The International Journal of Management Education 22 (2024) 100921

Contents lists available at ScienceDirect

The International Journal of Management Education

journal homepage: www.elsevier.com/locate/ijme

Assessment and development of coachability in entrepreneurship education

Tatiana Somià [a,*], Christian Lechner [b], Luke Pittaway [c]

[a] Free University of Bozen/Bolzano and Visiting Scholar at Ohio University, Ohio, USA
[b] LUISS Business School, Italy
[c] Ohio University, Ohio, USA

ARTICLE INFO

Keywords:
Coachability
Entrepreneurship education
Behavioral event interview (BEI)

ABSTRACT

As coaching and alumni mentoring are used to develop student startup talent the coachability of students becomes an enabling factor for reflection- and action-based learning methods in entrepreneurship education. There is limited research on how to assess and develop coachability, especially in entrepreneurship education. This paper aims to narrow the gap. This study adopts a competency-based approach by devising competency assessment tools, undertaking a coachability survey and using Behavioral Event Interviews. It thus adopts a mixed method design, combining quantitative and qualitative techniques.

Our exploratory research shows that coachability has a positive relationship with educational outcomes and that coachability competencies, such as *self-awareness* and *flexibility*, are important. We show that coachability can be developed through experiential learning and that such learning enables the acquisition of competencies, such as *transferring learning into action* and *taking initiative*. The opportunity to develop coachability through entrepreneurship education fosters the design of experiential learning and strengthens students' coachability competencies, thereby aiding graduates' capacity to attract venture funding. We make an original contribution to assessing coachability by adopting a multi-method and multi-perspective approach and provide a way of creating greater impact when assessing and developing coachability.

1. Introduction

Coachability is the object of increasing attention and discussion in startup ecosystems and is a core component in entrepreneurship education, where mentoring and coaching initiatives are being developed across institutions, to leverage alumni help to develop student startup competence (Kuratko, Neubert, & Marvel, 2021; Nabi, Walmsley, & Akhtar, 2021). Research on founder coachability, however, predominately draws from the context of entrepreneurial pitches to angel investors rather than focusing on other contexts, such as due diligence, terms negotiation, or mentoring relationships after an investment is made. Coachability in the initial pitch is equally important as the funding process and following financing, and these areas are under researched (Kuratko et al., 2021) (see Fig. 1).

According to Susan Preston, from the Angel Resource Institute frames the prerequisite for angel financing, "*The team, and the founder, must be coachable - an absolute necessity for most angels*" (2011, p. 84). Business angels (BAs) like Bob Goff, founder and

* **Corresponding author.**
E-mail address: tsomia@unibz.it (T. Somià).

https://doi.org/10.1016/j.ijme.2023.100921
Received 28 February 2023; Received in revised form 26 October 2023; Accepted 4 December 2023
Available online 18 December 2023

chairman of Sierra Angels, and David Grahame, with LINC, in Scotland, reiterate the importance of coachable teams and entrepreneurs as a fundamental requirement for an investable company (Preston, 2011). Some venture capitalists share the same view. Steve Krein CEO and co-founder of Startup Health, a company designed to help entrepreneurs become more coachable and a venture capitalist explains *"One thing I always look for in an entrepreneur is: are they coachable?*".

Research on what funder's exactly expect when they require entrepreneurs to be coachable, however, has gained limited attention (Ciuchta, Letwin, Stevenson, McMahon, & Huvaj, 2018; Kuratko et al., 2021; Marvel, Wolfe, & Kuratko, 2020) and little is known about the individual characteristics and competencies associated with an entrepreneur's coachability. Even less is known about how to assess and develop coachability, which seems to occur because researchers lack a valid and reliable way to measure coachability (Kuratko et al., 2021). While there are clear limitations in current knowledge it has been acknowledged that entrepreneurship education may have a role in developing coachability because coaching, as a form of educational practice, is seen to be important for developing novice entrepreneurs (Kuratko & Audretsch, 2021).

This work aims to understand the importance of coachability to entrepreneurship education and to explore the prospect of developing coachability though entrepreneurship education, particularly when it adopts a competency-based perspective (Morris, Webb, Fu, & Singhal, 2013). We adopt a competency-based approach to study coachability. We consider coachability to be a competence, not a dispositional trait of personality, and it can therefore, be observed, measured and developed (Bird, 1995; Man, Lau, & Chan, 2002; Morris et al., 2013).

We begin by discussing the theoretical background of research on coachability and present the research questions of this study. To answer the research questions and to assess coachability we adopt a competency-based approach and apply it to entrepreneurship education (Morris et al., 2013). We progress to discuss the relevance of coachability and its assessment within entrepreneurship education. Research propositions are then introduced focusing on the association between coachability and entrepreneurial learning outcomes, as well as about the contribution of entrepreneurship courses to the development of coachability. We then describe the coachability competency assessment tools used to assess coachability, including Behavioral Event Interviews (BEIs) and coachability surveys. A BEI is an interview technique that involves the collection of remarkable events where the interviewee felt effective (in achieving results, solving problems, etc.) documenting the respondent's thoughts, emotions, and actions during the remembered event (Rothwell & Lindholm, 1999). The BEI methodology will be explained in more detail in section 5 during our discussion of the methodology used in the study. Results of instrument testing with entrepreneurship students are presented alongside results from qualitative analysis of BEIs. We conclude by discussing the theoretical and methodological implications of our study, as well as the contributions and limitations of our work for entrepreneurship education and practice.

2. Theoretical background and research questions

Despite the increasing popularity of coachability in the entrepreneurial community, research on founder coachability is still in its infancy (Ciuchta et al., 2018; Marvel et al., 2020). Published studies on this topic, focusing on the context of entrepreneurial pitches, have found that an entrepreneur's coachability, as perceived by investors, influences whether they recommend moving forward into the due diligence phase of an investment after an entrepreneur has pitched their venture (Balachandra, Sapienza, & Kim, 2014; Mitteness, Sudek, & Baucus, 2010). These studies have typically examined a single-item measure: the "willingness to invest" (Marvel et al., 2020; Mitteness et al., 2010). Coachability has been defined in entrepreneurship, more recently, as "*the degree to which an entrepreneur seeks, carefully considers, and integrates feedback to improve his or her venture's performance*" (Ciuchta et al., 2018, p. 861).

We consider coachability to be a competence, that has different dimensions, and our approach differs from considering it a dispositional trait. Dispositional traits are characteristics that combine within the personality to form a distinctive character and are thus assumed to be relatively stable (McAdams & Pals, 2006). Traits are, therefore, situation-transcending personal characteristics and have limited learning potential although they can be observed and measured effectively with psychological tests such as the Big Five or

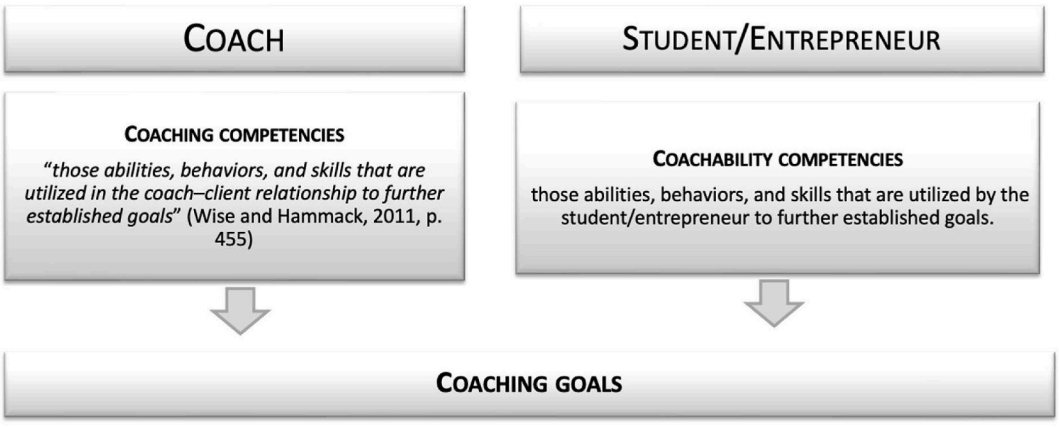

Fig. 1. Coaching and coachability competencies.

the new Big Five (McAdams & Pals, 2006).

Competencies, even if they are influenced by traits and cognition, represent observable and measurable behaviors and skills, that can be developed, learnt and improved on over time (Bird, 1995; Man et al., 2002; Morris et al., 2013). Adopting a competency-based approach we suggest a new definition of coachability. Coachability is a bundle of competencies that allow the achievement of coaching goals: starting from *self-awareness* and *commitment*, developing *learning* and *relationship management* competencies, and *implementing* what is learned from the coaching relationship. To understand coachability dimensions and their relationships to each other, our research extended the review of the coachability in entrepreneurship to consider how coachability has been considered and defined in the athletic, sales, and workplace literatures, as well as in coaching practice.

The study of coachability began in sports psychology many years before the concept entered the entrepreneurship domain (Giacobbi, 2000; Ogilvie & Tutko, 1966). Ogilvie and Tutko (1966) first introduced coachability as a fundamental attribute of exceptional athletes. A noteworthy contribution to the field of sports psychology was made by Giacobbi (2000), who developed the Athletic Coachability Scale (ACS) to measure athletic coachability. In more recent research in sport psychology, Driska et al. (2012), included coachability as a new subcomponent in the attitude/mindset dimension of their 'Framework of Mental Toughness in Swimming'. Drawing on prior research in sports literature, Shannahan, Bush, and Shannahan (2013) developed a measure of salesperson coachability, using a modified version of the ACS. The authors defined a coachable salespersons as "open to seeking, receiving, and using external resources to increase their sales performance in a personal selling context" (Shannahan et al., 2013, p. 41) and found a positive correlation between coachability and sales performance.

In a systematic literature review of qualitative research on workplace and executive coaching, de Haan (2019) identified factors that are akin to coachability, such as the mentee's trust, acceptance, and commitment to coaching, as critical to coaching effectiveness. Additionally, Weiss and Merrigan (2021) evaluated employees' level of coachability by employing a combination of three measures derived from the work of other scholars, which included feedback seeking, receptivity, and learning transfer. From the review of how coachability has been covered and defined in different literature streams, there is evidence of strong convergence of definitions of coachability and coachability dimensions. There are three main aspects of the coachability construct that are frequently cited, within the entrepreneurial and sales coachability definitions (Ciuchta et al., 2018; Shannahan et al., 2013; Weiss & Merrigan, 2021). These are: seeking feedback; reflection on and receptivity to feedback; and implementation carried out in response to feedback. These coachability dimensions also flow in a logical sequence, starting from seeking feedback, reflecting on it, and ending with implementing it through action.

Before acquiring a 'seeking feedback competency', professional and executive coaches often cite *self-awareness* as the starting point of the coaching process as highlighted in items of Leonard's Client Coachability Index; a coachability index widely used to assess coachability (Henrique, 2014). It is also expected that self-awareness should be followed by *commitment* to coaching and commitment is considered critical to coaching effectiveness, illustrated in both research and coaching practice (de Haan, 2019; Henrique, 2014). The degree of commitment is often linked, and followed by, the *learning* aspect of coachability, typically defined as: openness/willingness to learn and intensity of effort towards improving one's skills and competencies, as well as holding of a developmental orientation (Giacobbi, 2000; Johnson, Kim, Colarelli, & Boyajian, 2021).

Another common dimension mentioned in the literature is the *relationship with the coach*. According to Flaherty (2005), relationship is the background for all coaching efforts; it is the beginning point of coaching and its foundation. Flaherty emphasizes that the relationship must be one in which there is mutual respect, trust, and mutual freedom of expression, and none of these elements is independent of the others. Additionally, working on one element will strengthen the others (Flaherty, 2005). It is argued that this relationship with the coach should be of high quality, based on respect, trust, and open communication, encouraging two-way communication (Flaherty, 2005; Giacobbi, 2000; Johnson et al., 2021). Giacobbi (2000), for example, developed a measure of athletic coachability and identified trust and respect for the coach as among the dimensions of importance in the relationship. Finally, an essential aspect of coaching is implementation and the integration of feedback into practice. Though it is often cited in most coaching definitions (Ciuchta et al., 2018; Weiss & Merrigan, 2021) there have not been many attempts to assess it. (Weiss & Merrigan, 2021).

The review of the relevant literature, led us to identify five key areas of competence, cited above, that we consider important in defining coachability: *self-awareness, commitment, learning, relationships,* and *implementation.* It is important to note, however, that there may be contextual or individual differences, that we have not considered, that could influence an individual's coachability or its relevance. For this reason, it is valuable to present a balanced perspective on the topic of coachability in entrepreneurship, including other researchers who are critical of its relevance and potential impact on firm performance.

For instance, some authors suggest that entrepreneurs may be perceived as un-coachable due to overconfidence (Cassar, 2010), superior knowledge and experience, or simply stubbornness (K. A. Bryan, Tilcsik, & Zhu, 2017). Although Bryan and Tilcsik (2019) did not directly address this issue, they speculated that less experienced entrepreneurs might be more coachable because they lack the necessary knowledge to make informed decisions. They also found that being coachable did not necessarily correlate with greater success among entrepreneurs. Over-confidence, however, might also be related to lack of knowledge and an incapacity to recognize excellence in others. For this reason, learning from others may also require a sense that others might know things that one does not know (Krumrei-Mancuso, Haggard, LaBouff, & Rowatt, 2020).

Despite these different views, if stakeholders make a decision about whether to provide resources or not guided by their perception of the entrepreneurs' coachability (Balachandra et al., 2014; Mitteness et al., 2010), then coachability is a relevant competence for educators to develop. Further, this is even more important in the light of the increased use of coaching to support entrepreneurs during stages of the start-up process (Kotte, Diermann, Rosing, & Möller, 2021; Kuratko et al., 2021). Coaching for entrepreneurs has become a fundamental component, not only for start-up incubators and accelerator programs, but also for higher education institutions, aiming to support student entrepreneurial skills (Nabi et al., 2021).

The identification of competencies that make up coachability can allow for their assessment and development through entrepreneurship education. Study of entrepreneurial competencies has received increasing attention in entrepreneurship education (Cui, Sun, & Bell, 2021; Morris, 2022; Morris et al., 2013), where there is a growing movement to recommend the adoption of a competency-based perspective (e.g., Morris et al., 2013). Much of entrepreneurship education seeks to develop and enhance student competencies, as well as merely provide them, but does not focus directly on the development of coachability as a competence (Ciuchta et al., 2018). Our work has thus grown from a need to study the relevance of coachability for entrepreneurship educational outcomes and explore how it can be developed within entrepreneurship education, and specifically during experiential learning programs.

Accordingly, we propose the following research questions for our study.

1. Can coachability be developed through entrepreneurship education?
2. Can students' coachability competence affect their entrepreneurship education outcomes?

3. A competency-based approach to study coachability

To answer the research questions, we adopted a competency-based approach that enabled a deeper understanding and assessment of coachability and its development though entrepreneurship education, particularly when it adopts a competency-based perspective (Morris et al., 2013). Before discussing coaching and coachability competencies, it is important to note that coaching and mentoring are sometimes used interchangeably in practice and in the literature, despite their differences (Crompton, 2012; Koopman, 2013). Both methods involve discussing problems with another person to encourage individual problem-solving. Coaching is, however, more focused on achieving specific performance goals in a shorter-term, business-oriented relationship, while mentoring focuses on broader outcomes and is considered a longer-term relationship (Connor & Pokora, 2012).

Coaching competencies are defined by Wise and Hammack (2011, p. 455) as "*those abilities, behaviors, and skills that are utilized in the coach–client relationship to further established goals*".

Focusing on the coach's perspective they argue that coaching competencies are considered the "tools" utilized by coaches to attain improvement goals. Coaching, however, is a dyadic relationship that requires both sides to possess and develop competencies. If we adopt the perspective of the student/entrepreneur, the coaching competencies become "coachability competencies". Coachability competencies can be defined as those abilities, behaviors and skills that are utilized by the student/entrepreneur to further established goals. Coachability can, therefore, be defined as a bundle of competencies that belong to five thematic areas: *self-awareness*, *commitment*, *learning, relationship management*, and *implementation.*

Our study draws inspiration from a coachability model recently developed by Somià (2022) aiming to create competency tools to help assess coachability and to encourage its development through entrepreneurship education. The details of the competency assessment tools are presented next.

4. Coachability in entrepreneurship education

To secure angel and venture funding student entrepreneurs need to become 'coachable'. It is a subjective and interpersonal concept that can be aided by educational processes (Ciuchta et al., 2018). Entrepreneurship education can play a role, helping to develop coachability during learning processes, especially enabling students to acquire specific competencies that make up general competence for being coachable.

Creating entrepreneurial competencies and developing key entrepreneurial behaviors are some of the outcomes of entrepreneurship education, especially in 'for' approaches (Pittaway & Edwards, 2012). The development of coachability competencies can, therefore, be considered important for increasing student credibility with investors, to secure startup resources and to advance venture development (Balachandra et al., 2014).

Forms of entrepreneurship education that can contribute to the development of coachability competencies include experiential, inquiry-based and project-based learning, such as business planning, the development of business models and entrepreneurial consulting projects (Pittaway & Cope, 2007). There is an emerging consensus that entrepreneurship is best learned by adopting such experiential approaches, applying knowledge through examples, cases, hands-on exercises, simulations or consulting projects (Neck & Greene, 2011; Santos, Neumeyer, & Morris, 2019).

Based on these theoretical considerations, we suggest that, not only can coachability be developed through experiential learning classes but also that the initial coachability level of students can be positively related with the student's final course outcome. We also suggest that there are some specific coachability competencies, which make up coachability competence, that may be strongly related to the achievement of educational outcomes and may have more intense development during experiential learning programs.

Consequently, we advanced the following propositions:

P1: Initial perceived coachability level is related to the final student's grade in experiential entrepreneurship courses.

P2: Coachability level and coachability competencies develop during the entrepreneurship experiential learning classes.

These propositions have been tested on a sample of students who attended two entrepreneurship experiential courses taught at a

university in the Midwest of the United States (US). The two classes were experiential forms of entrepreneurship education. The first class was an ideation and business models class, which is focused on individual work. Students use ideation techniques to generate venture ideas, use screening techniques to choose an idea and develop a business model for that venture concept using the business model canvas. In the first class, students are assessed via an ideation journal, a screening spreadsheet, the development of a Minimal Viable Product (MVP), which is presented at a 'Demo Day', and a business model exhibition, which is judged by 'mock' investors. The second class was an entrepreneurial consulting class, which is focused on teamwork. Here students work with entrepreneurial businesses on seven-week consulting projects and complete two projects per semester. In this second class, students are assessed via business consulting reports and presentations, peer assessment and client assessment of team performance.

5. Methodology

Our study developed competency assessment tools to evaluate coachability and its development in entrepreneurship education: a coachability survey and a BEI. The coachability survey created was filled out by a sample of 30 students and a subsample of 13 students were interviewed using the BEI methodology. A BEI is a semi-structured interview centered on specific events recalled by the interviewee that are relevant to the topic being researched. Given the low sample number, this work can be considered exploratory. Due to the current lack of empirical research on this topic our study provides some initial findings of value to future study. Indeed, researchers do not have well-defined coachability measurement instruments and it remains difficult to provide guidance about how to develop coachability in practice (Kuratko et al., 2021) as well as within entrepreneurship education.

The research design involved students of two entrepreneurship courses, as outlined earlier, who completed a coachability survey at the beginning of their classes. A smaller sample of students also completed the survey at the end of the class and were interviewed using the BEI methodology. This study adopted a mixed method research approach, a combination of quantitative and qualitative research techniques that aims at delivering more comprehensive and thorough research results. This approach to inquiry involve the collection of quantitative and quantitative data, through surveys and interviews, and integrate the two forms of data to provide a more complete picture of our research problem than either approach would do alone (Creswell, 2013). We adopted an explanatory sequential method. We first conducted quantitative research, through a survey, analyzed the results statistically and then built on the results to explain them in more detail with qualitative research, through BEIs, using thematic analysis. This approach is explanatory and the initial quantitative results are explained along with the qualitative data (Creswell, 2013).

5.1. Coachability assessment tools

To assess coachability this study developed specific competency assessment tools: a BEI and a coachability survey. Beyond the study, these tools can be used in entrepreneurship education and in coaching practice, to assess the coachability level of students and entrepreneurs during courses and coaching interventions.

5.1.1. Behavioral event interview (BEI)

A BEI is a semi-structured interview in which the interviewer asks the interviewee to recall and relate specific events in which he/she felt effective in executing his/her job (e.g., Boyatzis, 1982; Spencer & Spencer, 1993). It is also an intensive face-to-face interview that involves soliciting critical incidents and documenting what the respondent was thinking, feeling, and doing during the event (Rothwell & Lindholm, 1999). The BEI technique is based on a modification of Flanagan's (1954) critical incident interview, which is considered one of the most effective methods for assessing competencies (e.g., Boyatzis, 1982; Spencer & Spencer, 1993).

The BEI offers a high degree of validity, as the competencies identified by means of it are the ones required for effective performance and not the ones identified according to the respondent's subjective opinion (Marrelli, 1998). BEIs, used to assess competencies, can be time and labor intensive (Marrelli, 1998; Spencer & Spencer, 1993), which places some limits on the size of the sample. Despite

Table 1
Coachability survey example items.

	Competencies	Items	Ref. Sources
1. Self-awareness	**1.1 Self-reflection**	Ability to reflect on your needs, aspirations and wants in the short, medium and long term.	EntreComp Self-awareness 2.1
	1.2 Self-assessment	Ability to identify and assess your strengths and weaknesses.	EntreComp Self-awareness 2.1
		Ability to recognize how your feelings affect your performance.	Boyatzis (2009)
	…	…	
2. Commitment	**2.1 Seeking advice**	Ability to proactively seek help and advice to achieve goals.	Ciuchta et al. (2018)
	2.2 Achievement orientation	Ability to improve or meeting a standard of excellence in entrepreneurship, respecting commitments made and deadlines.	Boyatzis (2009)
	…	…	
3. Learning	**3.1 Receiving Feedback**	Ability to listen attentively when receiving feedback adopting an open-minded approach to new entrepreneurship ideas and way of doing things.	Ciuchta et al. (2018)
	…	…	

Source: Authors' elaboration

Table 2
Experiential learning to develop coachability competencies.

	Competencies	Entrepreneurship experiential learning activities	Examples
1. Self-awareness	**Self-reflection, Self-assessment, Self-efficacy**	•Self-assessment, peer assessment, professor's and external assessment •Coaching and mentoring activities with professor	⇒ Competency assessment: ○ Coachability survey ○ BEI ⇒ Competency assessment Report ⇒ Coaching sessions and Feedback
2. Commitment	**Seeking advice, Resilience, Achievement orientation**	•Project creation and development •Coaching/mentoring activities •Peer-evaluation and activities	⇒ Creation of a Minimum Viable Product (MVP)/Business Model ⇒ Pitching ideas sessions ⇒ Ideation journal that lists all significant ideas generated at the end of the ideation process ⇒ Consulting Agreement for entrepreneurial projects (commitment with the client)
3. Learning	**Receiving Feedback, Critical Reflection, Conceptualization**	•Coaching/mentoring activities •Feedback from classmates and professors •Feedback from client of consulting projects •Reflective essays	⇒ Video Pitch Peer Mentoring Review ⇒ Feedback from client during the consulting process ⇒ Reflective Essays on learning outcomes
4. Relationships	**Building Relationships, Persuasion, Team working**	•Projects presentation to external assessors and potential investors •Pitching ideas in class •Team working •Team projects •Entrepreneurial consulting projects	⇒ Pitch sessions/Pitch Video Show ⇒ MVP Demo Day ⇒ Business Model Exhibition ⇒ Building the relationship with the clients through direct interactions ⇒ Formal presentation and recommendations to the client
5. Implementation	**Transfer learning in action, Take the Initiative, Flexibility**	•Creation of handcraft samples of new product ideas •Creation of a Business Model •Developing additional and autonomous research/ analysis for the consulting projects •Adapt the consulting project according to the client's requests	⇒ Creation of a sample, mock-up, prototype, or design layout drawing of the business idea with just enough features to satisfy early customers (MVP) ⇒ Creation of a poster of the Business Model ⇒ Creation of updated versions of reports to the client

Source: Authors' elaboration

its limitations the methodology is appropriate for the theory-building objective of this research because it provides detailed information about the nuances of coachability competencies expressed by different students (Spencer & Spencer, 1993).

Students in the study were asked to recall three situations, events, or activities in the last few months where they felt effective in achieving a result, solving a problem, and managing a relationship. Each BEI lasted about 1 h and was recorded and transcribed for coding using thematic analysis (Boyatzis, 1998); a process of coding qualitative information using a competency codebook was used as explained later. Despite being an effective tool to assess competencies, the BEI method does have limitations. First, the interview method relies on the recall of the respondent, who chooses what to tell based on what he/she remembers, and can be affected by retrospective bias (Boyatzis, 1982). This risk is mitigated by requesting the interviewee to provide detailed information about the situation, including their thoughts, feelings, dialogues, behaviors, and outcomes, which characterize the event being described (Tognazzo, Gubitta, & Gerli, 2017).

Secondly, the interview method is not aimed to collect specific information or specialized knowledge that is at the basis of decisions, thoughts, and actions recalled by the interviewee (Richard E. Boyatzis, 1982). BEI data, therefore, are not considered adequate sources for determining functional/technical competencies, while they are suitable for identifying behavioral competencies, such as coachability competencies studied in this research. Coaches are usually in the best position to assess the founder's coachability (Kuratko et al., 2021) as are professors to assess the student's coachability competencies development during courses. Often it is important to assess the coachability level, of the person to be coached, before a coaching relationship starts and not rely solely on self-assessment tools. The BEI is a powerful method to assess competencies at the initial stage, without observing the student or founder in action, because it represents an efficient substitute for the direct observation of behaviors (Boyatzis, 2009). It can also be repeated at the end of the coaching relationship to compare the competencies that emerged and to analyze the coachability competencies developed.

5.1.2. Coachability survey

A coachability survey was developed using five competency clusters and 15 coachability competencies. To assess these competencies, a survey with a set of 40 items (see Table 1) was created by drawing on the competency and entrepreneurship literature (e.g.: Morris et al., 2013; Boyatzis, 2009, etc.) and by applying the European Entrepreneurship Competence Framework (EntreComp) (Bacigalupo, Kampylis, Punie, & Van den Brande, 2016). In this study the survey developed was used to assess the possession of coachability competencies from the student's perspective, but it could also be used to assess the relevance/importance of each competency for the student. The survey can also be used by a professor/coach to compare the student's perspective with another person's perspective (e.g., expert assessment, peer assessment).

Such an assessment comparison of coachability competencies allows for the student's and professor's views about the possession of competencies to be compared. The comparison of perspectives thus makes it possible to identify competency gaps that might exist and, thereby, identify training needs to be coached. A sample item assessing the level of importance of the *Receiving Feedback* competency could be, for example: "How important to you is it to listen attentively when receiving feedback adopting an open-minded approach to new entrepreneurship ideas and way of doing things?" A Likert-type scale may be used to assess the level of importance ranging from 1 (Limited) to 5 (Very high). While to assess the level of possession of the same competency the survey item may add: "To what extant are you able to listen attentively when receiving feedback adopting an open-minded approach to new entrepreneurship ideas and way of doing things?", while using a similar Likert scale from 1 (I can't do it) to 5 (I can do it very well). Table 1 presents some example items used within the coachability survey.

5.2. Data collection

Perceived coachability competencies possession has been assessed through the coachability survey described, which was filled out at the beginning of two entrepreneurship courses attended. We chose two entrepreneurship courses that adopt an experiential learning approach. Ideation and Business Models course is designed for students building the courage to create, and risk making mistakes in their quest for innovations in products, services, or processes. Entrepreneurial Consulting is a project-based course in which students, working in teams, undertake "consulting" projects for a small, entrepreneurial business, a social enterprise, or an individual entrepreneur. At the end of the courses, the final grade of the students has been recorded to be used as outcome variable.

Our sample consists of 30 students, 63% male and 37% female, ranging in age from 20 to 23 years old and 17% of students had prior experience as a founder of a startup. More than half of the students in the sample had no experience of having been coached (57 %), while 37% had moderate experience and 7% had extensive experience of having been coached. We chose one of the two entrepreneurship courses to study in more detail to more deeply assess the development of coachability competencies. These students, at the end of the entrepreneurship course, filled out the survey again and were interviewed using the BEI methodology to assess their coachability competencies as well as their development over time. This subsample consists of 13 students and is a fair reflection of the larger sample when considering the gender distribution: 62% male and 38% female students. We should note, however, that more students in the subsample, who completed all steps of the coachability assessment, had venture experiences than the overall sample

(31%).

As a benefit of students' participation, they received a personalized report describing their profile of coachability competencies, its development after the experiential learning and the results that emerged from the BEI. The final goal of this coachability report was to help students develop their self-awareness, by allowing them to reflect on their self-perception and alongside the external assessment of an expert assessor regarding their coachability competencies.

5.3. Data analysis

This study collected quantitative and qualitative data, and as detailed next, these data were analyzed using statistical and thematic analysis, where relevant to the data type and sample size. To test the first preposition, exploring the initial perceived coachability level and how it is related to the final student's grade, we analyzed initial self-assessment on the full sample of students and their final grades, using correlations within SPSS. Correlations were deemed sufficient for our purposes because we aimed to measure the strength of the relationship between variables and not to test their causality. To analyze the coachability progression during courses, the initial data on perceived coachability competencies was compared to data collected at the end of courses. To test the second proposition, we used the Wilcoxon signed-rank test which is a non-parametrical test appropriate for situations in which there are two sets of scores to compare from the same participants (Field, 2013).

Qualitative data collected from the BEIs were coded using thematic analysis, as suggested by Boyatzis (1998). Thematic analysis involves the systematic coding of qualitative information using a codebook that outlines distinct themes and how to identify them. This method showed the predictive validity of the competencies activated by the respondent during the events collected as coded from the interviews (Boyatzis, 2009). For our analysis, we developed a code book that comprehensively describes 15 coachability competencies. These competencies are identified through a combination of behavioral indicators drawn from entrepreneurship competency literature (e.g.: Morris et al., 2013; Boyatzis, 2009, etc.), coachability studies (e.g.: Chiutcha et al., 2018; Weiss & Merrigan, 2021; Giacobbi, 2000, etc.), and the European Entrepreneurship Competence Framework (EntreComp) (Bacigalupo et al., 2016).

These coachability competencies have been grouped into five clusters that represent the following key thematic areas: Self-awareness; Commitment; Learning; Relationship; and Implementation. The 15 coachability competencies are: *1. Self-reflection, 2. Self-assessment, 3. Self-efficacy* (Self-awareness cluster), *4. Seeking advice, 5. Resilience, 6. Achievement orientation* (Commitment cluster), *7. Receiving feedback, 8. Critical reflection, 9. Conceptualization* (Learning cluster), *10. Building relationships, 11. Persuasion, 12. Team working* (Relationships cluster), *13. Transfer learning in action, 14. Take the initiative, 15. Flexibility* (Implementation cluster) (see also Table 2).

Our examination involved a thorough review of the events recounted by students, allowing us to pinpoint specific instances where they demonstrated behaviors that unequivocally illustrated their possession of distinct coachability competencies.

6. Findings

Adopting a sequential explanatory mixed method, the results of quantitative research were first analyzed and then explained in more detail using our qualitative research.

6.1. Proposition testing

The results of the correlation analysis between the perceived coachability level (sum) and the course final grade support Proposition 1: Perceived coachability level is positively related to the course final grades. Computing Pearson Correlation coefficient using SPSS confirmed that perceived coachability level has a statistically significant positive correlation ($r = 0.353$, p-value .028 1-tail) with the course final grades (see Appendix, Table III).

We also performed a correlation analysis among the coachability competencies and the course final grade. The statistical analysis revealed highly significant positive relationships (p-value$<$ .01) for *self-assessment* ($r = 0.545$) and a significant positive relationship with *self-reflection* (p-value .016; $r = 0.435$), and *Flexibility (*p-value .012; $r = 0.452$) (see Appendix, Table IV) We took considerable caution in interpreting the correlation coefficients for two reasons: the third-variable problem and the direction of causality (Field, 2013). First, there may be other measured or unmeasured variables affecting the final grades that sometimes are called confounding variables. The second reason of caution is because correlation coefficients do not indicate in which direction causality operates, that is, which variable causes the other to change.

In our research, we identified a circular relationship between coachability and entrepreneurship education. Coachability can be developed through entrepreneurship training, the results of which have a positive relationship with the initial level of coachability. The second proposition was supported by our Wilcoxon statistical tests. The development of coachability level during the experiential learning classes is statistically significant, considering both the difference between the initial and final level of coachability ($z -1.992$, p-value $= .046$, Asymp. Sig. 2-tailed) and the difference between the initial and final average level of coachability competencies possessed ($z -2.066$, p-value $= .039$, Asymp. Sig. 2-tailed) (see Appendix, Table V). The same nonparametric test performed on the

development of coachability competencies led us to identify two competencies that had a highly statistically significant improvement during experiential entrepreneurship courses: *Transfer learning into action* (z −2.646, p-value .008, 2-tailed) and *taking initiative* (z −2.646, p-value .008, 2-tailed). Other coachability competencies that developed during the experiential learning courses in a statistically significant manner with a p-value< .05 (2-tailed) are: self-reflection, seeking feedback, resilience, commitment, and critical reflection (see Appendix, Table VI).

6.2. Qualitative findings

The qualitative data are used to further investigate the first proposition and illustrate how specific coachability competencies, identified by statistical analysis, are stronger when related to entrepreneurship education outcomes. Coachability competencies that have highly significant positive relationships with the course final grade are *self-reflection, self-assessment,* and *flexibility*. These competencies, which are possessed by students before they attend the entrepreneurship courses assessed, have a stronger relationship with educational outcomes in the course. The following subsections present the qualitative data, collected through the BEIs, to provide evidence of the possession of these competencies and to illustrate their importance for improving learning outcomes.

Self-reflection and self-assessment are essential indicators of self-awareness competence. Self-reflection can be defined as the ability to reflect on one's needs, aspirations and wants in the short, medium and long term (EntreComp 2.1 Self-awareness and self-efficacy) (Bacigalupo et al., 2016). *Self-reflection* competency revealed highly significant positive relationships with learning outcomes (p-value< .01, r = 0.435). The first example taken from the BEIs refers to a self-reflection process made by a student based on the grades received.

Student recalled:

> "The other day I was home with my parents, and we were looking through my grades and I'm over a 3.9 for my GPA right now, so I think I'd be considered Suma cum laude with a 3.95: … I don't do it for the grade. I do it because it needs done. And by way of doing, it because it needs to be done and doing like my best therefore, I'm getting good grades."
>
> "… Being able to sit back now and say: 'I've also had minuses for the last three years, but hard work is very reassuring because now I'm probably going to receive some type of reward for that. Knowing that I have to just keep doing what I've been doing, and I'll be just fine. It is really important".

The ability to reflect on the past, on needs, aspiration and wants in the short, medium, and long term, helped the student to realize what the best strategies were to achieve future learning outcomes he desired.

Self-assessment competency is defined in the EntreComp Framework as the ability to identify and assess one's strengths and weaknesses (EntreComp 2.1 Self-awareness and self-efficacy) (Bacigalupo et al., 2016). In this study, *self-assessment* competency had a large effect (r = 0.545) on learning outcome with which it is correlated as highly significant (p-value< .01). The example presented refers to an event, recalled by a student, regarding a research project on computer science learning machine. The student described that it was a basic project, and he was asked to make a public presentation about it, but at that time he didn't have much experience in presenting.

Student stated:

> "I've never had an issue in getting my point across effectively in communication classes, but I was a little bit nervous in public speaking and this was the main problem that I should have tried to overcome because I knew that this would be something that would help me later on."
>
> "… practicing with small groups of students and friends and watching other presentations. This allowed me to overcome big fears and challenges that I've always had."

In this case, the ability to identify one's weakness in public speaking helped the student to work effectively on the development of this ability, which proved useful for pitches and for public speaking later in the entrepreneurship course.

Flexibility can be defined, drawing inspiration from the flexibility indicators of the Emotional Competency Inventory (ECI), as the ability to adapt the plan, behavior or approach to fit major changes in situations (Boyatzis, Goleman, & Rhee, 2000). *Flexibility* competency revealed highly significant positive relationships with the learning outcomes (p-value< .01, r = 0.452). The following example happened during an entrepreneurship course where the professor, near the end of the semester told the students that the final exam would be different from previous similar exams that were open book. To fit into the changes in this situation, a student effectively adapted his study plan and behavior. The student recounted:

> "After I heard that, I started going to class again and I confronted the professor speaking my mind and trying to stand it up for something that I didn't feel was fair to other people. The professor answered that we just have to deal with it, so I put in the resolve to study really hard over that last week, memorizing those topics that professor wanted us to learn, to make sure that I passed the class."
>
> "… I also talked with other people about the class sort of getting their feel for the class was helpful. I was sort of judging their preparation level for the exam to base my preparation level on."

The flexibility of the student was extremely helpful not only to get a good exam score but also to improve his studying habits. Qualitative data are also used to underpin the second proposition by providing examples from the BEIs of specific coachability

competencies developed by students during the entrepreneurship coursed attended. Coachability competencies that had a highly statistically significant progress during experiential entrepreneurship courses, according to the statistical analysis, were *transferring learning into action* and *taking initiative*.

Transferring learning into action can be defined as the ability to transfer the knowledge and/or skills learned back to one's tasks, work (Weiss & Merrigan, 2021), and projects, within the entrepreneurial learning context. An example of this ability was shown, by a student interviewed, during a consulting project where the student was asked to create a quantitative model to forecast the number of employees needed in each time period. The student needed to figure out a way to use a difficult combination of product functions in Excel, and this was challenging.

To solve this problem, the student explained:

> "I was going into my old notes from some of my classes in school. I went back into some of my courses' materials, and I was able to find where I created essentially an index and then referenced that index. So that way it didn't have to use as many formulas and that ended up being really helpful, but I forgot like exactly how to do it."

The student used and transferred the knowledge and abilities learned in previous courses into the new project.

Taking initiative is defined by the EntreComp Framework as the ability to act and work independently to achieve goals, stick to intentions and commitment to projects (Bacigalupo et al., 2016). Experiential entrepreneurship courses also help students to develop their ability to take the initiative that can be extremely helpful in all the other activities in which students are involved. The following example recalled by a student interviewed refers to a group project realized during the entrepreneurship course. The student explained that the all the team members had underestimated how much work it would take for them to complete the project.

The student continued saying:

> "So, there was a midsemester project update where we had to have the full thing modeled and assembled just put together, and we all did parts and then somebody said he would take on the modeling he did. But when the day came to actually turn in the report, the model didn't really work at all.
>
> I had taken it upon myself over Thanksgiving to fix the model from the base up and put it all back together, making sure all like the constraints and stuff were good and fixed and making sure we could actually use it in the final project rather than having this basically unusable model."

The student demonstrated in this episode his ability to take the initiative to solve the problem that arose in the group project, thereby succeeding in meeting the deadlines and commitments made by his group. Qualitative data collected though the BEIs allowed us to further investigate specific coachability competencies, identified by statistical analysis, providing actual examples taken from student experience. We gathered evidence supporting the role of *self-awareness (self-assessment and self-reflection)* and *flexibility* on entrepreneurship learning outcomes. This section also provided episodes in which students used two action-based competencies, *transferring learning in action* and *taking initiative,* that demonstrated a highly statistically significant progress during the experiential entrepreneurship courses analyzed.

7. Discussion

Coaching is increasingly used to support entrepreneurs during different stages of the entrepreneurial process (Kotte et al., 2021) and it is, also, increasingly demanded as a reflection- and action-based learning method in entrepreneurship education (Küttim et al., 2014, Kallaste, Venesaar, & Kiis, 2014). In this article, we explain the relevance of coachability to entrepreneurship education and its development opportunity though experiential entrepreneurship education, particularly when it adopts a competency-based perspective (Morris et al., 2013). Adopting a competency-based perspective to assess coachability, we provide in this exploratory study empirical insights of how coachability competencies are positively related to entrepreneurship education outcomes and can be developed through experiential entrepreneurship courses. The remainder of this section discusses the theoretical contributions to research on coachability and its assessment, on entrepreneurial competencies, as well as the contribution to entrepreneurship education and practice.

7.1. Contributions to coachability research

Our research demonstrated the relevance of initial level of coachability, and particularly of *self-awareness competencies (self-assessment and self-reflection)*, on entrepreneurship education outcomes. The dominant coaching literature agrees that self-awareness is simultaneously the starting point of coaching and one of the benefits expected from coaching (Bachkirova, Arthur, & Reading, 2015; Brinkley & Le Roux, 2018; Crompton, 2012; Laske, 1999; Mineur, 2012). Increased self-awareness is also considered one of the indicators of successful coaching, together with sustained behavioral change and more effective leadership (Wasylyshyn, 2003).

Self-awareness is created, according to the literature, by providing the participants with the opportunity for reflection about limiting behaviors and their effect on other people (Brinkley & Le Roux, 2018). Not only do participants need to develop these

coachability competencies but also coaches need training emphasizing self-awareness and self-reflection to help them to select and implement appropriate interventions, and to monitor individual change (Orenstein, 2002). Entrepreneurship education programs should therefore be designed to provide students with the opportunity for self-reflection and self-assessment to increase their overall self-awareness. We suggest using competency assessment tools and to create competency report and feedback sessions (cfr. Table 2), to improve the abilities of students to assess and reflect on themselves.

Our study revealed the important role of *flexibility* on entrepreneurship learning outcomes. Flexibility is important in entrepreneurial coaching where entrepreneurs need to be open to new experiences and, at the same time, learn from the experience of their coaches (Kuratko et al., 2021). Flexibility involves specific cognitive and adaptive competencies. Cognitive adaptability refers to the ability to change or adapt decision policies effectively and appropriately (i.e., to learn) when given feedback (inputs) from the environmental context in which cognitive processing is embedded (Haynie, Shepherd, & Patzelt, 2012).

Furthermore, the progressive development of flexibility and adaptability are recognized from neuroscience research, into the learning brain, as critical to inform learning, teaching and assessment related to creativity, visioning and dealing with ambiguity (Penaluna & Penaluna, 2021). Flexibility and adaptability are central constructs of learning and should be key goals in entrepreneurship education design (Penaluna & Penaluna, 2008), together with self-awareness competencies.

Our empirical research provided evidence of the role of entrepreneurship education in developing coachability competencies and especially action-based competencies, such as *transferring learning in action* and *taking initiative*. This is not surprising because one of the entrepreneurial outcomes of entrepreneurship education, especially in 'for' approaches adopted in experiential entrepreneurship courses, is to encourage students to engage in activities that aim to encourage the development of entrepreneurial behaviors such as initiative taking (Pittaway & Edwards, 2012).

Transferring learning in action is at the core of the experiential learning process described by Kolb (D. A. Kolb, 1984). The learning process is portrayed as a spiral of experiencing, reflecting, thinking and acting, to create new knowledge through successive iterations. Experiences form the basis for making reflections, that are processed and distilled into abstract concepts that can be actively tested and serve as a guide for creating new experiences (A. Y. Kolb & Kolb, 2005). Experiences, and therefore the development of action-based competencies, are essential in experiential entrepreneurship education and in education itself that "… must be conceived as a continuing reconstruction of experiences" (Dewey, 1897, p. 97). Transfer of learning is also effectively promoted in learning environments that apply cognitive apprenticeship. One of the key steps of cognitive apprenticeship, identified by Collins, Seely Brown, & Holum (1991), is promoting transfer of learning. Students are guided to consider how what they are learning can be applicable in a range of tasks, adapting their abilities to diverse new situations. The challenge, in cognitive apprenticeship, is to present a diversity of tasks and situations and to help students generalize the competencies, to learn when the ability is or is not applicable, and to transfer it independently when faced with novel situations (Austin, 2009; Collins, Seely Brown, & Holum, 1991).

Our research findings have, therefore, shed light on the importance of *implementation* as a crucial area of competence that significantly affects coachability effectiveness, alongside *self-awareness.* Implementation includes competencies such as *flexibility, transferring learning into action,* and *taking initiative*. To enhance these competencies through entrepreneurship education, we recommend designing experiential learning programs that encourage students to actively apply what they have learned, by taking the initiative to create and craft something new, while remaining flexible and adaptable to user feedback and changing circumstances (cft. Examples of Table 2). This might also involve repeating certain activities after negative feedback. By emphasizing these action-based competencies, entrepreneurship education can improve coachability and better prepare students for the dynamic and unpredictable nature of the business world.

7.2. Contribution to coachability assessment methodology

This study makes a contribution to assessment methodology by introducing a multi-method, multi-perspective approach to assessing coachability that can provide, as with the assessment of coaching from multiple perspectives (Greif, 2013), a greater effectiveness. The coachability competency survey developed can enable assessment from multiple perspectives, moving toward 360-degree feedback, involving coaches, educators, students, expert-assessors, peers. The 360-degree feedback is a multiple-source feedback that has been used to measure the effect of coaching (Smither, London, Flautt, Vargas, & Kucine, 2003) and in many executive education program that provide coaching interventions (Hooijberg & Lane, 2009). Using the survey developed to assess both the level of importance and of possession of the coachability competencies enable the identification of training needs, from different perspectives, that require coaching support.

The main contribution of our study to the coachability assessment methodology is the adoption of a multi-method approach, introducing the use of the BEI methodology. The BEI is a powerful tool to assess competencies without observing the student directly or founder in action, because it represents an efficient substitute for the direct observation (Boyatzis, 2009). It can also be useful to analyze the coachability competency development if the interview is repeated at the end of a coaching relationship. The adoption of a multi-method approach combined with 360-degree feedback to assess coachability can provide a broadening of analysis perspective and better triangulation of results.

7.3. Contribution to literature on entrepreneurial competencies

This study contributes to the literature on entrepreneurial competencies, focusing on most recognized American and European competency frameworks. We define coachability as a bundle of competencies organized into five areas: *self-awareness, commitment/achievement, learning, relationship,* and *implementation* and 15 competencies. While we incorporated three competencies from Morris et al.'s framework (2013, p. 358)– *Self-efficacy, Resilience,* and *Building and Developing Relationship*–, we recognized the absence of an important entrepreneurial competence that is at the core of the coachability construct and that is entrepreneurial learning itself.

Unlike the Morris et al. framework, White (2021), and the EntreComp framework (Bacigalupo et al., 2016) include learning abilities as critical entrepreneurial competencies. The EntreComp Framework defines *learning from experience* as the ability to learn by doing that includes: the ability to learn with others, including peers and mentors, the ability to learn from failure, and continuous learning (Bacigalupo et al., 2016, p. 13). White's (2021) framework also includes learning though failure and continuous leaning as two of the its nine entrepreneurial competencies.

Based on our analysis, we suggest that the Morris et al. framework may benefit from including entrepreneurial learning abilities and integrating the coachability competence into its framework. Additionally, although the EntreComp Framework already considers *the ability to learn from mentors/coaches*, we believe it could benefit from considering the construct of coachability and its various components, described in this study, that transcend the simple ability to learn from mentors/coaches. Overall, we believe this research provides a valuable contribution to the literature on entrepreneurial competencies by shedding light on the competencies required for entrepreneurs to be coachable, further enabling competency development and indirectly supporting entrepreneurial outcomes such as venture growth.

7.4. Contribution to entrepreneurship education

This study argues that coachability can be effectively developed through entrepreneurship education, particularly when it adopts a competency-based perspective (Morris et al., 2013) and an experiential leaning approach. In the realm of entrepreneurship education, there are various roles and stakeholders that can be coach, coached or who may engage in both roles. According to Gallwey (2001), one of the most effective ways to learn coaching is through direct experience of coaching and being coached. Peer coaching initiatives in entrepreneurship education provide an opportunity for students to engage in both roles, as coaches and coached. This form of coaching has the added benefit of reciprocity and mutuality in the coaching process, making it a valuable resource for critical learning in today's increasingly complex and ever-changing world (Parker, Kram, & Hall, 2014).

To support entrepreneurship educators in developing coachability, we propose the contents designed for entrepreneurship experiential courses, providing some practical examples of coaching activities and peer coaching (see Table 2). Adopting a competency-based approach, we describe the entrepreneurship experiential learning activities that can be helpful to develop the coachability competencies grouped into five areas: self-awareness, commitment, learning and implementation.

We also provide some practical examples taken from the experiential entrepreneurship courses studied in this research, such as video pitch peer coaching/mentoring review, competency assessment feedback.

7.5. Contribution to entrepreneurship practice

Coaching is considered a best practice in today's entrepreneurship support system and founder coachability is often praised by practitioners in startup ecosystems (Barnes & Felts, 2019). Assessing founders coachability can help ecosystem leaders, incubation managers, venture capitalists and business angels to select entrepreneurs who may be best suited for start-up acceleration programs or capital investment. Indeed, entrepreneurship research has shown that venture investors usually attribute more probability of investment success or failure to the founders than to the business (Bernstein, Korteweg, & Laws, 2016; Gompers, Gornall, Kaplan, & Strebulaev, 2020). Given the importance to venture investors of founder competencies and coachability, the competency assessment tools suggested could be useful for assessing entrepreneurs in funding settings. The BEI, especially, can be a valuable tool to assess effectively the coachability of the founder.

8. Conclusion

Coaching is considered as an area of future potential in entrepreneurship education research (Kuratko & Audretsch, 2021) and our study aims to shed light on coachability as a core component of entrepreneurship (Kuratko et al., 2021; Nabi et al., 2021). While contributing both to the academic debate and to entrepreneurship education and practice, this study has limitations, which can be addressed by future research.

Due to the limited sample size because of the method used, we consider this research to be exploratory. As research on this topic is at an initial stage, in entrepreneurship education, our work aimed to shed light on the phenomenon by combining quantitative with

qualitative methods, collected via interviews rich in detail (Edmondson & McManus, 2007). The main limitation is the relatively small sample, which included 30 students surveyed and 13 BEIs. The limited number of cases was due to the use of the BEI method, which is extremely time- and labor-intensive. Accordingly, a research opportunity to assess the generalizability of the results would be extending the study design to a large-scale, survey-based approach that further validates the coachability survey developed in this exploratory study. In our future studies, we plan to place a greater emphasis on including institutions from various countries to ensure a broader range of data and a more diverse participant pool. This will allow us to analyze and compare coachability across different cultural contexts and identify any potential differences or similarities.

Research is ongoing to assess the content-validity and the reliability of the coachability survey, following recommended steps in developing a psychometrically sound measure and involving in the validation process using expert panels, such as venture capitalists, executive coaches, and entrepreneurship professors. Coachability assessment of students through adequate competency assessment tools makes it possible to adopt a "tailored," rather than generic, approach to supporting students when they transition from student to entrepreneur (Nabi et al., 2021). Assessing coachability early on could help educators recognize the deficits that individual students hold and allow for pedagogic design, or one-on-one tutoring, that is tailored to specific needs.

Coachability development, especially though competency-based experiential entrepreneurship courses, allow for the better creation of conditions for entrepreneurship students to raise resources from investors for venture initiatives. The findings of our research emphasize the critical role of both *self-awareness* and *implementation* competencies in coachability development and effectiveness. Entrepreneurship education programs should, therefore, focus on improving coachability competencies by cultivating *self-reflection* and *self-assessment* among students, challenging them to *take the initiative*, creating and crafting something new, while remaining *flexible* and adaptable to user feedback and changing circumstances.

The final goal of our work is to contribute to the development of student entrepreneurship competencies, such as coachability, to help future entrepreneurs improve their chances of venture financing success, thereby creating more value from their education in entrepreneurship.

CRediT authorship contribution statement

Tatiana Somià: Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft, Writing – review & editing, Visualization, Data curation. **Christian Lechner:** Conceptualization, Supervision, Writing – review & editing. **Luke Pittaway:** Supervision, Writing – review & editing.

Data availability

Data will be made available on request.

Acknowledgements

This research has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 892825.

Appendix

Table III
Correlation coachability level and final grade

		Coachability level	Final grade
Coachability level	Pearson Correlation	1	.353*
	Sig. (1-tailed)		.028
	N	30	30
Final grade	Pearson Correlation	.353*	1
	Sig. (1-tailed)	.028	
	N	30	30

* Correlation is significant at the 0.05 level (1-tailed).

Table IV
Cross correlation matrix: coachability competencies and final grade (1st part)

		Q1_SA	Q2_SA	Q3_SA	Q4_SE	Q5_SE	Q6_SE	Q7_SE	Q8_SE	Q9_SF	Q10_RES	Q11_AO1	Q12_AO2	Q13_AO3
Q1_SA: Self-reflection	Pearson cor.	1	.529**	.448*	.306	−.220	.256	.129	.108	.251	0.125	0.279	0.257	.430*
	Sig. (2-tailed)		.003	.013	.101	.242	.172	.497	.571	.180	0.509	0.135	0.17	0.018
Q2_SA: Self-assessment	Pearson cor.	.529**	1	.317	.229	−.327	.369*	.373*	−.008	.302	0.31	0.279	.379*	.495**
	Sig. (2-tailed)	.003		.088	.223	.078	.045	.042	.969	.105	0.095	0.135	0.039	0.005
Q3_SA: Emotional self-awareness	Pearson cor.	.448*	.317	1	.052	−.219	.222	−.010	.387*	.052	0.009	0.267	.646**	0.226
	Sig. (2-tailed)	.013	.088		.785	.244	.238	.959	.034	.786	0.963	0.154	<.001	0.229
Q4_SE: Self-efficacy	Pearson cor.	.306	.229	.052	1	.210	.110	.261	.182	−.027	.409*	0.122	−0.08	0.245
	Sig. (2-tailed)	.101	.223	.785		.266	.563	.163	.335	.887	0.025	0.521	0.673	0.192
Q5_SE: Self-efficacy	Pearson cor.	−.220	−.327	−.219	.210	1	−.091	.240	.200	.155	−0.01	0.095	−0.106	−0.105
	Sig. (2-tailed)	.242	.078	.244	.266		.634	.202	.289	.413	0.957	0.616	0.578	0.582
Q6_SE: Self-efficacy	Pearson cor.	.256	.369*	.222	.110	−.091	1	.449*	.186	.200	0.228	0.002	.427*	0.264
	Sig. (2-tailed)	.172	.045	.238	.563	.634		.013	.324	.290	0.226	0.993	0.019	0.158
Q7_SE Self-efficacy	Pearson cor.	.129	.373*	−.010	.261	.240	.449*	1	.245	.180	0.093	0.097	0.279	0.215
	Sig. (2-tailed)	.497	.042	.959	.163	.202	.013		.191	.340	0.623	0.611	0.135	0.254
Q8_SE: Self-efficacy	Pearson cor.	.108	−.008	.387*	.182	.200	.186	.245	1	.208	0.055	.420*	0.279	−0.02
	Sig. (2-tailed)	.571	.969	.034	.335	.289	.324	.191		.270	0.773	0.021	0.136	0.917
Q9_SF: Seeking Feedback	Pearson cor.	.251	.302	.052	−.027	.155	.200	.180	.208	1	0.087	0.176	0.31	0.1
	Sig. (2-tailed)	.180	.105	.786	.887	.413	.290	.340	.270		0.648	0.353	0.095	0.598
Q10_RES: Resilience	Pearson cor.	.125	.310	.009	.409*	−.010	.228	.093	.055	.087	1	−0.036	0.047	0.128
	Sig. (2-tailed)	.509	.095	.963	.025	.957	.226	.623	.773	.648		0.852	0.807	0.499
Q11_AO1: Achievement or.	Pearson cor.	.279	.279	.267	.122	.095	.002	.097	.420*	.176	−0.036	1	0.341	0.243
	Sig. (2-tailed)	.135	.135	.154	.521	.616	.993	.611	.021	.353	0.852		0.065	0.195
Q12_AO2: Achievement or.	Pearson cor.	.257	.379*	.646**	−.080	−.106	.427*	.279	.279	.310	0.047	0.341	1	0.313
	Sig. (2-tailed)	.170	.039	<.001	.673	.578	.019	.135	.136	.095	0.807	0.065		0.092
Q13_AO3: Achievement or.	Pearson cor.	.430*	.495**	.226	.245	−.105	.264	.215	−.020	.100	0.128	0.243	0.313	1
	Sig. (2-tailed)	.018	.005	.229	.192	.582	.158	.254	.917	.598	0.499	0.195	0.092	
Q14_AO4: Achievement or.	Pearson cor.	.306	.192	.544**	.272	.067	.336	.261	.225	.205	0.041	0.217	.513**	.416*
	Sig. (2-tailed)	.101	.310	.002	.145	.726	.070	.163	.232	.278	0.828	0.25	0.004	0.022
Q15_AO5: Achievement or.	Pearson cor.	.208	.216	.146	.399*	.039	−.029	.140	.066	−.113	−0.079	0.222	0.057	.365*
	Sig. (2-tailed)	.269	.251	.441	.029	.840	.880	.462	.729	.552	0.679	0.238	0.764	0.048
Q16_AO6: Achievement or.	Pearson cor.	.151	.000	.199	.447*	.000	.084	.172	.303	−.259	−0.103	0.23	0.103	0.223
	Sig. (2-tailed)	.426	1.000	.292	.013	1.000	.658	.363	.104	.167	0.589	0.221	0.587	0.236
Q17_RF: Receive Feedback	Pearson cor	.326	.312	.474**	.207	−.354	.109	.063	.494**	.246	−0.016	.515**	0.31	0.111
	Sig. (2-tailed)	.079	.093	.008	.273	.055	.566	.739	.006	.190	0.932	0.004	0.095	0.56
Q18_RF: Receive Feedback	Pearson cor.	.146	.122	.354	.185	−.258	.000	−.222	.231	−.042	0	0.205	0.256	−0.092
	Sig. (2-tailed)	.442	.521	.055	.328	.169	1.000	.239	.220	.827	1	0.276	0.171	0.628
Q19_RF: Receive Feedback	Pearson cor.	−.051	.128	.140	.098	.000	.000	.117	.049	−.308	−0.209	0.162	0.18	−0.097
	Sig. (2-tailed)	.788	.499	.460	.608	1.000	1.000	.539	.798	.098	0.267	0.391	0.341	0.609
Q20_CR: Critical Reflection	Pearson cor.	.247	.202	.263	−.084	.072	.055	.211	.114	.188	−0.247	0.299	0.209	−0.007
	Sig. (2-tailed)	.188	.285	.160	.660	.707	.775	.262	.549	.319	0.189	0.109	0.267	0.97
Q21_CR: Critical Reflection	Pearson cor.	.226	.200	.354	.106	−.130	.398*	.166	.325	.497**	−0.005	0.078	0.329	0.077
	Sig. (2-tailed)	.231	.288	.055	.577	.494	.029	.380	.080	.005	0.98	0.683	0.075	0.684
Q22_CT: Conceptualization	Pearson cor.	.258	.182	.380*	.463*	.137	.120	.136	.160	.264	0.132	.503**	.401*	0.311
	Sig. (2-tailed)	.169	.335	.038	.010	.471	.529	.475	.398	.158	0.488	0.005	0.028	0.094
Q23_NW1: Build. Relationships	Pearson cor.	.070	−.084	−.217	.175	.083	.235	.332	.311	.303	0.058	0.075	0.131	0.019
	Sig. (2-tailed)	.715	.660	.250	.354	.662	.212	.073	.094	.104	0.762	0.693	0.489	0.919
Q24_NW2: Build. Relationships	Pearson cor.	.251	.120	−.101	.202	.181	.355	.470**	.491**	.177	−0.101	0.291	0.195	0.02
	Sig. (2-tailed)	.181	.528	.596	.284	.339	.054	.009	.006	.349	0.596	0.119	0.303	0.917
Q25_P1: Persuasion	Pearson cor.	.048	.013	.051	−.008	.111	.137	.202	.435*	.318	−.386*	0.195	0.255	−0.092

(*continued on next page*)

Table IV (*continued*)

		Q1_SA	Q2_SA	Q3_SA	Q4_SE	Q5_SE	Q6_SE	Q7_SE	Q8_SE	Q9_SF	Q10_RES	Q11_AO1	Q12_AO2	Q13_AO3
	Sig. (2-tailed)	.800	.944	.788	.968	.559	.469	.285	.016	.087	0.035	0.301	0.174	0.63
Q26_P2: Persuasion	Pearson cor.	.146	.074	.303	.208	.249	.252	.286	.469**	.334	−0.091	.419*	.378*	−0.046
	Sig. (2-tailed)	.442	.696	.104	.270	.184	.179	.125	.009	.071	0.633	0.021	0.04	0.809
Q27_P3: Persuasion	Pearson cor.	.287	.244	.233	.520**	.175	.220	.283	.160	.153	−0.031	0.136	0.297	0.212
	Sig. (2-tailed)	.124	.195	.216	.003	.354	.243	.130	.399	.419	0.87	0.473	0.111	0.261
Q28_TW1: Team working	Pearson cor.	.221	.166	.013	.372*	.047	.141	.378*	.182	.247	0.023	0.132	0.11	0.196
	Sig. (2-tailed)	.241	.380	.944	.043	.806	.458	.040	.336	.189	0.906	0.486	0.562	0.299
Q29_TW2: Team working	Pearson cor.	.223	.051	.115	.252	−.065	.191	.377*	.339	.390*	−0.259	0.125	0.321	0.1
	Sig. (2-tailed)	.236	.787	.546	.180	.731	.312	.040	.067	.033	0.166	0.511	0.084	0.599
Q30_TW3: Team working	Pearson cor.	.348	.305	.118	.392*	.053	.144	.369*	.281	.406*	0.347	0.242	0.246	0.113
	Sig. (2-tailed)	.059	.101	.533	.032	.782	.446	.045	.133	.026	0.06	0.197	0.191	0.552
Q31_TW4: Team working	Pearson cor.	.310	.321	−.207	.396*	.119	.198	.339	−.011	.248	0.137	0.202	0.115	0.216
	Sig. (2-tailed)	.095	.084	.272	.030	.531	.294	.067	.954	.186	0.472	0.284	0.545	0.252
Q32_TW5: Team working	Pearson cor.	−.060	.046	−.477**	.321	.501**	.005	.178	.029	.099	0.251	0.207	−0.208	−0.172
	Sig. (2-tailed)	.752	.808	.008	.084	.005	.979	.348	.881	.602	0.18	0.272	0.271	0.364
Q33_TL1: Transfer of learning	Pearson cor.	.331	.604**	.281	.154	−.159	.250	.328	.068	.268	−0.093	0.196	0.274	.458*
	Sig. (2-tailed)	.074	<.001	.133	.416	.401	.183	.076	.723	.152	0.626	0.299	0.142	0.011
Q34_TL2: Transfer of Learning	Pearson cor.	.261	.417*	.284	.173	−.410*	.306	.261	−.003	.205	−0.142	−0.036	.420*	0.302
	Sig. (2-tailed)	.164	.022	.128	.362	.024	.100	.163	.988	.278	0.453	0.848	0.021	0.105
Q35_I1: Taking Initiative	Pearson cor.	.426*	.437*	.361*	−.140	−.097	.117	.017	−.058	.127	0.036	.467**	0.353	.444*
	Sig. (2-tailed)	.019	.016	.050	.460	.610	.537	.927	.761	.505	0.849	0.009	0.056	0.014
Q36_I2: Taking Initiative	Pearson cor.	.325	.611**	.062	.142	−.172	.381*	.509**	−.167	.105	0.166	0.071	0.238	.514**
	Sig. (2-tailed)	.080	<.001	.746	.455	.363	.038	.004	.378	.582	0.381	0.707	0.205	0.004
Q37_I3: Taking Initiative	Pearson cor.	.117	.160	−.053	.286	.150	.276	.361	.142	.243	0.06	0.15	0.213	0.016
	Sig. (2-tailed)	.539	.398	.780	.126	.428	.139	.050	.453	.195	0.754	0.43	0.259	0.934
Q38_FL1: Flexibility	Pearson cor.	.009	.153	.160	.118	.030	.169	−.005	−.191	.109	0.101	0.22	.498**	0.235
	Sig. (2-tailed)	.961	.419	.398	.535	.875	.373	.978	.313	.566	0.596	0.242	0.005	0.211
Q39_FL2: Flexibility	Pearson cor.	.347	.597**	.326	.214	−.223	.488**	.538**	.225	.108	0.012	.425*	.489**	0.235
	Sig. (2-tailed)	.060	<.001	.078	.256	.237	.006	.002	.232	.572	0.948	0.019	0.006	0.211
Q40_FL3: Flexibility	Pearson cor.	.279	.321	.130	.407*	−.064	.453*	.324	.278	.304	0.321	.367*	0.341	0.006
	Sig. (2-tailed)	.135	.084	.492	.026	.739	.012	.081	.137	.102	0.084	0.046	0.065	0.974
Grade	Pearson cor.	**.435***	**.545****	.251	.139	−.217	.281	.211	−.108	.304	0.118	0.176	0.308	0.273
	Sig. (2-tailed)	**.016**	**.002**	.182	.465	.250	.133	.263	.568	.102	0.535	0.353	0.097	0.145

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Continue Cross correlation matrix: coachability competencies and final grade (2nd part)

		Q14_AO4	Q15_AO5	Q16_AO6	Q17_RF	Q18_RF	Q19_RF	Q20_CR	Q21_CR	Q22_CT	Q23_NW1	Q24_NW2	Q25_P1	Q26_P2	Q27_P3
Q1_SA: Self-reflection	Pearson cor.	0.306	0.208	0.151	0.326	0.146	−0.051	0.247	0.226	0.258	0.07	0.251	0.048	0.146	0.306
	Sig. (2-tailed)	0.101	0.269	0.426	0.079	0.442	0.788	0.188	0.231	0.169	0.715	0.181	0.8	0.442	0.101
Q2_SA: Self-assessment	Pearson cor.	0.192	0.216	0	0.312	0.122	0.128	0.202	0.2	0.182	−0.084	0.12	0.013	0.074	0.192
	Sig. (2-tailed)	0.31	0.251	1	0.093	0.521	0.499	0.285	0.288	0.335	0.66	0.528	0.944	0.696	0.31
Q3_SA: Emotional self-awareness	Pearson cor.	.544**	0.146	0.199	.474**	0.354	0.14	0.263	0.354	.380*	−0.217	−0.101	0.051	0.303	.544**
	Sig. (2-tailed)	0.002	0.441	0.292	0.008	0.055	0.46	0.16	0.055	0.038	0.25	0.596	0.788	0.104	0.002
Q4_SE: Self-efficacy	Pearson cor.	0.272	.399*	.447*	0.207	0.185	0.098	−0.084	0.106	.463*	0.175	0.202	−0.008	0.208	0.272
	Sig. (2-tailed)	0.145	0.029	0.013	0.273	0.328	0.608	0.66	0.577	0.01	0.354	0.284	0.968	0.27	0.145
Q5_SE: Self-efficacy	Pearson cor.	0.067	0.039	0	−0.354	−0.258	0	0.072	−0.13	0.137	0.083	0.181	0.111	0.249	0.067
	Sig. (2-tailed)	0.726	0.84	1	0.055	0.169	1	0.707	0.494	0.471	0.662	0.339	0.559	0.184	0.726
Q6_SE: Self-efficacy	Pearson cor.	0.336	−0.029	0.084	0.109	0	0	0.055	.398*	0.12	0.235	0.355	0.137	0.252	0.336
	Sig. (2-tailed)	0.07	0.88	0.658	0.566	1	1	0.775	0.029	0.529	0.212	0.054	0.469	0.179	0.07
Q7_SE Self-efficacy	Pearson cor.	0.261	0.14	0.172	0.063	−0.222	0.117	0.211	0.166	0.136	0.332	.470**	0.202	0.286	0.261
	Sig. (2-tailed)	0.163	0.462	0.363	0.739	0.239	0.539	0.262	0.38	0.475	0.073	0.009	0.285	0.125	0.163
Q8_SE: Self-efficacy	Pearson cor.	0.225	0.066	0.303	.494**	0.231	0.049	0.114	0.325	0.16	0.311	.491**	.435*	.469**	0.225
	Sig. (2-tailed)	0.232	0.729	0.104	0.006	0.22	0.798	0.549	0.08	0.398	0.094	0.006	0.016	0.009	0.232
Q9_SF: Seeking Feedback	Pearson cor.	0.205	−0.113	−0.259	0.246	−0.042	−0.308	0.188	.497**	0.264	0.303	0.177	0.318	0.334	0.205
	Sig. (2-tailed)	0.278	0.552	0.167	0.19	0.827	0.098	0.319	0.005	0.158	0.104	0.349	0.087	0.071	0.278
Q10_RES: Resilience	Pearson cor.	0.041	−0.079	−0.103	−0.016	0	−0.209	−0.247	−0.005	0.132	0.058	−0.101	−.386*	−0.091	0.041
	Sig. (2-tailed)	0.828	0.679	0.589	0.932	1	0.267	0.189	0.98	0.488	0.762	0.596	0.035	0.633	0.828
Q11_AO1: Achievement or.	Pearson cor.	0.217	0.222	0.23	.515**	0.205	0.162	0.299	0.078	.503**	0.075	0.291	0.195	.419*	0.217
	Sig. (2-tailed)	0.25	0.238	0.221	0.004	0.276	0.391	0.109	0.683	0.005	0.693	0.119	0.301	0.021	0.25
Q12_AO2: Achievement or.	Pearson cor.	.513**	0.057	0.103	0.31	0.256	0.18	0.209	0.329	.401*	0.131	0.195	0.255	.378*	.513**
	Sig. (2-tailed)	0.004	0.764	0.587	0.095	0.171	0.341	0.267	0.075	0.028	0.489	0.303	0.174	0.04	0.004
Q13_AO3: Achievement or.	Pearson cor.	.416*	.365*	0.223	0.111	−0.092	−0.097	−0.007	0.077	0.311	0.019	0.02	−0.092	−0.046	.416*
	Sig. (2-tailed)	0.022	0.048	0.236	0.56	0.628	0.609	0.97	0.684	0.094	0.919	0.917	0.63	0.809	0.022
Q14_AO4: Achievement or.	Pearson cor.	1	0.14	0.351	0.207	0.046	−0.146	−0.137	0.33	.510**	0.134	0.074	0.145	.439*	1
	Sig. (2-tailed)		0.462	0.057	0.273	0.808	0.441	0.47	0.075	0.004	0.481	0.697	0.443	0.015	
Q15_AO5: Achievement or.	Pearson cor.	0.14	1	.515**	0.188	0.233	.393*	0.182	−0.08	0.219	−0.043	−0.066	−0.015	0.226	0.14
	Sig. (2-tailed)	0.462		0.004	0.319	0.215	0.031	0.337	0.675	0.245	0.821	0.729	0.935	0.231	0.462
Q16_AO6: Achievement or.	Pearson cor.	0.351	.515**	1	0.353	0.311	0.273	−0.02	0.067	0.264	0.216	0.127	0.214	0.345	0.351
	Sig. (2-tailed)	0.057	0.004		0.056	0.095	0.145	0.917	0.726	0.158	0.251	0.502	0.256	0.062	0.057
Q17_RF: Receive Feedback	Pearson cor	0.207	0.188	0.353	1	.532**	0.216	.460*	.494**	.426*	0.291	0.186	0.278	.532**	0.207
	Sig. (2-tailed)	0.273	0.319	0.056		0.002	0.252	0.01	0.006	0.019	0.119	0.324	0.137	0.002	0.273
Q18_RF: Receive Feedback	Pearson cor.	0.046	0.233	0.311	.532**	1	0.316	0.231	0.048	0.357	0.224	0.138	0.166	0.208	0.046
	Sig. (2-tailed)	0.808	0.215	0.095	0.002		0.089	0.219	0.8	0.053	0.235	0.466	0.382	0.269	0.808
Q19_RF: Receive Feedback	Pearson cor.	−0.146	.393*	0.273	0.216	0.316	1	.426*	−0.102	0.215	0.047	0	0.305	0.176	−0.146
	Sig. (2-tailed)	0.441	0.031	0.145	0.252	0.089		0.019	0.592	0.254	0.804	1	0.101	0.353	0.441
Q20_CR: Critical Reflection	Pearson cor.	−0.137	0.182	−0.02	.460*	0.231	.426*	1	0.08	0.201	0.174	0.153	0.163	0.25	−0.137
	Sig. (2-tailed)	0.47	0.337	0.917	0.01	0.219	0.019		0.674	0.288	0.357	0.42	0.391	0.182	0.47
Q21_CR: Critical Reflection	Pearson cor.	0.33	−0.08	0.067	.494**	0.048	−0.102	0.08	1	0.286	0.313	0.256	.552**	.701**	0.33
	Sig. (2-tailed)	0.075	0.675	0.726	0.006	0.8	0.592	0.674		0.125	0.092	0.172	0.002	<.001	0.075
Q22_CT: Conceptualization	Pearson cor.	.510**	0.219	0.264	.426*	0.357	0.215	0.201	0.286	1	0.21	−0.019	0.093	.408*	.510**
	Sig. (2-tailed)	0.004	0.245	0.158	0.019	0.053	0.254	0.288	0.125		0.265	0.921	0.625	0.025	0.004
Q23_NW1: Build. Relationships	Pearson cor.	0.134	−0.043	0.216	0.291	0.224	0.047	0.174	0.313	0.21	1	.598**	.541**	.403*	0.134
	Sig. (2-tailed)	0.481	0.821	0.251	0.119	0.235	0.804	0.357	0.092	0.265		<.001	0.002	0.027	0.481

(*continued on next page*)

(*continued*)

		Q14_AO4	Q15_AO5	Q16_AO6	Q17_RF	Q18_RF	Q19_RF	Q20_CR	Q21_CR	Q22_CT	Q23_NW1	Q24_NW2	Q25_P1	Q26_P2	Q27_P3
Q24_NW2: Build. Relationships	Pearson cor.	0.074	−0.066	0.127	0.186	0.138	0	0.153	0.256	−0.019	.598**	1	.596**	.415*	0.074
	Sig. (2-tailed)	0.697	0.729	0.502	0.324	0.466	1	0.42	0.172	0.921	<.001		<.001	0.022	0.697
Q25_P1: Persuasion	Pearson cor.	0.145	−0.015	0.214	0.278	0.166	0.305	0.163	.552**	0.093	.541**	.596**	1	.607**	0.145
	Sig. (2-tailed)	0.443	0.935	0.256	0.137	0.382	0.101	0.391	0.002	0.625	0.002	<.001		<.001	0.443
Q26_P2: Persuasion	Pearson cor.	.439*	0.226	0.345	.532**	0.208	0.176	0.25	.701**	.408*	.403*	.415*	.607**	1	.439*
	Sig. (2-tailed)	0.015	0.231	0.062	0.002	0.269	0.353	0.182	<.001	0.025	0.027	0.022	<.001		0.015
Q27_P3: Persuasion	Pearson cor.	.437*	0.277	.571**	0.229	0.224	0.283	0.053	0.328	.393*	0.266	0.212	0.356	.403*	.437*
	Sig. (2-tailed)	0.016	0.138	<.001	0.222	0.235	0.13	0.779	0.077	0.032	0.156	0.261	0.054	0.027	0.016
Q28_TW1: Team working	Pearson cor.	0.077	.516**	.502**	.422*	.364*	0.288	0.272	0.301	.371*	.536**	0.238	0.301	.417*	0.077
	Sig. (2-tailed)	0.685	0.003	0.005	0.02	0.048	0.123	0.146	0.106	0.043	0.002	0.205	0.106	0.022	0.685
Q29_TW2: Team working	Pearson cor.	.398*	0.175	.506**	.437*	0.238	0	0.089	.378*	0.315	.558**	.393*	.420*	.442*	.398*
	Sig. (2-tailed)	0.029	0.355	0.004	0.016	0.206	1	0.642	0.039	0.09	0.001	0.032	0.021	0.014	0.029
Q30_TW3: Team working	Pearson cor.	0.116	0.114	0.118	.410*	0.299	0.09	0.319	0.121	.453*	.491**	0.231	0.049	0.22	0.116
	Sig. (2-tailed)	0.542	0.548	0.535	0.025	0.109	0.636	0.086	0.524	0.012	0.006	0.219	0.795	0.242	0.542
Q31_TW4: Team working	Pearson cor.	−0.015	0.28	0.169	0.165	0.266	0.094	0.183	0.027	0.281	.468**	.380*	0.044	0.207	−0.015
	Sig. (2-tailed)	0.937	0.133	0.373	0.384	0.155	0.623	0.333	0.887	0.133	0.009	0.038	0.817	0.272	0.937
Q32_TW5: Team working	Pearson cor.	−0.206	0.043	0	−0.22	0.103	0.164	0.066	−.365*	0.095	0.319	0.353	0.077	0.017	−0.206
	Sig. (2-tailed)	0.275	0.82	1	0.243	0.587	0.388	0.73	0.047	0.618	0.085	0.056	0.686	0.928	0.275
Q33_TL1: Transfer of learning	Pearson cor.	0.117	0.33	0.168	0.279	−0.081	0.343	.390*	0.122	0.182	−0.156	−0.068	0.081	0.007	0.117
	Sig. (2-tailed)	0.54	0.075	0.374	0.135	0.67	0.064	0.033	0.521	0.335	0.409	0.723	0.672	0.972	0.54
Q34_TL2: Transfer of Learning	Pearson cor.	0.344	0.24	0.319	0.308	.370*	0.098	0.094	0.181	0.321	0.148	0.088	0.107	0.015	0.344
	Sig. (2-tailed)	0.063	0.201	0.086	0.098	0.044	0.608	0.619	0.34	0.084	0.436	0.643	0.573	0.936	0.063
Q35_I1: Taking Initiative	Pearson cor.	0.102	0.083	−0.162	0.231	0	0.275	.381*	0.056	0.288	−0.061	−0.039	0.017	0.052	0.102
	Sig. (2-tailed)	0.593	0.663	0.391	0.219	1	0.141	0.038	0.77	0.123	0.75	0.839	0.928	0.784	0.593
Q36_I2: Taking Initiative	Pearson cor.	0.064	0.052	−0.115	0.023	−0.251	0.132	0.113	−0.013	0.085	−0.062	0.013	−0.138	−0.209	0.064
	Sig. (2-tailed)	0.735	0.785	0.544	0.905	0.182	0.487	0.553	0.944	0.654	0.744	0.946	0.466	0.268	0.735
Q37_I3: Taking Initiative	Pearson cor.	0.246	−0.104	0.089	0.098	−0.043	0.045	−0.02	0.299	0.298	.553**	.372*	0.277	0.3	0.246
	Sig. (2-tailed)	0.19	0.584	0.641	0.606	0.822	0.813	0.917	0.109	0.11	0.002	0.043	0.139	0.107	0.19
Q38_FL1: Flexibility	Pearson cor.	0.163	0.215	0.284	0.061	0.339	0.306	0.144	0.03	.504**	0.12	−0.167	0.048	0.105	0.163
	Sig. (2-tailed)	0.391	0.253	0.129	0.75	0.067	0.1	0.449	0.876	0.005	0.528	0.379	0.801	0.581	0.391
Q39_FL2: Flexibility	Pearson cor.	0.291	0.296	0.358	.485**	0.249	.394*	.434*	0.224	0.28	0.284	0.35	0.261	.409*	0.291
	Sig. (2-tailed)	0.119	0.112	0.052	0.007	0.184	0.031	0.017	0.235	0.134	0.128	0.058	0.163	0.025	0.119
Q40_FL3: Flexibility	Pearson cor.	0.359	0.03	0.177	0.305	0.103	0.108	−0.057	0.227	0.346	0.259	0.243	0.238	0.291	0.359
	Sig. (2-tailed)	0.051	0.874	0.349	0.101	0.589	0.569	0.763	0.228	0.061	0.167	0.195	0.205	0.119	0.051
Grade	Pearson cor.	.405*	0.138	0.02	0.233	0.128	−0.341	0.183	0.176	0.121	−0.011	0.155	−0.128	0.238	.405*
	Sig. (2-tailed)	0.026	0.468	0.916	0.216	0.5	0.065	0.332	0.352	0.526	0.953	0.413	0.501	0.205	0.026

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Continue Cross correlation matrix: coachability competencies and final grade (3rd part)

		Q28_TW1	Q29_TW2	Q30_TW3	Q31_TW4	Q32_TW5	Q33_TL1	Q34_TL2	Q35_I1	Q36_I2	Q37_I3	Q38_FL1	Q39_FL2	Q40_FL3	Grade
Q1_SA: Self-reflection	Pearson cor.	0.221	0.223	0.348	0.31	−0.06	0.331	0.261	.426*	0.325	0.117	0.009	0.347	0.279	.435*
	Sig. (2-tailed)	0.241	0.236	0.059	0.095	0.752	0.074	0.164	0.019	0.08	0.539	0.961	0.06	0.135	0.016
Q2_SA: Self-assessment	Pearson cor.	0.166	0.051	0.305	0.321	0.046	.604**	.417*	.437*	.611**	0.16	0.153	.597**	0.321	.545**
	Sig. (2-tailed)	0.38	0.787	0.101	0.084	0.808	<.001	0.022	0.016	<.001	0.398	0.419	<.001	0.084	0.002
Q3_SA: Emotional self-awareness	Pearson cor.	0.013	0.115	0.118	−0.207	−.477**	0.281	0.284	.361*	0.062	−0.053	0.16	0.326	0.13	0.251
	Sig. (2-tailed)	0.944	0.546	0.533	0.272	0.008	0.133	0.128	0.05	0.746	0.78	0.398	0.078	0.492	0.182
Q4_SE: Self-efficacy	Pearson cor.	.372*	0.252	.392*	.396*	0.321	0.154	0.173	−0.14	0.142	0.286	0.118	0.214	.407*	0.139
	Sig. (2-tailed)	0.043	0.18	0.032	0.03	0.084	0.416	0.362	0.46	0.455	0.126	0.535	0.256	0.026	0.465
Q5_SE: Self-efficacy	Pearson cor.	0.047	−0.065	0.053	0.119	.501**	−0.159	−.410*	−0.097	−0.172	0.15	0.03	−0.223	−0.064	−0.217
	Sig. (2-tailed)	0.806	0.731	0.782	0.531	0.005	0.401	0.024	0.61	0.363	0.428	0.875	0.237	0.739	0.25
Q6_SE: Self-efficacy	Pearson cor.	0.141	0.191	0.144	0.198	0.005	0.25	0.306	0.117	.381*	0.276	0.169	.488**	.453*	0.281
	Sig. (2-tailed)	0.458	0.312	0.446	0.294	0.979	0.183	0.1	0.537	0.038	0.139	0.373	0.006	0.012	0.133
Q7_SE Self-efficacy	Pearson cor.	.378*	.377*	.369*	0.339	0.178	0.328	0.261	0.017	.509**	0.361	−0.005	.538**	0.324	0.211
	Sig. (2-tailed)	0.04	0.04	0.045	0.067	0.348	0.076	0.163	0.927	0.004	0.05	0.978	0.002	0.081	0.263
Q8_SE: Self-efficacy	Pearson cor.	0.182	0.339	0.281	−0.011	0.029	0.068	−0.003	−0.058	−0.167	0.142	−0.191	0.225	0.278	−0.108
	Sig. (2-tailed)	0.336	0.067	0.133	0.954	0.881	0.723	0.988	0.761	0.378	0.453	0.313	0.232	0.137	0.568
Q9_SF: Seeking Feedback	Pearson cor.	0.247	.390*	.406*	0.248	0.099	0.268	0.205	0.127	0.105	0.243	0.109	0.108	0.304	0.304
	Sig. (2-tailed)	0.189	0.033	0.026	0.186	0.602	0.152	0.278	0.505	0.582	0.195	0.566	0.572	0.102	0.102
Q10_RES: Resilience	Pearson cor.	0.023	−0.259	0.347	0.137	0.251	−0.093	−0.142	0.036	0.166	0.06	0.101	0.012	0.321	0.118
	Sig. (2-tailed)	0.906	0.166	0.06	0.472	0.18	0.626	0.453	0.849	0.381	0.754	0.596	0.948	0.084	0.535
Q11_AO1: Achievement or.	Pearson cor.	0.132	0.125	0.242	0.202	0.207	0.196	−0.036	.467**	0.071	0.15	0.22	.425*	.367*	0.176
	Sig. (2-tailed)	0.486	0.511	0.197	0.284	0.272	0.299	0.848	0.009	0.707	0.43	0.242	0.019	0.046	0.353
Q12_AO2: Achievement or.	Pearson cor.	0.11	0.321	0.246	0.115	−0.208	0.274	.420*	0.353	0.238	0.213	.498**	.489**	0.341	0.308
	Sig. (2-tailed)	0.562	0.084	0.191	0.545	0.271	0.142	0.021	0.056	0.205	0.259	0.005	0.006	0.065	0.097
Q13_AO3: Achievement or.	Pearson cor.	0.196	0.1	0.113	0.216	−0.172	.458*	0.302	.444*	.514**	0.016	0.235	0.235	0.006	0.273
	Sig. (2-tailed)	0.299	0.599	0.552	0.252	0.364	0.011	0.105	0.014	0.004	0.934	0.211	0.211	0.974	0.145
Q14_AO4: Achievement or.	Pearson cor.	0.077	.398*	0.116	−0.015	−0.206	0.117	0.344	0.102	0.064	0.246	0.163	0.291	0.359	.405*
	Sig. (2-tailed)	0.685	0.029	0.542	0.937	0.275	0.54	0.063	0.593	0.735	0.19	0.391	0.119	0.051	0.026
Q15_AO5: Achievement or.	Pearson cor.	.516**	0.175	0.114	0.28	0.043	0.33	0.24	0.083	0.052	−0.104	0.215	0.296	0.03	0.138
	Sig. (2-tailed)	0.003	0.355	0.548	0.133	0.82	0.075	0.201	0.663	0.785	0.584	0.253	0.112	0.874	0.468
Q16_AO6: Achievement or.	Pearson cor.	.502**	.506**	0.118	0.169	0	0.168	0.319	−0.162	−0.115	0.089	0.284	0.358	0.177	0.02
	Sig. (2-tailed)	0.005	0.004	0.535	0.373	1	0.374	0.086	0.391	0.544	0.641	0.129	0.052	0.349	0.916
Q17_RF: Receive Feedback	Pearson cor	.422*	.437*	.410*	0.165	−0.22	0.279	0.308	0.231	0.023	0.098	0.061	.485**	0.305	0.233
	Sig. (2-tailed)	0.02	0.016	0.025	0.384	0.243	0.135	0.098	0.219	0.905	0.606	0.75	0.007	0.101	0.216
Q18_RF: Receive Feedback	Pearson cor.	.364*	0.238	0.299	0.266	0.103	−0.081	.370*	0	−0.251	−0.043	0.339	0.249	0.103	0.128
	Sig. (2-tailed)	0.048	0.206	0.109	0.155	0.587	0.67	0.044	1	0.182	0.822	0.067	0.184	0.589	0.5
Q19_RF: Receive Feedback	Pearson cor.	0.288	0	0.09	0.094	0.164	0.343	0.098	0.275	0.132	0.045	0.306	.394*	0.108	−0.341
	Sig. (2-tailed)	0.123	1	0.636	0.623	0.388	0.064	0.608	0.141	0.487	0.813	0.1	0.031	0.569	0.065
Q20_CR: Critical Reflection	Pearson cor.	0.272	0.089	0.319	0.183	0.066	.390*	0.094	.381*	0.113	−0.02	0.144	.434*	−0.057	0.183
	Sig. (2-tailed)	0.146	0.642	0.086	0.333	0.73	0.033	0.619	0.038	0.553	0.917	0.449	0.017	0.763	0.332
Q21_CR: Critical Reflection	Pearson cor.	0.301	.378*	0.121	0.027	−.365*	0.122	0.181	0.056	−0.013	0.299	0.03	0.224	0.227	0.176
	Sig. (2-tailed)	0.106	0.039	0.524	0.887	0.047	0.521	0.34	0.77	0.944	0.109	0.876	0.235	0.228	0.352
Q22_CT: Conceptualization	Pearson cor.	.371*	0.315	.453*	0.281	0.095	0.182	0.321	0.288	0.085	0.298	.504**	0.28	0.346	0.121
	Sig. (2-tailed)	0.043	0.09	0.012	0.133	0.618	0.335	0.084	0.123	0.654	0.11	0.005	0.134	0.061	0.526
Q23_NW1: Build. Relationships	Pearson cor.	.536**	.558**	.491**	.468**	0.319	−0.156	0.148	−0.061	−0.062	.553**	0.12	0.284	0.259	−0.011
	Sig. (2-tailed)	0.002	0.001	0.006	0.009	0.085	0.409	0.436	0.75	0.744	0.002	0.528	0.128	0.167	0.953

(continued on next page)

(*continued*)

		Q28_TW1	Q29_TW2	Q30_TW3	Q31_TW4	Q32_TW5	Q33_TL1	Q34_TL2	Q35_I1	Q36_I2	Q37_I3	Q38_FL1	Q39_FL2	Q40_FL3	Grade
Q24_NW2: Build. Relationships	Pearson cor.	0.238	.393*	0.231	.380*	0.353	−0.068	0.088	−0.039	0.013	.372*	−0.167	0.35	0.243	0.155
	Sig. (2-tailed)	0.205	0.032	0.219	0.038	0.056	0.723	0.643	0.839	0.946	0.043	0.379	0.058	0.195	0.413
Q25_P1: Persuasion	Pearson cor.	0.301	.420*	0.049	0.044	0.077	0.081	0.107	0.017	−0.138	0.277	0.048	0.261	0.238	−0.128
	Sig. (2-tailed)	0.106	0.021	0.795	0.817	0.686	0.672	0.573	0.928	0.466	0.139	0.801	0.163	0.205	0.501
Q26_P2: Persuasion	Pearson cor.	.417*	.442*	0.22	0.207	0.017	0.007	0.015	0.052	−0.209	0.3	0.105	.409*	0.291	0.238
	Sig. (2-tailed)	0.022	0.014	0.242	0.272	0.928	0.972	0.936	0.784	0.268	0.107	0.581	0.025	0.119	0.205
Q27_P3: Persuasion	Pearson cor.	.441*	.534**	0.249	.415*	0.18	0.316	0.299	−0.108	0.174	.514**	.495**	.371*	.412*	0.127
	Sig. (2-tailed)	0.015	0.002	0.184	0.023	0.34	0.089	0.108	0.571	0.357	0.004	0.005	0.044	0.024	0.503
Q28_TW1: Team working	Pearson cor.	1	.589**	.530**	.451*	0.212	0.24	0.302	0.119	0.089	0.156	0.227	0.334	0.132	0.032
	Sig. (2-tailed)		<.001	0.003	0.012	0.261	0.201	0.105	0.532	0.641	0.41	0.227	0.071	0.486	0.869
Q29_TW2: Team working	Pearson cor.	.589**	1	.505**	.462*	0.008	0.309	.533**	−0.182	−0.011	.380*	0.12	.463**	0.287	0.28
	Sig. (2-tailed)	<.001		0.004	0.01	0.966	0.097	0.002	0.335	0.954	0.038	0.527	0.01	0.124	0.134
Q30_TW3: Team working	Pearson cor.	.530**	.505**	1	.684**	.424*	0.305	0.129	0.125	0.226	0.315	0.209	.409*	0.33	0.241
	Sig. (2-tailed)	0.003	0.004		<.001	0.02	0.101	0.497	0.511	0.23	0.09	0.267	0.025	0.075	0.2
Q31_TW4: Team working	Pearson cor.	.451*	.462*	.684**	1	.519**	0.213	0.163	−0.005	0.272	.525**	0.359	.459*	0.202	0.318
	Sig. (2-tailed)	0.012	0.01	<.001		0.003	0.259	0.39	0.981	0.146	0.003	0.051	0.011	0.284	0.087
Q32_TW5: Team working	Pearson cor.	0.212	0.008	.424*	.519**	1	−0.08	−0.301	−0.103	0.043	0.275	0.165	0.082	0.26	−0.016
	Sig. (2-tailed)	0.261	0.966	0.02	0.003		0.675	0.106	0.589	0.821	0.141	0.383	0.668	0.165	0.932
Q33_TL1: Transfer of learning	Pearson cor.	0.24	0.309	0.305	0.213	−0.08	1	.380*	.395*	.509**	−0.049	0.153	.597**	0.154	0.231
	Sig. (2-tailed)	0.201	0.097	0.101	0.259	0.675		0.039	0.031	0.004	0.798	0.419	<.001	0.415	0.22
Q34_TL2: Transfer of Learning	Pearson cor.	0.302	.533**	0.129	0.163	−0.301	.380*	1	0.005	0.129	0.127	0.222	.432*	0.201	.403*
	Sig. (2-tailed)	0.105	0.002	0.497	0.39	0.106	0.039		0.98	0.498	0.504	0.238	0.017	0.287	0.027
Q35_I1: Taking Initiative	Pearson cor.	0.119	−0.182	0.125	−0.005	−0.103	.395*	0.005	1	0.349	−0.063	0.096	0.334	−0.016	0.031
	Sig. (2-tailed)	0.532	0.335	0.511	0.981	0.589	0.031	0.98		0.059	0.742	0.613	0.071	0.933	0.87
Q36_I2: Taking Initiative	Pearson cor.	0.089	−0.011	0.226	0.272	0.043	.509**	0.129	0.349	1	0.286	0.215	.370*	0.329	0.086
	Sig. (2-tailed)	0.641	0.954	0.23	0.146	0.821	0.004	0.498	0.059		0.125	0.253	0.044	0.076	0.651
Q37_I3: Taking Initiative	Pearson cor.	0.156	.380*	0.315	.525**	0.275	−0.049	0.127	−0.063	0.286	1	0.282	0.335	.414*	0.027
	Sig. (2-tailed)	0.41	0.038	0.09	0.003	0.141	0.798	0.504	0.742	0.125		0.131	0.07	0.023	0.887
Q38_FL1: Flexibility	Pearson cor.	0.227	0.12	0.209	0.359	0.165	0.153	0.222	0.096	0.215	0.282	1	0.259	0.27	0.004
	Sig. (2-tailed)	0.227	0.527	0.267	0.051	0.383	0.419	0.238	0.613	0.253	0.131		0.168	0.149	0.981
Q39_FL2: Flexibility	Pearson cor.	0.334	.463**	.409*	.459*	0.082	.597**	.432*	0.334	.370*	0.335	0.259	1	.425*	.452*
	Sig. (2-tailed)	0.071	0.01	0.025	0.011	0.668	<.001	0.017	0.071	0.044	0.07	0.168		0.019	0.012
Q40_FL3: Flexibility	Pearson cor.	0.132	0.287	0.33	0.202	0.26	0.154	0.201	−0.016	0.329	.414*	0.27	.425*	1	0.209
	Sig. (2-tailed)	0.486	0.124	0.075	0.284	0.165	0.415	0.287	0.933	0.076	0.023	0.149	0.019		0.269
Grade	Pearson cor.	0.032	0.28	0.241	0.318	−0.016	0.231	.403*	0.031	0.086	0.027	0.004	**.452***	0.209	1
	Sig. (2-tailed)	0.869	0.134	0.2	0.087	0.932	0.22	0.027	0.87	0.651	0.887	0.981	**0.012**	0.269	

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Table V
Coachability level development - Wilcoxon test (initial-final results)

Test Statistics				
	Sum 1 - Sum 2	Average 1 - Average 2		
Z	−1.992[b]	−2.066[b]		
Asymp. Sig. (2-tailed)	**0.046**	**0.039**		
a Wilcoxon Signed Ranks Test				
b Based on positive ranks.				
Ranks		N	Mean Rank	Sum of Ranks
Sum 1 - Sum 2	Negative Ranks	8[a]	9.25	74
	Positive Ranks	5[b]	3.4	17
	Ties	0[c]		
	Total	13		
Average 1 - Average 2	Negative Ranks	6[d]	4.33	26
	Positive Ranks	1[e]	2	2
	Ties	6[f]		
	Total	13		

[a] Sum 1 < Sum 2.
[b] Sum 1 > Sum 2.
[c] Sum 1 = Sum 2.
[d] Average 1 < Average 2.
[e] Average 1 > Average 2.
[f] Average 1 = Average 2.

Table VI
Coachability competencies development - Wilcoxon test (initial-final results)

Codes	Test Statistics[a]	Z	Asymp. Sig. (2-tailed)
SA1: Self-reflection	IQ1 - FQ1	−2.000[b]	0.046
SA2: Self-assessment	IQ2 - FQ2	−.577[b]	0.564
SA3: Emotional Self-assessment	IQ3 - FQ3	−1.265[b]	0.206
SE1: Self-efficacy	IQ4 - FQ4	−1.461[b]	0.144
SE2: Self-efficacy	IQ5 - FQ5	−1.414[b]	0.157
SE3: Self-efficacy	IQ6 - FQ6	−.312[b]	0.755
SE4: Self-efficacy	IQ7 - FQ7	−.749[b]	0.454
SE5: Self-efficacy	IQ8 - FQ8	−1.350[b]	0.177
SF: Seeking Feedback	IQ9 - FQ9	−2.489[b]	0.013
RES Resilience	IQ10 - FQ10	−2.209[b]	0.027
AO1: Achievement Orientation	IQ11 - FQ11	−1.508[b]	0.132
AO2: Achievement Orientation	IQ12 - FQ12	.000[c]	1
AO3: Achievement Orientation	IQ13 - FQ13	−1.134[b]	0.257
AO4: Achievement Orientation	IQ14 - FQ14	−1.732[b]	0.083
AO5: Achievement Orientation	IQ15 - FQ15	−1.000[b]	0.317
AO6: Achievement Orientation	IQ16 - FQ16	−2.310[b]	0.021
RF1: Receiving Feedback	IQ17 - FQ17	−.832[b]	0.405
RF2: Receiving Feedback	IQ18 - FQ18	−1.000[b]	0.317
RF3: Receiving Feedback	IQ19 - FQ19	−1.667[b]	0.096
CR1: Critical Reflection	IQ20 - FQ20	−2.236[d]	0.025
CR2: Critical Reflection	IQ21 - FQ21	−1.190[b]	0.234
CT: Conceptualization	IQ22 - FQ22	−.707[b]	0.48
NW1: Building Relationships	IQ23 - FQ23	−1.265[b]	0.206
NW2: Building Relationships	IQ24 - FQ24	−1.000[b]	0.317
P1: Persuasion	IQ25 - FQ25	−1.100[b]	0.271
P2: Persuasion	IQ26 - FQ26	−.812[b]	0.417
P3: Persuasion	IQ27 - FQ27	−1.633[b]	0.102
TW1: Team working	IQ28 - FQ28	.000[c]	1
TW2: Team working	IQ29 - FQ29	−1.443[b]	0.149
TW3: Team working	IQ30 - FQ30	−1.414[b]	0.157
TW4: Team working	IQ31 - FQ31	.000[c]	1
TW5: Team working	IQ32 - FQ32	−.447[b]	0.655
TL1: Transfer of Learning into action	**IQ33 - FQ33**	**−2.646**[b]	**0.008**
TL2: Transfer of Learning into action	IQ34 - FQ34	−.513[b]	0.608
I1: Taking initiative	**IQ35 - FQ35**	**−2.646**[b]	**0.008**
I2: Taking initiative	IQ36 - FQ36	−1.811[b]	0.07
I3: Taking initiative	IQ37 - FQ37	−2.070[b]	0.038
FL1: Flexibility	IQ38 - FQ38	−.333[b]	0.739
FL2: Flexibility	IQ39 - FQ39	−1.231[b]	0.218
FL3: Flexibility	IQ40 - FQ40	−.977[b]	0.329

[a] Wilcoxon Signed Ranks Test.
[b] Based on positive ranks.
[c] The sum of negative ranks equals the sum of positive ranks.
[d] Based on negative ranks.

References

Austin, A. E. (2009). Cognitive apprenticeship theory and its implications for Doctoral education: A case example from a Doctoral program in higher and Adult education. *International Journal for Academic Development, 14*(3), 173–183. https://doi.org/10.1080/13601440903106494

Bachkirova, T., Arthur, L., & Reading, E. (2015). Evaluating g a coaching and mentoring Programme: Challenges and solutions. *International Coaching Psychology Review*.

Bacigalupo, M., Kampylis, P., Punie, Y., & Van den Brande, G. (2016). EntreComp: The entrepreneurship competence framework. *EUR 27939 EN JRC101581, 35* (June).

Balachandra, L., Sapienza, H., & Kim, D. (2014). How critical Cues influence angels' investment Preferences. *Frontiers of Entrepreneurship Research, 34*(1), 1–16.

Barnes, A., & Felts, T. (2019). *Advise for Woman founders: Be "tough as balls" but don't fear asking for help, panelists say*.

Bernstein, S., Korteweg, A., & Laws, K. (2016). Attracting early-stage investors: Evidence from a Randomized field Experiment. *The Journal of Finance, 72*. https://doi.org/10.1111/jofi.12470

Bird, B. (1995). Toward a theory of entrepreneurial competency. In *Advances in entrepreneurship firm emergence & growth*. Emerald Publishing Limited.

Boyatzis, R. E. (1982). *The competent manager: A model for effective performance*. John Wiley & Sons, Inc.

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. SAGE Publications, Inc.

Boyatzis, R. E. (2009). Competencies as a behavioral approach to emotional intelligence. *The Journal of Management Development, 28*(9), 749–770. https://doi.org/10.1108/02621710910987647

Boyatzis, R. E., Goleman, D., & Rhee, K. (2000). Clustering competence in emotional intelligence: Insights from the emotional competence Inventory (ECI). In *Handbook of emotional Intelligence*.

Brinkley, M.-L., & Le Roux, I. (2018). Coaching as a support function for potential entrepreneurs. *The Southern African Journal of Entrepreneurship and Small Business Management, 10*(1), 1–12. https://doi.org/10.4102/sajesbm.v10i1.99

Bryan, K., & Tilcsik, A. (2019). *Does it Matter if an entrepreneur is coachable? Entrepreneur and innovation Exchange* (Vols. 19–20). https://doi.org/10.32617/435-5dd3fea61b5cd

Bryan, K. A., Tilcsik, A., & Zhu, B. (2017). Which entrepreneurs are coachable and Why? *The American Economic Review, 107*(5), 312–316.

Cassar, G. (2010). Are individuals entering self-employment overly Optimistic? An empirical test of plans and Projections on Nascent entrepreneur Expectations. *Strategic Management Journal, 31*(8), 822–840.

Ciuchta, M. P., Letwin, C., Stevenson, R., McMahon, S., & Huvaj, M. N. (2018). Betting on the coachable entrepreneur: Signaling and social Exchange in entrepreneurial pitches. *Entrepreneurship: Theory and Practice, 42*(6), 860–885. https://doi.org/10.1177/1042258717725520

Collins, A., Seely Brown, J., & Holum, A. (1991). Cognitive apprenticeship: Making thinking visible. *American Educator: The Professional Journal of the American Federation of Teachers, 15*, 1–18.

Connor, M., & Pokora, J. (2012). *Coaching and mentoring at work: Developing effective practice: Developing effective practice*. UK: McGraw-Hill Education.

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications.

Crompton, B. M. (2012). *The effect of business coaching and mentoring on small-to-medium enterprise performance and growth*. Melbourne, Australia: RMIT University. http://researchbank.rmit.edu.au/eserv/rmit:160237/Crompton.pdf.

Cui, J., Sun, J., & Bell, R. (2021). The impact of entrepreneurship education on the entrepreneurial mindset of College students in China: The Mediating role of inspiration and the role of educational attributes. *International Journal of Management in Education, 19*(1), Article 100296. https://doi.org/10.1016/j.ijme.2019.04.001

Dewey, J. (1897). My pedagogic creed. *The School Journal, LIV*(3), 77–80. https://doi.org/10.1177/002205742510101803

Edmondson, A. C., & McManus, S. E. (2007). Methodological fit in management field research. *Academy of Management Review, 32*(4), 1246–1264. https://doi.org/10.5465/amr.2007.26586086

Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. SAGE Publications.

Flaherty, J. (2005). Coaching Evoking excellence in others. In *Coaching*. Taylor & Francis. https://books.google.pt/books?id=6LSB7JyIbgsC.

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin, 51*(4), 327–358. https://doi.org/10.1037/h0061470

Gallwey, W. T. (2001). *The inner Game of work: Focus, learning, Pleasure, and Mobility in the workplace*. Random House Publishing Group.

Giacobbi, P. R. J. (2000). *The athletic coachability scale: Construct conceptualization and psychometric analyses (Doctoral Dissertation)*. Knoxville: University of Tennesse.

Gompers, P. A., Gornall, W., Kaplan, S. N., & Strebulaev, I. A. (2020). How do venture capitalists make decisions? *Journal of Financial Economics, 135*(1), 169–190. https://doi.org/10.1016/j.jfineco.2019.06.011

Greif, S. (2013). *Coaching and mentoring conducting Organizational-based Evaluations of coaching and mentoring programs*. The Wiley-Blackwell Handbook of the Psychology of Coaching and Mentoring. https://doi.org/10.1002/9781118326459.ch23

de Haan, E. (2019). A systematic review of qualitative studies in workplace and executive coaching: The emergence of a Body of research. *Consulting Psychology Journal, 71*(4), 227–248.

Haynie, J. M., Shepherd, D. A., & Patzelt, H. (2012). Cognitive adaptability and an entrepreneurial task: The role of Metacognitive ability and feedback. *Entrepreneurship: Theory and Practice, 36*(2), 237–265. https://doi.org/10.1111/j.1540-6520.2010.00410.x

Henrique, M. R. (2014). *Coachability index © as a case study from individual and group perspectives and its contribution to coaches on improving Client's coachable factors and Handling potential Resistance*. TC Columbia University Coaching Program.

Hooijberg, R., & Lane, N. (2009). Using Multisource feedback coaching effectively in executive education. *The Academy of Management Learning and Education, 8*(4), 483–493. https://doi.org/10.5465/AMLE.2009.47785468

Johnson, M. J., Kim, K. H., Colarelli, S. M., & Boyajian, M. (2021). Coachability and the development of the coachability scale. *The Journal of Management Development, 40*(7–8), 585–610. https://doi.org/10.1037/cpb0000144

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall.

Kolb, A. Y., & Kolb, D. A. (2005). Learning Styles and learning Spaces: Enhancing experiential learning in higher education. *The Academy of Management Learning and Education, 4*(2), 193–212. https://doi.org/10.5465/AMLE.2005.17268566

Koopman, R. G. (2013). *Coaching and mentoring entrepreneurs; more definitions won't work . 27nd RENT*. Vilnius, Lithuania, 20–22 November, November, 1–14.

Kotte, S., Diermann, I., Rosing, K., & Möller, H. (2021). Entrepreneurial coaching: A two-Dimensional framework in context. *Applied Psychology, 70*(2), 518–555. https://doi.org/10.1108/JMD-06-2020-0174

Krumrei-Mancuso, E. J., Haggard, M. C., LaBouff, J. P., & Rowatt, W. C. (). Links between intellectual humility and acquiring knowledge. *The Journal of Positive Psychology, 15*(2), 155–170. https://doi.org/10.1080/17439760.2019.1579359

Kuratko, D. F., & Audretsch, D. B. (2021). The future of entrepreneurship: The few or the many? *Small Business Economics*. https://doi.org/10.1007/s11187-021-00534-0. June.

Kuratko, D. F., Neubert, E., & Marvel, M. R. (2021). Insights on the mentorship and coachability of entrepreneurs. *Business Horizons, 64*(2), 199–209. https://doi.org/10.1016/j.bushor.2020.11.001

Küttim, M., Kallaste, M., Venesaar, U., & Kiis, A. (2014). Entrepreneurship education at university level and students' entrepreneurial intentions. *Procedia - Social and Behavioral Sciences, 110*(January), 658–668. https://doi.org/10.1016/j.sbspro.2013.12.910

Laske, O. E. (1999). An integrated model of developmental coaching. *Consulting Psychology Journal, 51*(3), 139–159. https://doi.org/10.1037/1061-4087.51.3.139

Man, T. W. Y., Lau, T., & Chan, K. F. (2002). *The Competitiveness of Small and Medium Enterprises: A Conceptualization with Focus on Entrepreneurial Competencies, 17*(2), 123–142. https://doi.org/10.1016/S0883-9026(00)00058-6

Marrelli, A. F. (1998). An introduction to competency analysis and modeling. *Performance Improvement, 37*(5), 8–17. https://doi.org/10.1002/pfi.4140370505

Marvel, M. R., Wolfe, M. T., & Kuratko, D. F. (2020). Escaping the knowledge Corridor: How founder Human capital and founder coachability impacts product innovation in new ventures. *Journal of Business Venturing, 35*(6), Article 106060. https://doi.org/10.1016/j.jbusvent.2020.106060

McAdams, D. P., & Pals, J. L. (2006). A new big five: Fundamental Principles for an integrative science of personality. *American Psychologist, 61*(3), 204–217. https://doi.org/10.1037/0003-066X.61.3.204

Mineur, M. (2012). *Determining relevant factors of coaching: The development of a Questionnaire*.

Mitteness, C. R., Sudek, R., & Baucus, M. S. (2010). Entrepreneurs as Authentic Transformational leaders: Critical behaviors for gaining angel capital. *Frontiers of Entrepreneurship Research, 30*.

Morris, M. H. (2022). Re-Thinking content: Teaching students about entrepreneurship versus how to Be an entrepreneur. *Journal of Entrepreneurship*. https://doi.org/10.1177/09713557221107434

Morris, M. H., Webb, J. W., Fu, J., & Singhal, S. (2013). A competency-based perspective on entrepreneurship education: Conceptual and empirical insights. *Journal of Small Business Management, 51*(3), 352–369. https://doi.org/10.1111/jsbm.12023

Nabi, G., Walmsley, A., & Akhtar, I. (2021). Mentoring functions and entrepreneur development in the early Years of university. *Studies in Higher Education, 46*(6), 1159–1174. https://doi.org/10.1080/03075079.2019.1665009

Neck, H. M., & Greene, P. G. (2011). Entrepreneurship education: Known worlds and new frontiers. *Journal of Small Business Management, 49*(1), 55–70. https://doi.org/10.1111/j.1540-627X.2010.00314.x

Ogilvie, B. C., & Tutko, T. A. (1966). *Problem athletes and how to Handle them*. Pelham Books.

Orenstein, R. L. (2002). Executive coaching: It's not just about the executive. *The Journal of Applied Behavioral Science, 38*(3), 355–374. https://doi.org/10.1177/0021886302038003006

Parker, P., Kram, K. E., & Hall, D. T. T. (2014). Peer coaching: An Untapped resource for development. *Organizational Dynamics, 43*(2), 122–129.

Penaluna, A., & Penaluna, M. K. (2008). Business Paradigms in Einstellung: Harnessing creative mindsets, A creative Industries. *Journal of Small Business and Entrepreneurship, 21*(2), 231–250. https://doi.org/10.1080/08276331.2008.10593588

Penaluna, A., & Penaluna, K. (2021). Search of entrepreneurial competencies: Peripheral vision and Multidisciplinary inspiration. *Industry and Higher Education, 35*(4), 471–484. https://doi.org/10.1177/0950422220963796

Pittaway, L., & Cope, J. (2007). Entrepreneurship education: A systematic review of the evidence. *International Small Business Journal, 25*(5), 479–510. https://doi.org/10.1177/0266242607080656.

Pittaway, L., & Edwards, C. (2012). Assessment: Examining practice in entrepreneurship education. *Education and Training, 54*(8), 778–800. https://doi.org/10.1108/00400911211274882

Preston, S. L. (2011). *Angel financing for entrepreneurs: Early-stage funding for long-term success*. John Wiley & Sons, Inc.

Rothwell, W. J., & Lindholm, J. E. (1999). Competency identification, Modelling and assessment in the USA. *International Journal of Training and Development, 3*(2), 90–105. https://doi.org/10.1111/1468-2419.00069

Santos, S. C., Neumeyer, X., & Morris, M. H. (2019). Entrepreneurship education in a Poverty context: An Empowerment perspective. *Journal of Small Business Management, 57*(S1), 6–32. https://doi.org/10.1111/jsbm.12485

Shannahan, K. L. J., Bush, A. J., & Shannahan, R. J. (2013). Are your Salespeople coachable? How salesperson coachability, trait Competitiveness, and Transformational leadership enhance sales performance. *Journal of the Academy of Marketing Science, 41*(1), 40–54. https://doi.org/10.1007/s11747-012-0302-9

Smither, J. W., London, M., Flautt, R., Vargas, Y., & Kucine, I. (2003). Can working with an executive coach improve Multisource feedback rating over time? A Quesi-experimental field study. *Personnel Psychology, 56*, 23–44. https://doi.org/10.1111/j.1744-6570.2003.tb00142.x

Somià, T. (2022). Understanding coachability and its relevance to entrepreneurship education. In *Annals of entrepreneurship education and Pedagogy–2023* (pp. 197–217). Edward Elgar Publishing.

Spencer, L. M., & Spencer, S. M. (1993). *Competence at work: Models for superior performance*. John Wiley & Sons, Inc.

Tognazzo, A., Gubitta, P., & Gerli, F. (2017). Fostering performance through leaders' behavioral competencies: An Italian multi-level mixed-method study. *International Journal of Organizational Analysis*. https://doi.org/10.1108/IJOA-07-2016-1044

Wasylyshyn, K. M. (2003). Executive coaching: An outcome study. *Consulting Psychology Journal, 55*(2), 94–106. https://doi.org/10.1037/1061-4087.55.2.94

Weiss, J. A., & Merrigan, M. (2021). Employee coachability: New insights to increase employee adaptability, performance, and Promotability in Organizations. *International Journal of Evidence Based Coaching and Mentoring, 19*(1), 121–136. https://doi.org/10.24384/kfmw-ab52

Wise, D., & Hammack, M. (2011). Leadership coaching: Coaching competencies and best practices. *Journal of School Leadership, 21*(3), 449–477. https://doi.org/10.1177/105268461102100306