frontiers in Education

HYPOTHESIS AND THEORY
published: 06 February 2020
doi: 10.3389/feduc.2020.00003

Entrepreneurial Education for Persons With Disabilities—A Social Innovation Approach for Inclusive Ecosystems

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Fostering entrepreneurship and inclusive societies are on top of EU policy agenda. This article is bringing together both aims by discussing a social innovation framework for inclusive entrepreneurial education for persons with disabilities. Similar to other disadvantaged groups, persons with disabilities can benefit from entrepreneurial skills for self-management or, on a next level, for starting own, opportunity-driven businesses. The framework suggests several building blocks considered necessary for successful entrepreneurial education for the beneficiaries. First, it is approaching the framework through a social innovation perspective. In doing so, it suggests a social innovation ecosystem perspective to operationalize all relevant stakeholders and contextual aspects relevant for the framework. Second, it suggests to build on socially innovative, hence novel, practices by starting from co-creation and co-production in order to meet individual demands and needs of learners. Furthermore, it takes the concept of universal design into account as it holds major implications for inclusive entrepreneurial education for persons with disabilities and underlines the need of different, more suitable practices in entrepreneurship education and beyond, toward an inclusive learning ecosystem.

Keywords: entrepreneurial education, persons with disabilities, social innovation, inclusive learning ecosystem, co-creation, co-production, entrepreneurial skills, entrepreneurial ecosystem

OPEN ACCESS

Edited by:
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Reviewed by:
Kerry Robinson, University of North Carolina at Wilmington, United States
Lauri Johnson, Boston College, United States

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Specialty section:
This article was submitted to Leadership in Education, a section of the journal Frontiers in Education

Received: *27 June 2019*
Accepted: *20 January 2020*
Published: *06 February 2020*

Citation:
Krüger D and David A (2020) Entrepreneurial Education for Persons With Disabilities—A Social Innovation Approach for Inclusive Ecosystems. Front. Educ. 5:3. doi: 10.3389/feduc.2020.00003

INTRODUCTION

Supporting a shift toward inclusive societies is a major aim on the agenda of the European Union (EU) (David and Hamburg, 2013; Hamburg and David, 2017). Hereunder, the European Commission primary understands the reduction of social exclusion and addresses especially the decrease of discrimination and various forms of inequality through innovation[1] in general and social innovation in particular [Bureau of European Policy Advisers (BEPA), 2010] as one important stream. Yet, to tackle challenges such as economic recovery, inclusive and sustainable long-term growth with a focus on citizen involvement, the engagement of citizens, academia, social partners, public authorities, the creative sector, businesses, and (e.g., social) *entrepreneurs* is key. In shaping inclusive societies in the medium term, these actors can only succeed when

[1]Europe in a Changing World. Inclusive, Innovative and Reflective Societies. Available online at: https://ec.europa.eu/programmes/horizon2020/en/h2020-section/europe-changing-world-inclusive-innovative-and-reflective-societies (accessed May 11, 2019).

acting in a social and economic framework that promotes fairness and sustainability in Europe[2]. Entrepreneurial ecosystems, for instance, which are more open and supportive to new, inclusive forms of entrepreneurship (Hamburg and David, 2017), are part of such frameworks. They address social and economic behavior answering the needs and demands of specific target groups, which aim to become entrepreneurs (David and Hamburg, 2013). In this vein, equal access to (entrepreneurial) education and labor markets for all societal groups is an important building block toward more inclusion.

Among other groups, persons with disabilities are still marginalized, including career opportunities by means of labor market entry (Grammenos, 2011) as well as lower-skilled and lower-paid occupations (Kitching, 2014). Partially, this is caused by limited access to appropriate education. For instance, David and Hamburg (2013) found that often these target groups face a serious lack of hard and soft skills[3] and therefore more often than other groups enter a vicious circle of unemployment, social exclusion, and later fall into age-related poverty. In today's world of digital shifts, employers' changing requirements make it increasingly difficult for persons with disabilities to gain a foothold in working life when necessary skills are missing (David and Hamburg, 2013). For "nascent entrepreneurs with disabilities" in the United States, Renko et al. (2016, p. 571) highlight a "particular financial disadvantage" as a major barrier for successful start-ups realized by this group of people, together with weaker social networks and lower knowledge levels. Increasing the levels of knowledge and skills via entrepreneurial education should create new opportunities (OECD/EU, 2017). Enhancing professional knowledge and (business) skills through self-empowerment, supports persons with disabilities to implement their own businesses and to be part of the labor market under equal conditions[4]. Entrepreneurial education with a focus on self-empowerment provides the tools to build new forms of entrepreneurship and unlocks untapped potential of "disadvantaged" groups (David and Hamburg, 2013; Hamburg and David, 2017). Consequently, the question arises how inclusive entrepreneurial education with persons with disabilities (IEEPD) could look like.

Popular success stories of labor market participation of persons with disabilities are often related to both self-employment and entrepreneurship[5] (Kitching, 2014). Using European Community Household Panel data from 1995 to 2001, Pagán (2009), for example, showed for 13 European countries that self-employment rates among this group is higher compared to persons without disabilities. This may seem positive at first sight as self-employment can be a pathway for self-determined labor. However, entrepreneurial activities might also be the only possibility to entering the labor market at all. In that case, it would rather be necessity-driven (i.e., necessity entrepreneurs) than opportunity-driven (David et al., 2019a). Although evidence on decision-making of entrepreneurs with disabilities is still scarce or even missing (Renko et al., 2016), based on earlier experiences with other disadvantaged groups, it is assumed that entrepreneurial education could help to supersede necessity entrepreneurship in favor of opportunity entrepreneurship of persons with disabilities. In order to better meet individual demands and varying talents, capabilities and possibilities, self-determined co-creation and co-production (Brandsen and Honingh, 2018) of a learning framework and respective educational services are suggested.

This paper is organized as follows: The next section (2) introduces the implications of and for an inclusive society. Here, also their relation to global trends are discussed. In section 3, key elements and concepts of entrepreneurship and entrepreneurial education and their linkages to opportunities for self-empowerment for persons with disabilities are presented, followed by the discussion of their importance for inclusive societies. The fourth section focusses on concepts of the socially innovative approach and implications from social innovation studies, whereas section 5 summarizes with a discussion of the presented elements forming the IEEPD framework. The article closes with a conclusion in section 6.

EU's CALL FOR INCLUSION

For decades a broad range of literature and discussion explicitly points at an increasing skills-shortage and the role of skilled human capital in and for the EU (e.g., Mohr, 1997; Faggian and McCann, 2009; Growe, 2009; Haisch and Klöpper, 2014; David, 2015). In this context two sides of the coin are addressed: on the one hand the need for skilled or even highly-skilled and highly-specialized employees and on the other hand the groups of people whose potential still is unlocked or untapped and who therefore are often confronted with disadvantages, leaving less room for self-determination. When talking about unlocked or untapped potential, groups of persons are characterized who are described as vulnerable and marginalized. Hereunder the OECD/EU (2017) describe disadvantaged or under-represented groups of people such as immigrants, long-term unemployed, low-skilled persons, but especially women and persons with disabilities, which are in focus of this article.

Foremost, when it comes to education, it is often especially the group of persons with disabilities who is excluded from full participation, leading to a need for "mainstreaming disability in education" as, for instance, Sefotho (2015) puts it. Lower levels of education and labor market participation have strong effects on their employment rates and income (Berthoud, 2008; Jones, 2008; OECD/EU, 2014). Based on experiences from projects with this target group Hamburg and Buksch (2015, p. 1) summarize that "[l]earners with disabilities at all levels of education are vulnerable to exclusion from educational opportunities and often

[2]Europe in a Changing World. Inclusive, Innovative and Reflective Societies. Available online at: https://ec.europa.eu/programmes/horizon2020/en/h2020-section/europe-changing-world-inclusive-innovative-and-reflective-societies (accessed May 11, 2019).

[3]Both hard and soft skills are referred to as "skills" throughout this paper as the authors believe that both groups of skills are equally important for successful entrepreneurship and tasks that benefit from entrepreneurial skills.

[4]This is also particularly important as it directly refers to the UN Convention on the Rights of Persons with Disabilities (CRPD), 2008) and the call for better supporting self-determined work.

[5]While self-employment does not necessarily equal entrepreneurship, both activities can benefit from skills necessary for successful, self-determined labor.

from social life." In result of social disadvantages and lower education levels they lack job possibilities and have higher drop-out rates in comparison to the average rate of a country. Consequently, as stated above, the gaps starting in education and continuing in job-inconsistency often lead to poverty. Hauben et al. (2012, p. 23) report that 21.1% of the target group faces that risk in comparison to 14.9% of people without disabilities.

According to OECD/EU (2014) it is estimated that 16% of the working age population is in some way permanently or temporarily influenced by disability and the numbers are likely to increase during the years to come. In broader terms, "disability" subsumes a broad variety of physical and mental characteristics in accordance to their type, duration and time of onset (OECD/EU, 2014). Therefore, when talking about persons with disabilities, we talk about a group of people that strongly varies in itself and has individual needs and demands (Lutz et al., 2011). As Kitching puts it for the OECD/EU (2008, p. 3): "Disabilities are extremely diverse and are not a fixed characteristic of individuals. Many disabilities are invisible to the eye yet popular stereotypes of disabled people as permanent wheelchair users or as blind from birth persist." When taking a closer look at concepts of disability a social model as, for instance, that of Oliver (1990) comes into play. This model distinguishes *impairment*, for instance physical or mental characteristics limiting abilities, from *disability* which is linked to social aspects. The whole complexity is also addressed by the well-established *biopsychosocial* model (Wade and Halligan, 2017). It comprises not only physical and mental impairments but also several social as well as individual conditions of a person and their interplay. In this respect, discussing disability and measures for persons with disabilities does always have to take each individual and its specific situation into account, especially when it aims at being created together with this group. For the framework discussed in this article, it is therefore essential to highlight the need for tailored and individualized measures as already suggested by Renko et al. (2016, p. 574) for "entrepreneurs with disabilities." In practice, IEEPD will therefore need to go beyond a fixed set of curricula and needs to take a dynamic path responsive to individual demands and needs. Nonetheless, the presented concept may be directed to manifold target groups, as it is generally open to adaptions.

EMPOWERMENT THROUGH ENTREPRENEURSHIP AND ENTREPRENEURIAL EDUCATION

In search for inclusive approaches, the concept of *empowerment* comes into play—one of the central principles and goals of social work (Stainton, 2005). Understood as self-empowerment, the concept aims at increasing autonomy and self-confidence. It also aims at the identification and further development of one's own strengths and competencies on her or his own (Hamburg and David, 2017). The core concept of empowerment is based on the term *power* in the sense of having the power to realize oneself and to help others do the same (Pettit, 2012). Fundamental to the approach are understanding of participation, integration, individualization, power, influence, and self-realization (Jönsson, 2010). Ideas, ideologies and understanding vary according to the context and are limitless as studies of Fernandes (2015) present, based on research on the group of immigrants. Here, responsibility does not mean that there is not a support system in which the individual can develop and become self-determined and therefore, self-responsible. In contrast, the development of own carrier pathways is to be supported by an educational ecosystem which provides the basis for social and economic skills for people who want to improve self-management of their private and working lives. Spinning this idea, entrepreneurship occurs as a form of empowerment. Hence, entrepreneurship also provides a path for more self-determination. In this section, the potential of entrepreneurship and entrepreneurial education for empowerment, self-determination, and inclusion will be discussed after briefly introducing the main concepts.

Entrepreneurship in a broader sense is the art of putting ideas into action (Hamburg and David, 2017). It relies on creativity, innovation, risk-taking, and the ability to plan and implement projects (Shephard, 2004). Entrepreneurial competences are not only important for those who want to start or run a business, but also for those who want to achieve change in the individual and collective economic and social environment by expanding their own competences and their ideas in all areas of life.

In order to unfold the potential of entrepreneurship for empowerment, entrepreneurial education is needed and should be an integral part of anybody's learning biography who wants to benefit from this pathway. Entrepreneurial solutions for problems in personal and professional contexts can be offered at all stages of life. Entrepreneurship encompasses a variety of professional skills and characteristics. An improvement of entrepreneurial skills is therefore not only aimed at increasing the number of self-employed, start-ups or companies in general, but—in the sense of self-empowerment—at communicating the awareness of being able to act self-determined in all life situations similar to an entrepreneur (David et al., 2019b). Hence, individuals need to be provided with skills that enable them to manage their careers, succeed in reorientation, and master transitional phases. This also includes the establishment of a perception of changes as opportunities, broadening networking skills, identifying one's own potential, adapting it to the local needs of the respective target regions, and developing alternatives if Plan A does not work right away.

Ultimately, there is another benefit of entrepreneurial education in addition to abilities, which it offers for everyday life: triggering the entrepreneurial spirit of individuals can show people concrete possibilities for self-employment or even entrepreneurship. This includes not only the ability to create a business plan, to self-manage and self-organize, to identify customers and their needs, but above all the development of innovative ideas in the context of each region, their (future) sectors, their networks and existing services and products. Above all, for persons with disabilities this may be a chance for more participation.

Entrepreneurship Education: How?, What?, by Whom?, Where?, Which Channels?

In the past decades, remarkably pushed by the European Commission, it seems like entrepreneurship has found its

way to the forefront. Its existence and increasing importance are seen to be linked to sustainable growth and economic development in the EU. In addition, entrepreneurs are known for innovative impacts as well as job creation in regional contexts[6] and social entrepreneurs add social value to the agenda of entrepreneurial activities. Generally speaking, entrepreneurship is a given phenomenon and was always part of the economy (Hamburg and David, 2017), even if there are gaps in literature when it comes to the prominence of the entrepreneur and his/her role in economic theory during the decades (Hébert and Link, 2006). It was Schumpeter in 1912 "[…] who constructed *The Theory of Economic Development* around the dynamic, innovative actions of the equilibrium-disturbing entrepreneur" (Hébert and Link, 2006, p. 2). Today, entrepreneurship is a crucial point for many disciplines, among them economics, sociology, and management, and it could become topic to further ones.

A central change in entrepreneurship for the discussion of IEEPD is the shift from entrepreneurs as persons running businesses only, to persons who want to self-empower through entrepreneurial activities and entrepreneurial principles (David et al., 2019a). Through promoting entrepreneurial mind-sets, encouraging innovative ideas and solutions to challenges and fostering a culture friendly to entrepreneurship and diversity within an ecosystem, full individual potential can be exploited (OECD/EU, 2017). In the *Proposal for a Recommendation of the European Parliament and of the Council on Key Competences for Lifelong Learning* of the European Commission, under the eight key competences which the Parliament urged the Member States to implement to national strategies for young and adult learners, entrepreneurship was on the forefront[7].

Against this background, Hamburg and David (2017) consider entrepreneurial competences as not only being relevant for those who would like to start or run a business, but for all, who want to enhance their own competences and stepping up with their ideas to transform their own lives and their communities.

According to Hébert and Link (2006) by the dawn of the twenty-first century, nearly 200,000 American students alone, had been enrolled in entrepreneurship or small business courses at universities and the numbers since then are increasing. Whereas, such numbers are not available for the EU level, many European countries have included entrepreneurship in their national curricula for vocational education and training and higher education (Hamburg and David, 2017). However, the standards differ and are not officially recognized within the EU. There are universities and further education institutes in Europe, which are specialized on knowledge transfer with a focus on spin-offs[8]. Furthermore, there is an increasing number of entrepreneurial courses for students all over Europe created by European Projects, for instance (see for instance Erasmus + projects)[9]. In addition, entrepreneurial education is no longer a topic for economists only, but also students from further faculties attend entrepreneurial education (Hébert and Link, 2006). Furthermore, the need to address entrepreneurial abilities at a younger age was identified by economy and research (e.g., Stifterverband für die deutsche Wissenschaft, 2014) for Germany. In this particular context, the trend to train pupils in entrepreneurship is also a topic of some foundations (e.g., entrepreneurial education programs of the Joachim Herz Stiftung). Others have established professorships, which foster entrepreneurial thinking or even entrepreneurship hubs (e.g., Freie Universität Berlin)[10]. Nonetheless, the gaps in entrepreneurial education among Europe still wait to be filled and a focus on entrepreneurship education tailored to individual needs of marginalized groups and for persons with disabilities in particular is still scarce.

The challenges relating to entrepreneurial education, especially in the EU, raise the following questions: *"how to teach," "what to teach" "by whom," "where to teach," and through "which channels."*

Currently, there are limited answers to these questions. Hamburg and Buksch (2015) as well as O'Brien and Delaney (2017) empirically identified the best ways of *how to teach*. For instance, they argue, that learners in entrepreneurship education should train on practical projects, in order to make real experiences, which are similar to daily businesses. In addition, today teaching possibilities based on existing digital tools open doors also for learners who demand more flexibility, individual approaches, and user-friendly learning environments which, at its best, are part of an entrepreneurial ecosystem (Hamburg and David, 2017).

Learning materials and contents (*what to teach*) are already discussed (Ripsas, 1998; O'Brien and Delaney, 2017; compare Hamburg and David, 2017), proposing specific curricula and contents for entrepreneurial education. Some of these suggestions are target group specific, addressing women entrepreneurship or immigrant entrepreneurship (David and Coenen, 2017; O'Brien and Delaney, 2017). Amongst others, the first steps in entrepreneurial education basically enclose these topics:

- time management,
- (self-)motivation,
- idea development,
- taking responsibilities,
- ways to funding possibilities,
- business plan development.

[6]European Commission. *The Entrepreneurship 2020 Action Plan.* Available online at: https://ec.europa.eu/growth/smes/promoting-entrepreneurship/action-plan_en (accessed May 13, 2019).

[7]EUCEN Observatory for Lifelong Learning (LLL). Available online at: http://lifelonglearning-observatory.eucen.eu/recommendationcompetences (accessed May 13, 2019).

[8]The term "spin-off" refers to start-ups that start from existing business rather than from scratch.

[9]The co-author of this article Alexandra David was involved in several projects on the creation of entrepreneurial courses in Europe. Among them ENTER to Entrepreneurship or EFEB Network under the Erasmus+ of the EU (compare: https://www.iat.eu/forschung-und-beratung/projekte/2014/enter-einstieg-in-das-unternehmertum.html and https://www.iat.eu/forschung-und-beratung/projekte/2015/efebnetwork-european-region-entrepreneurship-connection.html) (accessed May 13, 2019).

[10]Digital Entrepreneurship Hub. Available online at: https://www.wiwiss.fu-berlin.de/fachbereich/bwl/pwo/rothe/research/Digital-Entrepreneurship/index.html (accessed May 13, 2019).

Sujan Patel—an entrepreneur and marketer—describes several skills needed as an entrepreneur[11]. Besides basic skills needed for entrepreneurship in general, in summary he stresses the abilities how to become a successful entrepreneur and among them:

- the ability to manage and raise money,
- the ability to be productive by relieving stress,
- the ability to interconnect and make entrepreneurial friends and to identify own strengths and weaknesses,
- the capability to hire effective people who can fill gaps, and to train the staff in such a way to make them even more effective in daily work processes,
- to focus on customers and identify new trends as well as to improve the world.

In that line, the Aarhus Technical College (2013) names the following skills for enhanced learners:

- working with (geographically) distributed production or companies,
- working in foreign languages,
- professional and vocational competence key skills, knowledge and understanding like problem solving, working with others, skills for Information and Communications Technology(ICT), and health and safety—also skills, knowledge, and understanding that are related to different occupations and professions (e.g., finance, retail) and environmental issues,
- communication and social competence key skills, knowledge, and understanding in effective communication and interpersonal activities, as well as in ethical, moral, and cultural concerns,
- personal competence development of autonomy, responsibility, personal role, own performance, and learning.

While not all of these skills might be important or necessary for each learner with her or his individual demands, this list still provides implications for IEEPD. It also highlights the importance of both hard and soft skills for successful entrepreneurship. On the one hand, skills not exclusively specific to entrepreneurial activities, such as working in foreign languages or problem-solving skills, can be particularly important for a wider target group. On the other hand, more specific vocational skills or skills of particular relevance for entrepreneurs like basic skills in accounting, can, of course, also become relevant and could especially be demanded by learners with the explicit aim of starting a business. However, as self-determined entrepreneurial skills education would lead to more individual curricula as an output of co-creation (Brandsen and Honingh, 2018) for entrepreneurial education (see the next sections), it is not possible to unalterably set the compilation of skills to be taught.

With the transformation in entrepreneurial education and education systems in general, there is also the question: who is the teacher/trainer and who is the learner? Besides traditional teachers and trainers, also unconventional teaching staff with, for instance, practical knowledge relevant for entrepreneurship and entrepreneurial skills in more general terms should also be considered, answering the question *by whom to teach*. In line with the idea that such education should be less theoretical, but rather practical, the question arises: who are better teachers than entrepreneurs themselves? In a framework of co-creation (Brandsen and Honingh, 2018; section 4.4) for marginalized groups (compare Steinberg et al., 2019), where both sides the teachers and the learners jointly create a learning framework oriented toward the demands of learners, often practical experiences seem to be more valuable. In such co-creative processes, the definition of teacher/trainer and learner can become blurred and they often also shift, so that role changes can occasionally happen. In addition, building entrepreneurship networks seems to be important foremost in the context of *inclusive entrepreneurship*—understood as entrepreneurship that is inclusive to as many disadvantaged groups as possible. Referring to the OECD/EU (2015) and Renko et al. (2016) especially persons with disabilities and further under-represented groups in entrepreneurship often rely on such networks of established entrepreneurs, who can simplify their access to finances, markets, and other resources.

When it comes to the question *where to teach*, the suitability of physical space comes into play. For IEEPD, this question addresses the decision between services provided at a physical space or provided through digital *channels*, hence at whatever physical space with sufficient technical equipment. While physical space meeting the criteria of Universal Design (e.g., regarding the avoidance of physical barriers; see below) can be adequate for groups with a higher amount of mobility, it might not be the right choice for other groups. For persons with limited mobility options, especially the role of digital tools needs to be considered, answering the question *which channels* to be used for IEEPD. When taking into consideration that entrepreneurial education first was realized at universities and colleges in the UK in the 1920's (Ripsas, 1998), one can imagine that the transformation from physical learning environments such as class rooms to digital learning spaces took several years. However, today e.g., ICT-based learning methods like Massive Open Online Courses (MOOCs) (Alumu and Thiagarajan, 2016; Carrera and Ramírez-Hernández, 2018), with open access to large populations, are generally a step forward toward an inclusive education framework (Hamburg and Buksch, 2015). Thus, the internet and digital developments in all varieties often support not only new forms of entrepreneurship, but also improve vocational education and training and other educational practices. Thus, digitalization plays a dual role in the context of entrepreneurial education, it can be the instrument to be used for achieving more inclusive learning and it is part of the "digital" business model that creates e.g., digital solutions to customer demands (Hamburg and David, 2017). Hereby, digitalization also allows inclusive education being the *channel* that brings flexibility and diversity to learning opportunities and overcomes physical, cultural, and social barriers, to name some. In context of the potential for inclusion provided by digital tools and digital services (section EU's Call for Inclusion), their adaption in the context of IEEPD should be considered. Especially the target group of persons with disabilities can profit from such a way of

[11] The 17 Skills Required to Succeed as an Entrepreneur. Available online at: https://www.entrepreneur.com/article/242327 (accessed May 14, 2019).

inclusive education when it is oriented toward the principles of universal design [The Center for Universal Design (CUD), 1997], as will be shown in the next section.

Inclusive Entrepreneurship and Inclusive Entrepreneurial Education With Persons With Disabilities

What is inclusive entrepreneurship? Asking this question, one may reflect the possibility that inclusive entrepreneurship is a specific form of entrepreneurial activities like "cross-border entrepreneurship," "sustainable entrepreneurship," or "social entrepreneurship." In addition, the connotation of specific characteristics of an entrepreneur may come up such as "women entrepreneurs" or "immigrant entrepreneurs." And yes, to answer the question directly it is all of that and nothing at the same time. In a society aiming at equal chances for all, every context should be inclusive, especially such integral parts of society as economy. In this respect, the term "inclusive" indicates the ideal that entrepreneurship is not exclusive to certain groups of people, but is for all. Thus, inclusive entrepreneurship is not about *who* and *how*. It aims at supporting entrepreneurs from all backgrounds (OECD/EU, 2015) by co-creating an environment in which they are not confronted with any kind of barriers.

But why is there a need for stressing inclusive entrepreneurship and entrepreneurial education in respect to persons with disabilities? Based on the practice-led approach of "Social Impact"[12] we refer to *inclusive entrepreneurship* as to entrepreneurs who belong to socially disadvantaged groups and therefore require specific support. Such disadvantages can be linked to a lack of access to resources (education, contacts, capital, etc.) and/or structural obstacles. Inclusive entrepreneurship puts into focus an inclusive entrepreneurial environment for not only persons with disabilities but also other groups facing disadvantages just as women, immigrants, long-term unemployed, etc. A call for inclusive entrepreneurship pleads for the involvement and the access to entrepreneurship for anyone who wants to start own business activities or wants to be self-employed. Thus, inclusive entrepreneurship holds potential for labor market participation for disadvantaged groups. Greve (2009) states that data on labor market activities of persons with disabilities are limited and even inconstant. As already mentioned, there are various barriers to entering the labor market and to hold a job for longer. Many occupation possibilities for persons with disabilities are low-skilled and low-paid (Meager and Higgins, 2011). Especially when it comes to self-employment rates of persons with disabilities their rates vary also and are lowest in north-eastern EU countries and higher in southern EU countries (OECD/EU, 2014). However: "Caution is needed in interpreting these data because the differences in self-employment rates across countries are influenced by a number of factors, including variation in the definition of disability used in collecting the statistics" (OECD/EU, 2014, p. 5).

[12]Social Impact. Available online at: https://socialimpact.eu/inclusive-entrepreneurship/ (accessed December 1, 2019).

When discussing inclusive entrepreneurship, the question for supportive structures comes into play. In this context, the key role of entrepreneurial education for successful entrepreneurial activities points at a need for respective educational services for disadvantaged groups. Persons with disabilities—as members of the group focused on in this article—can therefore benefit from inclusive entrepreneurial education when aiming to become entrepreneurs or in support of self-employment. Inclusive entrepreneurial education is based on entrepreneurial education for everyone but needs to consider different education methods, channels, and contents. It also requires a stronger consideration of individual needs and therefore asks for more participation of the target group in the planning phase of each course and also in its provision, as section Discussion: Building a Framework for Entrepreneurial Education Embedded in an Inclusive Ecosystem shows. In IEEPD, persons with disabilities facing disadvantages during school career, might sometimes for the first time become the opportunity for work-based experiences, as well as the opportunity to exercise leadership and interpersonal skills. In doing so, it can even open the door to mainstreaming disability in entrepreneurship (Sefotho, 2015), which, for instance, could be seen in the sense of hephapreneurship, "a process of fostering positive and meaningful existence anchored on subsistence entrepreneurship of differently abled persons and underprivileged persons, which is founded on the ethos of career choice/construction" (Sefotho, 2014, p. 306). However, IEEPD can most probably be more effective when it is oriented toward universal design (Mace, 1988) as demanded in the UN Convention on the Rights of Persons with Disabilities [Convention on the Rights of Persons with Disabilities Convention on the Rights of Persons with Disabilities (CRPD), 2008]. Roughly summarized, universal design encloses design fundamentally made accessible for all groups regardless their individual characteristics (e.g., impairments, age). Whereas, universal design has already been discussed in education for more than a decade (e.g., Rose and Meyer, 2002), our approach to creating an inclusive learning framework for entrepreneurial skills is guided by the general aim of self-determined co-creation (and co-production, cf. section Co-creation and Co-production as Facilitators of Inclusiveness; Brandsen and Honingh, 2018) of particular courses and their contents. The Center for Universal Design names seven principles [The Center for Universal Design (CUD), 1997]:

I. "Equitable Use [:] The design is useful and marketable to people with diverse abilities."
II. "Flexibility in Use [:] The design accommodates a wide range of individual preferences and abilities."
III. "Simple and Intuitive Use [:] Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level."
IV. "Perceptible Information [:] The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities."
V. "Tolerance for Error [:] The design minimizes hazards and the adverse consequences of accidental or unintended actions."

VI. "Low Physical Effort [:] The design can be used efficiently and comfortably and with a minimum of fatigue."
VII. "Size and Space for Approach and Use [:] Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility."

While not all of these seven principles may be achievable in each manifestation of IEEPD, by tailoring methods, contents, and therefore curricula self-determined toward the demands of learners, this approach is generally open to meet all of them. This aspect in entrepreneurial (or hephapreneuerial) education with persons with disabilities is also highlighted by Sefotho: "training in hephapreneurial skills implies a repertoire of variable skills according to individual needs" (Sefotho, 2015, p. 6). However, for truly inclusive IEEPD, the principles of universal design have to be considered by educational practitioners to the largest extend possible. This is particularly important for those principles aiming at practical realization (esp. principles III–VII, whereas principles I–II are more relevant for the general framework design and already covered by a co-creative approach as explained in section Co-creation and Co-production as Facilitators of Inclusiveness and for the framework). Questions about *how to teach, what to teach, by whom to teach, where to teach,* and *through which channels* (cf. section Inclusive Entrepreneurship and Inclusive Entrepreneurial Education with Persons with Disabilities) need to be answered in light of the principles of universal design.

INCLUSIVE ENTREPRENEURIAL EDUCATION FOR PERSONS WITH DISABILITIES AS SOCIAL INNOVATION

While the term of social innovation dates back to a long history with several turns in reception and understanding (Godin, 2015), especially in the last decades it received raising awareness and influence in scientific discourse and practice of policy-makers and practitioners [European Commission (EC), 2014; Mulgan, 2018; Nicholls and Edmiston, 2018; Schubert, 2018]. Since then, especially policy-makers of the European Union began to recognize social innovation (Nicholls and Edmiston, 2018). It was increasingly considered a promising and empowering approach for new solutions to realize the fulfillment of policy objectives across societal levels, for instance concerning the aim of more social inclusion of disadvantaged groups (Nicholls and Edmiston, 2018). In this context, successful social innovations on the micro-level are seen as solutions to specific demands and needs of specific (local) target groups like the need for an inclusive approach to entrepreneurial education as suggested in this article. For the macro-level, social innovations are also understood as means to realize solutions for large-scale aims like supporting a shift toward inclusive societies [Bureau of European Policy Advisers (BEPA), 2010; European Commission (EC), 2014]. In this section, the underlying concept of social innovation as a basis for the discussion of the framework for IEEPD in section Discussion: Building a Framework for Entrepreneurial Education Embedded in an Inclusive Ecosystem will be introduced. For better understanding IEEPD, also concepts related to Social Innovation and their basic characteristics, specifically those of the ecosystem-perspective (Kaletka et al., 2016) and the co-creation approach (Brandsen and Honingh, 2018) will also be presented and linked to IEEPD before the discussion in section Discussion: Building a Framework for Entrepreneurial Education Embedded in an Inclusive Ecosystem.

Social Innovation and Inclusive Entrepreneurial Education for Persons With Disabilities

When discussing from a social innovation perspective, it needs to be clarified which theoretical concept of social innovation is used. Such a specification is particularly necessary because of different streams of understanding in scientific discourse (Rüede and Lurtz, 2012), also reflected by the broad variety of scientific and practical approaches in anthologies on social innovation like the Atlas of Social Innovation series (Howaldt et al., 2018, 2019). As Havas points out: social innovations "draw on different types (scientific and practical) and forms (codified and tacit) of knowledge, stemming from various sources" (Havas, 2016). For delimiting the concept, it first needs to be differentiated from other approaches to innovation in general: different to the term "innovation," the term of social innovation is obviously distinguishable by putting the *social* aspect into focus. In fact, this marks a shift in discourse on innovation in general, which has been dominated by technology—or economy—centered perspectives in the last decades (Godin, 2015). However, simply emphasizing the social aspect does not necessarily delimit the concept. Much more, it opens up a bandwidth of possible understanding, ranging from normative approaches with a focus on something good or ethical to sociological approaches (Rüede and Lurtz, 2012). At first sight, a normative concept might fit the goal of creating a framework for IEEPD as it is aimed at "meeting a social need" (Mulgan et al., 2007, p. 8). At the same time, this framework encloses an approach that is "social both in their ends and in their means" (Murray et al., 2010, p. 3), when its focus is the aim of creating more opportunities for inclusion oriented toward the capabilities of its target group. However, discussing IEEPD as something new and "social" in the meaning of something that is good for society or a more specific target group does not sufficiently provide explanatory capacity for the necessity and selection of its pillars. Taking a sociological perspective, on the other side, shifts attention toward "changes in how people interact among each other" (Rüede and Lurtz, 2012, p. 9). A sociological perspective, therefore, provides the basis for the focus on actor-relations, their cooperation and collaboration. Furthermore, this perspective does also open the door for a discussion of actors' roles and the context (Kaletka et al., 2016) framing the interactions. Hence, IEEPD is not just a social innovation itself, it is also linked to a set of contextual factors put in the limelight when understanding IEEPD as social innovation.

Additional implications have to be considered when understanding innovation as a process comprising not only the invention of something new and its realization, but also its diffusion as, for instance, a three-phase model of innovation suggests (i.e., invention, innovation, diffusion; e.g., Borbély,

2008). Taking the final phase into account raises the question of how social innovations (successfully) spread and in result, institutionalize. In fact, one possible explanation can be found by shifting focus to practices and how they are changing. For better understanding social innovation, Howaldt and Schwarz (2010a,b) suggested such a perspective on social practice while building on a broad definition without a normative understanding of social innovation, enclosing the variety of manifestations in practice. Choosing this path, they are referring to the work of Tarde (originally published in 1890) and his understanding of social change characterized by a change of practices triggered by (intentional) improvements or novelties of social phenomena and diffused via imitation of new social practices on the micro-level (Tarde, 2009, p. 26). Considering the importance of changing established practices links back to the question of how change can be achieved via their imitation and in result, their diffusion. Put into the context of IEEPD, this highlights the importance of not only suggesting new services but also new practices for their effective execution in line with the aim of suggesting a contribution to tackling social inequality toward more inclusiveness. Hence, the discussed framework comprises the suggestion for co-creative practices (see below). If these intentionally suggested practices come to life and get imitated in the sense of Tarde (2009) and Howaldt and Schwarz (2010a), they might diffuse and institutionalize. However, while these late steps of social innovation will not be discussed for IEEPD as this article presents a first outline and framework, it is still important to consider their framework conditions for a solid basis. Hence, the question for possible drivers of realizing, diffusing and establishing IEEPD comes into play.

In addition to a strong focus on practices, the definition of social innovation by Howaldt and Schwarz (2010a) also emphasizes the role of different sectors (i.e., not only non-profit actors) and their specific rationalities: "social innovations are revealing their unique power particularly where different social (sub) rationales intersect" (p. 65). Therefore, for the presented framework of IEEPD, the role of actors from different sectors for a *supportive* ecosystem is taken into account. Furthermore, the emphasis of cooperation between different sectors also points at different pathways for social innovation and IEEPD in this particular context. While some perspectives on social innovation focus on bottom-up pathways, the approach of Howaldt and Schwarz (2010a,b) is also open to approaches initiated top-down—for instance, by public institutions. Although the discussed framework for IEEPD does not put a top-down approach to its center, it still considers the importance of top-down (i.e., public institutional) support as an important element of an ecosystem (see below) that is supportive to the socially innovative approach (i.e., IEEPD) discussed in this article.

Taking on a Social Innovation Ecosystem Perspective

For studies of the Programme for International Student Assessment (PISA), the concept of *alignment* is discussed as one crucial factor for the most successful education systems in the sample (e.g., Sliwka et al., 2017). In this concept, the success of education is linked to the commitment and support of all relevant societal actors for the common aim of achieving best education. This perspective shifts focus to several levels important for IEEPD: *First*, it highlights the importance of including all relevant actors—within and, especially, outside of the formal, traditional education systems. For a social innovation focus on IEEPD, this aspect underlines the need for identifying relevant stakeholder-groups and especially those significantly influencing education discourses like, for instance, foundations (Kolleck, 2017). *Second*, it highlights their willingness for collaboration. Translated to the discussed framework, it emphasizes the need for joint activities (cf. section on co-creation and co-production). *Third*, it emphasizes their willingness to find common aims. Different actors have different aims and different perspectives, often determined by the specific rationality of their respective fields or sectors. (Co-) Creating (Brandsen and Honingh, 2018) a supportive ecosystem for IEEPD could open up a new pathway for alignment in this particular educational field and even beyond. All of the aspects discussed in respect to the alignment concept in this section can be operationalized as a supportive ecosystem (Schröder and Krüger, 2019) where all relevant stakeholders jointly form and develop the environment for IEEPD.

Although such an ecosystem-perspective on contextual factors is not an exclusive specific of social innovation research, it is a major stream. When social innovation ecosystems are discussed, there often is a strong focus on contextual factors for social innovation in a certain physical area, be it specific (urban) territories (e.g., Sgaragli, 2014) or nation states (e.g., Hansson et al., 2014). However, in a globalized world, ecosystems for social innovation are also discussed taking a supranational perspective (e.g., Pulford, 2011). Considering and extending the perspective on the importance of strong networks for successful social innovation up to the stage of institutionalization (e.g., in education; see Kolleck, 2016), an ecosystem perspective on actors also highlights the supportive function of actors from all societal sectors based on their particular rationalities. When taking this analytical path, Carayannis and Campbell's (2009) concept of a "quadruple helix of knowledge production" is often referred to. In this approach, the aforementioned actors from different societal sectors (i.e., "academia/universities," "industry/business," "state/government," and "media-based and culture-based public"; Carayannis and Campbell, 2009) do not only contribute based on their particular "knowledge and innovation paradigms" (Carayannis and Campbell, 2009) but, moreover, as part of a helix enabled by the combination of these different paradigms and related rationalities. As Schröder and Krüger (2019) highlight, this approach is intertwined with the concept of alignment discussed above. However, it puts a stronger focus on the role of actors (and other factors, see below) for successful innovation (here: in education).

While the focus on actors and sectors is an important building block within an ecosystem perspective on social innovation, research on contexts and processes of social innovation brought up several additional factors. Kaletka et al. shift perspective to a differentiation between four dimensions of social innovation

ecosystems for accessing "driving and hindering factors" (Kaletka et al., 2016, p. 83):

"Context of roles" (1), "context of functions" (2), "context of structures" (3), "context of norms" (4) (Kaletka et al., 2016, p. 85).

While the first context (1) focusses on the target groups of certain social innovations and their stakeholders in general, the second context (2) basically encloses the abovementioned perspective of actors from different sectors and their functions as well as their modes of interaction within a network and its governance. The third context (3) puts attention on the structures, which frame social innovations and their different dimensions. Kaletka et al. (2016, p. 85) highlight "path dependencies" and linked "institutions" as well as "economic, political and technological imperatives," driving or hindering the process of social innovation. Their fourth level of analysis (4) addresses the norms defining possible trajectories for social innovation on not only the legal level but also on the level of, for instance, "social standards" (Kaletka et al., 2016, p. 85).

This framework for analysis provides better understanding about successful social innovation in general and certain socially innovative approaches in particular need. For the IEEPD framework, the chosen social innovation ecosystem perspective is particularly relevant for understanding the contextual factors supporting (or hindering) the realization of inclusive entrepreneurial education. Hence, the approach of Kaletka et al. (2016) will guide the discussion of context factors.

Co-creation and Co-production as Facilitators of Inclusiveness

In order for entrepreneurial education to be inclusive to persons with disabilities, it needs to be sensitive to individual abilities, talents, and demands. While entrepreneurship education in general should be tailored to individual demands (Vanevenhoven, 2013), entrepreneurship education with persons with disabilities needs to realize the deepest possible form of individual tailoring. Therefore, it might even become a particularly suitable blueprint for entrepreneurial education in an inclusive society in general. Disability as a generalizing social construct encloses people with various capabilities. People with wheelchairs, for instance, will have different demands for IEEPD than people using prostheses. While the first group might favor virtual learning environments when physical space for entrepreneurial skills courses is not easily accessible, the second group of people might favor physical space as learning environments when the use of computers is not fully appropriate due to individual capabilities. Hence, a perspective considering key elements of the capability approach (Deneulin and Shahani, 2009) contributes a major implication to be considered for IEEPD: if means are provided it still needs to be considered whether these means are the right choice for a certain person. For the discussion of IEEPD, the notion of "means" in this regard is, of course, not limited to physical and virtual space or even learning tools. It also applies for teaching and learning methods as well as for the choice of skills to be taught. For both, a co-creative approach is suggested. The concept of co-creation, originally coming from the field of business, is meanwhile characterized by ambiguity due to its diffusion across disciplines (Brandsen and Honingh, 2018). It is already being discussed in education, for instance, regarding value creation (cf. Tsourela et al., 2015; Dziewanowska, 2018) or education for sustainable development (cf. Perello-Marín et al., 2018). However, evidence on transferring the approach to entrepreneurial skills development with persons with disabilities is scarce.

For better understanding different levels of co-creation, the differentiation between "co-creation" and "co-production" suggested by Brandsen and Honingh (2018) provides a helpful approach. Basically, they suggest to understand co-creation as a process in which people (for Brandsen and Honingh it is "citizens" as they are looking at the concepts from a public services perspective) "are involved in the general planning of a service-perhaps even initiating it." "Co-production" could be understood as the process where people "shape the service during later phases of the cycle" (Brandsen and Honingh, 2018, p. 13). This differentiation shall be used in this article as it is facilitating distinction of different forms of collaborative action for IEEPD in a manner that allows a large extent of self-determined individualization. Furthermore, referring to one type of co-creation and co-production might be helpful to achieve even more clarity on the suggested pillar for IEEPD. Amongst others, Brandsen and Honingh (2018, p. 15) suggest the type of "co-production in the design and implementation of core services." This type directly refers to "training modules where entrants, together with instructors, define their own learning objectives and learning activities" (Brandsen and Honingh, 2018, p. 15). This description is also adequately summarizing the suggested approach for IEEPD, where learners are also deciding on objectives (i.e., which specific entrepreneurial skills should be taught) and learning activities (i.e., which methods and tools are used in the courses). This aspect also directly refers to the level of co-production in addition to the initial phase of co-creation. Moreover, when IEEPD is realized within an environment of peer-learning, where learners benefit from experiences made by peers (e.g., people with similar capabilities), self-empowerment of these peers also takes place via co-production on this level.

Beyond the basic concept of joint creation and production, co-creation is, of course, linked to tools and methods. On a conceptual level, the *design thinking* approach (e.g., Brown, 2009) is probably one of the most important approaches for co-creation. While it originally comes from product design, it is meanwhile applied for co-creating solutions for a variety of social challenges leading to not only tangible artifacts but also services—especially in the public domain (Rizzo et al., 2017). Briefly summarized, design thinking builds on an iterative approach with a basic "loop of understanding-designing-and-redesigning" (Rizzo et al., 2017, p. 134), often divided into more steps, for instance, "Need finding and Synthesis," "Ideate," "Prototype," "Test," "(Re)define the Problem" (Brenner and Uebernickel, 2016). However, as Brown (2008, p. 88) puts it: "The design process is best described metaphorically as a system of spaces rather than a predefined series of orderly steps." Put into the context of co-creation and co-production of IEEPD, design thinking could be understood as a mindset comprising

a broad and, in practice, varying set of principles. Brenner and Uebernickel (2016, p. 8) put special emphasis on the principle that "Innovation is made by humans for humans." By this, building on a design thinking approach means building on a people—or user-centered approach, which is in the heart of tailoring an educational service to individual capabilities and demands. Therefore, one relatively new application of design thinking is aimed at co-creation for solutions together with and for persons with disabilities. In this context, the application of design thinking for inclusive co-creation (and also co-production) proofed itself as an adequate pathway for people with different communication abilities (cf. Bosse et al., 2018; Linke et al., 2018) when oriented toward their individual communicational capabilities and with the aim of user-centered innovation. This learning highlights the importance of individualized tailoring for the best possible inclusiveness in co-creating solutions toward the principles of universal design. Applied for the co-creation and co-production of IEEPD, a user-centered design thinking approach could provide one eligible tool for co-creating learner-centered courses. Of course, such courses would most likely be different in each cycle, reflecting the heterogeneity of its co-creators.

When discussing co-creation, co-development and their manifestation in methods like design thinking, another implication for IEEPD comes into play: in the described societal environment where co-creative practices diffuse across sectors, teaching methods for co-creation and co-production for respective skills development should also be considered. First, participants would be equipped with the respective skills. Second, when not only learning about co-creation and co-production, but also learning via respective methods like design thinking, learners can benefit from the advantages of problem-centered or problem-based learning (PBL; Stokholm, 2014).

Overall, co-creation and co-production are considered as promising approaches for IEEPD, especially when combined with methods that already proved their potential for joint activities with persons with disabilities. Co-creating and co-producing IEEPD together with persons with disabilities can be an auspicious pathway for individualized and self-determined IEEPD.

DISCUSSION: BUILDING A FRAMEWORK FOR ENTREPRENEURIAL EDUCATION EMBEDDED IN AN INCLUSIVE ECOSYSTEM

Entrepreneurial skills and IEEPD can add value for persons with disabilities. Entrepreneurial skills can enable both, the management of one's daily activities and the unfolding of one's specific skills that can lead to self-employment or entrepreneurship. Entrepreneurial skills, as discussed in this article and developed through IEEPD, are also valuable when considering social entrepreneurship. Hereby, more sustainable business opportunities resulting from social entrepreneurship may open up for persons with disabilities, for instance, in the field of social innovation initiatives set by persons with disabilities for persons with disabilities. Often, such initiatives are fruitful, as the target group for socially innovative solutions in this field better knows particular needs and resulting demands due to own experiences. Hence, such initiatives often come up with better solutions. Entrepreneurial skills can then support the sustainability of such social innovation initiatives. This aspect is particularly important as research on social innovation initiatives worldwide frequently highlights an often seen lack of business knowledge and sound business models for sustaining such initiatives (e.g., Debref et al., 2015; Howaldt et al., 2016).

As a basis for the discussion of a possible IEEPD framework (see **Figure 1**), this article presented some major implications to be considered. These are related to the key questions raised in section Inclusive Entrepreneurship and Inclusive Entrepreneurial Education With Persons with Disabilities: *how to teach, what, by whom, where* and *through which channels*? The concepts guiding these implications are (1) found with the *principles of universal design* as a guideline to be taken into account for allowing the highest possible level of inclusiveness. In line with these principles (2), a co-creative/co-productive approach is suggested and furthermore (3), perspective is shifted to the framework conditions. This is done by taking an ecosystem-perspective as suggested by Kaletka et al. (2016).

Universal Design for Inclusive Entrepreneurial Education With Persons With Disabilities

As mentioned in section Inclusive Entrepreneurship and Inclusive Entrepreneurial Education With Persons with Disabilities, universal design is considered key for the inclusiveness of IEEPD in practice. For meeting the criteria of universal design, co-creation (and co-production) are major building blocks for the framework discussed in this article. In order to meet the aim of having an environment that can be individualized to all demands, it is important to enable self-determination in all aspects of such a framework and on all of its levels starting from the planning phase and finishing with the rollout of IEEPD in practice by educational practitioners. The concept of universal design [The Center for Universal Design (CUD), 1997] leads to the following suggestions for co-creation and co-production of IEEPD:

- "Equitable Use": Each particular design of each educational service for IEEPD needs to be oriented toward the needs of the respective learners in order to be useful for them. Its marketability should, therefore, be assured by a strong orientation on the demands of each individual target-group and the particular capabilities of its members. This principle addresses the questions of how to teach but also the question of where to teach, as barriers to participation might be linked to spatial aspects. However, the question for barriers is more specifically addressed with the last principle.
- "Flexibility in Use": This principle is to be met by allowing full participation and self-determination of learners in the whole creation process and, ideally, even in the process of co-production.

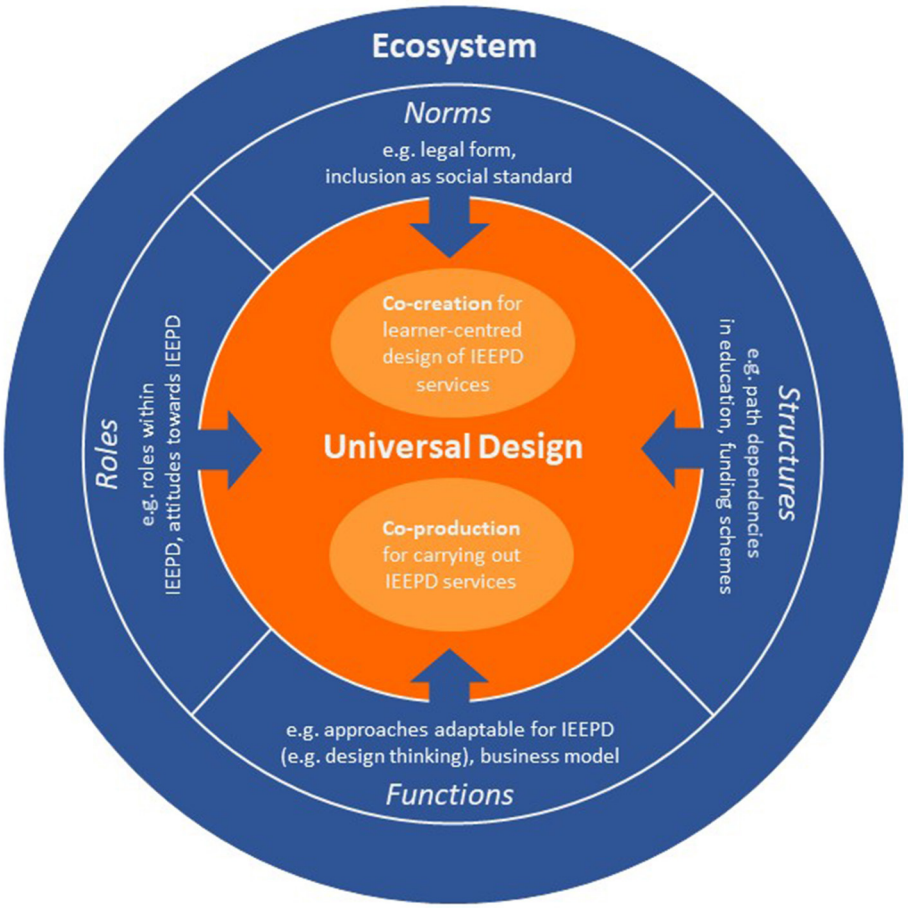

FIGURE 1 | Framework for IEEPD.

- "Simple and Intuitive Design": This should be considered for two levels. First, where learners and teachers jointly shape an IEEPD service (i.e., how to teach). Tools and methods for this phase should be easy to understand (which is possible for the application of Design Thinking, as research shows; see e.g., Bosse et al., 2018). Second, where the service is carried out. Educational tools and methods have to follow this principle in order to be adequate (again: how to teach).
- "Perceptible Information": This fourth principle addresses the contents (i.e., what to teach), which should be accessible to the learners, which, of course, does also address the question for methods (i.e., how?).
- "Tolerance for Error": This principle is particularly important in order to meet the capabilities of people with different learning abilities. But also, in general, the learning speed needs to be met in order to achieve successful learning outcomes as well as for avoiding frustration.
- "Low Physical Effort": This principle especially addresses the question for channels. Digital tools can help better meeting the aim of low physical effort when accessible to everyone and therefore universally designed themselves. Such tools could be, for instance, MOOCs. They (and online courses in general) potentially help diminishing obstacles related to the reachability of courses in physical spaces—no matter if these obstacles are physical barriers excluding e.g., people with physical disabilities or the sheer distance[13].
- "Size and Space for Approach and Use": The seventh principle clearly addresses the question of where to teach and hence, especially physical spaces. However, when virtual space is used for realizing educational services for IEEPD, this principle also links to the question for channels.

Of course, as universal design is also being discussed for education in general in the last decades (especially for schools; Turnbull, 1995), these principles are not only relevant for IEEPD. They are much more relevant to inclusive education in general, which is also true for the majority of other framework conditions discussed in this section.

[13]Even if there are sometimes imperfections and room for improvements when it comes to realized participation of disadvantages groups in MOOCs (Emanuel, 2013), they open a path for more inclusive learning environments when accessible to all.

Co-creation for Self-Determined Education With Persons With Disabilities

In the following part, suggestions for different levels of co-creation and co-production for IEEPD are discussed.

Co-creation in the Planning Phase

Learners together with teachers jointly create each course. This may be done following the iterative steps of design thinking. Roughly, this co-creation process could be started by collecting and understanding particular educational needs of participants concerning entrepreneurial skills. Here, especially their individual aims (e.g., Do they want to start businesses? Do they want to achieve entrepreneurial skills important for self-management?), their individual demands and capabilities would be examined by all teachers and learners. This is also where it has to be decided which particular skills should be in focus. Focus could be on both hard and soft skills or only on one set of skills—strictly oriented toward the demands. In the next steps, a prototype could be co-created and carried out as a test (e.g., one single session). In the following, the suitability of the created prototype could be assessed and a refinement could take place. However, as such planning and testing phases would demand a larger time frame than usually found in educational services, it might be important to consider some pragmatism. Nevertheless, if "short-cuts" within the creation-process are taken, it would still be utterly important to consider individual demands and capabilities of learners as these should be the pivotal decision criteria.

Co-production in Carrying Out the Educational Service

For the phase of realizing an inclusive educational service for entrepreneurial skills development for persons with disabilities, co-production does hold important benefits. The participation of persons with disabilities as not only learners but also teachers (or maybe assistant teachers) would make education *for* persons with disabilities turn into education *with* them. Therefore, it holds potential for (self-)empowerment of these teachers. At the same time, it also helps shaping a better tailored educational service based on the perspectives of teachers who have a better practical understanding of disability and its implications and, therefore, possibly a higher sensibility for the situation of their learners. However, the participation of teachers with disabilities would also have the benefit of mutual learning between them and others teachers.

Co-creation and Co-production as Learning Contents and Methods

The discussion on problem based learning (Stokholm, 2014) points at the possibility and adequacy of learning via co-creation and co-production (e.g., for social entrepreneurship education; Kickul et al., 2018). When learners are working on solutions to design-challenges identified, for instance, in the course of a design thinking process, they are not only achieving skills for problem-solving. Moreover, when co-creation and methods like design thinking are part of curricula, learners are given the possibly to achieve problem solving skills for challenges in entrepreneurship and beyond. Co-creation and co-production also point at cross-sectoral collaboration for creating and carrying out services and products. Therefore, learners could also acquire basic knowledge on how to create and carry out innovation in the sense of a quadruple helix (Carayannis and Campbell, 2009), where actors with different backgrounds jointly create.

Co-creation and Co-production for Shaping the Ecosystem

While the ecosystem for IEEPD is at the core of the next section, the relevance of co-creation (and co-production) for shaping such an ecosystem (i.e., the roles of actors but possibly even the other suggested layers; Kaletka et al., 2016) needs to be mentioned. Similar to co-creation and—production of the service itself, the same principles apply for shaping the context. Not to mention their expertise and sensibility, empowerment of persons with disabilities could take place when they or their associations or single initiatives are part of stakeholder discussions and their activities. At the same time, all stakeholders could mutually learn from each other and much likely become better sensitized to disability in learning contexts—not only for IEEPD but also for education in general.

An Inclusive Ecosystem for Entrepreneurial Education With Persons With Disabilities

When discussing framework conditions for IEEPD based on the previous sections, the social innovation ecosystem approach as presented by Kaletka et al. (2016; see section Co-creation and Co-production as Facilitators of Inclusiveness) helps identify contextual elements beyond the role of relevant stakeholders while taking them into account at the same time.

When looking at the context of IEEPD, the question for actors and their contributions to create a supportive ecosystem can be asked. This addresses not only actors of the quadruple helix of knowledge production (Carayannis and Campbell, 2009), which can more broadly be subsumed as science, economy, state and civil society actors. For an ecosystem for IEEPD, also schools might be relevant as they could provide space and personnel. However, when looking at the helix actors, it becomes clear that all of these groups could take relevant roles, more or less. For successful IEEPD, science can contribute knowledge on teaching methods and tools suitable for groups with particular capabilities. Furthermore, within an understanding of a third mission of universities (Jäger and Kopper, 2014), scientific units or organizations might also become active parts for carrying out IEEPD. This also points at the aspect of physical space or infrastructure in more general terms, enclosing, for instance, digital infrastructure at universities. Civil society plays a two-fold role as well. On the one hand, engaging actors from this sector with expertise on services for (and by) persons with disabilities would be beneficial for IEEPD. On the other hand, actors like welfare organizations, sheltered workshops and related networks and charities can help diffusing and even sustaining IEEPD via their networks or their own resources. The involvement of these groups of actors is relevant, but not the unique selling point. In addition, their **roles** and their political and

social attitudes, motivation, socialization, skills, and capabilities are important (Kaletka et al., 2016) for the success of social innovation in general and IEEPD in particular. Therefore, not only their support needs to be achieved. IEEPD would also have to recognize and address the aims and attitudes of relevant actors. Most importantly, the role of the target groups in the abovementioned understanding needs to be considered. In the suggested framework, this could be best met by building on a co-creative environment, as described before. Hereby, also the discussed questions *by whom to teach* and *who to teach* play out. The answers to these questions are embedded in the roles of the actors.

Under the context of **functions**, Kaletka et al. (2016) highlight the interlinkage and the ways of collaboration of stakeholders such as in our case the function of entrepreneurship experts, training and education centers, rehab educators etc. The discussion how training can be shaped, implemented, and realized (keyword: co-creative approach by e.g., design thinking) and by which topics and substance it may be filled should take place in this context. For the context of functions, also tools to be used like digital applications are put into focus again. With a view on digitalization, it can be discussed in two-fold manners, as tools for learning and training in the form of e.g., online courses, and in regard to digital skills for even achieving digital entrepreneurship or technology-based entrepreneurship. Hereunder one can subordinate the questions: *Where to teach? What to teach? Through which channels? How to teach?*

Furthermore, a focus on **structures** is suggested by Kaletka et al. (2016). Here, framework conditions beyond actors and their roles need to be considered. Maybe the most important implication for IEEPD is linked to path-dependencies of education systems. As research on Social Innovation in Education as part of the SI-DRIVE project highlights (e.g., Schröder et al., 2018; Schröder and Krüger, 2019), actors of formal education are often reluctant to initiatives coming from the outside (e.g., civil society, business). For successful IEEPD in practice, the path-dependency (for the actor-perspective sometimes translated as "silo thinking"; e.g., Schröder and Krüger, 2019: p. 19) of education in respect to a preference for (formal) top-down approaches needs to be addressed by all actors, including IEEPD actors themselves (i.e., the latter might have to find strategies to cope with these structures if they persist). Furthermore, possible funding opportunities for IEEPD courses and policies supportive or hindering such measures should be reflected. Within the EU, policies toward inclusive societies could be helpful in combination with the aim of supporting entrepreneurship. This also points at marketing opportunities for IEEPD when it comes to accessing supporters as well as the target group itself. Furthermore, a perspective on structures puts the socio-economic situation of the target groups into focus. In respect to findings presented in earlier sections of this article, it quickly becomes clear how important entrepreneurial skills for the target group can be in order to enhance own living conditions or to find pathways into opportunity-driven businesses.

Finally, the context of **norms** (Kaletka et al., 2016) addresses "social standards" (Kaletka et al., 2016, p. 85), ethic and political framework conditions. For successful IEEPD, cultural preconditions need to exist, which create circumstances, situations, spaces and places as well as human relationships that allow inclusion, that allow thinking out of the box, different unconventional learning modules, virtual meeting spaces, more time for consultation, co-creative approaches and so forth. Culture, as Clifton et al. (2014) or David and Rehfeld (2017) were able to show, is one of the main essences of each action and breeding ground for novelty, but at the same time a change maker. Change or transformation in the long run needs a reciprocal approach. The traditional institutions for business start-up and scale-up are actors that also need the transformations themselves next to the target group aspiring (stand-up) for business. The presented approaches of peer-to-peer, co-creation or co-production where actors of the ecosystem as part of a quadruple helix (Carayannis and Campbell, 2009) do not act in parallel, but mix up in roles, structures, and functions can foster future business activities among the target group. The future responsibility is to empower such a process and to create an ecosystem, which due to the mix up is not diffuse by nature, but which allows a structured blending. Hence, new regulations, new meeting places, new wording, but foremost a new inclusive mind-set etc. is needed. However, as especially legal structures do not change from 1 day to the next, IEEPD actors will probably have to build on sustainable "business" models already found in practice of social innovation initiatives worldwide (e.g., Debref et al., 2015; Howaldt et al., 2016; Komatsu et al., 2016). Social entrepreneurship, for instance, might be an adequate alternative for carrying out the services. However, as IEEPD as a social entrepreneurship activity would have to generate revenue it would have to be taken into account that this might limit access for the target group. Therefore, funding opportunities, which could possibly be found in (future) EU funding schemes or on national, regional or even local level, might help facilitating access to IEEPD in practice for broader groups. Hence, IEEPD could, for instance, build on an approach where: "Social value is generated through goods or services that are sold to beneficiaries at below market rates subsidized by financing supporters." (Terstriep and Kleverbeck, 2018, p. 35) Of course, that would not be the only possible approach but maybe one that is sustainable while accessible.

CONCLUSION

The presented framework for IEEPD for persons with disabilities is intended as a first approach toward important implications for shaping entrepreneurial education services for this specific marginalized group. It presents a plea for sensitively considering individual needs and demands by allowing a high level of participation and self-determination. It points at the importance of taking all actors on board and considering all functions, roles, norms and structures forming the environment of IEEPD, hence its ecosystem when it comes to the question of a supportive environment and its elements.

Answering the question for conditions of a framework that currently does not exist to the presented extent may seem out of context at first sight. However, as entrepreneurial education for persons with disabilities holds a lot of potential for meeting aims that are—for instance—collected in the Convention on the Rights of Persons with Disabilities [Convention on the

Rights of Persons with Disabilities (CRPD), 2008], this question needs to be answered in order to provide an elaborated basis for such activities. This is especially true as an appropriately early implementation of co-creation is key to the whole approach presented in this article. It needs to be there right from the beginning, hence considered as early as possible by the actors involved in realizing such services or a whole infrastructure. Of course, the paper at hand does not provide a full deductive blueprint rather than important implications and it does not aim to do so. Individualized, hence more inclusive, education shaped according to the needs of learners cannot be deducted from theorizing. It needs to be built right up from the respective communities of learners and teachers/trainers or tutors. However, in practice educational services are often initiated top-down. Therefore, the plea for a participative approach for an educational service aiming at a highly individual group is particularly important. Top-down decisions and services in this field might fail meeting the real needs and demands of the learners and hence even acceptance. A reciprocal approach meeting the needs of each target group through their active participation in the design process and adaption of these needs in the curricula by trainers or teachers assures a promising approach.

Therefore, with the presented outline some open questions remain of which one would be that for which skills to be taught (*"what to teach?"*). The paper presents some ideas for relevant skills and does not aim to have a comprehensive or even complete list. Moreover, it leaves this question intentionally open as different—again: very individual—groups would have very individual demands for skills. Assessing the right skills (both hard *and* soft skills for both daily activities *and* entrepreneurial activities) would and should therefore be part of a co-creation process between learners and teachers, especially when considering a co-productive approach (*"who teaches?"*) where learners contribute with their own skills that might not be very common in recent mainstream entrepreneurial education. Other questions are also left open intentionally. The question: *"where to teach?"* cannot be answered without considering each individual case of IEEPD as there is no unifying recipe and there cannot be such a recipe. Hence, the article suggested to choose the learning spaces according to the needs of the respective learners. There might often be good reasons for virtual spaces that tie back to the question for "*which channels*" to use for the provision of IEEPD services—especially as spatial barriers could be avoided more often. However, virtual spaces will also not be the right spaces in other cases. Hence, from this perspective the selection of *spaces, channels, teachers,* and *skills* needs to be part of the answer to the question of *how to teach:* via a co-creative approach. In result, physical space is not in focus of the presented approach. It is rather the learning atmosphere created by learners and teachers shaping the space. It builds a pop-up environment that opens up for the needs of persons with disabilities and other disadvantaged groups (in more general terms) in a given moment. By pop-up, we mean a space that is not bound to a specific spot. Much more, it unfolds as soon as a reciprocal exchange process, at eye level between learners and teachers, begins.

Furthermore, the presented outline also holds implications for entrepreneurial education more generally when it comes to education for marginalized groups in general. Top-down approaches to educational services in this context sometimes recognize the need for networks supporting the learners. However, these learners sometimes ask for more contacts to role-models that might take a tutoring role and who also have a similar cultural and biographical background—peer-to-peer approach. This aspect exemplifies the potential of co-productive approaches where the learners can also be tutors or teachers/trainers. Moreover, it again points at the potential for allowing leeway for bottom-up approaches as it is the learners who often know best what they need—at least in adult education beyond basic education necessary for everyone without question.

AUTHOR CONTRIBUTIONS

DK and AD have made major contributions to the whole manuscript and its sections and contributed to manuscript revision, read, and approved the submitted version.

FUNDING

We acknowledge financial support by Deutsche Forschungsgemeinschaft and Technische Universität Dortmund/TU Dortmund University within the funding programme Open Access Publishing.

ACKNOWLEDGMENTS

We would like to thank Ileana Hamburg, Bastian Pelka, Antonius Schröder, and Judith Terstriep for important implications and suggestions. We also thank Mathias Cuypers for his valuable support in meeting formal requirements.

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Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.