



The EntreComp Bias: A Qualitative Study on Entrepreneurial Competence in Entrepreneurship Training

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Abstract

As entrepreneurship is seen as a catalyst for innovation, economic growth and social progress, European public authorities are promoting entrepreneurial activity through education and training. Despite extensive research on academic entrepreneurship education, entrepreneurship training has received less attention. Entrepreneurship education refers to structured educational interventions designed to equip potential and existing entrepreneurs with the knowledge, skills and attitudes needed to start and run successful businesses. Entrepreneurship training is designed to promote the entrepreneurial competences identified in the European Commission's Entrepreneurship Competence Framework (EntreComp). In a qualitative study of training activities, a content analysis was conducted to assess the compliance of the learning content with this policy standard. An internet search identified 194 courses in the Berlin-Brandenburg metropolitan region, Germany. The course descriptions were systematically analyzed and coded using the EntreComp framework. The results indicate that the courses primarily convey management knowledge rather than an entrepreneurial mindset. More than 50% of the content is related to start-up preparation, legal issues, finance and marketing, with less emphasis on creativity and interpersonal skills. Most courses prioritize knowledge acquisition, often neglecting the development of skills and attitudes. The entrepreneurship training programs studied adhere to a traditional approach to education in terms of educational paradigms. The study highlights a discrepancy between recommended policies and educational practices and suggests implications for the design of entrepreneurship training programs.

Keywords: competence, entrepreneurship, entrepreneurship education, entrepreneurship training, start-up

1. Introduction

Entrepreneurship is commonly considered a significant catalyst for innovation, economic growth, and social progress (Birch, 1987; Glaub & Frese, 2011; World Economic Forum, 2015). It is thought to foster the acquisition of new skills and abilities (European Commission, 2013). However, successful entrepreneurship requires expertise, competence,

and a specific mindset to efficiently establish and manage a business. Entrepreneurship education and training are a priority in policy practice because they enhance entrepreneurial competence and assist individuals in their entrepreneurial pursuits (Kuratko, 2005; O'Connor, 2013; Botha et al., 2015; Lyons & Zhang, 2018; Baggen & Kaffka, 2022).

In Europe, policymakers have identified entrepreneurship as a key competence for lifelong learning (European Commission, 2006a; European Council, 2018). The Oslo Agenda for Entrepreneurship Education of 2006 emphasized the need to promote an entrepreneurial culture (European Commission, 2006b). Recently, the Entrepreneurship 2020 Action Plan of the European Commission backed the promotion of entrepreneurship at national and supranational levels and called for initiatives on entrepreneurial education and training (European Commission, 2013; European Parliament, 2013).

Entrepreneurship education and training pertain to programs, courses, or initiatives created to facilitate individuals in effectively participating in entrepreneurial activities (Garavan & O'Conneide, 1994; Matley, 2008; Valerio et al., 2014). Entrepreneurship education is commonly associated with degree programs in secondary and higher education that aim to assist students in developing their entrepreneurial skills and prepare them for different forms of entrepreneurial practice (Wilson, 2008; Coduras Martínez et al., 2010; Lackéus, 2015; Tittel & Terzidis, 2020). In contrast, entrepreneurship training and start-up training refer to interventions, typically informal, that target potential and practicing entrepreneurs. These interventions are explicitly designed to prepare participants for launching a business venture or enhancing their professional performance. (Coduras Martínez et al., 2010; Valerio et al., 2014; Gielnik et al., 2017; Nindl & Kaufmann, 2020).

Research endeavors concentrate on entrepreneurship education, with specific emphasis on its effects (Aamir et al., 2019; Banha et al., 2022; Tiberius & Weyland, 2023), making entrepreneurship training a field that merits comparable exploration. Empirical evidence indicates that training in entrepreneurship positively impacts competences such as business knowledge, entrepreneurial awareness, and interpersonal skills (Wu & Jung, 2008; Martin et al., 2013; Valerio et al., 2014; Weers & Gielnik, 2020). Entrepreneurship training promotes an inclination to initiate a business venture and encourages subsequent business creation (Garavan & O'Conneide, 1994; Coduras Martinez et al., 2010; Martin et al., 2013; Matricano, 2014; Fairlie et al., 2015; Lyons & Zhang, 2018; Singh et al., 2023). It may have long-term impacts (Gielnik et al., 2016), but it cannot ensure business performance and survival (Valerio et al., 2014; Fairlie et al., 2015).

Research indicates that academic entrepreneurship education is more effective than entrepreneurship training (Martin et al., 2013). Additionally, the effectiveness of training interventions has mixed empirical results, with effect sizes depending on study rigor (Glaub & Frese, 2011; Martin et al., 2013; Weers & Gielnik, 2020) and participant characteristics, such as gender, age, and previous knowledge (Fairlie et al., 2015; Matricano, 2017; Lyons & Zhang, 2018). Course design and teaching methods may contribute to the heterogeneity of outcomes in entrepreneurship training (Glaub & Frese, 2010; Weers & Gielnik, 2020), an area that has not yet been fully explored. Decades ago, entrepreneurial training programs placed little emphasis on developing specific entrepreneurial skills (Garavan & O'Conneide, 1994). Given the increasing political importance of the field, it is worth considering whether this finding still holds true.

Against this background, a qualitative study was conducted to determine the extent to which course descriptions in entrepreneurship training address entrepreneurial competence. This research focuses on one-to-many entrepreneurship training offered by universities, non-profit organizations, and commercial providers, which constitutes the majority of training

opportunities (Fotopoulou et al., 2017). The study did not include entrepreneurship training offered by certain business incubators as part of their tailored services (Li et al., 2020; OECD/European Commission, 2023) due to a lack of comparability.

Based on the comprehension of entrepreneurial competence as a complex set of knowledge, skills, and attitudes that are essential for initiating and managing a business (Mitchelmore & Rowley, 2010; Reis et al., 2021; Weers & Gielnik, 2020), the European Entrepreneurship Competence Framework (EntreComp) (Bacigalupo et al., 2016) was used as a reference. The study contributes to research by identifying deviations in learning objectives, training design, and course content.

2. The European Entrepreneurship Competence Framework

The European Entrepreneurship Competence Framework (EntreComp) acknowledges the significance of entrepreneurial competence as a fundamental requirement for lifelong learning and starting a business, in line with the European Union's policy on entrepreneurship and education. Furthermore, EntreComp emphasizes the diverse nature of entrepreneurship, encompassing a range of competences necessary for success in different entrepreneurial endeavors (European Commission, 2019; Baggen & Kaffka, 2022). According to EntreComp, entrepreneurial competence is a combination of knowledge, skills, and attitudes that enable individuals to identify business opportunities, manage uncertainty, and transform ideas into action through business planning and creation. This framework includes assessing and evaluating opportunities, mobilizing and administering resources, and successfully converting ideas into action (Bacigalupo et al., 2016).

EntreComp was developed from the 2015 Joint Research Centre (JRC) study on Entrepreneurship Competence commissioned by the European Commission. The study used a mixed-methods approach involving numerous entrepreneurs and experts to identify key components of entrepreneurship as a competence. These findings provided the foundation for a conceptual model and the definition of learning outcomes to serve as indicators for entrepreneurial proficiency (Bacigalupo et al., 2016).

The EntreComp framework, developed by Bacigalupo et al. (2016), comprises 15 competences that encompass a range of skills, attitudes, and behaviors. These competences are equally distributed across three interconnected thematic areas: “Ideas and opportunities”, “Resources”, and “Into action” (see Appendix, Table A1 for the 15 competences and their descriptors).

The “Ideas and opportunities” area emphasizes the capacity to identify, generate, and assess opportunities for entrepreneurship and innovation. It encompasses competences related to creativity, vision, and the recognition of business prospects. Successful entrepreneurs must excel at seeking out opportunities, problem-solving, and employing creative thinking to develop groundbreaking solutions.

The “Resources” area focuses on the skills required to efficiently mobilize and manage resources in an entrepreneurial setting. These include financial literacy, organizational abilities, as well as the aptitude to leverage networks and partnerships. Entrepreneurs must be capable of handling risks, making informed financial decisions, and establishing and maintaining indispensable relationships for their business ventures.

“Into action” comprises the skills necessary to translate ideas and opportunities into tangible outcomes. This entails planning, taking initiative, and exhibiting persistence. Entrepreneurs are expected to proactively seize calculated risks and implement their ideas efficiently.

Proficiency in this area also entails adaptability and the capacity to draw pertinent lessons from experience, reflecting the dynamic nature of entrepreneurship.

According to the framework, the competences lack clear delineation from one another based on the 15 descriptors. Individuals with these competences can capitalize on opportunities and convert them into value for others (Bacigalupo et al., 2016).

3. Methodology

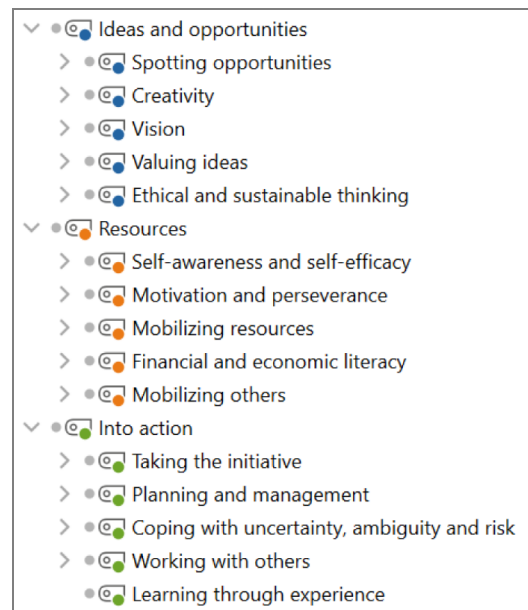
From September 1 to October 15, 2023, an exhaustive internet search was conducted to identify entrepreneurship training courses. The search employed specific terms and a systematic approach to identify training providers and platforms offering one-to-many format courses for nascent and practicing entrepreneurs. The study only considered courses announced for 2023 and excluded academic courses offered as part of a degree program, business incubator programs, individual coaching, consulting services, and one-time informational events.

To ensure currency of data, only courses announced for 2023 were considered. Additionally, the scope was limited to the Berlin-Brandenburg metropolitan region in Germany due to its high rate of start-ups (IfM, n.d.; Startupverband, 2023). It is therefore reasonable to assume that the number of entrepreneurship training courses available in this region, and therefore the data yield, is greater than in other areas.

A total of 163 websites from 29 providers in the Berlin metropolitan region were identified, capturing the available course landscape. The analysis excluded duplicate courses, which were defined as having identical content differing only in teaching language, timing, location, or modality (online, hybrid, offline). The dataset gathered online information on 194 distinct entrepreneurship training courses. Students are the intended target group for 49 extracurricular activities offered by universities. 29 courses are explicitly designed for women, 75 for women with a migrant background, 7 for migrants, and one for entrepreneurs with disabilities.

To examine the content of the entrepreneurship training courses, a qualitative approach was utilized. A content analysis was performed on the course descriptions using MAXQDA software. The analysis involved deductive coding based on EntreComp's 15 competences. This allowed for the organized classification of course content utilizing a pre-established framework (Braun & Clarke, 2006; Elo & Kyngäs, 2008) (see Figure 1 for the key categories of the coding scheme). To ensure a nuanced understanding and refine the 15 codes provided, complementary inductive coding was conducted (Elo & Kyngäs, 2008; Kuckartz & Rädiker, 2023) (see Appendix, Figure A1 for the complete coding scheme).

Furthermore, learning goals were analyzed for competence development focal points. Using a deductive approach, course descriptions were scrutinized for keywords indicating the acquisition of knowledge (e.g., "know*", "overview"), skills (e.g., "apply", "test"), or attitudes (e.g., "attitude", "reflect*"). This iterative process aimed to identify emerging themes and insights beyond the scope of the EntreComp framework.

Figure 1: *Main Categories of the Coding Scheme*

Note: MAXQDA code system based on Bacigalupo et al., 2016, p. 12 f.

The coding was conducted by one researcher and reviewed by another to ensure the coding process's reliability. Subsequent discussions and resolution of discrepancies improved the study's overall quality and precision. Deductive and inductive coding strategies were combined in order to enhance the comprehensiveness of the analysis (Elo & Kyngäs, 2008; Kuckartz & Rädiker, 2023). This provides a strong foundation for interpreting the entrepreneurship training landscape in the Berlin area.

4. Findings

In the 194 examined entrepreneurship training courses, entrepreneurial competences were identified a total of 559 times. The most prevalent EntreComp area is “Resources,” which is included in 86% of the courses and accounts for 74% of the competences (refer to Table 1). On average, each course covers at least two components of managing and mobilizing financial, personnel, or material resources. The development of competences related to “Resources” can be integrated into a broad training, but also stand alone as an intervention. However, competences within “Ideas and opportunities” and “Into action” are typically included in training covering a wider range of topics. These competences are addressed much less frequently.

Table 1: *EntreComp Areas in Entrepreneurship Training*

Areas	Frequency of courses	Frequency in per cent of courses (n = 194)	Frequency of codes	Frequency of codes in per cent of entries
Ideas and opportunities	40	20.62	67	11.99
Resources	167	86.08	413	73.88
Into action	68	35.05	79	14.13
Total	275		559	100.0

Table A2 in the Appendix shows that “Mobilizing Resources” is the most prominent of the 15 EntreComp competences. It appears in over two-thirds of the courses and accounts for

more than half of the competence entries in the sample. The supplementary sub-codes of “Mobilizing Resources” include course content on marketing, legal matters, finance, and taxation, among others. However, most of the entries in this category relate to basic start-up procedures such as dealing with authorities and registering a company (72 courses). Almost one-third of all courses cover financial and economic literacy, as well as planning and management skills. Only 29 courses do not address these three top competences at all. Other competences make up less than 10% of the entries each.

The course descriptions reveal a significant emphasis on knowledge transfer, as shown in Table 2. Almost all courses follow this approach in their learning objectives.

Table 2: Frequency of Competence Elements in Entrepreneurship Training

Competence elements	Frequency of courses	Frequency in per cent of courses (n = 150)	Frequency of codes	Frequency of codes in per cent of entries
Knowledge	141	94.00	488	80.79
Skills	41	27.33	80	13.25
Attitudes	29	19.33	36	5.96
Total	211	100.00	604	100.0

Only a few courses offer application-oriented training for the EntreComp “Ideas and opportunities” area. These courses include business modeling and idea development, sometimes with the option to incorporate participants’ ideas and validate original concepts. Managing opportunities is typically presented as a marketing toolkit that includes market analysis, needs assessment, market research, and customer analysis. It does not provide a skill enhancement training.

Only one out of five courses covers the least emphasized aspect, which is the entrepreneurial mindset. Although the notion of an entrepreneurial personality is presented in events with a broad scope, it is just one item on the agenda without targeted training in related soft skills. The presentation focuses on knowledge sharing instead of promoting personal growth.

5. Implications

The data suggests that the EntreComp area “Resources” is overrepresented in the course offerings, with a focus on management and resource mobilization. Additionally, the courses prioritize financial and economic literacy, as well as business planning, with less emphasis on creativity and idea generation.

Most offerings prioritize knowledge transfer but neglect skill development and cultivating positive attitudes towards managing uncertain situations. They tend to focus on imparting management knowledge rather than fostering an entrepreneurial mindset, with little attention given to intrapersonal skills. Risk literacy, although crucial for navigating uncertainty during the start-up phase, receives insufficient attention.

The large number of entries in the “Resources” area is due in part to the methodology used. The numerous sub-codes reflect the various themes covered by the associated competences. However, the abundance of courses focused on management suggests that training practices do not cover the full range of entrepreneurial competences outlined in the EntreComp framework. Entrepreneurship training focuses heavily on disseminating management knowledge, indicating a managerial training orientation.

Previous research has shown that entrepreneurship training often overlooks certain entrepreneurial competences (Garavan & O’Cinneide, 1994). The present study also found that an emphasis on general management competences can lead to neglecting a comprehensive set of knowledge, skills, and attitudes that are necessary for starting and managing a business (Martin et al., 2013). As entrepreneurial and managerial skills differ (Botha et al., 2015; Reis et al., 2021) and managers are expected to act like intrapreneurs more often (Huang et al., 2021), scholars recommend enhancing management education by incorporating entrepreneurial skills (Almeida et al., 2021). Thus, it appears counterproductive for entrepreneurship training to imitate management education. In start-ups, the importance of entrepreneurial skills outweighs that of general management skills (Botha et al., 2015). The interdependence and complementarity of these diverse skill sets (Mitchelmore & Rowley, 2010) does not warrant prioritizing management in entrepreneurship education.

Entrepreneurship training fails to reflect the current understanding of competence as a comprehensive combination of knowledge, skills, and attitudes (Parry, 1996; Wing Yan Man, 2006). Competence in entrepreneurship entails more than just having the know-how to write a business plan and comply with legal and financial regulations; it also requires taking initiative and being proactive. For this reason, training programs should be less concerned “with learning ‘about’ [entrepreneurship] as opposed to pursuing ‘for’ ” (Gibb, 2002, p. 142). This requirement is already well-established in the discourse on entrepreneurship education (Gibb, 2002; Pittaway & Edwards, 2012).

Although the study did not investigate the learning environments of the courses, the findings suggest that the entrepreneurship trainings in the sample follow a traditional approach to education. The objective of these trainings is to impart extensive knowledge in a short period through a stationary classroom setting and a teacher-centered style. The course designers implicitly support the claim that business skills can be taught, but not an entrepreneurial mindset (Fiet, 2001). Cognitive competences such as business planning skills and knowledge about entrepreneurship can be taught relatively easily. However, non-cognitive competences require experiential learning (Akola & Hainonen, 2006; Moberg, 2014; Rodriguez & Lieber, 2020). Therefore, an action-oriented approach to entrepreneurship training holds greater promise in addressing the complete EntreComp spectrum (Bischoff et al., 2020; Ismail & Sawang, 2020; Eller et al., 2022).

Some providers aim to serve marginalized groups without considering the type of venture. Basic knowledge of dealing with authorities plays a crucial role, while entrepreneurial attitudes are rarely addressed. Although the courses claim to be generic, they are designed primarily for solopreneurs, self-employment, and small businesses. Therefore, they may not be suitable for nascent entrepreneurs seeking high-growth enterprises. Previous research (Gibb, 1987; Garavan & O’Cinneide, 1994; Wilson, 2008) has shown that the providers do not distinguish clearly between entrepreneurs and small business owners. This lack of customer segmentation could affect the success of training programs, as learners respond differently to training based on their unique resources and capabilities (Fairlie et al., 2015; Lyons & Zhang, 2018).

The study has limitations due to the non-discrete nature of the EntreComp framework, which has categories that are not mutually exclusive, resulting in a lack of clear delineation. The code system used in this study reflects this non-discreteness, creating challenges in maintaining strict delineations between categories. Furthermore, the study’s data collection timeframe and spatial range only cover a subset of the available entrepreneurship training courses in 2023. Therefore, the findings may not be generalizable beyond the specified timeframe and regional focus. Furthermore, the study does not consider entrepreneurship

training carried out in business incubators, which is a significant omission. This highlights the need for future comparative analysis.

This research shows a clear bias towards management knowledge in entrepreneurship training, which undermines political campaigns to foster effective support for entrepreneurial pursuits. Further investigation of the association between training design and learning outcomes is essential, particularly given that entrepreneurship training receives state subsidies. EntreComp serves as a useful point of reference for policymakers, curriculum specialists, and trainers. The disparity between one's aspirations and the actuality of their situation warrants a reevaluation of training designs and a greater focus on their appropriateness for individuals with entrepreneurial aspirations.

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References

- Aamir, S., Atsan, N. F., & Erdem, A. F. (2019). A review of entrepreneurship education research in the special issues of Education + Training journal. *Education + Training*, 61(9), 1078–1099. <https://doi.org/10.1108/ET-02-2019-0027>
- Akola, E., & Heinonen, J. (2006). How to support learning of entrepreneurs? A study of training programmes for entrepreneurs in five European countries. Paper presented at the XXth Conference of Research in Entrepreneurship and Small Business, November 22–24, Brussels, Belgium. European Institute for Advanced Studies in Management (EIASM).
- Almeida, J., Daniel, A., & Figueiredo, C. (2021). The future of management education: The role of entrepreneurship education and junior enterprises. *International Journal of Management Education*, 19(1), 100318. <https://doi.org/10.1016/j.ijme.2019.100318>
- Bacigalupo, M., Kampylis, P., Punie, Y., & Van den Brande, G. (2016). *EntreComp: The Entrepreneurship Competence Framework*. EUR 27939 EN. Publications Office of the European Commission. <https://data.europa.eu/doi/10.2791/160811>
- Baggen, Y. & Kaffka, G. (2022). *Entrepreneurial literacy and skills*. European Parliament. [https://www.europarl.europa.eu/RegData/etudes/STUD/2022/703363/IPOL_STU\(2022\)703363_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2022/703363/IPOL_STU(2022)703363_EN.pdf)
- Banha, F., Coelho, L. S., & Flores, A. (2022). Entrepreneurship education: A systematic literature review and identification of an existing gap in the field. *Education Sciences*, 12(5), 336. <http://dx.doi.org/10.3390/educsci12050336>
- Birch, David G. W. (1987). *Job creation in America: How our smallest companies put the most people to work*. The Free Press.
- Bischoff, K. M., Gielnik, M. M., & Frese, M. (2020). When capital does not matter: How entrepreneurship training buffers the negative effect of capital constraints on business creation. *Strategic Entrepreneurship Journal*, 14(3), 369–395. <https://doi.org/10.1002/sej.1364>
- Botha, M., van Vuuren, J., & Kunene, T. (2015). An integrated entrepreneurial performance model focusing on the importance and proficiency of competencies for start-up and established SMEs. *South African Journal of Business Management*, 46(3), 55–66. <https://doi.org/10.4102/sajbm.v46i3.101>

- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Coduras Martínez, A., Levie, J., Kelley, D. J., Sæmundsson, R. J., & Schøtt, T. (2010). *Global Entrepreneurship Monitor special report: A global perspective on entrepreneurship education and training*. Global Entrepreneurship Research Association.
- Eller, F. J., Gielnik, M. M., Yeves, J., Alvarado, Y. C., & Guerrero, O. A. (2022). Adjusting the sails: Investigating the feedback loop of the opportunity development process in entrepreneurship training. *Academy of Management Learning & Education*, 21(2), 209–235. <https://doi.org/10.5465/amle.2020.0041>
- Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107–115. <https://doi.org/10.1111/j.1365-2648.2007.04569.x>
- European Commission. (2006a). Recommendation of the European Parliament and of the Council of 18 December 2006 on essential competences for lifelong learning. *Official Journal of the European Union*, L 394/10–18. <http://data.europa.eu/eli/reco/2006/962/oj>
- European Commission. (2006b). The Oslo agenda for entrepreneurship education. In European Commission (Ed.), *Entrepreneurship education in Europe: Fostering entrepreneurial mindsets through education and learning* (pp. 86–92). Publications Office of the European Union. <https://ec.europa.eu/docsroom/documents/17642/attachments/1/translations/en/renditions/pdf>
- European Commission. (2013). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions Entrepreneurship 2020 Action Plan: Reigniting the entrepreneurial spirit in Europe*. COM/2012/0795. Publications Office of the European Commission. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52012DC0795>
- European Commission. (2019). *Key competences for lifelong learning*. Publications Office of the European Union. <https://data.europa.eu/doi/10.2766/569540>
- European Council. (2018). Council recommendation of 22 May 2018 on key competences for lifelong learning. *Official Journal of the European Union*, C 189/1–13. [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604(01))
- European Parliament. (2013). Entrepreneurship 2020 action plan: Reigniting the entrepreneurial spirit in Europe. *Official Journal of the European Union*, C 436/11–16. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013IP0512&from=NL>
- Fairlie, R. W., Karlan, D., & Zinman, J. (2015). Behind the GATE experiment: Evidence on effects of and rationales for subsidized entrepreneurship training. *American Economic Journal: Economic Policy*, 7(2), 125–161. <http://www.jstor.org/stable/24465959>
- Fiet, J. O. (2001). The theoretical side of teaching entrepreneurship. *Journal of Business Venturing*, 16(1), 1–24. [https://doi.org/10.1016/S0883-9026\(99\)00041-5](https://doi.org/10.1016/S0883-9026(99)00041-5)
- Fotopoulou, D., Siagas, S., Bibikas, D., Zaharis, N., Tomur, E., Staiou, E., Cerqueira, C., Matias, F., Porta, M. C., & Lucca, S. (2017). One-size-fits-none: How entrepreneurship training can meet regional socio-economic contexts. In P. Ketikidis & A. Solomon (Eds.), *Proceedings of the 10th International Conference for Entrepreneurship, Innovation and Regional Development (ICEIRD)* (pp. 147–157). https://artionce-my.sharepoint.com/personal/iceird_artion_com_gr/Documents/ICEIRD2017-ProceedingsBook.pdf?ga=1

- Garavan, T. N., & O’Cinneide, B. O. (1994). Entrepreneurship education and training programmes: A review and evaluation, Part 1. *Journal of European Industrial Training*, 18(8), 3–12.
- Gibb, A. A. (1987). Education for enterprise: Training for small-business initiation: Some contrasts. *Journal of Small Business & Entrepreneurship*, 4(3), 42–47. <https://doi.org/10.1080/08276331.1987.10600270>
- Gibb, A. A. (2002). Creating conducive environments for learning and entrepreneurship: Living with, dealing with, creating and enjoying uncertainty and complexity. *Industry and Higher Education*, 16(3), 135–148. <https://doi.org/10.5367/000000002101296234>
- Gielnik, M. M., Frese, M., Bischoff, K. M., Muhangi, G., & Omoo, F. (2016). Positive impact of entrepreneurship training on entrepreneurial behavior in a vocational training setting. *Africa Journal of Management*, 2(3), 330–348. <https://doi.org/10.1080/23322373.2016.1206804>
- Gielnik, M. M., Uy, M. A., Funken, R., & Bischoff, K. M. (2017). Boosting and sustaining passion: A long-term perspective on the effects of entrepreneurship training. *Journal of Business Venturing*, 32(3), 334–353. <https://doi.org/10.1016/j.jbusvent.2017.02.003>
- Glaub, M., & Frese, M. (2011). A critical review of the effects of entrepreneurship training in developing countries. *Enterprise Development and Microfinance*, 22(4), 335–353. <https://doi.org/10.3362/1755-1986.2011.035>
- Huang, L. Y., Yang Lin, S. M., & Hsieh, Y. J. (2021). Cultivation of intrapreneurship: A framework and challenges. *Frontiers in Psychology*, 12, 731990. <https://doi.org/10.3389/fpsyg.2021.731990>
- (IfM) Institut für Mittelstandsforschung. (s. a.). *Existenzgründungsintensität in den Bundesländern 2022* [Business start-up intensity in the federal states in 2022]. S 51-4-22. <https://www.ifm-bonn.org/statistiken/gruendungen-und-unternehmensschliessungen/existenzgruendungen-insgesamt>
- Ismail, A. B., & Sawang, S. (2020). Entrepreneurship education, pedagogy and delivery. In S. Sawang (Ed.), *Entrepreneurship education: Contributions to management science* (pp. 1–10). Springer. https://doi.org/10.1007/978-3-030-48802-4_1
- Kuckartz, U., & Rädiker, S. (2023). *Qualitative content analysis: Methods, practice and software* (2nd ed.). Sage Publications.
- Kuratko, D. F. (2005). The emergence of entrepreneurship education: Development, trends, and challenges. *Entrepreneurship Theory and Practice*, 29(5), 577–597. <https://doi.org/10.1111/j.1540-6520.2005.00099.x>
- Lackéus, Martin (2015): *Entrepreneurship in education*. OECD Publishing. https://www.oecd.org/cfe/leed/BGP_Entrepreneurship-in-Education.pdf
- Li, C., Ahmed, N., Qalati, S. A., Khan, A., & Naz, S. (2020). Role of business incubators as a tool for entrepreneurship development: The mediating and moderating role of business start-up and government regulations. *Sustainability*, 12(5), 1822. <http://dx.doi.org/10.3390/su12051822>
- Lyons, E., & Zhang, L. (2018). Who does (not) benefit from entrepreneurship programs? *Strategic Management Journal*, 39(1), 85–112. <https://doi.org/10.1002/smj.2704>

- Martin, B. C., McNally, J. J., & Kay, M. J. (2013). Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes. *Journal of Business Venturing*, 28(2), 211–222. <https://doi.org/10.1016/j.jbusvent.2012.03.002>
- Matlay, H. (2008). The impact of entrepreneurship education on entrepreneurial outcomes. *Journal of Small Business and Enterprise Development*, 15(2), 382–396.
- Matricano, D. (2014). Entrepreneurial training: A comparative study across fifteen European Countries. *Industry and Higher Education*, 28(5), 311–330. <https://doi.org/10.5367/ihe.2014.0221>
- Matricano, D. (2017). Can policymakers improve the effectiveness of entrepreneurship training programmes? Evidence from Italy. *Industry and Higher Education*, 31(1), 51–61. <https://doi.org/10.1177/0950422216684071>
- Mitchelmore, S., & Rowley, J. (2010). Entrepreneurial competencies: A literature review and development agenda. *International Journal of Entrepreneurial Behavior & Research*, 16(2), 92–111. <https://doi.org/10.1108/13552551011026995>
- Moberg, K. (2014). Two approaches to entrepreneurship education: The different effects of education for and through entrepreneurship at the lower secondary level. *International Journal of Management Education*, 12(3), 512–528. <https://doi.org/10.1016/j.ijme.2014.05.002>
- Nindl, E., & Kaufmann, P. (2020). Analysis of the Innosuisse start-up training in a Theory of Planned Behavior framework. *fteval Journal for Research and Technology Policy Evaluation*, 50, 37–43. <https://doi.org/10.22163/fteval.2020.468>
- O'Connor, A. (2013). A conceptual framework for entrepreneurship education policy: Meeting government and economic purposes. *Journal of Business Venturing*, 28(4), 546–563. <https://doi.org/10.1016/j.jbusvent.2012.07.003>
- OECD/European Commission. (2023). *Improving the effectiveness of inclusive and social entrepreneurship training schemes*. OECD Local Economic and Employment Development (LEED) Papers No. 2023/05. OECD Publishing. <https://doi.org/10.1787/8386c4de-en>
- Parry, S. B. (1996). Just what is a competency? (And why should you care?). *Training*, 35(6), 58–64.
- Pittaway, L., & Edwards, C. (2012). Assessment: Examining practice in entrepreneurship education. *Education + Training*, 54(8/9), 778–800. <https://doi.org/10.1108/00400911211274882>
- Reis, D. A., Fleury, A. L., & Carvalho, M. M. (2021). Consolidating core entrepreneurial competences: Toward a meta-competence framework. *International Journal of Entrepreneurial Behavior & Research*, 27(1), 179–204. <https://doi.org/10.1108/IJEBR-02-2020-0079>
- Rodriguez, S., & Lieber, H. (2020). Relationship between entrepreneurship education, entrepreneurial mindset, and career readiness in secondary students. *Journal of Experiential Education*, 43(3), 277–298. <https://doi.org/10.1177/1053825920919462>
- Singh, R., Kumar, V., Singh, S., Dwivedi, A., & Kumar, S. (2023). Measuring the impact of digital entrepreneurship training on entrepreneurial intention: The mediating role of entrepreneurial competencies. *Journal of Work-Applied Management*, Advance online publication. <https://doi.org/10.1108/JWAM-11-2022-0076>

- Startupverband. (2023). *Deutscher Startup Monitor 2023* [German Startup Monitor 2023]. https://startupverband.de/fileadmin/startupverband/mediaarchiv/research/dsm/dsm_2023.pdf
- Tiberius, V., & Weyland, M. (2023). Entrepreneurship education or entrepreneurship education? A bibliometric analysis. *Journal of Further and Higher Education*, 47(1), 134–149. <https://doi.org/10.1080/0309877X.2022.2100692>
- Tittel, A., & Terzidis, O. (2020). Entrepreneurial competences revised: Developing a consolidated and categorized list of entrepreneurial competences. *Entrepreneurship Education*, 3, 1–35. <https://doi.org/10.1007/s41959-019-00021-4>
- Valerio, A., Parton, B., & Robb, A. (2014). *Entrepreneurship education and training programs around the world: Dimensions for success*. World Bank Publications.
- Weers, K. J., & Gielnik, M. M. (2020). Entrepreneurship training and transfer. In M. M. Gielnik, M. S. Cardon, & M. Frese (Eds.), *The psychology of entrepreneurship: New perspectives* (pp. 282–304). Routledge.
- Wilson, K. E. (2008). Entrepreneurship education in Europe. In J. Potter (Ed.), *Entrepreneurship and higher education* (pp. 119–138). OECD Publishing.
- Wing Yan Man, T. (2006). Exploring the behavioural patterns of entrepreneurial learning: A competency approach. *Education + Training*, 48(5), 309–321. <https://doi.org/10.1108/00400910610677027>
- World Economic Forum. (2015). *Leveraging entrepreneurial ambition and innovation: A global perspective on entrepreneurship, competitiveness and development*. World Economic Forum. https://www3.weforum.org/docs/WEFUSA_EntrepreneurialInnovation_Report.pdf
- Wu, S., & Jung, J. Y. (2008). Is non-traditional entrepreneurship training helpful to nascent entrepreneurs? Yes and no. *Journal of Entrepreneurship Education*, 11, 43–51.

Appendix

Table A1: EntreComp Framework

Areas	Competences	Hints	Descriptors
1. Ideas and opportunities	1.1 Spotting opportunities	Use your imagination and abilities to identify opportunities for creating value	<ul style="list-style-type: none"> Identify and seize opportunities to create value by exploring the social, cultural and economic landscape Identify needs and challenges that need to be met Establish new connections and bring together scattered elements of the landscape to create opportunities to create value
	1.2 Creativity	Develop creative and purposeful ideas	<ul style="list-style-type: none"> Develop several ideas and opportunities to create value, including better solutions to existing and new challenges Explore and experiment with innovative approaches Combine knowledge and resources to achieve valuable effects
	1.3 Vision	Work towards your vision of the future	<ul style="list-style-type: none"> Imagine the future Develop a vision to turn ideas into action Visualise future scenarios to help guide effort and action
	1.4 Valuing ideas	Make the most of ideas and opportunities	<ul style="list-style-type: none"> Judge what value is in social, cultural and economic terms Recognise the potential an idea has for creating value and identify suitable ways of making the most out of it
	1.5 Ethical and sustainable thinking	Assess the consequences and impact of ideas, opportunities and actions	<ul style="list-style-type: none"> Assess the consequences of ideas that bring value and the effect of entrepreneurial action on the target community, the market, society and the environment Reflect on how suitable long-term social, cultural and economic goals are, and the course of action chosen Act responsibly
2. Resources	2.1 Self-awareness and self-efficacy	Believe in yourself and keep developing	<ul style="list-style-type: none"> Reflect on your needs, aspirations and wants in the short, medium and long term Identify and assess your individual and group strengths and weaknesses Believe in your ability to influence the course of events, despite uncertainty, setbacks and temporary failures
	2.2 Motivation and perseverance	Stay focused and don't give up	<ul style="list-style-type: none"> Be determined to turn ideas into action and satisfy your need to achieve Be prepared to be patient and keep trying to achieve your long-term individual or group aims Be resilient under pressure, adversity, and temporary failure
	2.3 Mobilizing resources	Gather and manage the resources you need	<ul style="list-style-type: none"> Get and manage the material, non-material and digital resources needed to turn ideas into action Make the most of limited resources Get and manage the competences needed at any stage, included technical, legal, tax and digital competences
	2.4 Financial and economic literacy	Develop financial and economic know-how	<ul style="list-style-type: none"> Estimate the cost of turning and idea into a value-creating activity Plan, put in place and evaluate financial decisions over time Manage financing to make sure my value-creating activity can last over the long term
	2.5 Mobilizing others	Inspire, enthuse and get others on board	<ul style="list-style-type: none"> Inspire and enthuse relevant stakeholders Get the support needed to achieve valuable outcomes Demonstrate effective communication, persuasion, negotiation and leadership
3. Into action	3.1 Taking the initiative	Go for it	<ul style="list-style-type: none"> Initiate processes that create value Take up challenges Act and work independently to achieve goals, stick to intentions and carry out planned tasks
	3.2 Planning and management	Prioritize, organize and follow-up	<ul style="list-style-type: none"> Set long-, medium- and short-term goals Define priorities and action plans Adapt to unforeseen changes
	3.3 Coping with uncertainty, ambiguity and risk	Make decisions dealing with uncertainty, ambiguity and risk	<ul style="list-style-type: none"> Make decisions when the result of that decision is uncertain, when the information available is partial or ambiguous, or when there is a risk of unintended outcomes Within the value-creating process, include structured ways of testing ideas and prototypes from the early stages, to reduce risks of failing Handle fast-moving situations promptly and flexibly
	3.4 Working with others	Team up, collaborate and network	<ul style="list-style-type: none"> Work together and co-operate with others to develop ideas and turn them into action Network Solve conflicts and face up to competition positively when necessary
	3.5 Learning through experience	Learn by doing	<ul style="list-style-type: none"> Use any initiative for value-creating as a learning opportunity Learn with others, including peers and mentors Reflect and learn from both success and failure (your own and other people's)

Source: Bacigalupo et al., 2016, p. 12 f.

Figure A1: Coding Scheme



Note: MAXQDA code system with main categories based on Bacigalupo et al., 2016, p. 12 f.

Table A2: *EntreComp Competences in Entrepreneurship Training*

Competence elements	Frequency of courses	Frequency in per cent of courses (n = 194)	Frequency of codes	Frequency of codes in per cent of entries
Ideas and opportunities				
Spotting opportunities	22	11.34	30	5.37
Creativity	13	6.70	15	2.68
Vision	2	1.03	2	0.36
Valuing ideas	11	5.67	13	2.33
Ethical and sustainable thinking	7	3.61	7	1.25
Resources				
Self-awareness and self-efficacy	23	11.86	25	4.47
Motivation and perseverance	5	2.58	5	0.89
Mobilizing resources	133	68.56	291	52.06
Financial and economic literacy	52	26.80	59	10.55
Mobilizing others	27	13.92	33	5.90
Into action				
Taking the initiative	1	0.52	1	0.18
Planning and management	55	28.35	57	10.20
Coping with uncertainty, ambiguity and risk	6	3.09	6	1.07
Working with others	15	7.73	15	2.68
Learning through experience	0	0.00	0	0.00
Total	372	100	559	100