international business and careers are likely to function as a potent situational trigger for dispositions. Specifically, research on situated activity and its impact on personal characteristics suggest that fear-based messages can trigger defensive avoidance reactions and reduce compliance (Janis and Feshbach, 1953). In the context of students starting an international management programme at the outbreak of the pandemic, those fearful of negative consequences are likely to avoid risk, proactivity and innovation. Understandably, the normative situational responses in potential disaster scenarios tend to evoke conformity to social expectations in fear-based contexts, namely, stay at home, do not travel and play it safe. Indeed, several students did return to their home countries and continued their education remotely as a consequence of Covid-19.

Further, the pandemic is a truly global event: closing borders, creating fear about neighbouring countries, propagating conspiracy theories and giving platforms to those urging caution or doubt (e.g. Biddleston *et al.*, 2020; Romer and Jamieson, 2020). With the unprecedented attention directed at global events, it is only natural for individuals to be leery or suspicious of international venturing opportunities. Indeed, while the pandemic has led to some forced innovation, that is, “necessity is the mother of all invention” the psychological impact, widely established in situated cognition studies (Fanari and Segrin, 2021; Min and Schwarz, 2021) and likely exacerbated for a group used to in-person international exchange, is still likely to influence international management students to eschew the pursuit of risky international opportunities as survival mode takes priority.

H2a–c. The unplanned intervention of Covid-19 will negatively affect the IEO of individuals in a master’s programme, reducing their (a) international risk-taking disposition, (b) international proactiveness disposition and (c) international innovation disposition.

Effects of IEO changes on entrepreneurial intentions

Entrepreneurial dispositions are just one link in a chain of individual and situational variables leading to entrepreneurial action (Pidduck *et al.*, 2021). The link most directly indicative of entrepreneurial action is EI, defined by Liñán and Chen (2009, p. 595) as the “intention of carrying out entrepreneurial behaviours”. In their recent paper, Pidduck *et al.* (2021) argue that between entrepreneurial disposition and opportunity belief exists an intermediate pre-decision step. This is consistent with Krueger and Carsrud (1993), who labelled this pre-decision mindset as “entrepreneurial intention”, spurring a large literature. Further, Krueger *et al.* (2000) examined two different models of EIs: one based on attitudes and beliefs and the other based on perceived opportunity, both consistent with Pidduck *et al.* (2021). As such, in addition to voluntary education and the involuntary Covid shock, unique individual dispositions could also contribute to changes in EI [4].

In considering EI across two time periods, there are conceivably four possible outcomes; intentions: (1) stay constant; (2) increase, independent of the independent variable (IV); (3) decrease, independent of the IV; or (4) move in correlation with the IV. The first is the least likely outcome: for it to be true, intention would either be unaffected by either voluntary or involuntary shock, or the two effects would perfectly cancel each other out. Since research has found that EI is affected by education (Fayolle *et al.*, 2006; Souitaris *et al.*, 2007), environment (Tang, 2008), environmental change (Matiz-Bulla and Hormiga, 2011), among others, EI seems to vary, both within and between individuals (Liñán and Fayolle, 2015). Thus, the prospect of an individual’s intention remaining static despite two significant interventions is low.

Second, assuming the attitudinal effects of the first hypotheses are correct, there is the potential that because each individual underwent internationally focused business education

together with global peers, their EI could generally increase. Studies show entrepreneurship education affects EIs in non-business students (Souitaris *et al.*, 2007), business undergraduates in Spain (Liñán *et al.*, 2011) and India (Hassan *et al.*, 2020), as well as those with MBA degrees in the Midwestern USA (Palmer *et al.*, 2015). As such, irrespective of the findings of the previous hypotheses, previous research would suggest a direct positive effect of entrepreneurship education.

Third, various previous research studies in EI have found mixed effects on whether both traumatic events and those affecting economic confidence affect EIs. Drennan *et al.* (2005) looked at individuals reporting a difficult childhood and saw an increased tendency towards entrepreneurship. Two studies examining the effect of military conflict on EIs found conflicting results: among Yemeni students, EIs decreased (Nabil and Zhang, 2020), and among Syrians they increased (Mouselli and Khalifa, 2017). Arrighetti *et al.* (2016) looked at EIs in the wake of the eurozone financial crisis (2009–2012) and found significant decreases in EI. Further, Ruiz-Rosa *et al.* (2020) saw a decrease in social entrepreneurial intentions due to the Covid-19 crisis. As such, given the potential of certain events, including Covid-19, to have negative effect on EIs (the Syrian study notwithstanding), it is likely that there will be a direct negative effect on EIs observed here, too.

Finally, it is possible that the potential effects of exogenous events on EI are related to changes in dispositions. Indeed, much of the EIs research follows Ajzen's (1991) theory of planned behaviour and attitudes and beliefs towards entrepreneurship (Krueger and Carsrud, 1993). Interestingly, Ajzen titled a predecessor to the theory of planned behaviour as "*Dispositional prediction of behaviour in personality and social-psychology*" (1987). These works suggest changes in attitudes, beliefs and dispositions affect EI. The current IEOD research has not looked at EIs directly, but instead examined IEOD's influence on entrepreneurs' internationalisation decision-making finding high predictive validity (Clark and Covin, 2021). In sum, we argue that IEOD will absorb the idiosyncratic effects of both the voluntary and involuntary influences and will drive changes in EI.

H3. The change in IEOD between time 1 and time 2 will positively correlate with the change in entrepreneurial intention over the same time period.

Methods

We employ a pre-test post-test quasi-experimental design to examine the effects of managerial education and the exogenous environmental shock of Covid-19 on graduate students in a master's business programme. We use the IEOD scale (Clark and Covin, 2021) to examine how the mandatory core courses of a master's degree in business and the Covid-19 pandemic (Ratten, 2020) impact international entrepreneurial dispositions. Obviously, Covid-19 was not a planned component, and hence we employ various methods to isolate and validate the Covid-19 effects and discriminate them from the education components. The identification of the Covid-19 effect is important, as the pandemic might not have homogeneously affected participants (Denny and Oppedisano, 2013). We collected data in January 2020, before Covid-19 was observed in Europe. The second data collection occurred after the first mandatory lockdown in Spain was completed on 21 June 2020 [5]. By then the whole world was affected.

Participants

Our sample frame includes potential international entrepreneurs in two master's programmes at a globally top-ranked business school (both generally and for entrepreneurship) in Spain. Participants were recruited from both the Masters in Management (MIM) and the Masters in Business Administration (MBA) programmes, both

intakes commencing in January 2020. The two programmes have different profiles: on average, the MIM programme attracts more females (50 vs 38%) and younger participants (25.2 vs 32.1 years old), with less work experience (1.43 vs 6.45 years) and less entrepreneurship experience (0.16 vs 0.97 years) compared to the MBA programme. However, both programmes attract a similar profile of high-achieving students (GMAT mean > 670) interested in entrepreneurship. We invited 448 students to participate and 403 provided at least some information (initial response rate of 89.5%). However, following data cleaning and focusing on those respondents that provided data for both waves, our useable sample is 233 responses (total response rate of 52.0%). From programme data, there was no statistically significant difference in programme, age, work experience or country of origin between those that did not respond, those who responded incompletely and those who were included in our final sample. The research project followed the institution's ethical research protocols, and the Institutional Review Board oversaw the development of all research protocols and instruments.

Because our study includes business education as a potential intervention causing malleability in international entrepreneurial dispositions, the typical limitations of student-based samples are actually advantages in our setting. However, the sample frame is also appropriate for the second focus of this study, the exogenous shock of Covid-19. We follow guidance ([Williams et al., 2019](#); [Grégoire et al., 2019](#); [Hsu et al., 2017](#)) on sample selection and circumstances when graduate student samples are appropriate to study entrepreneurial processes and intentions. Given our focus on dispositions *preceding* entrepreneurial behaviour, an established entrepreneur sample would bias the investigation. Indeed, it would not allow us to understand the future entrepreneurs and how their actions are likely shaped by education or adverse external events. Finally, all our relationships are grounded in theory relating to individual cognition and the effects of education and/or external shocks. Taken together, a sample of experienced international masters students, who are potential international entrepreneurs, is necessary and sufficient for our study.

Procedure

We recruited respondents via email and sent up to two reminders during the mandatory introductory week prior to the programmes' core curricula. After agreeing to participate, respondents received a Qualtrics survey link to fill out scales, experiential and demographic questions. The questionnaire took on average 30 min to complete.

We sent the second questionnaire after the completion of the programmes' core curricula. Both programmes' core curricula consist of a wide range of management topics; however, the largest single focus is on entrepreneurship – a key reason potential international entrepreneurs seek to study in these programmes. The second wave of data collection was intended to repeat the first to determine changes due to the educational journey. However, the Covid-19 pandemic occurred, and additional questions were added to understand the specific impact of the pandemic on respondents. Respondents were contacted using the same contact information and procedure as before.

Variables

Dependent variables. There are two dependent variables in this study: IEOD and EI. IEOD was recorded in both waves using the scale developed by [Clark and Covin \(2021\)](#). This 16-item seven-point Likert-type scale allows the individual measurement of all three factors of IEOD: international risk-taking disposition (IRD) (6 items), international proactiveness disposition (IPD) (5 items) and international innovation disposition (IID) (5 items). IEOD is the arithmetic mean of these three scores. EI was also recorded in both waves, using the scale developed by [Liñán and Chen \(2009\)](#).

Independent variables. The primary independent variable in this study is the effect of an international master's programme at a top business school. IEOD and EI at time 1 (start of programme) are key predictor variables for time 2 (core programme completed). The change in these scores is presumed to be the effect of the programme.

For our secondary independent variable, we argued above that between January and June 2020, respondents underwent significant psychological shocks due to the pandemic. Previous research has suggested that the combination of fear from the disease, the effects of confinement, economic insecurity and the disruption of general social stability can amount to a form of psychological trauma (Horesh and Brown, 2020; Masiero *et al.*, 2020).

To separate the potentially competing effects of the master's programme and the Covid-19 pandemic shock on international entrepreneurial cognition, we employ a marker variable of changes in OCEAN personality traits across times 1 and 2. The OCEAN model is the dominant personality assessment framework, accepted in psychology, medicine management and education (Feher and Vernon, 2021), and is also widely used in entrepreneurship research (e.g. Rauch and Frese, 2007; Kerr *et al.*, 2017) [6]. We use the ten-item personality inventory (TIPI; Gosling2003) to measure the 5 OCEAN dimensions of personality: Openness, Conscientiousness, Extraversion, Agreeableness, emotional stability (i.e. Neuroticism). Two items on a seven-point Likert scale capture each dimension. We follow several other studies using OCEAN personality traits to econometrically identify the impact of Covid-19 on individuals (e.g. Carvalho *et al.*, 2020; Kocjan *et al.*, 2021; Modersitzki *et al.*, 2021). We propose that a worldwide pandemic is likely to impact personality traits far more because of the wide-reaching and all-encompassing impact, than the more targeted impact of a master's programme. To represent these before and after differences, we examine Δ OCEAN, the net change in each OCEAN dimension between waves 1 and 2; the bigger the change, the larger the effect of Covid-19: a score of 1 is an average 1-point change on not a single but each of five dimensions: a moderate effect of Covid-19.

Control Variables. Given the multitude of potential alternative explanations of the observed effects, it is near impossible to control for all competing explanations. However, we have enlisted a wide range of controls to at least provide insight into possible confounds with our approach. First, because we use Δ OCEAN as an independent variable, it is possible that individual-level characteristics influence either the propensity to be affected by the independent variables or interact with the independent variables themselves [7]. To limit this effect, we control for each of the five OCEAN dimensions at time one. Further, we control for temperament-cognition interactions that could differentially impact the observed cognition effects. We measure *general self-efficacy* (GSE) and *locus of control*, using the scales developed by Chen *et al.* (2001) and by Mueller and Thomas (2001), respectively. We also control for *year of birth*, *gender* (female = 1, male = 0), *work experience* (in years) and *programme enrolment* (MiM = 0, MBA = 1).

Since both dependent variables (IEOD and intention) are indicators of entrepreneurial propensity, we control for other aspects of entrepreneurial cognition that could potentially interfere or interact with these relationships: *entrepreneurial self-efficacy* (ESE), *entrepreneurial passion* and *entrepreneurial experience* (in years). ESE was examined using the 15-item five-point Likert-type scale by Chen *et al.* (1998). Entrepreneurial passion as a known influencer of entrepreneurial decisions (Fu *et al.*, 2020) was examined using Cardon *et al.*'s (2013) 13-items on a 100-point sliding-type scale.

Results

In this study, we examine the effect of two major interventions, a master's programme in business and the Covid-19 pandemic, on an individual's disposition for international entrepreneurship (IEOD). Table 1 shows the descriptive statistics and correlations.

Table 1.
Correlations and
descriptive statistics

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Entrepreneurial intention <i>I1</i>	5.08	0.95																
2 Entrepreneurial intention <i>I2</i>	5.11	0.88	0.74															
3 IEOD <i>I1</i>	5.03	0.72	0.65	0.38														
4 IPD <i>I1</i>	5.23	0.85	0.38	0.32	0.82													
5 IPD <i>I1</i>	4.74	0.91	0.52	0.30	0.86	0.57												
6 IID <i>I1</i>	5.09	0.87	0.51	0.31	0.79	0.42	0.54											
7 IEOD <i>I2</i>	5.03	0.72	0.30	0.62	0.56	0.42	0.48	0.48										
8 IRD <i>I2</i>	5.12	0.88	0.23	0.53	0.41	0.53	0.24	0.24	0.83									
9 IPD <i>I2</i>	4.65	0.96	0.21	0.51	0.20	0.56	0.35	0.85	0.85	0.56								
10 IID <i>I2</i>	5.30	0.80	0.31	0.47	0.53	0.29	0.38	0.67	0.77	0.44	0.55							
11 ΔOCEAN	0.754	0.64	0.23	-0.25	0.34	0.33	0.32	0.18	-0.37	-0.40	-0.33	-0.16						
12 Extraversion <i>I1</i>	4.84	1.41	0.25	0.16	0.27	0.24	0.18	0.14	0.05	0.09	0.20	0.08	0.08					
13 Agreeableness <i>I1</i>	4.60	1.07	0.06	0.07	-0.03	0.03	-0.05	-0.04	0.03	0.08	-0.04	0.03	-0.07	-0.03				
14 Openness <i>I1</i>	5.04	1.03	0.05	0.08	0.02	0.03	-0.03	0.03	0.10	0.09	0.12	0.04	-0.15	0.24	0.24			
15 Stability <i>I1</i>	4.61	1.17	0.08	0.09	-0.05	0.02	-0.07	-0.08	-0.00	0.02	0.00	-0.08	-0.13	0.12	0.13	0.12		
16 Conscientiousness <i>I1</i>	4.60	1.19	-0.05	0.01	-0.07	-0.09	-0.04	-0.04	0.04	0.01	0.08	-0.01	-0.08	0.03	0.17	0.22	0.19	
17 Entrepreneurial self-efficacy	3.80	0.58	0.14	0.24	0.23	0.21	0.14	0.20	0.25	0.22	0.17	0.21	-0.05	0.06	-0.08	0.04	0.05	-0.01
18 General self-efficacy	4.24	0.51	0.16	0.21	0.20	0.20	0.11	0.17	0.22	0.20	0.13	0.18	-0.07	0.11	0.04	0.14	0.18	0.03
19 Locus of control	3.10	0.34	0.13	0.17	0.24	0.13	0.25	0.21	0.29	0.18	0.31	0.24	-0.09	0.10	-0.06	0.03	0.04	0.09
20 Passion	76.08	14.8	0.44	0.36	0.32	0.31	0.16	0.32	0.19	0.21	0.08	0.18	0.04	0.12	0.05	0.14	0.07	-0.00
21 Year of birth	1992	3.84	0.07	0.08	0.02	0.05	0.03	-0.04	0.03	0.06	0.01	-0.02	0.02	0.05	0.03	-0.01	-0.11	0.03
22 Gender	0.42	0.50	-0.04	-0.07	-0.04	-0.14	0.05	0.01	-0.07	-0.15	-0.03	0.02	0.19	0.04	0.11	-0.02	-0.17	0.01
23 Work experience	4.68	3.13	-0.00	-0.03	0.04	0.01	0.02	0.08	0.09	-0.01	0.00	0.03	-0.04	-0.01	-0.05	0.01	0.12	0.02
24 MBA	0.65	0.48	0.01	-0.04	-0.01	0.05	-0.04	-0.03	-0.07	-0.05	-0.10	-0.03	-0.02	-0.05	0.01	-0.01	0.10	-0.04
25 Entrepreneurial experience	0.68	1.48	0.25	0.24	0.10	0.10	0.01	0.13	0.01	0.06	-0.08	0.06	-0.07	-0.02	0.05	0.16	0.10	0.09

Variable	17	18	19	20	21	22	23	24
18 General self-efficacy	0.47							
19 Locus of control	0.11	0.05						
20 Passion	0.27	0.24	0.05					
21 Year of birth	-0.03	-0.01	-0.05	-0.06				
22 Gender	-0.16	-0.07	-0.13	-0.12	0.11			
23 Work experience	0.03	0.05	0.04	0.10	-0.89	-0.15		
24 MBA	0.06	0.03	0.05	0.07	-0.76	-0.11	0.77	
25 Entrepreneurial experience	0.11	0.11	0.09	0.23	-0.21	-0.20	0.32	0.26

Note(s): *N* = 233, correlations are statistically significant at *0.05 when >0.13, **0.01 when >0.17, ***0.001 when >0.23

Noteworthy is that while there are strong significant correlations between measures at time 1 and time 2 for both dependent variables, they are also significantly different, where $T1$ explains between 28 and 54% of the variance in $T2$ scores. We observe the theoretically expected statistically significant correlations between ESE and both GSE and entrepreneurial passion. Also, extroversion is the only OCEAN personality trait to significantly correlate with the IEOD at both $T1$ and $T2$. We find that, on average, there is no significant net change in either EI or IEOD between $T1$ and $T2$. Observed changes were thus within-individual changes where some saw their scores on EI and IEOD increase, and others saw them decrease. It is those within-individual changes that we examine below. Indeed, the mean Δ OCEAN score was only 0.754 ($SD = 0.64$), and the median was 0.600, which means that approximately half the sample reported a small (less than 0.5 point per item on a seven-point scale) change in personality, while just 10% experienced a comparatively large change (1.5 points per item).

We hypothesised that a master's programme in business will have a positive effect (H1) and the exogenous pandemic shock will have a negative effect (H2) on IEOD. We examine these relationships both through the united measure of IEOD and its individual sub-components IE, IP and II. Table 2 shows the positive effect of business education (measured via the effect of time) on IEOD (Models 1, 2 and 3). Further, when Δ OCEAN is added (Models 2 and 3), the significant effect on time is maintained (Model 3: $B = 0.689$, $p < 0.000$). As such, hypothesis 1 is supported.

However, the pandemic shock also has a significant negative effect on IEOD observed in Models 2 and 3. Finally, in Model 3, there is an observed positive interaction between education and the exogenous pandemic shock ($B = 0.135$, $p = 0.021$), where the pandemic changes the relationship between IEOD at $T1$ and $T2$ (Figure 1). Taken together, there is strong evidence to support hypothesis 2, that the exogenous pandemic shock negatively affects IEOD (see Figure 2).

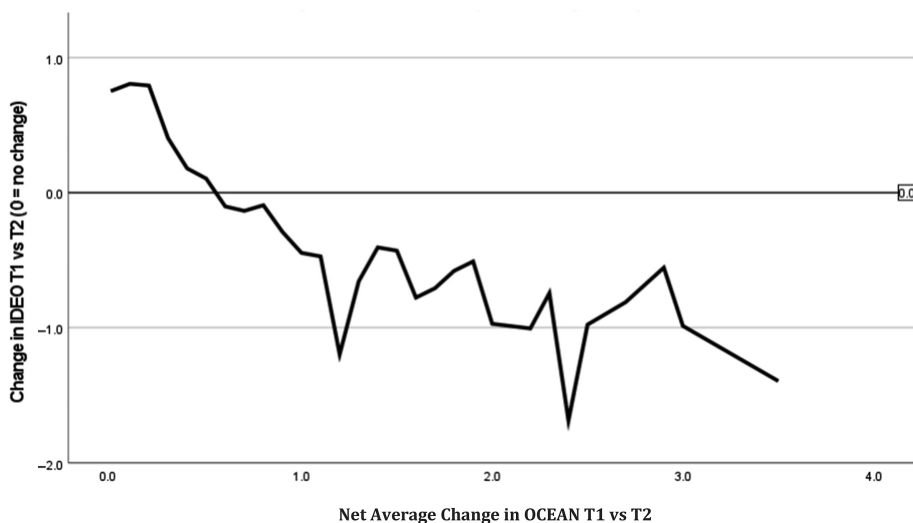
Online Tables A1–A3 show the effects of education and the exogenous pandemic shock on the separate components of the IEOD scale; for each we hypothesised that the master's programme would increase the disposition (hypotheses 1a–c) and the pandemic would decrease the disposition (hypotheses 2a–c). In online Table A1 on IRD, there is a similar pattern to that observed in the IEOD: a significant positive effect of education on IRD (Models 1–3) is consistent when Δ OCEAN is added in Models 2 and 3 (Model 3: $B = 0.569$, $p < 0.000$), supporting hypothesis 1a. As with IEOD, there was a strong negative effect of Δ OCEAN and a positive interaction (Model 3), providing supporting evidence for hypothesis 2a.

The relations between time and IPD and IID are similar to IRD; however, there is no significant interaction with Δ OCEAN at $T2$. Online Tables A2 and A3 (Models 1–3) show the positive effect of education on IPD and IID, supporting hypotheses 1b and 1c, respectively. Further, Models 2 and 3 similarly show significant negative effects of Δ OCEAN which, even without the interactions, provides evidence supporting hypotheses 2b and 2c.

Finally, we also consider the effects of managerial education and the global pandemic on EI. We hypothesised that changes in EI positively correlate with changes in IEOD. We test this in two ways, first we have direct evidence in Table 1 where there is a strong correlation between IEOD and EI at $T2$ ($\alpha = 0.62$, $p < 0.000$). Second, Table 3, Model 1 shows that IEOD is a significant predictor of EI at $T1$. However, Model 2 shows that at $T2$, EI- $T1$ is a stronger predictor of EI at $T2$ than IEOD- $T1$. The strongest predictor of EI- $T2$ was Δ IEOD between $T1$ and $T2$, suggesting that both IEOD and EI are stable variables. However, education and the global pandemic had both positive and negative effects on respondent cognition and consequently on IEOD, and consequently the changes in IEOD correlate with changes in EI. We examine the potential mediation effect (Baron and Kenny, 1986) of Δ IEOD on EI at $T2$ using the PROCESS macro in SPSS (Hayes, 2022). There was a significant indirect mediation effect of Δ IEOD, which explained 27% of the total effect of EI at $T1$ on $T2$. Taken together,

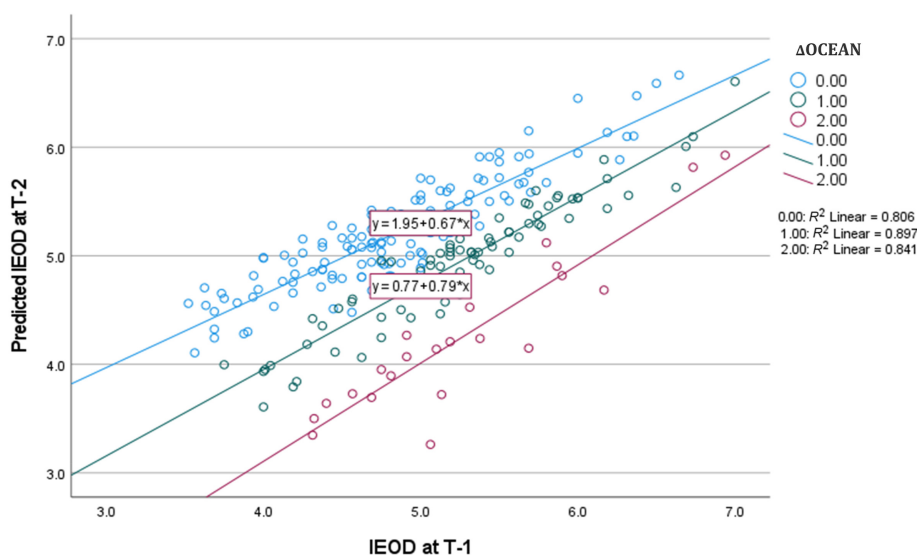
Table 2.
Models of international
entrepreneurial
orientation disposition
before and after
master's programme

	Model 1 0 DV = IEOD-T1			Model 1 1 DV = IEOD-T2			Model 2 DV = IEOD-T2			Model 3 DV = IEOD-T2		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p
<i>Control variables</i>												
Extroversion	0.115	0.032	0.000	-0.029	0.030	0.325	-0.019	0.020	0.364	-0.016	0.020	0.417
Agreeableness	0.022	0.042	0.607	0.033	0.038	0.394	0.007	0.026	0.784	-0.001	0.026	0.965
Openness	-0.051	0.045	0.262	0.060	0.041	0.143	0.003	0.029	0.922	-0.002	0.028	0.955
Stability	-0.056	0.038	0.142	-0.009	0.035	0.794	-0.027	0.024	0.260	-0.029	0.024	0.233
Conscientiousness	-0.055	0.038	0.144	0.027	0.034	0.429	0.039	0.024	0.097	0.037	0.023	0.112
Entrepreneurial self-efficacy	0.118	0.085	0.167	0.141	0.078	0.071	0.083	0.054	0.125	0.076	0.053	0.157
General self-efficacy	0.142	0.097	0.143	0.047	0.088	0.592	-0.013	0.061	0.833	-0.012	0.060	0.846
Locus of control	0.577	0.126	0.001	0.341	0.118	0.004	0.116	0.083	0.162	0.111	0.082	0.177
Entrepreneurial passion	0.011	0.003	0.000	0.000	0.003	0.898	-0.001	0.002	0.753	0.000	0.002	0.933
Year of birth	0.028	0.026	0.287	0.010	0.024	0.686	-0.015	0.017	0.361	-0.012	0.017	0.452
Gender	0.039	0.090	0.669	-0.059	0.082	0.474	0.081	0.057	0.156	0.088	0.057	0.122
Work experience	0.049	0.033	0.141	0.038	0.031	0.214	-0.001	0.021	0.955	0.000	0.021	0.981
MBA	-0.121	0.143	0.399	-0.228	0.130	0.080	-0.157	0.090	0.082	-0.144	0.089	0.107
Entrepreneurial experience	0.000	0.032	0.992	-0.036	0.029	0.214	-0.035	0.020	0.080	-0.030	0.020	0.135
<i>Independent variables</i>												
IEOD-T1				0.530	0.062	0.000	0.801	0.046	0.000	0.689	0.066	0.000
ΔOCEAN							-0.714	0.046	0.000	-1.412	0.304	0.000
IEOD-T1 × ΔOCEAN												
Intercept	-0.5447	52.74	0.303	-19.11	47.96	0.691	31.43	33.22	0.345	26.42	32.95	0.021
R ²	0.25		0.000	0.40		0.000	0.72		0.000	0.72		0.424
Degree of freedom		215			214			213			212	0.000



IEOD,
cognitive
shocks, and
intentions

Figure 1.
Mean Δ IDEO between
 $T1$ and $T2$
by Δ OCEAN



Note(s): This chart depicts the real and predicted IDEO at $T2$ based on IDEO at $T1$ and Δ OCEAN. Each circle represents a real observation, where the lines represent regressed predictions. A 1.00 Δ OCEAN is an average 1-point change in all five OCEAN dimensions

Figure 2.
Predicted interaction
plots of IDEO at $T-1$
by Δ OCEAN

both the regression and mediation data provide supportive evidence for [hypothesis 3](#), that changes in IDEO correlate with changes in EI at $T2$. Consistently, at both $T1$ and $T2$, both ESE and entrepreneurial experience were significant predictors of EI.

Please see Online Appendix 1 for detailed robustness checks.

Table 3.
Models of
entrepreneurial
intention before and
after master's
programme

	Model 0 DV = EI-T1			Model 1 DV = EI-T1			Model 2 DV = EI-T2			Model 3 DV = EI-T2		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p
<i>Control variables</i>												
Extroversion	0.140	0.041	0.001	0.052	0.034	0.127	-0.016	0.029	0.583	0.004	0.015	0.775
Agreeableness	0.057	0.054	0.296	0.040	0.044	0.359	0.015	0.037	0.691	-0.015	0.020	0.433
Openness	-0.082	0.058	0.159	-0.043	0.047	0.360	0.018	0.040	0.659	-0.029	0.021	0.167
Stability	0.028	0.049	0.569	0.072	0.040	0.073	-0.005	0.034	0.894	-0.003	0.018	0.889
Conscientiousness	-0.068	0.048	0.165	-0.025	0.039	0.523	0.014	0.033	0.668	-0.006	0.018	0.719
Entrepreneurial self-efficacy	-0.007	0.110	0.951	-0.098	0.089	0.270	0.223	0.076	0.004	0.113	0.040	0.005
General self-efficacy	0.058	0.125	0.640	-0.052	0.101	0.609	0.047	0.086	0.585	0.012	0.045	0.798
Locus of control	0.262	0.163	0.110	-0.081	0.135	0.547	0.251	0.115	0.030	-0.027	0.061	0.660
Entrepreneurial passion	0.023	0.004	0.000	0.015	0.003	0.000	0.001	0.003	0.748	0.000	0.002	0.951
Year of birth	0.046	0.034	0.174	0.025	0.027	0.369	0.018	0.023	0.431	0.008	0.012	0.491
Gender	0.074	0.116	0.523	0.044	0.093	0.634	-0.005	0.080	0.953	0.041	0.042	0.332
Work experience	0.008	0.043	0.858	-0.030	0.035	0.382	0.028	0.030	0.347	-0.001	0.016	0.937
MBA	0.101	0.184	0.585	0.194	0.148	0.191	-0.145	0.127	0.255	0.030	0.067	0.652
Entrepreneurial experience	0.121	0.041	0.004	0.121	0.033	0.000	0.018	0.029	0.536	0.039	0.015	0.012
<i>Independent variables</i>												
IEOD-T1				0.772	0.071	0.000	-0.264	0.075	0.001	0.067	0.042	0.109
EI-T1							0.774	0.058	0.000	0.851	0.031	0.000
ΔIEOD T1/T2										0.832	0.035	0.000
Intercept	-90.83	67.98	0.183	-48.76	54.68	0.374	-36.35	46.77	0.438	-16.68	24.55	0.498
R ²	0.29		0.000	0.55		0.000	0.62		0.000	0.90		0.000
Degree of freedom		215			214			213			212	

Discussion and contributions

The individual entrepreneur plays a central role in international entrepreneurship. For example, recent research has explored the interpersonal dynamics of international entrepreneurs (Jafari-Sadeghi *et al.*, 2022), the role of individual resources in international entrepreneurial firms (Brieger and De Clerq, 2019) and the cross-cultural drivers of international entrepreneurship (e.g. Pidduck, 2022; Pidduck *et al.*, 2022). Indeed, the international entrepreneurship literature contemplates the big-picture question: Why do some people, yet not others, become international entrepreneurs? Coviello (2015) famously said, “Their ventures will be global from the outset because their founders are” (p. 24) – because international new ventures are created by international entrepreneurs. Recent studies directly probed and extended this premise by integrating international experience into career-based perspectives, including personal interest in global issues and international entrepreneurial self-efficacy as drivers of foreign market entrepreneurial pursuits (Pidduck *et al.*, 2020a). We advance these discussions and build on recent calls for understanding how cognition informs international entrepreneurship (Pidduck *et al.*, 2022). The original Clark and Covin (2021) IEOD study introduced the notion of a disposition for core facets of entrepreneurship, and here we provide greater insight into its boundary conditions and behaviour over time. The IEOD is a collection of values towards international entrepreneurship that are likely the product of the international experience and entrepreneurial exposure, but also the product of education and the perceived exogenous environment for international entrepreneurs.

The burgeoning entrepreneurial dispositions literature (e.g. Hmieleski *et al.*, 2013; Lindblom *et al.*, 2020; Nikolaev *et al.*, 2020; Pidduck *et al.*, 2021) presents a collection of values that, when introduced to a perceived opportunity, combine into an entrepreneurial mindset. Our research largely confirms this perspective as we see EI correlating with IEOD. While EI is not the same as entrepreneurial action, it is a necessary precursor: entrepreneurship is a deliberate act following on from *a priori* intentions (Schlaegel and Koenig, 2014). While international EI is still an evolving topic, our findings suggest that IEOD will also be an important predictor. The international intention-behaviour gap, where many intentions go unfulfilled (Adam and Fayolle, 2015; Harima *et al.*, 2021), likely follows or even eclipses that in domestic entrepreneurship. One potential explanation is that dispositions change, as demonstrated here. Hence, we also advance the broader intentions literature in entrepreneurship (e.g. Nakara *et al.*, 2020; Tomy and Pardede, 2020; Welsh *et al.*, 2021; Zhang and Cain, 2017). Future international entrepreneurship research looking to understand the action antecedents would do well to include the IEOD scale, either to control for or explain an individual’s disposition towards international entrepreneurship.

As we also found in this study, the IEOD is bound by both voluntary and involuntary events. Like other constructs in the entrepreneurship literature (e.g. entrepreneurial passion; Fu *et al.*, 2020), entrepreneurship education can lead to enhanced dispositions towards entrepreneurial action. This finding has theoretical and practical implications. Theoretically, not everyone that pursues an MBA starts, or intends to start, a venture. The same heterogeneity that exists between EI and action certainly exists between IEOD and action. One potential explanation is that opportunity perception could be a larger barrier than previously understood (e.g. Renko *et al.*, 2012). Having IEOD likely does not influence one’s ability to recognise an opportunity, or self-evaluate the opportunity or even provide the requisite international entrepreneurial self-efficacy (Pidduck *et al.*, 2020a), it likely only influences when and how the individual forms an opportunity mindset (Pidduck *et al.*, 2021).

As international entrepreneurship research expands into new areas, such as digitisation (Hervé *et al.*, 2020), the individual entrepreneur will be at the center providing motivation (Dimitratos *et al.*, 2016), dynamic capabilities (Pehrsson *et al.*, 2015) and innovation (Hughes *et al.*, 2010). IEOD through both its malleability and strong connection to EI is a useful tool to help researchers understand the individual and his/her disposition. Multiple calls for

individual-level research in international entrepreneurship, lament the lack of reliable and validated tools; it is our hope that this study's primary contribution is a deeper understanding of IEOD and the international entrepreneur, facilitating future research using the IEOD scale. Researchers doing this research can use the IEOD in two primary ways: as a dependent variable when the theory argues for effects on cognition, and as a control variable when firm-level outcomes need to be separated from individual-level effects, for example, when an individual provides information about the firm.

From a practical perspective, our findings strongly argue that public interest groups looking to develop community entrepreneurship are well advised to support entrepreneurship education. First, one viable path to develop entrepreneurial capabilities are dedicated master's-level entrepreneurship programmes. Second, we urge community leaders to build bridges with local business schools and encourage strong opportunity-driven entrepreneurship education therein. This is because matching IEOD with an opportunity is a necessity for international entrepreneurial outcomes, and all entrepreneurs benefit strongly from community feedback. Obviously, some people can build these bridges themselves, but we need to know more about how to encourage this ability in prospective international entrepreneurs. Developing the ability to recognise an opportunity and pairing it with an entrepreneurial disposition will serve both entrepreneurs and existing firms, and ultimately communities, well. Entrepreneurs will be able to develop better opportunities and ventures with stronger survival prospects. Existing firms will find intrapreneurs to foster their internal renewal (Tietz and Parker, 2012). Communities will benefit from both.

Additionally, this study provides useful takeaways to entrepreneurship education. Several studies have linked education-related effects to self-efficacy (e.g. Piperopoulos and Dimov, 2015; Wilson *et al.*, 2007). Interestingly while we include both general and entrepreneurial self-efficacy in our models, we do not see any systematic effect from either. It appears that dispositional effects are independent of self-efficacy, and, as such, change in cognitive dispositions (like IEOD) could be a useful mediator of dependent variables for other entrepreneurial education studies. Focusing on cognition changes could help researchers better understand the effect of their interventions and build better theoretical models for education initiatives. Further, policy makers may consider these findings: education initiatives are a valid defense against the impact of systemic instabilities and forms of adversity often undermining entrepreneurial cognitions (Pidduck and Clark, 2021). If entrepreneurs are the way out of economic downturn (Jakob, 2013; Aceytuno *et al.*, 2020), education of potential entrepreneurs, and possibly re-education of those with prior entrepreneurial experience, can facilitate core cognitions essential for navigating unavoidable uncertainties.

While we all hope the Covid-19 pandemic does not continue or repeat itself, exogenous shocks are a real and persistent phenomenon likely to intensify. Whether climate change, financial crisis, wars or disease, there is constant potential for an exogenous event to shake one's IEOD. However, as we found in this study, not everyone is affected by these events in the same way. One consideration is event duration; indeed, at the time of this writing (in December 2021), the pandemic has entered its fifth wave, with the Omicron variant, and there is no clear end in sight. We do not know either the duration or the durability of the findings reported in this study: ongoing longitudinal analysis with this sample, throughout the pandemic and after its conclusion, will be necessary. Pandemic fatigue (Reicher and Drury, 2021) is a real phenomenon, and some individuals might see increasing pandemic effects on their IEOD, while others seeking a return to normalcy see rejuvenated IEOD (resisting pandemic effects). Research will be needed to understand what drives recovery of IEOD and the durability of that recovery.

Individual shocks and how they affect entrepreneurs is an emergent area of research (e.g. Ratten, 2020; Klapper and Love, 2011). One could argue that these exogenous shocks create opportunity and present a potential boon to resilient entrepreneurs (Devece *et al.*, 2016), while at the same time presenting a new source of systemic risk (Abuzayed *et al.*, 2021). Theory is

needed to better understand individual resilience to exogenous shocks and to lead to practical strategies such that those with an entrepreneurial disposition can ready themselves to take advantage of the market inefficiencies arising from rapid environmental change.

IEOD,
cognitive
shocks, and
intentions

Conclusion

This paper sought to more realistically reflect the phenomenon of EI by probing two influential, yet distinct, life events that aspire international entrepreneurs' experience. Using a unique proprietary database derived from a natural multi-wave quasi-experiment of master's business students, we sought to understand how education influenced IEOD, but the circumstances of Covid-19 presented us the opportunity to substantially enrich the contributions to our field, both theoretically and empirically. There are limitations to our approach as we use a limited sample of business students, operating under extreme conditions; however, we enacted significant controls and robustness checks, and it is our assumption that these findings are generalisable to both normal operations of business education and future extreme events. Notwithstanding this potential limitation, we make vital theoretical and practical contributions. First, EI is partially structured on the notion of perpetuated stability, and prominent uncertainty undermines uncertainty management and consequently intention. Second, entrepreneurial dispositions are partially constructed through education, which has important practical implications for policy makers seeking to drive entrepreneurial activity. It is prudent to promote business education and partnering with local business schools, just as in the Latin proverb "*fortuna eruditibus favet*" [8].

Taken together, we now have a far stronger and more nuanced understanding of important international entrepreneurial cognitions, and their linkages with EI. As a result, we were able to propose both interesting and practically meaningful new questions to consider. Future researchers would be well-advised to consider the IEOD of individual entrepreneurs when considering the process of international venturing, as well as the effects of exogenous shocks. Covid-19 is certainly not the last exogenous shock entrepreneurs will have to contend with. We all need to learn and prepare for those events, and we believe this research makes a small, yet impactful, contribution to such efforts.

Notes

1. Prior research has already theorised the potential for entrepreneurship education to affect certain entrepreneurial dispositions (e.g. identity, [Celuch et al., 2017](#)), finding that entrepreneurial education affects both entrepreneurial intention ([Sun et al., 2017](#)) and resulting behaviours ([Hernández-Sánchez et al., 2019](#)). We use this work as a departure point by focusing on a pure dispositional construct (IEOD), and examining both cause (education) and outcomes (intentions) beyond the dispositional effects.
2. We sample individuals at one school because (1) it provides a degree of homogeneity around the physical Covid experience – students are subject to the same policies – but allows differences in psychological experiences; (2) it allows us to study the effect of education on IEOD and control for other individual-level variables; (3) we have invariance in the education as each student receives the same treatment.
3. OCEAN = openness, conscientiousness, extroversion, agreeableness and neuroticism. Also referred to as the five factor model (FFM) or the Big-5 personality inventory.
4. It is important to note that while we are examining a contextualised form of individual-level entrepreneurial orientation (i.e. specifically international), we are not assessing its effect on an international-contextualised form of entrepreneurial intention, for instance, "born global intentions" ([Pidduck et al., 2020a](#)). The reason for this is that the dispositions for characteristically "international" risk-taking, proactiveness and innovativeness, our paper's focus, can exist at extreme levels yet not necessarily manifest an "international venture". For example, recent studies

(see Pidduck *et al.*, 2022) suggest that many elements or inputs to entrepreneurial emergence are international or cross-cultural, yet the predominant focus of the firm (i.e. the output it generates) may be domestic. Thus, we seek chiefly to unpack IEOD's impact on becoming an entrepreneur (i.e. intending to pursue opportunity) in general, which necessarily allows for either international or domestic ventures.

5. Spain, along with Italy, was one of the earliest and hardest hit countries by Covid-19. A mandatory lockdown began on 14 March 2020, and ended on 21 June 2020. The next state of emergency occurred on 1 October 2020.
6. There are certainly numerous alternatives to the OCEAN, see Feher and Vernon (2021) for a review; however, none has the validation and research acceptance of the OCEAN model. Indeed, Feher and Vernon conclude, "The Big 5 (OCEAN) model is an important model of personality . . . the popularity of the Big 5 far surpasses that of other personality models".
7. The rationale here is that an extrovert, for example, might tend to be disproportionately affected by Covid-19. As such we control for their initial levels on each OCEAN variable at $T-1$. However, because Δ OCEAN is the sum of the absolute value of changes between $T1$ and $T2$ on all 5 variables, we expect it to be independent of the individual OCEAN scores at $T1$. Indeed, in Table 1, Δ OCEAN is only significantly correlated with openness and no other OCEAN variable at $T1$.
8. Fortune favours the prepared.

References

- Abuzayed, B., Bouri, E., Al-Fayoumi, N. and Jalkh, N. (2021), "Systemic risk spillover across global and country stock markets during the COVID-19 pandemic", *Economic Analysis and Policy*, Vol. 71 September, pp. 180-197.
- Aceytuno, M.T., Sánchez-López, C. and de Paz-Báñez, M.A. (2020), "Rising inequality and entrepreneurship during economic downturn: an analysis of opportunity and necessity entrepreneurship in Spain", *Sustainability*, Vol. 12 No. 11, p. 4540.
- Adam, A.F. and Fayolle, A. (2015), "Bridging the entrepreneurial intention-behaviour gap: the role of commitment and implementation intention", *International Journal of Entrepreneurship and Small Business*, Vol. 25 No. 1, pp. 36-54.
- Ajzen, I. (1987), "Attitudes, traits, and actions—dispositional prediction of behavior in personality and social-psychology", *Advances in Experimental Social Psychology*, Vol. 20 No. 1, pp. 1-63.
- Ajzen, I. (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, Vol. 50 No. 2, pp. 179-211.
- Ajzen, I. and Cote, N.G. (2008), "Attitudes and the prediction of behavior", in Crano, W.D. and Prislin, R. (Eds), *Attitudes and Attitude Change*, Psychology Press, New York, pp. 289-311.
- Alexander, C.N. and Wiley, M.G. (2017), "Situated activity and identity formation", in Rosenberg, M. and Turner, R.H. (Eds), *Social Psychology*, Routledge, New York, pp. 269-289.
- Arrighetti, A., Caricati, L., Landini, F. and Monacelli, N. (2016), "Entrepreneurial intention in the time of crisis: a field study", *International Journal of Entrepreneurial Behaviour and Research*, Vol. 22 No. 6, pp. 835-859.
- Bandera, C., Collins, R. and Passerini, K. (2018), "Risky business: experiential learning, information and communications technology, and risk-taking attitudes in entrepreneurship education", *The International Journal of Management Education*, Vol. 16 No. 2, pp. 224-238.
- Baron, R.M. and Kenny, D.A. (1986), "Moderator-mediator variables distinction in social psychological research: conceptual, strategic, and statistical considerations", *Journal of Personality and Social Psychology*, Vol. 51 No. 6, pp. 1173-1182.
- Begley, T.M. and Boyd, D.P. (1987), "A comparison of entrepreneurs and managers of small business firms", *Journal of Management*, Vol. 13 No. 1, pp. 99-108, doi: [10.1177/014920638701300108](https://doi.org/10.1177/014920638701300108).

-
- Biddlestone, M., Green, R. and Douglas, K.M. (2020), "Cultural orientation, power, belief in conspiracy theories, and intentions to reduce the spread of COVID-19", *British Journal of Social Psychology*, Vol. 59 No. 3, pp. 663-673.
- Bird, B. (2015), "Entrepreneurial intentions research: a review and outlook", *International Review of Entrepreneurship*, Vol. 13 No. 3, pp. 143-168.
- Bourdieu, P. (1987), *Distinction: A Social Critique of the Judgement of Taste*, Harvard University Press, Cambridge, MA.
- Brieger, S.A. and De Clercq, D. (2019), "Entrepreneurs' individual-level resources and social value creation goals: the moderating role of cultural context", *International Journal of Entrepreneurial Behavior and Research*, Vol. 25 No. 2, pp. 193-216.
- Brown, K.G. and Rubin, R.S. (2017), "Management education in business schools", in Wilkinson, A., Armstrong, S.J. and Lounsbury, M. (Eds), *The Oxford Handbook of Management*, Oxford University Press, Oxford, pp. 437-460.
- Cardon, M.S., Gregoire, D.A., Stevens, C.E. and Patel, P.C. (2013), "Measuring entrepreneurial passion: conceptual foundations and scale validation", *Journal of Business Venturing*, Vol. 28 No. 3, pp. 373-396.
- Carvalho, L.D.F., Pianowski, G. and Gonçalves, A.P. (2020), "Personality differences and COVID-19: are extroversion and conscientiousness personality traits associated with engagement with containment measures?", *Trends in Psychiatry and Psychotherapy*, Vol. 42 No. 2, pp. 179-184.
- Celuch, K., Bourdeau, B. and Winkel, D. (2017), "Entrepreneurial identity: the missing link for entrepreneurship education", *Journal of Entrepreneurship Education*, Vol. 20 No. 2, pp. 1-20.
- Chen, J. and Nadkarni, S. (2017), "It's about time! CEOs' temporal dispositions, temporal leadership, and corporate entrepreneurship", *Administrative Science Quarterly*, Vol. 62 No. 1, pp. 31-66.
- Chen, C.C., Greene, P.G. and Crick, A. (1998), "Does entrepreneurial self-efficacy distinguish entrepreneurs from managers?", *Journal of Business Venturing*, Vol. 13 No. 4, pp. 295-316.
- Chen, G., Gully, S.M. and Eden, D. (2001), "Validation of a new general self-efficacy scale", *Organizational Research Methods*, Vol. 4 No. 1, pp. 62-83.
- Chen, Z.J., Bechara, A.O., Worthington, E.L. Jr, Davis, E.B. and Csikszentmihalyi, M. (2021), "Trauma and well-being in Colombian disaster contexts: effects of religious coping, forgiveness, and hope", *The Journal of Positive Psychology*, Vol. 16 No. 1, pp. 82-93.
- Choudaha, R. (2020), *The Global Demand for Graduate Management Education. Application Trends Survey, 2020*, Graduate Management Admission Council, Reston, VA.
- Clark, D.R. (2016), "Individual international entrepreneurial orientation: construct definition and measurement", *Academy of Management Proceedings*, Academy of Management, Briarcliff Manor, NY, Vol. 2016, No. 1, p. 16874.
- Clark, D.R. and Covin, J.G. (2021), "International entrepreneurial orientation disposition: insights into venture internationalization", *Advances in Entrepreneurship, Firm Emergence and Growth*, in Corbett, A.C., Kreiser, P.M., Marino, L.D. and Wales, W.J. (Eds), *Entrepreneurial Orientation: Epistemological, Theoretical, and Empirical Perspectives*, Emerald Publishing, Bingley, Vol. 22, pp. 87-120.
- Coviello, N. (2015), "Re-thinking research on born globals", *Journal of International Business Studies*, Vol. 46 No. 1, pp. 17-26, doi: [10.1057/jibs.2014.59](https://doi.org/10.1057/jibs.2014.59).
- Covin, J.G. and Miller, D. (2014), "International entrepreneurial orientation: conceptual considerations, research themes, measurement issues, and future research directions", *Entrepreneurship Theory and Practice*, Vol. 38 No. 1, pp. 11-44, doi: [10.1111/etap.12027](https://doi.org/10.1111/etap.12027).
- Covin, J.G., Rigtering, J.C., Hughes, M., Kraus, S., Cheng, C.F. and Bouncken, R.B. (2020), "Individual and team entrepreneurial orientation: scale development and configurations for success", *Journal of Business Research*, Vol. 112 No. 5, pp. 1-12.
- Crossman, J.E. and Clarke, M. (2010), "International experience and graduate employability: stakeholder perceptions on the connection", *Higher Education*, Vol. 59 No. 5, pp. 599-613.

- Cuervo-Cazurra, A., Andersson, U., Brannen, M.Y., Nielsen, B.B. and Reuber, A.R. (2020), "From the editors: can I trust your findings? Ruling out alternative explanations in international business research", in Eden, L., Nielsen, B.B. and Verbeke, A. (Eds), *Research Methods in International Business*, Palgrave Macmillan, Cham, pp. 121-157.
- Curl, H., Lareau, A. and Wu, T. (2018), "Cultural conflict: the implications of changing dispositions among the upwardly mobile", *Sociological Forum*, Vol. 33 No. 4, pp. 877-899.
- Davidsson, P. (2020), "Psychology, process, and the entrepreneurial artifact", in Gielnik, M.M., Cardon, M.S. and Frese, M. (Eds), *The Psychology of Entrepreneurship*, Routledge, pp. 357-376.
- Davidsson, P., Recker, J. and von Briel, F. (2020), "External enablement of new venture creation: a framework", *Academy of Management Perspectives*, Vol. 34 No. 3, pp. 311-332.
- Delgado-Márquez, B.L., Hurtado-Torres, N.E. and Bondar, Y. (2012), "Internationalization of higher education in university institution rankings: the influence of national culture", *Journal of International Education and Leadership*, Vol. 2 No. 1, pp. 1-17.
- Denny, K. and Oppedisano, V. (2013), "The surprising effect of larger class sizes: evidence using two identification strategies", *Labour Economics*, Vol. 23 No. 1, pp. 57-65.
- Devece, C., Peris-Ortiz, M. and Rueda-Armengot, C. (2016), "Entrepreneurship during economic crisis: success factors and paths to failure", *Journal of Business Research*, Vol. 69 No. 11, pp. 5366-5370.
- Diez, M.E. (2006), "Assessing dispositions: context and questions", *The New Educator*, Vol. 2 No. 1, pp. 57-72.
- Dimitratos, P., Buck, T., Fletcher, M. and Li, N. (2016), "The motivation of international entrepreneurship: the case of Chinese transnational entrepreneurs", *International Business Review*, Vol. 25 No. 5, pp. 1103-1113.
- Drennan, J., Kennedy, J. and Renfrow, P. (2005), "Impact of childhood experiences on the development of entrepreneurial intentions", *The International Journal of Entrepreneurship and Innovation*, Vol. 6 No. 4, pp. 231-238, doi: [10.5367/000000005775179801](https://doi.org/10.5367/000000005775179801).
- Druskat, V.U. and Kayes, D.C. (2000), "Learning versus performance in short-term project teams", *Small Group Research*, Vol. 31 No. 3, pp. 328-353.
- Ethier, M. (2021), *Where International MBA Students Go in the US Top 50 – and What They're Paid After Graduating, Poets & Quants*, Petaluma, CA (accessed 24 June 2021).
- Fanari, A. and Segrin, C. (2021), "Longitudinal effects of US students' reentry shock on psychological health after returning home during the COVID-19 global pandemic", *International Journal of Intercultural Relations*, Vol. 82 No. 1, pp. 298-310.
- Fayolle, A., Gailly, B. and Lassas-Clerc, N. (2006), "Assessing the impact of entrepreneurship education programmes: a new methodology", *Journal of European Industrial Training*, Vol. 30 No. 9, pp. 701-720.
- Feher, A. and Vernon, P.A. (2021), "Looking beyond the Big Five: a selective review of alternatives to the Big Five model of personality", *Personality and Individual Differences*, Vol. 169, p. 110002.
- Friedman, T.L. (2006), *The World Is Flat [Updated and Expanded]: A Brief History of the Twenty-First Century*, Macmillan, New York.
- Fu, Y., Tietz, M.A. and Delmar, F. (2020), "The Perception of a Founder's Obsessive Passion and potential co-founders' team entry decisions", *Academy of Management Proceedings*, Academy of Management, Briarcliff Manor, NY, Vol. 2020, No. 1, p. 17131.
- Giones, F., Brem, A., Pollack, J.M., Michaelis, T.L., Klyver, K. and Brinckmann, J. (2020), "Revising entrepreneurial action in response to exogenous shocks: considering the COVID-19 pandemic", *Journal of Business Venturing Insights*, Vol. 14, e00186.
- Goldberg, L.R. (1990), "An alternative 'description of personality': the big-five factor structure", *Journal of Personality and Social Psychology*, Vol. 59 No. 6, pp. 1216-1229.
- González-López, M.J., Pérez-López, M.C. and Rodríguez-Ariza, L. (2021), "From potential to early nascent entrepreneurship: the role of entrepreneurial competencies", *International Entrepreneurship and Management Journal*, Vol. 17 No. 3, pp. 1387-1417.

-
- Gosling, S.D., Rentfrow, P.J. and Swann, W.B. Jr (2003), "A very brief measure of the big five personality domains", *Journal of Research in Personality*, Vol. 37 No. 6, pp. 504-528.
- Grégoire, D.A., Binder, J.K. and Rauch, A. (2019), "Navigating the validity tradeoffs of entrepreneurship research experiments: a systematic review and best-practice suggestions", *Journal of Business Venturing*, Vol. 34 No. 2, pp. 284-310.
- Harima, A., Gießelmann, J., Götsch, V. and Schlichting, L. (2021), "Entrepreneurship? Let us do it later: procrastination in the intention-behavior gap of student entrepreneurship", *International Journal of Entrepreneurial Behavior and Research*, Vol. 27 No. 5, pp. 1189-1213.
- Hassan, A., Saleem, I., Anwar, I. and Hussain, S.A. (2020), "Entrepreneurial intention of Indian university students: the role of opportunity recognition and entrepreneurship education", *Education + Training*, Vol. 62 Nos 7/8, pp. 843-861.
- Hayes, A.F. (2022), *Introduction to Mediation, Moderation, and Conditional Process Analysis*, 3rd ed., Guilford Press, New York.
- Hernández-Sánchez, B.R., Sánchez-García, J.C. and Mayens, A.W. (2019), "Impact of entrepreneurial education programs on total entrepreneurial activity: the case of Spain", *Administrative Sciences*, Vol. 9 No. 1, pp. 25-41.
- Hervé, A., Schmitt, C. and Baldegger, R. (2020), "Digitalization, entrepreneurial orientation and internationalization of micro-, small-and medium-sized enterprises", *Technology Innovation Management Review*, Vol. 10 No. 4, pp. 5-17.
- Hilgers, M. and Mangez, E. (2011), *Bourdieu's Theory of Social Fields: Concepts and Applications*, Routledge, London.
- Hmieleski, K.M., Corbett, A.C. and Baron, R.A. (2013), "Entrepreneurs' improvisational behavior and firm performance: a study of dispositional and environmental moderators", *Strategic Entrepreneurship Journal*, Vol. 7 No. 2, pp. 138-150.
- Holmes, E.A., O'Connor, R.C., Perry, V.H., Tracey, I., Wessely, S., Arseneault, L., Ballard, C., Christensen, H., Cohen Silver, R., Everall, I., Ford, T., John, A., Kabir, T., King, K., Madan, I., Michie, S., Przybylski, A.K., Shafran, R., Sweeney, A., Worthman, C.M., Yardley, L., Cowan, K., Cope, C., Hotopf, M. and Bullmore, E. (2020), "Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science", *The Lancet Psychiatry*, Vol. 7 June, pp. 547-560.
- Horesh, D. and Brown, A.D. (2020), "Traumatic stress in the age of COVID-19: a call to close critical gaps and adapt to new realities", *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 12 No. 4, pp. 331-335.
- Hsu, D.K., Simmons, S.A. and Wieland, A.M. (2017), "Designing entrepreneurship experiments: a review, typology, and research agenda", *Organizational Research Methods*, Vol. 20 No. 3, pp. 379-412.
- Hughes, M., Martin, S.L., Morgan, R.E. and Robson, M.J. (2010), "Realizing product-market advantage in high-technology international new ventures: the mediating role of ambidextrous innovation", *Journal of International Marketing*, Vol. 18 No. 4, pp. 1-21.
- Jafari-Sadeghi, V., Biancone, P.P., Anderson, R.B. and Nkongolo-Bakenda, J.M. (2019), "International entrepreneurship by particular people 'on their own terms': a study on the universal characteristics of entrepreneurs in evolving economies", *International Journal of Entrepreneurship and Small Business*, Vol. 37 No. 2, pp. 288-308.
- Jafari-Sadeghi, V., Sukumar, A., Pagán-Castaño, E. and Dana, L.P. (2021), "What drives women towards domestic vs international business venturing? An empirical analysis in emerging markets", *Journal of Business Research*, Vol. 134 September, pp. 647-660.
- Jafari-Sadeghi, V., Mahdiraji, H.A., Devalle, A. and Pellicelli, A.C. (2022), "Somebody is hiding something: disentangling interpersonal level drivers and consequences of knowledge hiding in international entrepreneurial firms", *Journal of Business Research*, Vol. 139 February, pp. 383-396.

- Jakob, D. (2013), "Crafting your way out of the recession? New craft entrepreneurs and the global economic downturn", *Cambridge Journal of Regions, Economy and Society*, Vol. 6 No. 1, pp. 127-140.
- Janis, I.L. and Feshbach, S. (1953), "Effects of fear-arousing communications", *The Journal of Abnormal and Social Psychology*, Vol. 48 No. 1, pp. 78-92.
- Jensen, M. (2002), "Angel investors: opportunity amidst chaos", *Venture Capital: An International Journal of Entrepreneurial Finance*, Vol. 4 No. 4, pp. 295-304.
- Kimjeon, J. and Davidsson, P. (2021), "External enablers of entrepreneurship: a review and agenda for accumulation of strategically actionable knowledge", *Entrepreneurship Theory and Practice*, pp. 1-45, doi: [10.1177/10422587211010673](https://doi.org/10.1177/10422587211010673).
- Kırbaşlar, M. and Özsoy-Güneş, Z. (2015), "The effect of critical thinking disposition on entrepreneurship levels: a study on future teachers", *Procedia-Social and Behavioral Sciences*, Vol. 174 February, pp. 199-207.
- Klapper, L. and Love, I. (2011), "The impact of the financial crisis on new firm registration", *Economics Letters*, Vol. 113 No. 1, pp. 1-4.
- Kocjan, G.Z., Kavčič, T. and Avsec, A. (2021), "Resilience matters: explaining the association between personality and psychological functioning during the COVID-19 pandemic", *International Journal of Clinical and Health Psychology*, Vol. 21 No. 1, p. 100198.
- Kola, L., Kohrt, B.A., Hanlon, C., Naslund, J.A., Sikander, S., Balaji, M., Benjet, C., Cheung, E.Y.L., Eaton, J., Gonsalves, P., Hailemariam, M., Luitel, N.P., Machado, D.B., Misganaw, E., Omigbodun, O., Roberts, T., Salisbury, T.T., Shidhaye, R., Sunkel, C., Ugo, V., van Rensburg, A.J., Gureje, O., Pathare, S., Saxena, S., Thornicroft, G. and Patel, V. (2021), "COVID-19 mental health impact and responses in low-income and middle-income countries: reimagining global mental health", *The Lancet Psychiatry*, Vol. 8 No. 6, pp. 535-550.
- Kraus, S., Meier, F. and Niemand, T. (2016), "Experimental methods in entrepreneurship research: the status quo", *International Journal of Entrepreneurial Behavior and Research*, Vol. 22 No. 6, pp. 958-983.
- Krueger, N.F. and Carsrud, A.L. (1993), "Entrepreneurial intentions: applying the theory of planned behaviour", *Entrepreneurship and Regional Development*, Vol. 5 No. 4, pp. 315-330.
- Krueger, N.F. Jr, Reilly, M.D. and Carsrud, A.L. (2000), "Competing models of entrepreneurial intentions", *Journal of Business Venturing*, Vol. 15 Nos 5-6, pp. 411-432.
- Kuratko, D.F., Holt, H.L. and Neubert, E. (2020), "Blitzscaling: the good, the bad, and the ugly", *Business Horizons*, Vol. 63 No. 1, pp. 109-119.
- Liñán, F. and Chen, Y.W. (2009), "Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions", *Entrepreneurship Theory and Practice*, Vol. 33 No. 3, pp. 593-617.
- Liñán, F. and Fayolle, A. (2015), "A systematic literature review on entrepreneurial intentions: citation, thematic analyses, and research agenda", *International Entrepreneurship and Management Journal*, Vol. 11 No. 4, pp. 907-933.
- Liñán, F., Rodríguez-Cohard, J.C. and Rueda-Cantuche, J.M. (2011), "Factors affecting entrepreneurial intention levels: a role for education", *International Entrepreneurship and Management Journal*, Vol. 7 No. 2, pp. 195-218.
- Lindblom, A., Lindblom, T. and Wechtler, H. (2020), "Dispositional optimism, entrepreneurial success and exit intentions: the mediating effects of life satisfaction", *Journal of Business Research*, Vol. 120, pp. 230-240.
- Lombard, C.A. (2014), "Coping with anxiety and rebuilding identity: a psychosynthesis approach to culture shock", *Counselling Psychology Quarterly*, Vol. 27 No. 2, pp. 174-199.
- Lumpkin, G.T. and Pidduck, R.J. (2021), "Global entrepreneurial orientation (GEO): an updated, multidimensional view of EO", *Advances in Entrepreneurship, Firm Emergence and Growth*, in Corbett, A.C., Kreiser, P.M., Marino, L.D. and Wales, W.J. (Eds), *Entrepreneurial Orientation*:

-
- Epistemological, Theoretical, and Empirical Perspectives*, Emerald Publishing, Bingley, Vol. 22, pp. 17-68.
- Masiero, M., Mazzocco, K., Harnois, C., Cropley, M. and Pravettoni, G. (2020), "From individual to social trauma: sources of everyday trauma in Italy, the US and UK during the COVID-19 pandemic", *Journal of Trauma and Dissociation*, Vol. 21 No. 5, pp. 513-519.
- Matiz-Bulla, F.J. and Hormiga, E. (2011), "Highly-skilled Colombian immigrants in Spain", *Education and Training*, Vol. 53 No. 5, pp. 448-461.
- McMullen, J.S. and Shepherd, D.A. (2006), "Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur", *Academy of Management Review*, Vol. 31 No. 1, pp. 132-152.
- Min, B. and Schwarz, N. (2021), "Novelty as opportunity and risk: a situated cognition analysis of psychological control and novelty seeking", *Journal of Consumer Psychology*.
- Modersitzki, N., Phan, L.V., Kuper, N. and Rauthmann, J.F. (2021), "Who is impacted? Personality predicts individual differences in psychological consequences of the COVID-19 pandemic in Germany", *Social Psychological and Personality Science*, Vol. 12 No. 6, pp. 1110-1130.
- Mouselli, S. and Khalifa, B. (2017), "Entrepreneurship in crisis: the determinants of Syrian students' entrepreneurial intentions", *Business, Management and Economics Engineering*, Vol. 15 No. 2, pp. 159-173.
- Mueller, S.L. and Thomas, A.S. (2001), "Culture and entrepreneurial potential: a nine country study of locus of control and innovativeness", *Journal of Business Venturing*, Vol. 16 No. 1, pp. 51-75.
- Nabil, A.Q. and Zhang, G. (2020), "Entrepreneurship in crisis situations: determinants of entrepreneurial intentions among University Students in Yemen", *African Journal of Business Management*, Vol. 14 No. 7, pp. 196-208.
- Nakara, W.A., Laouiti, R., Chavez, R. and Gharbi, S. (2020), "An economic view of entrepreneurial intention", *International Journal of Entrepreneurial Behavior and Research*.
- Ndofirepi, T.M. (2020), "Relationship between entrepreneurship education and entrepreneurial goal intentions: psychological traits as mediators", *Journal of Innovation and Entrepreneurship*, Vol. 9 No. 1, pp. 1-20.
- Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M. and Agha, R. (2020), "The socio-economic implications of the coronavirus and COVID-19 pandemic: a review", *International Journal of Surgery*, Vol. 78, pp. 185-193.
- Nikolaev, B., Shir, N. and Wiklund, J. (2020), "Dispositional positive and negative affect and self-employment transitions: the mediating role of job satisfaction", *Entrepreneurship Theory and Practice*, Vol. 44 No. 3, pp. 451-474.
- Ossimetha, A., Ossimetha, A., Kosar, C.M. and Rahman, M. (2021), "Socioeconomic disparities in community mobility reduction and COVID-19 growth", *Mayo Clinic Proceedings*, Vol. 96 No. 1, pp. 78-85.
- Padhan, R. and Prabheesh, K.P. (2021), "The economics of COVID-19 pandemic: a survey", *Economic Analysis and Policy*, Vol. 70 June, pp. 220-237.
- Palmer, J., Griswold, M., Eidson, V. and Wiewel, P. (2015), "Entrepreneurial intentions of male and female university students", *International Journal of Business and Public Administration*, Vol. 12 No. 1, pp. 152-166.
- Pehrsson, T., Ghannad, N., Pehrsson, A., Abt, T., Chen, S., Erath, F. and Hammarstig, T. (2015), "Dynamic capabilities and performance in foreign markets: developments within international new ventures", *Journal of International Entrepreneurship*, Vol. 13 No. 1, pp. 28-48.
- Pekkala Kerr, S., Kerr, W. and Xu, T. (2017), "Personality traits of entrepreneurs: a review of recent literature", No 24097, NBER Working Papers, National Bureau of Economic Research.
- Pidduck, R.J. and Clark, D.R. (2021), "Transitional entrepreneurship: elevating research into marginalized entrepreneurs", *Journal of Small Business Management*, pp. 1-16.

- Pidduck, R.J. and Zhang, Y. (2021), "Entrepreneurial sensing capabilities: the stimulating role of cross-cultural experience", *International Journal of Entrepreneurial Behavior and Research*. doi: [10.1108/IJEBR-05-2020-0329](https://doi.org/10.1108/IJEBR-05-2020-0329).
- Pidduck, R.J., Shaffer, M.A., Zhang, Y. and Clark, D.R. (2020a), "Unpacking the emergence of born global founders: a careers perspective", *Journal of Small Business Management*, pp. 1-41.
- Pidduck, R.J., Busenitz, L.W., Zhang, Y. and Moulick, A.G. (2020b), "Oh, the places you'll go: a schema theory perspective on cross-cultural experience and entrepreneurship", *Journal of Business Venturing Insights*, Vol. 14, e00189.
- Pidduck, R.J. (2022), "The entrepreneurial advantages of experiencing foreignness: leveraging shocks for capability clusters", *Cross-Cultural and Strategic Management*. doi: [10.1108/CCSM-10-2020-0211](https://doi.org/10.1108/CCSM-10-2020-0211).
- Pidduck, R.J., Clark, D.R. and Lumpkin, G.T. (2021), "Entrepreneurial mindset: dispositional beliefs, opportunity beliefs, and entrepreneurial behavior", *Journal of Small Business Management*, pp. 1-35.
- Pidduck, R.J., Clark, D.R. and Busenitz, L.W. (2022), "Revitalizing the 'international' in international entrepreneurship: the promise of culture and cognition", in Caputo, A., Pellegrini, M., Dabic, M. and Dana, L.-P. (Eds), *The International Dimension of Entrepreneurial Decision Making. Cultures, Contexts, and Behaviors*, Springer, New York, doi: [10.1007/978-3-030-85950-3_2](https://doi.org/10.1007/978-3-030-85950-3_2).
- Piperopoulos, P. and Dimov, D. (2015), "Burst bubbles or build steam? Entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intentions", *Journal of Small Business Management*, Vol. 53 No. 4, pp. 970-985.
- Ratten, V. (2020), "Coronavirus (Covid-19) and entrepreneurship: cultural, lifestyle and societal changes", *Journal of Entrepreneurship in Emerging Economies*.
- Rauch, A. and 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*, Vol. 16 No. 4, pp. 353-385.
- Reicher, S. and Drury, J. (2021), "Pandemic fatigue? How adherence to Covid-19 regulations has been misrepresented and why it matters", *British Medical Journal*, Vol. 372, pp. 1-2.
- Renko, M., Shrader, R.C. and Simon, M. (2012), "Perception of entrepreneurial opportunity: a general framework", *Management Decision*, Vol. 50 No. 7, pp. 1233-1251.
- Rholes, W.S., Jones, M. and Wade, C. (1988), "Children's understanding of personal dispositions and its relationship to behavior", *Journal of Experimental Child Psychology*, Vol. 45 No. 1, pp. 1-17.
- Romer, D. and Jamieson, K.H. (2020), "Conspiracy theories as barriers to controlling the spread of COVID-19 in the US", *Social Science and Medicine*, Vol. 263, p. 113356.
- Ruiz-Rosa, I., Gutiérrez-Taño, D. and García-Rodríguez, F.J. (2020), "Social entrepreneurial intention and the impact of COVID-19 pandemic: a structural model", *Sustainability*, Vol. 12 No. 17, doi: [10.3390/su12176970](https://doi.org/10.3390/su12176970).
- Schlaegel, C. and Koenig, M. (2014), "Determinants of entrepreneurial intent: a meta-analytic test and integration of competing models", *Entrepreneurship Theory and Practice*, Vol. 38 No. 2, pp. 291-332.
- Shaver, K.G. and Scott, L.R. (1992), "Person, process, choice: the psychology of new venture creation", *Entrepreneurship Theory and Practice*, Vol. 16 No. 2, pp. 23-46, doi: [10.1177/104225879201600204](https://doi.org/10.1177/104225879201600204).
- Shepherd, D.A., Wennberg, K., Suddaby, R. and Wiklund, J. (2019), "What are we explaining? A review and agenda on initiating, engaging, performing, and contextualizing entrepreneurship", *Journal of Management*, Vol. 45 No. 1, pp. 159-196.
- Souitaris, V., Zerbinati, S. and Al-Laham, A. (2007), "Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources", *Journal of Business Venturing*, Vol. 22 No. 4, pp. 566-591.

-
- Staniewski, M.W., Janowski, K. and Awruk, K. (2016), "Entrepreneurial personality dispositions and selected indicators of company functioning", *Journal of Business Research*, Vol. 69 No. 5, pp. 1939-1943.
- Sun, H., Lo, C.T., Liang, B. and Wong, Y.L.B. (2017), "The impact of entrepreneurial education on entrepreneurial intention of engineering students in Hong Kong", *Management Decision*, Vol. 55 No. 7, pp. 1371-1393.
- Tang, J. (2008), "Environmental munificence for entrepreneurs: entrepreneurial alertness and commitment", *International Journal of Entrepreneurial Behaviour and Research*, Vol. 14 No. 3, pp. 128-151.
- Tietz, M. and Parker, S. (2012), "How do intrapreneurs and entrepreneurs differ in their motivation to start a new venture", *Frontiers of Entrepreneurship Research*, Vol. 32 No. 4, pp. 1-15.
- Tomy, S. and Pardede, E. (2020), "An entrepreneurial intention model focussing on higher education", *International Journal of Entrepreneurial Behavior and Research*.
- Townsend, D.M., Hunt, R.A., McMullen, J.S. and Sarasvathy, S.D. (2018), "Uncertainty, knowledge problems, and entrepreneurial action", *Academy of Management Annals*, Vol. 12 No. 2, pp. 659-687.
- Van der Kolk, B.A. (1987), "The psychological consequences of overwhelming life experience", in Van der Kolk, B.A. (Ed.), *Psychological Trauma*, American Psychiatric Press, Washington, DC, pp. 1-30.
- Verschuur, J., Koks, E.E. and Hall, J.W. (2021), "Observed impacts of the COVID-19 pandemic on global trade", *Nature Human Behaviour*, Vol. 5 No. 3, pp. 305-307.
- Welsh, D.H., Othman, D., Alserhan, B., Zeqiri, J., Al-Madadha, A. and Ramadani, V. (2021), "The impact of the international crisis on the entrepreneurial intentions of refugees", *International Journal of Entrepreneurial Behavior and Research*.
- Williams, D.W., Wood, M.S., Michell, J.R. and Urbig, D. (2019), "Applying experimental methods to advance entrepreneurship research: on the need for and publication of experiments", *Journal of Business Venturing*, Vol. 34 No. 2, pp. 215-223.
- Wilson, F., Kickul, J. and Marlino, D. (2007), "Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: implications for entrepreneurship education", *Entrepreneurship Theory and Practice*, Vol. 31 No. 3, pp. 387-406.
- Zahra, S.A. (2021), "International entrepreneurship in the post Covid world", *Journal of World Business*, Vol. 56 No. 1, p. 101143.
- Zahra, S.A., Korri, J.S. and Yu, J. (2005), "Cognition and international entrepreneurship: implications for research on international opportunity recognition and exploitation", *International Business Review*, Vol. 14 No. 2, pp. 129-146.
- Zellmer-Bruhn, M., Caligiuri, P. and Thomas, D.C. (2016), "From the editors: experimental design in international business research", *Journal of International Business Studies*, Vol. 47 No. 4, pp. 399-407.
- Zhang, P. and Cain, K.W. (2017), "Reassessing the link between risk aversion and entrepreneurial intention: the mediating role of the determinants of planned behavior", *International Journal of Entrepreneurial Behavior and Research*, Vol. 23 No. 5, pp. 793-811.

Further reading

- Clausen, J.A. and Gilens, M. (1990), "Personality and labor force participation across the life course: a longitudinal study of women's careers", *Sociological Forum*, Vol. 5 No. 4, pp. 595-618.
- Cobb-Clark, D.A. and Schurer, S. (2012), "The stability of big-five personality traits", *Economics Letters*, Vol. 115 No. 1, pp. 11-15.
- Gottschalk, P. (2005), "Can work alter welfare recipients' beliefs?", *Journal of Policy Analysis and Management: The Journal of the Association for Public Policy Analysis and Management*, Vol. 24 No. 3, pp. 485-498.

- Naumann, C. (2017), "Entrepreneurial mindset: a synthetic literature review", *Entrepreneurial Business and Economics Review*, Vol. 5 No. 3, pp. 149-172.
- Rantanen, J., Metsäpelto, R.L., Feldt, T., Pulkkinen, L.E.A. and Kokko, K. (2007), "Long-term stability in the Big Five personality traits in adulthood", *Scandinavian Journal of Psychology*, Vol. 48 No. 6, pp. 511-518.
- Roberts, B.W. and Chapman, C.N. (2000), "Change in dispositional well-being and its relation to role quality: a 30-year longitudinal study", *Journal of Research in Personality*, Vol. 34 No. 1, pp. 26-41.
- Roberts, B.W., Helson, R. and Kohnen, E.C. (2002), "Personality development and growth in women across 30 years: three perspectives", *Journal of Personality*, Vol. 70 No. 1, pp. 79-102.
- Sar, A.K. (2017), "The influence of management education on entrepreneurship success", *Journal of Entrepreneurship Education*, Vol. 20 No. 2, pp. 1-17.
- Soldz, S. and Vaillant, G.E. (1999), "The Big Five personality traits and the life course: a 45-year longitudinal study", *Journal of Research in Personality*, Vol. 33 No. 2, pp. 208-232.

Appendix

The Appendix file is available online for this article.

Corresponding author

Daniel Richard Clark can be contacted at: dclark@ivey.ca