

LEARNING AND PROGRESSION IN (TOO MUCH OF?) AN ENTREPRENEURIAL CHALLENGE DURING COVID-19

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Conference Key Areas: *Entrepreneurship education; Student engagement*

Keywords: *Learning; COVID-19; Entrepreneurship; fsQCA*

ABSTRACT

A venture creation programme (VCP) is an academic programme in which students' creation of a new entrepreneurial venture is a central vehicle for learning. A VCP puts students in the role of entrepreneurs with real opportunities and challenges. The entrepreneurial journey is a bumpy ride, and COVID-19 has added significant challenges for entrepreneurs, including students in VCPs. Previous research emphasises how entrepreneurial learning occurs through handling entrepreneurial challenges. The purpose of the present paper is to investigate the role of COVID-19-induced challenges in VCP students' learning. We applied fuzzy-set qualitative comparative analysis (fsQCA) to data from students in a technology-oriented VCP in Scandinavia, collected in April 2021. FsQCA offers the opportunity to investigate complex logic combinations of factors that explain an outcome and is particularly suited for small samples. Multi-item measures assessed (1) the progress of students' ventures, (2) entrepreneurial learning and (3) perceived challenges from COVID-19. We also asked whether students had entered or exited an entrepreneurial project and whether these projects were run by a team or only the individual student. We found that COVID-19-induced challenges impeded VCP students' learning and that students' individual progress was important for learning during crisis situations. Thus,

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entrepreneurship educators should help students get 'back on the horse—which means being involved in new entrepreneurial projects—if their challenges lead them into stagnation and inactivity. Progress, both in students' ventures and for students as individuals, should be nurtured by entrepreneurship educators.

1 INTRODUCTION

Liguori and Winkler [1] emphasised the impact of the pandemic on teaching practices in entrepreneurship education, as entrepreneurship educators worldwide are transitioning from physical 'offline' to virtual 'online' teaching practices. However, developments in entrepreneurship education have also moved towards not only facilitating students' learning about entrepreneurship in the classroom but also learning through actually undertaking entrepreneurship [2], feeding the growth and interest in practices for experiential entrepreneurial learning [2,3], action-based entrepreneurship education [4] and courses and programmes in which students create their own ventures as an integrated part of their education [5,6].

A venture creation programme (VCP) is an academic programme in which students' creation of a new entrepreneurial venture is a central vehicle for learning. A VCP puts students in the role of entrepreneurs with real opportunities and challenges. The entrepreneurial journey is a bumpy ride, and COVID-19 has added significant challenges for entrepreneurs, including students in VCPs. Previous research emphasises how entrepreneurial learning occurs through handling entrepreneurial challenges [7] and even failures [8]. In this respect, COVID-19 could be expected to foster significant learning for student entrepreneurs in a VCP, and recent research has found that entrepreneurs learn from crisis experiences during the pandemic [9].

However, the adversity presented by COVID-19 may also lead entrepreneurs to pursue reactive and protectionist strategies [10], meaning that activities may halt, which may negatively impact entrepreneurs' learning processes. Therefore, the present paper argues that when 'real-world' entrepreneurial activity [3] is introduced as an essential part of the educational process, the potential impact of crises such as the COVID-19 pandemic is likely to go far beyond the transition from offline to online education. Being part of local, regional and even global business life, student entrepreneurs are direct subjects of abrupt restrictions put on their businesses, customers, partners, financiers and stakeholders. The purpose of the present paper is thus to investigate the role of COVID-19-induced challenges in VCP students' learning.

The next section develops a research model for the present paper, outlining factors that are expected to influence students' learning in VCPs. The research model is empirically investigated using questionnaire data from students in a technology-oriented VCP in Scandinavia. Fuzzy-set qualitative comparative analysis (fsQCA) is applied for data analysis. The present paper contributes to entrepreneurship education research by suggesting that learning from failure should be followed by new entrepreneurial endeavours [8] and by pinpointing that learning through being active in a new venture is essential for entrepreneurial learning [5]. Moreover, the present paper relates to developments in challenge- and problem-based engineering education [11].

2 FRAME OF REFERENCE: LEARNING IN STUDENT VENTURES

Learning is central to all entrepreneurship [12], and entrepreneurial learning has emerged as a core concept in entrepreneurship research over the last few decades. In essence, entrepreneurial learning can be understood as the process through which experiences from entrepreneurship are transformed into knowledge that informs future entrepreneurial actions [13]. Entrepreneurial learning builds on experiential learning theory [14]; hence, being involved and active in a new venture is a key factor for entrepreneurial learning [7]. Learning also occurs in situations that are detrimental or even fatal to a new venture, such as different degrees of failure [8]. Thus, the event of entering or exiting a new venture is considered relevant for explaining entrepreneurial learning.

Since entrepreneurial learning is seen as the process informing new entrepreneurial action that is developed or improved over time [14], progress in a new venture is also relevant for entrepreneurial learning. The new venture's progress is a sign that entrepreneurial learning has occurred in the past and that new situations, tasks and challenges are presented to the entrepreneur, which, as mentioned, is key to entrepreneurial learning [7]. Hence, new venture progress is to be considered relevant for explaining entrepreneurial learning. Experiences of challenges in the entrepreneurial process, such as the crisis situation represented by COVID-19 [9], are also relevant for entrepreneurial learning, and challenges from COVID-19 are therefore considered relevant for explaining entrepreneurial learning alongside new venture progress.

The four factors found to be relevant in explaining entrepreneurial learning—challenges from COVID-19, new venture progress, entrepreneurial entry and entrepreneurial exit—may be combined in a research model, as presented in Eq. (1). The research model states that entrepreneurial learning can be expressed as a function of the four abovementioned factors.

$$entr. learning = f(challenge, venture progress, entr. entry, entr. exit) \quad (1).$$

The next section explains the research methods applied to empirically investigate the research model presented in Eq. (1).

3 METHODOLOGY

3.1 Research context and data collection

This research builds on empirical data collected from a cohort of students in a technology-oriented VCP in Scandinavia. The VCP is a two-year MSc programme and includes courses in strategy, business management, engineering and social sciences, alongside the facilitation of students' venture creation processes. In April 2021, we

collected our research data through an online questionnaire administered to students in the VCP. Twenty-seven students responded to the survey, representing a 73% response rate. The following paragraphs explain the measures we used in the survey and how we proceeded with the data analysis.

3.2 Sample and measures

Multi-item measures assessed (1) entrepreneurial learning, (2) challenges experienced from COVID-19 and (3) progress of students' ventures. We also asked whether students had entered or exited an entrepreneurial project and whether these projects were run by a team or only the individual student.

Entrepreneurial learning was measured using four items adapted from Funken et al. [15] and rated using a seven-point Likert scale, where 1 = Not at all and 7 = To a very large extent. The questionnaire items were: 'In the last year, I have...' (a) '...learned to develop and implement business strategies', (b) '...developed my capability to make a great deal of progress towards building a viable business venture', (c) '...learned to run the new venture more effectively' and (d) '...learned to read the signs of whether the new venture has difficulties'.

Challenge from COVID-19 was measured using a custom-made scale for the present paper, since the COVID-19 pandemic represents a unique and novel situation. For each item, the respondent was asked to answer using a seven-point Likert scale, where 1 = Not at all and 7 = To a very large extent. The questionnaire items were: 'In the last year, the pandemic has given me problems in relation to...' (a) '...discussing with others in the study programme', (b) '...participating in lectures', (c) '...communicating with my new venture team' and (d) '...getting/keeping in touch with customers and partners'.

New venture progress was measured using three items adapted from Funken et al. [15] and rated using a seven-point Likert scale, where 1 = Not at all and 7 = To a very large extent. The questionnaire items were: 'In the last year...' (a) '...the new venture has made good progress', (b) '...the likelihood for new venture success has been enhanced' and (c) '...the new venture has developed substantially'.

Entrepreneurial entry was measured with yes/no (yes = 1) alternatives to the question, 'In the last year, I have started or involved myself in at least one new venture'. Entrepreneurial exit was measured with yes/no (yes = 1) alternatives to the question 'In the last year, I have exited at least one new venture'. Table 1 presents the descriptive statistics for the variables.

Table 1. Descriptive statistics

Measure	Chro.a	Mean	SD	Min.	Max.	FNT	CP	FMT
Entrepreneurial learning	0.91	4.78	1.56	2	7	2.75	4.60	6.25
Challenge from COVID-19	0.83	4.14	1.32	2	7	2.75	4.00	5.25
New venture progress	0.96	4.35	2.05	1	7	1.33	4.66	6.33
Entrepreneurial entry	–	0.79	0.41	0	1	–	–	–
Entrepreneurial exit	–	0.42	0.50	0	1	–	–	–

SD=standard deviation, FNT=full non-membership threshold, CP=crossover point, FMT=full membership threshold [19]

3.3 Fuzzy-set qualitative comparative analysis

To be consistent with the research model, we included only students who were involved in a start-up, and three responses were thus removed from the sample. We applied fuzzy-set qualitative comparative analysis (fsQCA) to analyse our data. FsQCA offers the opportunity to investigate complex logic combinations of factors that explain an outcome and is particularly suited for small samples [17]. The package ‘fuzzy’ by Longest and Vaisey [18] was used in STATA/MP version 17.

FsQCA requires that values of all variables range from 0 to 1, where 1 represents ‘full membership’, meaning that a condition is fully in place, and 0 the opposite. While already dichotomous variables are ready for fsQCA, Likert-scale variables need calibration before analysis. We used the direct approach described by Ragin [18]. The values for full non-membership thresholds, crossover points and full membership thresholds are presented in Table 1. Solution consistencies indicate a well-fit model (solution consistency > 0.9).

4 RESULTS AND DISCUSSION

The results from the fsQCA are presented in Table 2, which reveals three sets of how the included factors combined explain students’ entrepreneurial learning or the absence thereof. One set (Set 1) explains entrepreneurial learning (Entr.learn = 1) and two sets (Sets 2 and 3) explain the absence of entrepreneurial learning (Entr.learn = 0).

Table 2. Truth table from the fsQCA

Set	Chall.	Vent.prog.	Entr.ent.	Entr.exit	Entr.learn.	R.Cov.	U.Cov.	S.Con.
1	0	1	1	1	1	0.192	0.192	0.901
2	1	0	0	–	0	0.149	0.094	0.916
3	1	–	0	1	0	0.055	0.000	0.982

R.Cov.=raw coverage, U.Cov.=unique coverage, S.Con.=solution consistency. ‘1’ means that a factor is present, ‘0’ means that a factor is absent and ‘–’ means that the factor is not relevant in the set.

Using the notation from the research model in Eq. (1), the solution leading to entrepreneurial learning in Set 1 (in Table 2) may therefore be expressed as in Eq. (2). ‘~’ denotes the inverse of a condition, which is the absence of a factor.

$$\text{entr. learning} = \sim \text{challenge} * \text{venture progress} * \text{entr. entry} * \text{entr. exit} \quad (2).$$

Similarly, the solutions leading to the absence of entrepreneurial learning in Sets 2 and 3 (in Table 2) may be simplified to Eq. (3).

$$\sim \text{entr. learning} = \text{challenge} * \sim \text{entr. entry} * (\sim \text{venture progress} + \text{entr. exit}) \quad (3).$$

Eq. (2) shows that new venture progress and entrepreneurial entry and exit, as well as an absence of pandemic-induced challenges, were necessary for entrepreneurial learning. Using Eq. (3), we found that pandemic-induced challenges and the absence of entrepreneurial entry were necessary for the absence of entrepreneurial learning. Entrepreneurial exit during the pandemic hindered entrepreneurial learning. Additionally, either the absence of new venture progress or entrepreneurial exit completes the two pathways that explain the absence of entrepreneurial learning. Thus, one finding of the present paper is that all four factors in the research model in Eq. (1) were relevant for explaining entrepreneurial learning.

Even though fsQCA operates with the existence or non-existence of an outcome, entrepreneurial learning is, in practice, not either-or but rather relatively more or less learning. Thus, the results suggest that the combination of factors on the right side of Eq. (2) facilitates entrepreneurial learning, while the combination of factors on the right side of Eq. (3) prevents entrepreneurial learning. Challenges from COVID-19 are therefore found to counteract entrepreneurial learning to some degree, while new venture progress, as expected, facilitates entrepreneurial learning. Interestingly, the combination of entrepreneurial exit and entrepreneurial entry, in addition to progress in the new venture, was found to be necessary for entrepreneurial learning. Assuming that the progress is in the new venture that was entered, this finding points to some interesting dynamics. For instance, some ventures may be severely impacted by COVID-19, to the point that a student entrepreneur chooses to exit that venture. However, the process of experiencing and handling that process could potentially facilitate the student’s learning. In contrast, a lack of new venture progress or entrepreneurial exit without entrepreneurial entry (see Eq. (2) and Eq. (3)) did not facilitate learning to the same degree, given that the student had experienced high levels of COVID-19-induced challenges.

The present paper cannot prove causality between, for instance, new venture progress and entrepreneurial exit or entry, between COVID-19-induced challenges and new venture progress, or between COVID-19-induced challenges and entrepreneurial exit. Thus, there may be processual dynamics that can provide clearer models and conceptualisations of how crisis-induced challenges influence the entrepreneurial learning of students in VCPs. However, the results of the present paper suggest that

while challenging events such as exiting and entering a venture facilitate learning as long as there is progression in the new venture, challenges combined with stagnation prevent learning. Not only is new venture progress important for entrepreneurial learning in VCPs, but also progression for individual students. In other words, it is important that VCP students get 'back on the horse' during a challenging situation to avoid passiveness and stagnation. For action-based entrepreneurship education in which students learn through entrepreneurship, faculty should be aware of how active progression for the individual student is important for learning and ensure that students who experience difficulties handle those difficulties within their current venture or choose to become part of another venture in which progress can be made and experienced. Faculty providing challenge- and problem-based engineering education should balance the levels of challenges that students are exposed to, strive for some degree of progression and help students avoid too much stagnation in the activities and projects they are involved in [11].

5 SUMMARY

The purpose of the present paper was to investigate the role of COVID-19-induced challenges in VCP students' learning. Through an empirical study of students in a technology-oriented VCP in Scandinavia, the present paper found that COVID-19-induced challenges prevented VCP students' learning. Interestingly, the findings of the present paper further suggest that students' individual progress was important for learning during crisis situations. An implication for entrepreneurship educators is to help students get 'back on the horse'—involved in new entrepreneurial projects—if challenges in the current venture lead to stagnation and inactivity. The adversity presented by COVID-19 is an example of what could present too much of a challenge for VCP students. The present paper therefore contributes to entrepreneurship education research by suggesting that learning from failure should be followed by new entrepreneurial endeavours [8] and by pinpointing that learning through being active in a new venture is essential for entrepreneurial learning regardless [5].

REFERENCES

- [1] Liguori, E.W. and Winkler, C. (2020), From offline to online: challenges and opportunities for entrepreneurship education following the COVID-19 pandemic, *Entrepreneurship Education and Pedagogy*.
- [2] Neck, H.M. and Corbett, A.C. (2018), The scholarship of teaching and learning entrepreneurship, *Entrepreneurship Education and Pedagogy*, Vol. 1, No. 1, pp. 8–41.
- [3] Kassean, H., Vanevenhoven, J., Liguori, E. and Winkel, D.E. (2015), Entrepreneurship education: a need for reflection, real-world experience and action, *International Journal of Entrepreneurial Behavior & Research*, Vol. 21, No. 5, pp. 690–708.
- [4] Rasmussen, E.A. and Sørheim, R. (2006), Action-based entrepreneurship education, *Technovation*, Vol. 26, No. 2, pp. 185–194.

- [5] Haneberg, D.H. and Aadland, T. (2020), Learning from venture creation in higher education, *Industry and Higher Education*, Vol. 34, No. 3, pp. 121–137.
- [6] Lackéus, M. and Williams Middleton, K. (2015), Venture creation programs: bridging entrepreneurship education and technology transfer, *Education + Training*, Vol. 57, No. 1, pp. 48–73.
- [7] Cope, J. (2003), Entrepreneurial learning and critical reflection: discontinuous events as triggers for 'higher-level' learning, *Management Learning*, Vol. 34, No. 4, pp. 429–450.
- [8] Cope, J. (2011), Entrepreneurial learning from failure: an interpretative phenomenological analysis, *Journal of Business Venturing*, Vol. 26, No. 6, pp. 604–623.
- [9] Haneberg, D.H. (2021), SME managers' learning from crisis and effectual behaviour, *Journal of Small Business and Enterprise Development*, (ahead-of-print).
- [10] Thorgren, S. and Williams, T.A. (2020), Staying alive during an unfolding crisis: how SMEs ward off impending disaster, *Journal of Business Venturing Insights*, Vol. 14, e00187.
- [11] López-Fernández, D., Sánchez, P. S., Fernández, J., Tinao, I., and Lapuerta, V. (2020), Challenge-based learning in aerospace engineering education: the ESA concurrent engineering challenge at the Technical University of Madrid. *Acta Astronautica*, Vol. 171, pp. 369-377.
- [12] Minniti, M. and Bygrave, W. (2001), A dynamic model of entrepreneurial learning, *Entrepreneurship: Theory & Practice*, Vol. 25, No. 3, pp. 5–16.
- [13] Young, J.E. and Sexton, D.L. (1997), Entrepreneurial learning: a conceptual framework, *Journal of Enterprising Culture*, Vol. 5, No. 3, pp. 223–248.
- [14] Kolb, D.A. (1984), *Experiential Learning: Experience as the Source of Learning and Development*, Englewood Cliffs, New Jersey.
- [15] Haneberg, D.H. (2019), Entrepreneurial learning as an effectual process, *The Learning Organization*, Vol. 26, No. 6, pp. 631–647.
- [16] Funken, R., Gielnik, M.M. and Foo, M. (2020), How can problems be turned into something good? The role of entrepreneurial learning and error mastery orientation. *Entrepreneurship: Theory and Practice*, Vol. 44, No. 2, pp. 315–338.
- [17] Kraus, S., Ribeiro-Soriano, D. and Schüssler, M. (2018), Fuzzy-set qualitative comparative analysis (fsQCA) in entrepreneurship and innovation research – the rise of a method, *International Entrepreneurship and Management Journal*, Vol. 14, No. 1, pp. 15–33.
- [18] Longest, K.C. and Vaisey, S. (2008), Fuzzy: a program for performing qualitative comparative analyses (QCA) in Stata, *Stata Journal*, Vol. 8, No. 1, pp. 79–104.
- [19] Ragin, C.C. (2008), Fuzzy set analysis: measurement versus calibration. In: Box-Steffensmeier, J., Brady, H. and Collier, D. (eds) *The Oxford Handbook of Political Methodology*, Oxford University Press, Oxford.