Is it just about me? A comparison between individual and cultural strategies of learning from failure

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ABSTRACT

The aim of this exploratory study is to research individual and cultural strategies of learning from failure amongst German, Indian and Swedish university students. Our research provides (1) a framework of typal similarities of failure learning within the national cultures of Germany, India and Sweden, as well as (2) understanding of cultural effects on failure learning and (3) insights for entrepreneurship educators to develop programs that steer discussions and reflections on the event of failure as a likely part of the entrepreneurial process. Thus, this research provides a new brick of understanding as our results show that both culture-based strategies as well as culturally independent typical subjectivities in learning from failure exist for the three nations Germany, India and Sweden. The defined typologies can broaden our understanding of learning from failure at an intermediate level, bridging the gap between cultural and individual factors. Furthermore, our paper showcases the suitability of Q methodology to bring to front individual beliefs as well as group-specific opinions in higher education by discussing the methodological capabilities and challenges as experienced during our study.

1. Introduction

With this paper, we contribute to this special issue about the application of Q methodology in higher education in two respects. First, we will introduce our findings on individual and cultural strategies of learning from failure amongst German, Swedish and Indian university students. And second, we will discuss methodological opportunities and challenges experienced during our study in three different settings of higher education.

Our study focusses on learning from failure in an entrepreneurial context. The research was conducted in two business schools in Germany and Sweden and additionally includes a sample of Indian students enroled in an international MBA program provided by a German university. All of the participating students voiced their interest in entrepreneurship. Wang and Chugh (2014) state that learning from failure is crucial in entrepreneurship, but often marginalised. Although statistics on drop-out rates (i. e. Wollscheid et al. 2015 Goel & Husain, 2018) show that university students can be exposed to failure, the phenomenon is a crucial personal subjective experience which is difficult to study

(Cope, 2011). Learning from failure is the cognitive capability to recognize new opportunities based on the prior failure (Corbett, 2007) and previous studies show that different reactions to failure will lead to different learnings (Cardon et al., 2005; Heinze, 2013; Jenkins et al., 2014; Ucbasaran et al., 2013).

The effect of entrepreneurship education initiatives on the promotion of entrepreneurship has been researched by Eesley & Lee (2021), who found that university entrepreneurship programmes do not increase entrepreneurship rates, but improve the quality of entrepreneurship in regard to decreasing start-up failure and increasing firm revenues. Hence, education programmes are highly focused on success and classroom learning about the entrepreneurial process and behaviour (Pellegrini et al., 2021). Learning in the real-life entrepreneurial context falls short in most of the courses offered at academic institutions and, in particular, learning from previous failure is rarely addressed within entrepreneurship education. Although suggestions to include the development of an entrepreneurial mindset, including subjects such as optimism, learning from failure, and resilience in entrepreneurship education programmes are already being made (Kuratko & Morris, 2018),

there is still a lack of content that depicts the soft facets of entrepreneurship education, such as learning about personal attitudes and emotions that are relevant for the development of meta-competencies (Kolb & Kolb, 2005). Although individual differences play a major part in both emotion regulation and sense-making, the effect of national cultural dimensions on entrepreneurship has been noted in a number of studies (Dana, 1995; Radziszewska, 2014; Valliere, 2017, 2019). Cultural values comprise each individual's assumptions, adaptations, perceptions and learning from a geographic perspective. Much of the research has adopted either the framework of Hofstede (1980) or the extended framework for national cultures put forward by the GLOBE project (Hofstede, 2006; House et al., 2004). Additionally, research that addresses cultural differences in the stigmatisation and fear of failure (Baù et al., 2017; Wennberg et al., 2013) is relevant to further understand the process of learning in the context of failure.

Hence, there is still a gap in the literature, as most research either focuses on the macro-level national culture or the specific micro-level styles and preferences of individuals. One of the reasons may be rooted in the difficulties to understand the role of research methods as context in regards of entrepreneurial cognition and behaviour. Brännback and Carsrud (2016) suggest that research methods in entrepreneurship as well as in teaching are often chosen by the principle of disposability; Chlosta (2016) describes the methodologies as homogeneous and draws attention to the problem of the 'dual-class society' created by the long-lasting dichotomy of qualitative and quantitative approaches.

Therefore, we decided to apply a research design that allows us to observe the phenomenon with a set of different lenses. Q methodology allows us to design our study for the purpose to investigate the interplay between cultural preferences and individual attitudes and strategies when it comes to learning from failure. To be more precise, the aims of our study are (1) to develop a framework of typal similarities of failure learning within the national cultures of Germany, India and Sweden; (2) to learn about the cultural effects on failure learning for each of the typical subjectivities and (3) to gain insights for entrepreneurship educators to drive the development of programs supporting students' ability to learn from failure.

Thus, our study contributes to prior research in three ways: First, the study bridges the gap between personal and cultural failure-learning strategies by exploring typal subjectivities. Second, we combine Q methodology with cluster analysis, which expands the potential for interpreting findings from Q methodology. Third, the study showcases the suitability and benefits of Q methodology in higher education settings as it allows revealing subjectivities and cultural preferences in regard to learning from failure. Thereby, the findings of our study will add to the growing understanding of subjectivity in educational research. Lundberg et al. (2020) found in their literature review that Q methodology is suitable for research with an interest to explore a broad range of contexts in compulsory education, including marginalized groups. It is often argued that smaller groups are marginalized in quantitative research studies (Dryzek, 2005). Furthermore, there are in general less possibilities to select and recruit candidates from already marginalized groups willing to participate, resulting in a majority of single case or qualitative interview studies with limited power to bring to light important group-specific beliefs and convictions. In contrast, Q methodology provides a more systematic approach and higher methodological transparency and therefore it can be ensured to collect the full range of relevant voices (Howe, 2004). Furthermore, the methods' fundamental strengths allow us to reveal true opinions of participants (Brown, 2006) by providing an opportunity for participatory research (Militello et al., 2016). As the focus is put on quality of insight, Q studies are based on small but diverse samples presenting distinct viewpoints. More significant than the number of participants is their diversity and application of a set of statements reflecting a heterogeneous range of beliefs (Brown, 1980). In that sense, Q methodology allows those often marginalised in research projects to be elevated (Lundberg et al., 2020).

The remainder of this paper is structured as follows. We first present theoretical background on learning from failure and its role in entrepreneurship education as well as on cultural aspects of entrepreneurship and entrepreneurial learning. Our focus then turns to translating these insights into our research approach to discover failure learning attitudes in international entrepreneurship education. The next chapter illustrates the application of Q methodology and provides insights on data collection and analysis. Thereafter, we present our framework of typal similarities of failure learning for each of the national cultures of Germany, India and Sweden, and show clusters of similarities between the three national cultures. Related to these findings we present and discuss the results regarding cultural effects on failure learning for each of the national cultures as well as for certain typal subjectivities. That section also offers some thoughts on the application of our framework in entrepreneurship education. Furthermore, we share our experiences about the suitability of Q methodology for research in higher education in general, and its methodological opportunities and challenges in particular. Thereafter, we provide a summary of conclusions including proposals for entrepreneurship educators as well as limitations and areas for future research.

2. Literature review

As the study focuses on learning from failure in the context of entrepreneurship education, our literature review first highlights the current knowledge surrounding learning from failure in general and specifically in entrepreneurship education. Furthermore, as the study aims to shed light on cultural differences in learning from failure, the literature review also covers cultural aspects of entrepreneurship, learning and failure.

2.1. Prior research on learning from failure and its role in entrepreneurship education

To address learning from failure in an entrepreneurial setting, we have to first define the concept of failure. To date, there is no agreed definition or reliable measure of entrepreneurial failure (Walsh & Cunningham, 2016), and there is a lack of comprehensive understanding of this contradictory construct (Jenkins & McKelvie, 2016). However, we follow Cope's (2011) definition of entrepreneurial failure being "the termination of a business that has fallen short of its goals" (p. 605). The definition is consistent with the perspective on primarily psychological and social costs of failure (Ucbasaran et al., 2013). Kücher & Feldbauer-Durstmüller (2019) argue that in recent years the consequences of failure and its perceptions have dominated in the research, with a focus on (1) costs of failure; (2) perceptions and attributions of failure; and (3) sense-making of and learning from failure. Costs of failure also include social costs, defined as the impact of failure on professional as well as personal relationships, such as breakdowns of marriages and other close ties (Cope, 2011; Heinze, 2013; Singh et al., 2007). The loss of important social networks of mutual obligations has been studied by Harris and Sutton (1986). Furthermore, stigmatisation may also be experienced as an element of social costs (Ucbasaran et al., 2013). All these discussions focus on the subjective and individualistic conventionalisation of entrepreneurial failure, providing a deeper understanding of the effects on entrepreneurs and their coping strategies in the aftermath of failure (Jenkins & McKelvie, 2016). Recent research proposes a multilevel framework of entrepreneurial failure based on four categories: (1) manifestations over time; (2) directness to the event of failure; (3) personal impact on the failed entrepreneur; and (4) impact of long-term outcomes (Klimas et al., 2021). The authors discuss macro-environmental antecedents, such as culture, education, law, economy and technology, as well as deterministic, voluntary and emotive drivers of the failure event. Furthermore, the authors differentiate between direct, indirect and long-term costs affecting individual sense-making of failure. Direct costs summarise economic, psychological

and social effects, while indirect costs consist of grief, learning and recovery.

Due to the lack of an agreed definition of entrepreneurial failure, there is also some ambiguity in the application of terminology in regard to failure learning in an entrepreneurial context. However, agreement can be found on the importance of learning as part of the sense-making of entrepreneurial failure (Heinze, 2013). Interviews with failed entrepreneurs have shown a strong attitude to actively draw on the positive attribution of learning in their sense-making, as it allows them to bounce back from failure (Cope, 2011; Heinze, 2013, 2019). In that sense, learning from failure can be defined as an increased cognitive capability to explore and exploit opportunities after the event of failure (Corbett, 2007). Previous studies are either focused on how failure "can encourage learning because the individual is more likely to conduct a postmortem to understand what led to the failure" (Ucbasaran et al., 2013, p. 183) or on how the entrepreneurs' interpretation of failure through their sense-making of the experience triggers learning from failure (Cope, 2011; Heinze, 2013, 2019) and "to minimize the downside costs of entrepreneurial action" (Shepherd et al., 2016, p. 273). Shepherd et al. (2016) illustrate failure as a process of emergence and sense-making and draw attention to the importance of narratives about the event. The authors further discuss obstacles to learning, such as grief, that are managed in different ways. In that sense, high self-esteem can negatively impact learning; self-passion, on the other hand, can enhance learning, as it eliminates defensive mechanisms. Similarly, Fang et al. (2018) found that the emergence of emotions may hinder learning. Liu et al. (2019) found individual differences in abilities to learn from failure and propose cognitive and motivational obstacles to learning within narcissistic personalities. Walsh & Cunningham (2017) propose four types of failure attributions: (1) internal individual level; (2) external firm level; (3) external market level; and (4) hybrid attributions. Primary attribution to internal factors leads to deep learning about oneself, a primary focus on external attributions triggers learning about the business, relationships and networks, whereas hybrid attributions result in cognitive responses and learning about management. Politis & Gabrielsson (2009) apply experiential learning theory to research attitudes towards failure and found that prior startup experience and prior business closure due to poor firm performance both positively affect an entrepreneur's attitude towards failure, whereas business closure for personal reasons does not. Boso et al. (2019) found that the effect of failure experience on new venture performance is moderated by learning ability.

This short summary reflects current knowledge as well as recognition of the importance of learning from failure. However, the topic is rarely addressed in entrepreneurship education. Although Kuratko (2005) acknowledges the major developments in the last decade, he calls for educators to create a climate for developing high achievers who will create future innovations. Furthermore, Kuratko & Morris (2018) suggest that the content of entrepreneurship education programmes should also address the development of an entrepreneurial mindset; here, the authors explicitly mention learning from failure. Recent work by Pellegrini et al. (2021) proposes a comprehensive entrepreneurship education model based on the philosophical concepts of Kant and Aristotle in their relation to scope and structure dimensions that depict the soft and hard facets of entrepreneurship education. The authors acknowledge the importance "to teach both the 'art' and the 'science' of entrepreneurship" (Pellegrini et al., 2021, p. 224). Learning from failure clearly falls into the soft core of entrepreneurship education, as it focuses on the personal sphere of the individual. Pedagogies should include learning about personal attitudes relevant for orientation as well as the development of meta-competencies relevant for ordering and selecting. Reflective thinking is a central element in these educational areas (Kolb & Kolb, 2005). To conclude, students should get an opportunity to actively experience likely aspects of the life of an entrepreneur to gain confidence in their own mental approaches. However, although the importance of the subject has been recognised, there is still a lack of

research on the how and when. Here, Shepherd (2004) constitutes an important exception, as he explicitly provides suggestions for educators to support students in managing their emotions triggered by failure in order to enhance abilities to learn from failure.

2.2. Cultural aspects of entrepreneurship and entrepreneurial learning

The concept of culture has been the subject of much debate and study within and between many disciplines such as anthropology, humanities and social sciences. Lentz (2017) provides an excellent overview of the varied history of the anthropological concept of culture and the debate on how to reformulate the term in order to integrate dynamic approaches and to facilitate interdisciplinary collaboration. We are much in line with Christoph Brumanns definition of culture as "the set of specific learned routines (and/or their material or immaterial products) that are characteristic of a delineated group or people" (1999, p. 6). In that sense, culture can be seen as a set of shared core characteristics of a certain group of people. From an anthropologist perspective, such an approach may lead to the criticism of over-simplification. However, as the approach gives way to analyse "historically and geographically field-specific practices of differentiation" (Lentz, 2017, p. 202), the perspective is interesting for research in fields such as management, entrepreneurship and education. Especially for research in management, Hofstede's perspectives of national cultures (1980) and their later expansion by the GLOBE project (House et al., 2004) have been adopted by many of the early researchers interested in the likely effects of culture on entrepreneurship. The model conceptualises culture as a pattern of shared thinking, feeling and attitudes to behaviour between individual persons of certain nations, categorised into the elements of power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation. A further addition introduces the dimension of indulgence and restraint (Hofstede et al., 2010). To date, the Hofstede model dominates research with an interest in cultural aspects of entrepreneurial activities (Valliere, 2019), and entrepreneurship researchers build on Hofstede's dimensions to explore risk-taking attitudes (An et al., 2020; Kreiser et al., 2010; McGrath et al., 1992).

Our short introduction on all these diverse and independent approaches to cultural influence on entrepreneurship clearly reflects the need to connect the macro-level perspective of Hofstede's cultural dimensions and a society's shared myths and beliefs about entrepreneurship to the micro-level cognitions, perceptions and self-constructs of individual entrepreneurs.

In that sense, Valliere (2017) applied Q methodology to investigate the enactment of culture by individuals. As a result, he proposes a mechanism by which national cultures give rise to individual beliefs about entrepreneurship. In his study of seven countries from different continents, he found a small number of belief patterns shared by entrepreneurs despite the large cultural differences between their countries of origin.

Until now, entrepreneurial failure has rarely been explored from a cultural perspective. However, cultural sense-making of failure varies depending on the geographical area where the failure has occurred (Cardon et al., 2011). The stigmatisation and fear of failure often go hand in hand, and fear of failure is investigated by the Global Entrepreneurship Monitor (GEM) on an annual basis (Bowen & de Clercq, 2008; Freytag & Thurik, 2007; Wyrwich et al., 2016). Fear of failure shows a negative effect on entrepreneurship, which is moderated by the cultural practices of institutional collectivism and uncertainty avoidance (Wennberg et al., 2013).

To conclude, although there is a sound body of knowledge available on sense-making of and learning from failure, we only found one study by Joy & Kolb (2009) that examined the role of culture in experiential learning and found that culture, level of education and area of specialisation have an important impact on learning styles. Therefore, the objective of this study is to untangle the influence of individual failure-learning behaviour and culturally rooted practices. For that
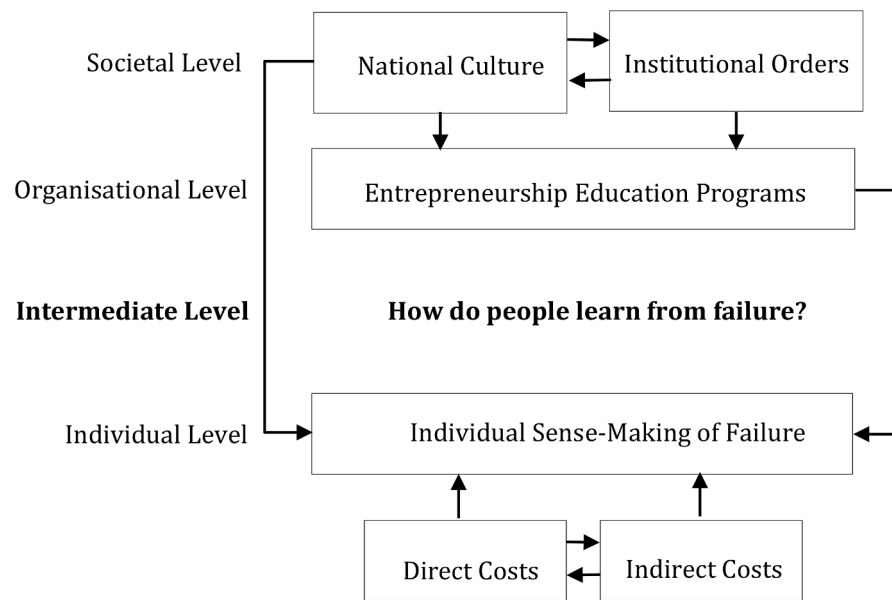
Fig. 1. Research approach to failure learning attitudes in entrepreneurship education (inspired by Valliere, 2019).

Table 1
Descriptive characteristics of sample countries.

	Germany	India	Sweden
Population (M)[a]	83,517	1366,418	10,036
Gross net income per capita (USD)[b]	$55,314	$6681	$54,508
Religious plurality	Christian	Hindu	Christian
Human development index[b]	0.947	0.645	0.945
Gender inequality index[b]	0.084	0.488	0.039
Corruption perception index (score)[d]	80	40	85
Fear of failure[e]	29.7%	62.4%	42.9%
power distance index[f]	35	77	31
individualism index[f]	67	48	71
masculinity index[f]	66	56	5
uncertainty avoidance index[f]	65	40	29
long-term orientation index[f]	83	51	53
indulgence vs. restraint index[f]	40	26	78

[a] UN (2019).
[b] [c] Hackett et al. (2012); UNDP (2020).
[d] Transparency International (2021).
[e] Bosma et al. (2020).
[f] geert-hofstede.com.

purpose, we investigate how individuals prefer to make sense and learn in the aftermath of failure, and how their behaviour can either be explained by specific cultural patterns shown by Hofstede's (2011) cultural dimensions or by individual subjectivities of failure learning (Heinze, 2019). Fig. 1 provides a visual overview of our research approach:

At the societal level, the research approach presented in Fig. 1 also draws attention to the entanglement of institutional effects as presented in Table 1 and effects rooted in the culturally different value systems put forward by anthropologists as summarized by Lentz (2017). To acknowledge the problem, we therefore refer to our research cohorts by applying the terminology of "national cultures". Although we acknowledge the influence of organisational context, our study focusses on the individual level. This approach allows us to bring to light typal subjectivities for each of the national cultures observed that broaden our understanding of failure learning at the intermediate level.

3. Methodology

The study aims (1) to develop a framework for typal similarities of

failure learning within the national cultures of Germany, India and Sweden and (2) to learn about the cultural effects on failure learning for each of the typal subjectivities, in order to (3) gain insights for entrepreneurship educators to drive the development of programs supporting students' ability to learn from failure. Therefore, a certain diversity in perspective and approach, able to bear on the elusiveness of the subjectivity of individual experiences, is required. Highlighting concealed patterns within the subjective experiences of individuals asks for a hybrid methodology that combines the capacity to analyse data with statistical methods as well as the ability to explore and interpret the subjective meaning of the statistical outcomes. Q methodology is such a method, as it provides all the requirements to systematically study subjectivity and to analyse diverse attitudes, perspectives and experiences (Stephenson, 1935, 1953). By applying a qualitative sorting technique, unstructured data is categorised and statistically analysed. Lundberg et al. (2020) highlighted the successful application of Q methodology to access subjectivity research in compulsory education. Despite its time of development, the method only slowly starts to attract attention in the field of educational research (Rieber, 2020), but also in entrepreneurship research (Gruenhagen & Davidsson, 2018; Valliere, 2017, 2019). To be more precise, a search with "Web of Science" yielded 1.510 articles published since 2000 containing a combination of "Q methodology" or "Q Method" and "Entrepreneurship". About 80% of these articles have been published since 2015.

The typical benefits of Q methodology include insight into the perceptions and sense-making of individuals at a level where social aspects are related to individual agency. To achieve our research aims, we need to understand the viewpoints of entrepreneurship students in regard to the meaningfulness and significance of different attitudes to learn from failure. For that purpose, Q methodology provides a more systematic approach and greater methodological transparency than purely qualitative methods. However, the focus remains on quality of insight rather than quantity and therefore small diverse samples were selected. As Brown (1980) presumes, distinct viewpoints on any topic are limited and therefore any set of statements clearly reflecting a broad heterogeneous range of opinions, and manifested by diverse participants, will reveal the existence of groups with similar viewpoints. Furthermore, as our study is of an explorative nature, Q methodology is particularly well suited, as categories are inductively derived from individual responses in order to build theory (Kerlinger, 1964).

Table 2
Descriptive characteristics of sample participants.

Country	No. of participants	Age			Gender			Work experience		Entrepreneurial experience	
		range	av	STD	m	f	d	yes	no	yes	no
Germany	15	22–33	28	3.3	7	7	1	13	2	6	9
India	15	24–32	26	2.6	13	2	0	15	0	5	10
Sweden	16	21–51	29	8.3	5	11	0	16	0	9	7

3.1. Data collection

The phases of a Q-study are (1) development of the concourse; (2) development of the Q-sample; (3) selection of the p-set; (4) conduct of the Q-sort; and (5) analysis of data (Brown, 1980; Stoneet al., 2017; Watts & Stenner, 2012). For phase (1), the development of the concourse, a set of statements that reflect the range of perceptions on the research topic has to be developed. This can be done either based on secondary data yielded by a review of the relevant literature, on primary data gained by purpose-driven surveys or interviews or a combination of both methods. We decided for the latter. At first, we reviewed international research focussing on reports of individual sense-making in the aftermath of entrepreneurial failure. Additionally, we have been able to draw on data from 20 extensive semi-structured interviews (carried out in Germany in autumn 2018) with entrepreneurs who had previously experienced entrepreneurial failure. Our first level of analysis yielded a total of 164 statements on the subject of how and what one can learn from entrepreneurial failure. These statements were then the building blocks for phase (2), the development of the Q-sample, which is often seen as the most critical and demanding part (Shemmings & Ellingsen, 2012). The Q-sample consists of a subset of statements, where a range between 40 and 80 items "has become the house standard" (Watts & Stenner, 2012, p. 61). To narrow down our original concourse to an adequate subset of statements that still represents a well-balanced diversity of opinions, we went through an iterative procedure. First, three researchers independently reduced the set. The results were then compared and matching statements were agreed upon. All other statements were discussed until an agreement was reached. To illustrate the process, for example, some of the interviewees regarded the failure as just an unavoidable element of the entrepreneurial process. They expressed their opinion in ways such as "All founder friends tried out stuff that did not work, that's just normal", "Every new project is an experiment, sometimes it will work out, sometimes not", "Realistically, it will only work out on the third try" or "Fail fast, learn fast, start again". In the first cycle of defining the Q-sample, these statements were evaluated differently. All three researchers agreed that these statements are redundant but had different opinions in terms of which of the statements

to select. The discussion aimed at finding an expression that is both meaningful and easy to understand. An agreement was reached with the expression of "Fail fast, fail often", a common metaphor that is well known and often applied within entrepreneurship education settings. This example also highlights our calibration of the Q-sample to achieve methodologically sound results. Such calibration is required for multilingual administration (in our case English and German) to reasonably assure the comparability of resulting factors (Brown & Feist, 1992; Nynäs et al., 2021). The final Q-sample consists of 60 statements (see Appendix I).

For the purpose of phase 3, the selection of the p-set, German, Indian and Swedish university students enroled in either business administration or entrepreneurship education programs were recruited by two of the researchers. We based our choice on a combination of socio-economic criteria, differences in regard to Hofstede's cultural dimensions and differences concerning fear of failure in the GEM study as presented in Table 1.

The three countries vary in population size, economic output, human development, religious orientation, gender equality, and corruption. In particular, their different attitudes to refraining from exploring entrepreneurial opportunities due to fear of failure were an important selection criterion. According to the GEM 2020, Germany falls at the lower end, ranking 46th (out of 50 countries), Sweden ranks 25th and therefore takes the middle position, whereas India leads the list of failure-fearing countries (Bosma et al., 2020). In addition, the selected countries show several cultural differences as addressed by Hofstede's (2011) cultural dimensions.

For both the Indian and Swedish cohort, the statements were translated into English – with which the students are familiar from their studies – by bilinguals and confirmed by back-translation. For the German cohort we decided to apply the Q-set in the original language in order to allow for a validation of results of previous studies (i. e., Heinze, 2019). Although it is not ideal to collect data by application of different languages, this is a common problem in intercultural studies which is usually dealt with by a thorough review of the original and the back-translated versions checking for categorical, functional, and conceptual equivalence, which has been applied in this study. Next, the
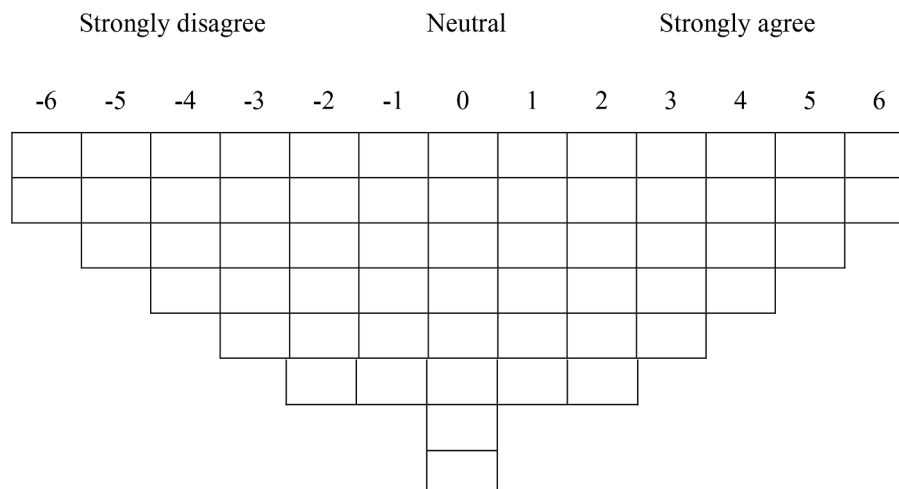
Fig. 2. Q-sorting template, adopted from Watts & Stenner (2012).

participants (P-set) were selected by strategic sampling to recruit a purposive sample with firm and distinct viewpoints on the research topic (Brown, 1980). P-sets range from 20 to 103 participants (Dziopa & Ahern, 2011); however, relevant results can be obtained with far fewer (Watts & Stenner, 2005) and the number of participants should be kept to a minimum (McKeown & Thomas, 2013). Another requirement is the diversity in observable demographics (e. g. age, gender, social class, prior education), assuming an equivalent diversity in opinions. Details of the candidates' background are provided in Table 2.

The reader may wonder about the gender imbalances in our P-sets and perhaps question the appropriateness of our candidate selection. As Brown (2005) states Q Methodology is interested to identify and directly deal with mind sets, rather than to focus on background factors like gender or age. Hence, our aim is not to understand potential gender differences within the typal subjectivities, instead we are interested to learn about subjectively different approaches to make sense of and learn from failure. The p-set represents the actual composition of class enrolments in the programs chosen for our study.

In phase (4), the Q-sorts took place from June to October 2020 by applying an online tool provided by the Q Method Software package. For each country group, an individual sorting session was arranged. For each of the sessions, participants were instructed to sort statements that they mostly agree with into one virtual pile, statements that they disagree with into a second virtual pile and statements that they feel ambivalent about into a third virtual pile. Next, participants were asked to sort each of the virtual piles to rank the statements from the ones they agree with the most to the ones they agree with the least. For that purpose, a template that forces a quasi-normal distribution was used (see Fig. 2).

Participants rearranged cards until their Q-sort represented their own viewpoints. The results yielded a set of factors that represents shared ways of learning from failure. Additionally, a survey about biographic background, entrepreneurial intention and the Q-sort itself was conducted to support the interpretation of individual sorts.

3.2. Analysis

Individuals within a shared culture but with different subjective attitudes to learning from failure are expected to rank the Q-set statements differently. Some of these attitudes might appear in similar ways across cultures. Thus, the analysis was carried out in a two-step process. First, to understand individual differences in failure-learning behaviour, data from the three country-specific Q-sorts were exported in CSV format and imported into the R platform, a free software environment for statistical computing and graphics. Zabala (2014) developed the *qmethod* package, which surpasses other existing Q-software in many ways, especially in terms of the step-by-step analysis that helps the researcher to fully understand the process. For the statistical analysis, the Q-sets become subjects and the individual Q-sorts (carried out by the participants, presenting their individual viewpoints) become variables (Sinclair, 2019). That allows for a correlation of individual viewpoints, clustered together into similar opinions or standpoints. Factor extraction in qmethod applies a Principal Component Analysis (PCA) and the extracted factors are varimax-rotated to produce the maximum differentiation. Factors are selected iteratively using both the researchers' theoretically informed judgement and loadings that maximise both the number of statements that have significant loading onto the factors and the number of participants accounting for the factors. A unique solution is selected for each country data set and separate factors represent typal subjectivities. Significantly differing loadings in a country represent individual attitudes that are not universally held by the people of that country. Following the statistical analysis, where generally accepted statistical criteria are rather seen as guidelines (Brown, 1980), the data was further explored by means of a qualitative approach, based on background information gathered from the students during the sorting workshops and in personal discussions between the researcher(s) and individual students. To better understand the theoretical significance of

Table 3
Extraction of typal subjectivities in each national culture.

	Germany	India	Sweden
Respondents	15	15	16
Typal subjectivities	4	4	4
Responses accounted for	13	15	13
Consensus statements	6	4	5
Differentiation statements	32	40	29

factors in respect of individual subjectivities, the researchers discussed and agreed upon the most informative factor solution.

Second, to understand culture-based differences, similar loadings of particular statements across all the subjectivities in a country are the focus of interest. Such statements indicate an attitude of shared consensus amongst the individuals of a certain country. Factors are defined by loadings of various statements of the Q-sort. The data then represents an expression of agreement or disagreement of the typal subjectivities in view of all the Q-sort's statements. Shared consensus is indicated by similar loadings of all typal subjectivities, and vice versa significantly differing loadings represent an attitude not held universally by the country's representatives. The typal subjectivities are then compared across the three countries by application of hierarchical cluster analysis with the help of SPSS version 26.1. The quantitative results are then interpreted based on the qualitative characterising statements of the participants.

4. Results

In this chapter, we first present our framework of typal similarities of failure learning for each of the national cultures of Germany, India and Sweden separately, to highlight the existence of typal similarities for each of the three countries. Thereafter, we demonstrate how these typal similarities cluster between the three national cultures. The results concerning our second research aim, to increase our knowledge about the cultural effects on failure learning for each of the typal subjectivities, are of a rather discursive nature. Therefore, these results will be presented in our discussion section.

To explore the amount and quality of typal similarities for each country, three sets of factor rotation were carried out. Appendix II compares the different scenarios of extracted factors and their corresponding quality indicators for each national culture. Due to the researchers' expertise in combination with the quality indicators, for each country the solutions based on three and five factors have been separately classified as not suitable. The higher the number of factors, the slightly higher the explained variance, although this means a loss of loaded Q-sorts for Germany and India. For Sweden, the loading of Q-sorts does not change with a higher number of factors. Accordingly, it is relevant that the individual factors one to four within the 4-factor solution have both higher eigenvalues and a higher explained variance. The additional fifth factor reduces these values for the individual factors. Therefore, the 4-factor solution is the best option, as it fulfils both the analytical and theoretical background. Table 3 shows the number of respondents, the number of typal subjectivities, and the explanatory power of the solution. Details of the typal subjectivities are presented in Appendix III.

The results provide insights on failure learning at the intermediate level as presented in Fig. 3:

Our study shows that in each of the countries studied, entrepreneurship students' individual attitudes to make sense of and learn from failure can be summarized by typal similarities representing four distinctive opinion groups. More details of the nature of distinctiveness for each of the types will be subject of our discussion in the next section.

Turning to the question about typal similarities between national cultures, the second analysis step gives insight into the degree of similarity amongst the observed subjectivities (see Table 3) by applying
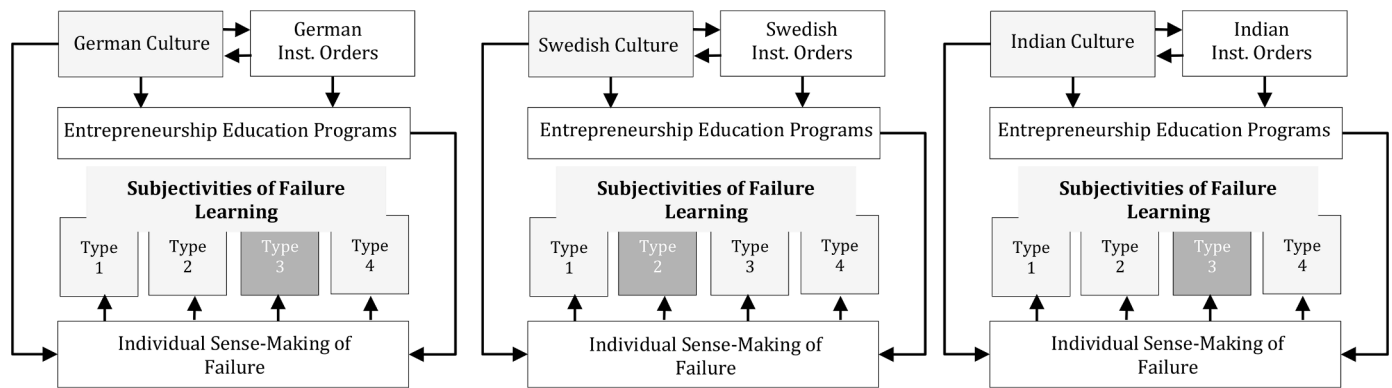
Fig. 3. Framework of typal subjectivities of failure learning for German, Swedish and Indian entrepreneurship students.
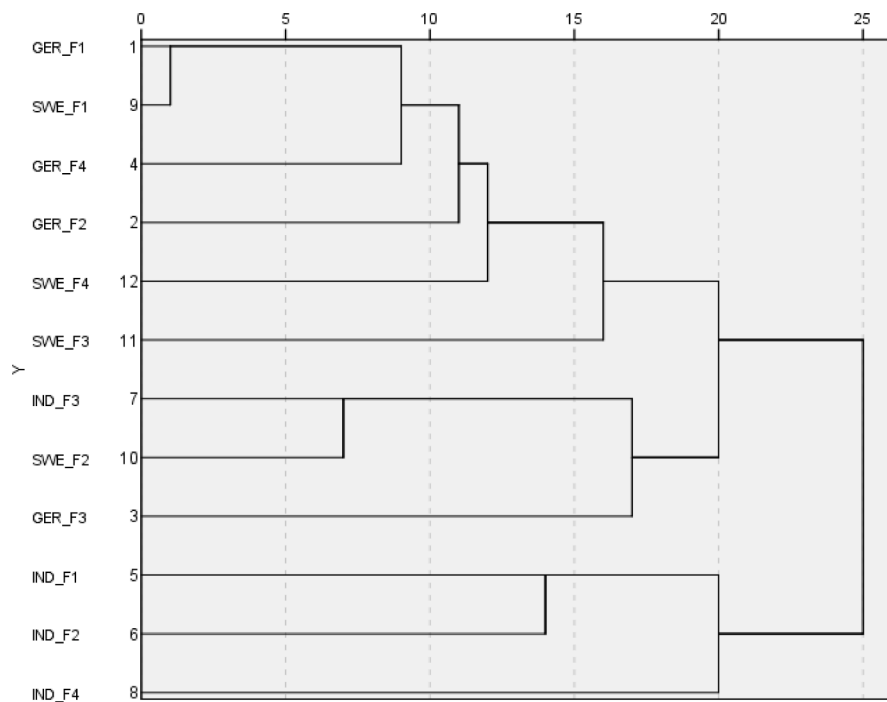

Fig. 4. Dendrogram of subjectivity clusters, Ward method.

cluster analysis. The applied cluster analysis was conducted using Ward's method with rounded values. This agglomerative hierarchical procedure generated in SPSS merges items into groups in multiple steps by creating the smallest possible additional variance. For comparison, other clustering methods such as single linkage and complete linkage were applied to the data (see Appendix IV). It became evident that all methods generated a similar classification of the items. For example, items 1, 2, 4, 9 and 12 were always sorted together into a similar cluster. The Ward method was finally chosen because its clustering fits most closely with the theoretical considerations. Since factor analysis has already produced an equal number of factors for each country, it seems reasonable to expect that the number of elements of each group in the cluster analysis will also be similar. In this case, the Ward method is a suitable fusion algorithm (Milligan, 1980). The result of this clustering is plotted on a dendrogram in Fig. 4.

The clusters show how subjectivities group together at increasing centroid distances. The first cluster exclusively consists of factor groups from Germany and Sweden; for both countries, three out of the four statistically identified subjectivities feed into the first cluster. The second cluster consists of one typal subjectivity from each of the participating countries Germany, India and Sweden. The third and last cluster

exclusively consists of typal subjectivities of the Indian cohort. These results provide new insights on the existence and power of failure learning at the societal level (see Fig. 1). The emergence of cluster 1, consisting of the majority of European opinion groups as well as of cluster 3, formed by the majority of Indian types, gives reason to maintain the existence of cultural differences of learning from failure. The respective findings will be further discussed in Section 5. However, the formation of the second cluster with a mixture of subjectivities consisting one type of each national culture clearly highlights the existence of patterns outside the respective national culture, which are rather rooted in individual differences. Also, the mixed cluster results will be further discussed in the next section.

5. Discussion

As the study aims to (1) develop a framework of typal similarities of failure learning within the national cultures of Germany, India and Sweden; (2) learn about the cultural effects on failure learning for each of the typical subjectivities, (3) gain insights for entrepreneurship educators to drive the development of programs supporting students' ability to learn from failure, we start this section with a short introduction on
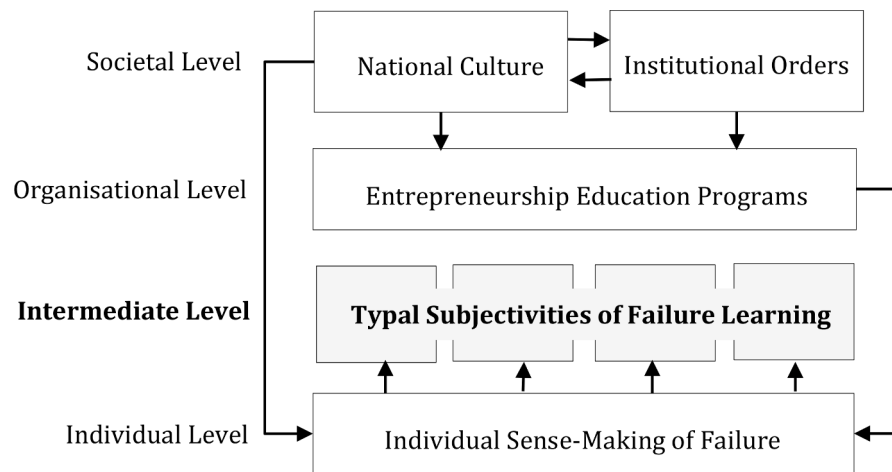
Fig. 5. Typal subjectivities bridging the gap between individual failure experiences and organisational context.

typal subjectivities of failure learning in a general sense. Thereafter, we highlight intercultural similarities yielded by the cluster analysis based on Q-sorts in order to provide insights into the antecedents of failure learning. Then we share insights into failure learning behaviour of typal subjectivities that are rather independent from the cultural stereotypes of the national cultures observed. Furthermore, we discuss the practical application of our framework in order to provide students with opportunities of failure learning as well as the application of Q methodology in the context of higher education.

5.1. Typal subjectivities of failure learning

As shown in Table 3, four individual typal subjectivities in learning from failure exist in each of the countries studied. Due to space restrictions, we focus on the culture-based failure-learning typal subjectivities rather than discussing each country-specific outcome in its full complexity. For a study of German typal subjectivities of failure learning we refer to Heinze (2019). Each of the types have different attitudes on how to make sense of failure and how to utilize the failure for the purpose of learning. It is important to state that there is no "good" or "bad" type, as each of the groups show both attitudes that help them to overcome failure as well as attitudes that may hinder learning from failure. As shown in Fig. 5, we propose that typal subjectivities are an opportunity to address attitudes towards dealing with failure experiences at an intermediate level.

At the intermediate level, typal subjectivities allow us to bridge the gap between individual perspectives that may be difficult to address in organisational settings, such as entrepreneurship education programmes, and the societal perspectives that may be too coarse-grained to address important aspects of learning from failure. For example, as stated above, the national cultures of Germany, Sweden and India express either low, average or high fear of failure. However, as our results show, each of the national cultures yields one type with higher amounts of grief and disillusion (the German Type 3, the Swedish Type 2 and the Indian Type 3) who are more likely to avoid future events that may lead to failure. This example shows how each of the country-specific typologies represents typical pattern of distinctive failure learning strategies for the respective national culture.

This short general summary of the county-specific typologies highlights the nature of new insights into the effects of failure at an intermediate level. Although the meaning of failure is constructed on a societal level, by culture and national institutional logics (Valliere, 2019; Wyrwich et al., 2016), it is important to address failure at an intermediate level in order to capture individual sense-making of failure as it is affected by direct and indirect costs, and leads to long-term effects on an individual, organisational and societal level (Klimas et al., 2021).

5.2. Culture-related subjectivities of failure learning

As shown in Table 1, Germany, India and Sweden show major differences in regard to cultural, societal and economic factors. Therefore, we were interested to see whether our data will yield similarities between the three national cultures. Our cluster analysis provides insights into the degree of similarity amongst the observed subjectivities (see Table 3). The three clusters yielded by the statistical analysis (see Fig. 4) show how subjectivities group together at increasing centroid distances. The first consists of three subjectivities from Germany and Sweden respectively, the second comprises one subjectivity from Germany, India and Sweden, and the last cluster combines three Indian subjectivities. Hence, two of the three clusters represent typal subjectivities of similar cultural backgrounds, and only one cluster is created by a mix of typal subjectivities from all national cultures. That leads us to the suggestion that national culture has a high impact on learning from failure. In the following, the first and the third cluster, representing culture-based similarities, will be presented in detail.

The first cluster exclusively consists of factor groups from Germany and Sweden; for both countries, three out of the four statistically identified subjectivities feed into that cluster. This outcome leads us to the assumption of some concurring opinions that can be based on cultural similarities. Hofstede's model of cultural dimensions has been applied to further analyse these effects. Out of all six dimensions of Hofstede's model, Germany and Sweden show similar scores only for power distance and for individualism. Both societies value equally distributed power and independence of the society's members. To explore the common ground represented in our cluster, we discuss statements with a country-specific consensus similar for both countries. Such statements address the importance of enthusiasm (statement # 19) and positive attitude (# 45), as well as the role of blame (# 24). Starting with power distance, the preference results in direct and participative communication between members of organisations or institutions. Such inclinations will likely be benefiting for failure learning, as people tend to be more open to discuss failure, whereas higher power distance, as observed in the Indian culture, leads to avoidance of the subject and hence lower learning. Turning to the highly individualistic stance that is represented in our consensus statements, in both Germany and Sweden, people are focused on looking after themselves and their direct family only. In that sense, individualistic societies have a strong belief in the concept of self-actualisation, leading to the agreement on enthusiastic behaviour and positive future orientation. Same as with power distance, the high degree of individualism leads to a communication style which is amongst the most direct in the world, aiming for honest feedback, but, on the other hand, offences will lead to the feeling of guilt and low self-esteem. These values are reflected in our group of participants by the strong and

consistent agreement on the importance of addressing causes of failure, but not blaming anybody.

Next, we analysed statements with low deviation within the cluster. Here, we again found consensus within the cluster based on the shared cultural values of low power distance and high individualism. In particular, the conviction that friends tell the truth after failure (54) seems to be based on communicative similarities. Mutual agreement on the possibility of success at the first attempt (# 26) shows common roots in the concept of self-actualisation; the same applies to the readiness to face one's own anxieties (# 34).

As presented in Table 1, Germany, Sweden and India differ much in their fear of failure. Germany is amongst the countries with very low fear of failure (only 29.5% would refrain from starting a business despite good opportunities), ranking 46th out of 50 countries. Sweden ranks 25th and reports an average fear of failure - 42.5% of people would refrain despite good opportunities. Given the very similar economic conditions in both countries, our interest to further research possible antecedents that may be linked to learning from failure has been raised. Hence, we explicitly went through our data to evaluate the opinions raised on the subject. Our study's concourse has been informed by international research on failure (including stigmatization and fear of failure) and was mostly drawn from narratives of failed entrepreneurs in Germany. In total, about 15% of the statements address issues linked to fear of failure. Petzinger (1997) claims that individualist cultures will "forgive" entrepreneurial failure "professionally", however, as both countries score similarly high on the cultural dimension of individualism, we need to look for another explanation. Cardon et al. (2011) found in their study that failure attributions in the USA vary depending on the geographical area where the failure has occurred. Further research found that fear of failure may be rooted in the perception of obstacles (Kollmann et al., 2017) or perceived failure intolerance (Stout & Annulis, 2019). Wennberg et al. (2013) discuss how fear of failure is additionally moderated by uncertainty avoidance.

Our study shows that for both Germany and Sweden fear of failure is constructed by individual attitudes and will be expressed dependant on typal subjectivities. amongst the statements addressing fear of failure, in the German cohort consensus was only found that "it is better to fail than not try at all" (statement # 50) as well as in the rejection of # 14 "I am more afraid to lose control". In contrast, the Swedish cohort not only exhibits higher fear of failure in general, there are additionally fewer distinguishing statements within the cohort. Especially the general rejection of statements # 15 "I have never felt more freedom … as I have nothing to lose anymore" as well as the agreement on # 2 "Be open, learning can also be a result of failure" highlights the balanced view on failure that is much in line with the GEM results. However, in regard to uncertainty avoidance, one would assume a higher fear of failure in Germany as Germany scores high and Sweden low. In our study the opposite is the case. Wennberg et al. (2013) propose a weak moderation effect of uncertainty avoidance on fear of failure. However, their research also shows, that high individual entrepreneurial self-efficacy may segregate against societal uncertainty avoidance. That may partly help to explain the lower fear of failure between German entrepreneurs compared to countries with similar economic factors or cultural dimensions. It is rather the case that some strong individual pattern of belief brings into entrepreneurship a certain group of people who show – on average – less fear of failure then in countries similar to Germany compared by economic factors and culture.

Second, we now turn to the third cluster, consisting of three Indian typal subjectivities. Not surprising, the statistical analysis yields some inherent characteristics of the Indian cohort's attitudes to failure learning. The concourse is dominated by India's cultural values in regard to Hofstede's (2011) cultural dimension of power distance. In contrast to Germany and Sweden, India scores high in this dimension, as it shows more regard for hierarchy and a top-down structure. People at the top holdall the power, while lower-ranking people expect direct orders. Control is not only accepted, but also seen as a provider of

psychological security (Hofstede, 2011). In that sense, achieving perfect results can never lead to failure, hence the disagreement with statement # 42. Also, failure must be avoided in process- and hierarchy-driven surroundings, as it throws a spanner in the works. Furthermore, the Indian process-driven systems require root cause analysis to avoid future failure, leading to a preference for preparedness and early warnings, as presented by the general agreement with statement # 55. Moreover, failure is rather seen as costing energy and something to be avoided in general. According to the GEM 2020, India leads the ranking of 50 countries in terms of fear of failure – a substantial 62.4% of adults would refrain from starting a business due to fear of failure. That stance is reflected in our cohort's disagreement with statement # 56 and high gratitude for having overcome the event of failure (# 29), which can be linked back to India's spiritual background and values such as humility and abstinence, which are addressed in Hofstede's (2011) indulgence dimension. Furthermore, India is considered a masculine society, valuing competition, performance, achievement and the symbolic presentation of success. Such an attitude of wanting to be the best is well represented by the agreement with statement # 27, to show strength in the event of crisis, to fight and win, also against one's own weaknesses. Another interesting consensus is presented in the disagreement with the role of luck (statement # 26), which may result from the concept of "karma" that dominates the religious and philosophical thoughts of the society and its existence in the dimension of long-term orientation. In India, we come across the fact that truth often depends on the seeker (Hofstede, 2011). To conclude, the third cluster – like the first one – shows some clear preferences that can be explained by applying Hofstede's cultural framework (Hofstede, 2011) and is in line with the GEM (Bosma et al., 2020) ranking of fear of failure.

Additionally to our cluster analysis, the qualitative analysis of our Q-sorts yielded some further consensus of statements between Germany and India as well as between Sweden and India that can be explained by some shared cultural dimensions. Hofstede (2011) considers both Germany and India as masculine societies, and both national cultures score rather low in regard to indulgence. Their shared appreciation of competition, performance, achievement and the symbolic presentation of success is well represented by the consensus with statement # 27, expressing the need to show strength in the event of crisis, to fight and win, also against one's own weaknesses. The second mutual agreement between German and Indian participants seems to be rooted in both dimensions of masculinity and indulgence. Both the German and Indian participants express gratitude for having overcome the event of failure (statement # 29). For India, this expression is also in line with the masculinity dimension, as it especially addresses India's spiritual background of a variety of deities and religious philosophies, which are often based on values of humility and abstinence. The spirituality here works as a counterbalance to the indulgence in masculine displays and clearly links the masculine dimension to the latest dimension of Hofstede's model: indulgence, defining the extent to which people are supposed to control their desires and impulses. Again, India falls into the same category as Germany; both societies show a need for self-control and thus are called "restraint". Such societies not only control the gratification of their desires through the application of social norms, but they also demonstrate a tendency towards cynicism and pessimism.

Regarding similarities between Sweden and India, Hofstede (2011) reports assimilable values in regard to uncertainty avoidance for both cultures, defined as a conviction that the future can never be known and an attitude to just let it happen. Members of Swedish as well as of Indian national culture are open to ambiguous or unknown situations. They value practice over principles, and deviance from the norm is more easily tolerated. Indian society in particular highly tolerates imperfection; tolerance for the unexpected is high and often appreciated as breaking away from the usual routines. This openness can be described using the metaphor that there's more than one way to skin a cat; success is uncertain but always possible. In our Q-sorts, such cultural consensus can be observed in the case of denial of statement 60, addressing failure
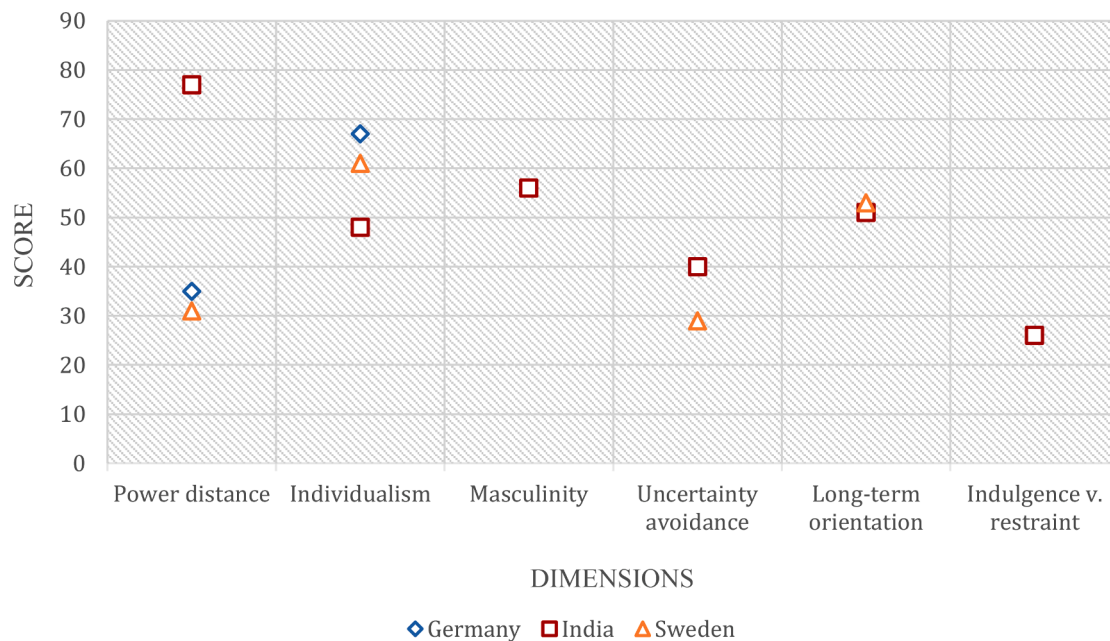
Fig. 6. Cultural dimensions affecting attitudes to failure learning.

as a precondition for success. Both the Indian and Swedish participants are open to all sorts of outcomes, whether based on success or failure. Moreover, both countries have similar values regarding long-term orientation, meaning that both take a rather pragmatic approach, which also corresponds with the given answers. This can also be seen in terms of openness to, e. g. religions, which both Sweden and India are said to have according to Hofstede's cultural model.

Fig. 6 provides an overview of the relevance of each of Hofstede's six cultural dimensions in regard to attitudes of failure learning in the three national cultures observed by our study.

The position of countries in each dimension represents their score in Hofstede's model regardless of the strength of effect on failure learning. Although all of the six dimensions can be applied to explore and explain culturally distinct attitudes to learn from failure, we also found that for four out of the six dimensions (masculinity, uncertainty avoidance, long-term orientation and restraint) this is the case only for some of the national cultures observed. Furthermore, as already mentioned is fear of failure weakly moderated by uncertainty avoidance (Wennberg et al., 2013), and our study results can support that finding for the more failure-fearing countries of Sweden and India. To conclude, our study not only yielded further evidence of the strength of cultural logics affecting the collective and individual sense-making of critical events such as failure, it additionally shows how culture affects the majority of typal subjectivities, which of the typal subjectivities show shared opinions between cultures, and on how cultural dimensions can be applied to explain attitudes of typal subjectivities.

5.3. Culture-independent subjectivities of failure learning

In the previous section we discussed the cultural similarities that exist between typal subjectivities yielded by our Q sorts. We now turn to discuss the second cluster, representing a mix of typal subjectivities from all national cultures. The mere fact that such a cluster does exist leads to the assumption of strong inherent opinions on learning from failure that are culturally independent and rooted in individual subjectivities based on personal characteristics.

The second cluster consists of three factors, one from each of the participating countries Germany, India, and Sweden. As shown in Table 1, the national cultures represented by our study differ in many regards. Although there are more similarities between Germany and

Sweden, especially in regard to the economic factors as well in religion, all three national cultures represent a different setting of cultural dimensions. There is not one dimension with similar indexes between all of the three countries. Therefore, it is very interesting to explore the formation of one cluster that is evidently built on subjectivities not fitting into the country-specific cultural stereotype. Hence, we now focus our analysis on the respective typal subjectivities. For Germany, the typal subjectivity F3 is defined by 14 significant statements and shows – in contrast to the other three German typal subjectivities – self-doubt and a greater need for security. Actively dealing with the crisis is (still) perceived as too painful and greater importance is attached to intuition. Trust in networks and relationships is damaged by the critical event, with the protection of the interests of third parties being assigned much greater importance than the strategic success potential of a relationship. Other statements, such as the high rejection of the "fail fast" principle and the only low level of agreement that failure is better than not trying at all, also point to a higher level of risk aversion combined with a fear of failure.

For the Indian typal subjectivity F3, our factor analysis yielded 15 significant statements. The group agrees on the importance of realising one's own limitations as well as overcoming self-doubt. Furthermore, they express a stronger need for safety as well as for positive future outlooks, which is in line with understanding the desire to hide after failure. Also, they are more open to accepting learning as being a result of failure, hereby addressing learning as a cognitive concept rather than an intuitive behaviour. This opinion again is in line with their denial of diaries to learn from their failure. Additionally, they care more about possible damage to third parties than the other three Indian factors. This attitude is similarly expressed by their undisturbed readiness to make commitments.

For Sweden, the second typal subjectivity is based on 9 distinguishing statements. People in this factor group share a sense of distrust against others and maybe their own ability to succeed. For these respondents, motivation is seen as important for development. Furthermore, they differ from the other Swedish types in their need for safety and demonstrate a lack in recognising success factors as well as own strengths and weaknesses. The respondents are aware of risks and appreciate support (safety devices), but they do not believe in diaries as a tool for failure learning. In general, they show less readiness to face the crucial event, to overcome its negative impact and to transform it into a

developmental experience.

Taken together, these three typal subjectivities have in common that they are singled out from their national culture pattern as described by Hofstede (2011) by their strong need for safety. In particular, the clear disagreement with the entrepreneurial approach to "fail fast, fail often" (statement # 1) is of importance for entrepreneurship education programmes. For example, courses on innovation applying the concept of "kill your darlings", may be off-putting for students belonging to that cluster. Furthermore, the typal subjectivities of the second cluster have in common a stronger need for a positive outlook, as they (still) struggle to see anything positive about failure. Independently of their cultural roots, all other typal subjectivities yielded by our Q-sorts show some ability to reflect and find internal resources of resilience to overcome failure. However, participants within the second cluster show less tendency to transform the negativity than their fellow countrypeople. In that sense, obstacles to learning such as high self-esteem or low self-passion as discussed by Shepherd et al. (2016), or the emergence of emotions as explained by Fang He et al. (2018), and cognitive and motivational obstacles to learning within narcissistic personalities found by Liu et al. (2019) are likely to exist for the typal subjectivities in this cluster.

To conclude, there may be a need to pay more attention to the opinions of three typal subjectivities unified in our second cluster to develop their ability to learn from failure. Next, we will offer some practical recommendations for entrepreneurship educators for the development of their curricula.

5.4. Recommendations for entrepreneurship educators and insights on the application of Q methodology

It has already been stated that entrepreneurship education programmes should address the development of an entrepreneurial mindset, explicitly including the ability to learn from failure (Kuratko & Morris, 2018) by depicting the soft and hard facets of entrepreneurship education (Pellegrini et al., 2021), and to teach reflective thinking as a central element (Kolb & Kolb, 2005). As entrepreneurship education programs as well as other programs in higher education nowadays are likely to include students with different cultural backgrounds, the majority of academic institutions already include intercultural competency trainings in their curricula. However, learning the soft facets of professional life requires reflection and management of emotions which is based on individual experience and rooted in personal characteristics. Obviously, an organisational setting cannot handle a range of singular cases and individual sense-making. However, our results show that at least in regard to learning from failure, we can differentiate typal subjectivities and their cultural consensus. We therefore recommend the application of these typal subjectivities in entrepreneurship education programmes to support students in their sensemaking of and learning from failure. Especially the students falling into the second cluster who tend to struggle with the failure experience can benefit from such intervention as it will help them not to feel alone and to learn new strategies on how to deal with failure. On the other hand, also the more positive or resilient types will benefit, as they can learn how to detect blind spots and pitfalls in order to avoid toxic behaviour in the future. Furthermore, they can also be taught how to use their strengths to support students with lower ability to learn from failure. In regard to intercultural settings, addressing likely commonalities and differences between the students' attitudes can support the inclusiveness of teams with high amounts of cultural diversity and therefore enhance performance. Further thoughts on the practical application of our results will be highlighted in the avenues for future research at the end of this paper.

Rieber (2020) provides a review on the application of Q methodology in learning, design, and technology. He showcases the application of Q methodology in instructional designs and differentiates between applications of *formative evaluation* and *learner analysis*. The purpose of formative evaluation is to understand student views of certain designs,

such as the flipped classroom (Ramlo, 2015). However, learner analysis aims to gain knowledge about learners in a certain audience in order to find the design most suitable for them. Schuhmacher and Montgomery (2013) show in their study how Q methodology is useful for instructors wishing to support their students by understanding how their view of themselves is an important factor affecting their work in the course. We would like to place our study into the second category, as – although we cannot claim generalisation – our results can support entrepreneurship educators to shape the design of curricula in order to take in the students' point of view and enhance their learning experience.

However, we would like to add a third possible application of Q methodology in higher education, which we will label *learning opportunity*, as the study itself has been a lesson for the student participants. During classes on entrepreneurship, we first introduced the students to theories of entrepreneurship, the entrepreneurial mindset, and the likelihood of failure. Thereafter we introduced the students to our concourse as we told them that all the statements were collected from interviews with entrepreneurs who experienced failure. The students then carried out the Q-sorts and filled in a survey about their personal interests regarding entrepreneurship. During our debriefs additional information about the sorts itself and the different opinions on several statements were shared by the students. The debriefs offered a further source for data collection that allowed us a more informed qualitative analysis of the factors yielded by the statistical procedure. Furthermore, some students did ask for a personal debrief as the topic was either interesting for them for personal or technical reasons. Hence, one of the potential applications of Q methodology in higher education is to offer a learning opportunity causing students to engage authentically with the statements. Due to the requirement to think and decide in an authentic way, students are allowed to dive deep in the subject on hand and also reflect on their true preferences, whereas with application of Likert-type surveys they may stop at the level of liking or disliking certain topics or situations. Likert-type surveys are often completed without much reflection (Serfass & Sherman, 2013) and thus provide responses of less variance, discriminatory power, or meaning (Rieber, 2020). Such problems can be avoided when Q methodology is applied, as one of its strengths is the forced sorting of statements into the sorting grid, requiring participants to rank statements relative to all other statements.

However, there are also methodological challenges to be mentioned here. Implementing Q methodology in a classroom situation takes time and effort. Although the recent development of easy-to-apply online packages such as *Q Method Software* reduces the effort for i. e. constructing the required amount of paper versions of A3 grids as well as statement cards, it has to be said that the design of the online sorting grid often invites participants to see the sorting as an exercise to fill empty boxes. That may result in sorts of low quality as students may rush through the sort as they want to save time and hence do not much reflect on different statements. Therefore, more time and effort are required to brief the students in advance of the sorts about the aim of the sort, why their viewpoints are important and how their opinion might change whatever situation is addressed by the sort. Furthermore, the students' concern of "getting it done quickly" can also lead to low commitment to deliver Q-sorts with fine distinctions between statements. Especially in the case of online sorting, our suggestion to ensure high quality of data is to check the time of duration and when in doubt remove cases with a duration conspicuously below the average of sorts. Finally, we would like to address another crucial question - the importance of a well-balanced Q-sample. Opinions on learning from failure are often rather complementary to each other rather then contrasting opinions. Therefore, students may find it difficult to rank some of those statements as they struggle to see the differences. In such cases, the researcher/educator has to be careful to offer support but not interfering with their own interpretation. This may be a challenge especially for novices in the field of Q methodology.

To sum up, Q methodology offers some major opportunities for higher education, such as its capacities for *formative evaluation, learner*

analysis (Rieber, 2020) and *learning opportunities*. However, to utilize Q methodology in order to illuminate a deeper level of the students' thinking, we have to address challenges that are either inherent with the method itself (such as the design of a well-balanced Q-sample), with students' attitudes (to save time) of with the new rise of technology in form of online platforms. For the latter we would hope for a design more likely to persuade participants to do as good as they can. As it is, the forced distribution can easily lead to a behaviour to just fill in empty spaces. Maybe the application of VR classes can bring participants closer to the real-life exercise on a big table: The VR room could be designed in a way to display items closer or farer to the avatar.

6. Conclusions

Previous studies, e.g. Heinze (2019), have shown that learning from failure seems to be mainly based on people's prior experiences and individual preferences. The value and originality of this study is three-fold: First, the study bridges the gap between personal and cultural failure-learning strategies by exploring typal subjectivities at the intermediate level. Second, we combine Q methodology with cluster analysis, which expands the potential for interpreting findings from Q methodology. Third, the study showcases the suitability and benefits of Q methodology in higher education settings as it allows revealing subjectivities and cultural preferences in regard to learning from failure.

The results are achieved based on our aims to (1) develop a framework of typal similarities of failure learning within the national cultures of Germany, India and Sweden; to (2) understand the cultural effects on failure learning for each of the typical subjectivities and (3) to gain insights for entrepreneurship educators to drive the development of programs supporting students' ability to learn from failure. Our results lead to the proposal of specific typologies of failure learning for each of the national cultures of Germany, Sweden and India. For each of the countries observed, our research yielded four typal subjectivities on how to make sense of and learn from failure.

Furthermore, our results show to which amount failure-learning strategies can be explained in the context of cultural dimensions. These results contribute to knowledge at the intermediate level by bridging the gap between individual and cultural attitudes to make sense of and learn from failure. That outcome is achieved by combining Q methodology with cluster analysis, which expands the potential for interpreting findings from Q methodology. The analysis yielded three clusters, the largest one including most of the German and Swedish participants and hence showing some European commonalities in regard to failure learning. Similarly, the third cluster consists of three Indian types. However, the second cluster comprises of one subjectivity from each national culture, and provides additional insights into a set of typal similarities that seems to exist independently from cultural background. That cluster exhibits a stronger need for support to learn from failure. The study highlights the effects of culture on failure learning, as 9 out of 12 typal subjectivities can be explained based on cultural similarities. However, the analysis also illustrates that, for each country, one out of four typal subjectivities is rooted in individual rather than cultural differences.

Furthermore, our study yielded insights for entrepreneurship educators by addressing the need to design curricula that first acknowledge cultural differences by encouraging the students' development of intercultural competencies, and second appreciate individual differences of attitudes to make sense of and learn from failure by reflection and discussion of diverse opinions. For a more general evaluation of the suitability of Q methodology in higher education we found that the method offers capacities for *formative evaluation, learner analysis* (Rieber, 2020) and *learning opportunities,* and holds challenges in regard to design of the Q-sample), to students' attitudes, and to the increasing popularity of online platforms.

The study constitutes an initial exploration of failure-learning strategies applied by students coming from different cultural backgrounds. It is therefore subject to some limitations and caveats. First, although our study covers the typal similarities of students with either German, Swedish or Indian nationality, the data collection was carried out only in Germany and Sweden. The Indian cohort consists of MBA students who were enroled in an international program at a German university. That fact that the students were in their first semester at the German university and their (potential) prior failure experiences were made in India leads us to assume their sorts are unflawed but recent exhibitions to the German culture. Second, due to our approach to involve whole cohorts of the term course, there is a gender imbalance for the Indian cohort. Although the p-set represents the actual composition of class enrolments in the program, and as Q researchers we are rather interested to identify the diversity of mind sets as to reveal potential gender differences within the typal subjectivities, future studies should prove whether gender is a determining factor to failure learning in entrepreneurship education. And third, the samples drawn from the three university programmes chosen for the research may not be indicative of viewpoints that might exist in other universities. It is possible that other institutional cultures may contain additional viewpoints.

Avenues for future research are recognised as follows: First, it would be worth investigating additional cultures to broaden our understanding of whether similar typal subjectivities exist in other cultural settings. Second, future studies should additionally direct attention to the potential effects of institutional culture on strategies for learning from failure. Third, the results of our study could serve as a foundation for developing courses in higher education to deal with personal and cultural influences and their role as enablers or barriers for learning from failure. And fourth, the country-specific failure-learning typologies resulting from our Q-study may be pooled together with the outcomes of other research methods, such as case studies and action research, to explore the impact of failure-learning strategies in organisational settings.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix I. Q-set statements

No.	Statement
1.	Fail fast, fail often.
2.	Be open, learning can also be a result of failure.
3.	Learning works best with people you get along with well.
4.	For learning to take place, I need an opportunity to reflect upon the failure.
5.	Critical events (such as failure) are important learning experiences.
6.	In the end, I can only trust myself.
7.	Things need time, short-term perspectives do not help.
8.	Consistent structures / agreements / contracts are important.

(continued on next page)

(*continued*)

No.	Statement
9.	To recognise one's limitations.
10.	I know my strengths and weaknesses and I will look for partners accordingly.
11.	Every conversation about the critical event leads to new questions and this is how I learn.
12.	Learning is a process that takes time.
13.	I lost my sense of ease; now safety comes first.
14.	I am more afraid to lose control.
15.	I have never felt more freedom and readiness to take up the fight as I have nothing to lose anymore.
16.	I'm now aware of my negative thoughts and will deal with these.
17.	The critical event forced me to learn content such as accounting, leadership, marketing.
18.	Get rid of self-doubt as it hinders finishing the critical event.
19.	When you are enthusiastic about your business / profession, you will try it again.
20.	I need some time to make sense of the failure event.
21.	Learning is to recognize conditions required for future success.
22.	Learning happens without actively addressing the critical event, i. e. through reading.
23.	Motivation is a major prerequisite for all projects.
24.	Never blame somebody for the failure, there are 1000 factors, but no one to blame for.
25.	The worst thing to do after failure is to hide oneself.
26.	If all goes well with the first try, then it's luck alone.
27.	In the event of crisis, I am stronger than I thought.
28.	After failure, I just do not get it anymore.
29.	I am just grateful I did overcome the failure event.
30.	From failure I can learn more than from success.
31.	A diary is a good tool to learn from failure.
32.	To recognize what I did right (despite the failure).
33.	Critical feedback extremely supports learning from failure.
34.	You have to face your anxieties, to look where it hurts.
35.	Failure needs a closing, such as a speech, presentation, meeting with persons concerned.
36.	A crisis is a chance and shows areas for growth and development.
37.	Look for people who are already there where you would like to be.
38.	Motivational books, podcasts or videos support my sense-making.
39.	When climbing a rock, I need to have safety devices.
40.	New projects have to be approached in a systematic manner.
41.	You have to figure out the bad ingredients, when the cake does not taste well.
42.	Perfectionism leads to failure (mostly).
43.	Not try to do it all on my own, rather I should work together with professionals.
44.	It hurts to deal with the failure.
45.	Learning is supported by a positive stance on the future.
46.	At university there is not enough opportunity to prepare for critical events.
47.	A lot of learning happens intuitively, I do not really think about it.
48.	I do not make commitments anymore.
49.	The failure is my enemy which I will defeat and hence growth from the battle.
50.	It is better to fail than not try at all.
51.	The most important thing is that no third party will get damaged.
52.	Learning from failure happens first through process routines and later intuitively.
53.	A factual and accurate decision can be emotionally wrong at the same time.
54.	Friends often do not tell the truth after failure.
55.	I have learnt to recognize early warnings and I am prepared to act in a more pro-active manner.
56.	Failure is a catalyst for new energy.
57.	My social environment has changed; true friends are still with me.
58.	Sometimes I have experienced paralyzing self-doubts.
59.	You have to accept that it's over now.
60.	Failure is not a prerequisite for success.

Appendix II. Comparison of factor models

			3 factors			4 factors				5 factors				
			f1	f2	f3	f1	f2	f3	f4	f1	f2	f3	f4	f5
GER	Average reliability coefficient		0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.8	0.8	0.8	0.8	0.8
	Number of loading Q-sorts		6.00	5.00	3.00	4.00	4.00	3.00	2.00	3.0	4.0	1.0	2.0	2.0
	Eigenvalues		3.11	2.68	1.84	2.78	2.39	1.84	1.71	2.7	2.6	1.8	1.7	1.7
	Percentage of explained variance		20.77	17.84	12.24	18.52	15.92	12.25	11.43	16.0	15.3	10.6	10.3	9.9
	Composite reliability		0.96	0.95	0.92	0.94	0.94	0.92	0.89	0.92	0.94	0.80	0.89	0.89
	Standard error of factor scores		0.20	0.22	0.28	0.24	0.24	0.28	0.33	0.28	0.24	0.45	0.33	0.33
IND	Average reliability coefficient		0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
	Number of loading Q-sorts		6.00	6.00	3.00	4.00	5.00	3.00	3.00	3.00	2.00	3.00	2.00	2.00
	Eigenvalues		1.90	1.86	1.86	1.83	1.79	1.68	1.63	1.80	1.69	1.67	1.62	1.35
	Percentage of explained variance		12.66	12.40	12.37	12.23	11.91	11.19	10.85	11.99	11.29	11.12	10.80	9.00
	Composite reliability		0.96	0.96	0.92	0.94	0.95	0.92	0.92	0.92	0.89	0.92	0.89	0.89
	Standard error of factor scores		0.20	0.20	0.28	0.24	0.22	0.28	0.28	0.28	0.33	0.28	0.33	0.33
SWE	Average reliability coefficient		0,8	0,8	0,8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
	Number of loading Q-sorts		7	5	3	5	2	3	3	3	3	3	2	2
	Eigenvalues		3.3	2.4	1.9	3.1	2.1	1.9	1.8	2.5	2.2	2.1	1.6	1.5
	Percentage of explained variance		20	15	12	19	13	12	12	15.9	13.8	13.1	10.1	9.5

(*continued*)

Composite reliability	0.97	0.95	0.92	0.95	0.89	0.92	0.92	0.92	0.92	0.92	0.89	0.89
Standard error of factor scores	0.19	0.22	0.28	0.22	0.33	0.28	0.28	0.28	0.28	0.28	0.33	0.33

Appendix III. Typal subjectivities by country

No	GER_f1	GER_f2	GER_f3	GER_f4	IND_f1	IND_f2	IND_f3	IND_f4	SWE_f1	SWE_f2	SWE_f3	SWE_f4
1.	-3	-2	-6	0	3	-6	-5	5	-5	-6	-2	-6
2.	4	-4	-1	2	1	-5	4	-1	5	3	2	2
3.	-2	-3	-2	0	-4	4	-3	-3	-3	1	-1	3
4.	2	-3	-1	1	-2	1	-4	1	3	2	1	-1
5.	3	-1	-3	-6	4	6	-1	0	4	-2	4	6
6.	-6	-5	-6	2	-3	4	-4	6	-6	6	-6	3
7.	-1	-3	-5	-1	-3	4	-1	0	-2	2	2	-4
8.	1	-3	-4	-5	1	2	0	-2	-1	0	-2	4
9.	-1	-1	-4	1	2	0	5	-3	-2	1	5	-3
10.	1	-2	1	3	-1	2	-3	4	3	-3	3	1
11.	1	-2	-1	-6	-1	5	2	3	-1	0	-1	0
12.	0	-2	0	-4	4	0	4	-2	4	4	3	-4
13.	-3	-6	1	-5	3	-3	-2	2	-4	4	2	-5
14.	-3	-5	0	-2	-2	-4	2	5	-4	4	-1	5
15.	-2	-4	0	-1	2	-1	-3	-2	-2	-4	-6	-6
16.	2	0	-2	0	0	3	-2	1	2	-3	2	5
17.	0	-1	2	-4	-5	-2	1	-1	0	-3	-3	2
18.	0	-2	-2	0	-1	-3	2	0	1	1	0	4
19.	1	0	2	2	-1	2	3	-5	0	2	2	1
20.	-1	1	4	-3	2	5	3	-4	4	0	6	-2
21.	-1	-1	-2	2	0	-1	0	4	5	-2	2	-5
22.	-4	-3	-3	0	-2	-3	1	0	-1	-1	1	-2
23.	5	1	2	4	1	-3	1	0	5	6	-2	3
24.	-3	-2	-2	-1	-2	-1	0	2	0	-1	-3	-2
25.	-1	1	-4	2	3	2	-4	0	3	3	-1	1
26.	-3	-4	-1	-4	-5	-4	-6	-2	-4	-2	-5	-2
27.	1	2	0	3	2	2	4	3	3	5	0	6
28.	-5	2	2	-5	-3	-6	-5	-6	-5	-6	-4	-4
29.	2	2	3	1	3	3	3	4	1	-1	-3	0
30.	0	5	-4	-3	1	1	-1	4	2	-3	0	-5
31.	-4	0	-5	0	4	0	-4	3	-3	-4	-2	-3
32.	1	0	4	1	2	3	2	-1	0	-1	0	0
33.	6	3	2	3	6	6	0	0	3	3	0	0
34.	2	3	-3	5	0	0	-1	1	0	-2	3	2
35.	3	0	3	0	5	0	-1	-5	-1	-4	-4	3
36.	2	1	0	3	0	2	0	-6	6	2	5	-1
37.	3	6	0	-4	5	1	-1	-5	2	-4	3	1
38.	-4	5	3	1	-3	-4	2	3	0	-5	-5	-4
39.	0	-1	3	-3	1	-4	6	-4	-1	5	-1	-1
40.	3	0	-5	6	-4	0	0	1	-3	3	-4	3
41.	-2	3	-2	4	-4	3	5	2	1	5	-1	5
No	**GER_f1**	**GER_f2**	**GER_f3**	**GER_f4**	**IND_f1**	**IND_f2**	**IND_f3**	**IND_f4**	**SWE_f1**	**SWE_f2**	**SWE_f3**	**SWE_f4**
42.	-4	1	-3	-3	-3	-5	-2	-3	-5	-5	5	-2
43.	4	0	4	-2	6	-1	-2	2	2	-3	1	-1
44.	-2	5	0	-1	4	-2	3	-1	1	4	3	0
45.	3	2	3	5	0	-3	6	2	2	3	0	1
46.	-2	4	-1	-1	-5	-2	-3	0	-3	0	1	0
47.	-2	-5	1	-2	0	0	-5	1	1	1	0	2
48.	-5	-6	2	-2	-2	-1	-6	-2	-6	-2	-3	-2
49.	2	3	1	2	-4	-2	-2	1	-4	-1	6	2
50.	6	6	5	6	0	-1	5	6	6	0	1	4
51.	5	0	5	0	-6	0	4	-4	0	1	0	-1
52.	0	2	5	3	0	1	0	-3	-3	2	-2	0
53.	5	4	1	4	-6	4	2	-4	2	0	4	2
54.	-6	-4	1	-3	-1	5	1	-1	-2	2	-4	-3
55.	0	-1	-3	1	3	1	1	5	4	1	-3	-3
56.	-1	4	-1	-2	-1	-2	0	-2	1	-6	-5	4
57.	4	3	4	-1	-2	3	1	-3	-1	-2	1	1
58.	-5	4	6	5	2	-2	-3	2	0	-1	4	-1
59.	0	2	0	-2	1	-5	-2	3	-2	-2	4	0
60.	4	1	6	3	5	1	3	-1	-2	0	-2	-3

Appendix IV. Comparison of cluster analysis
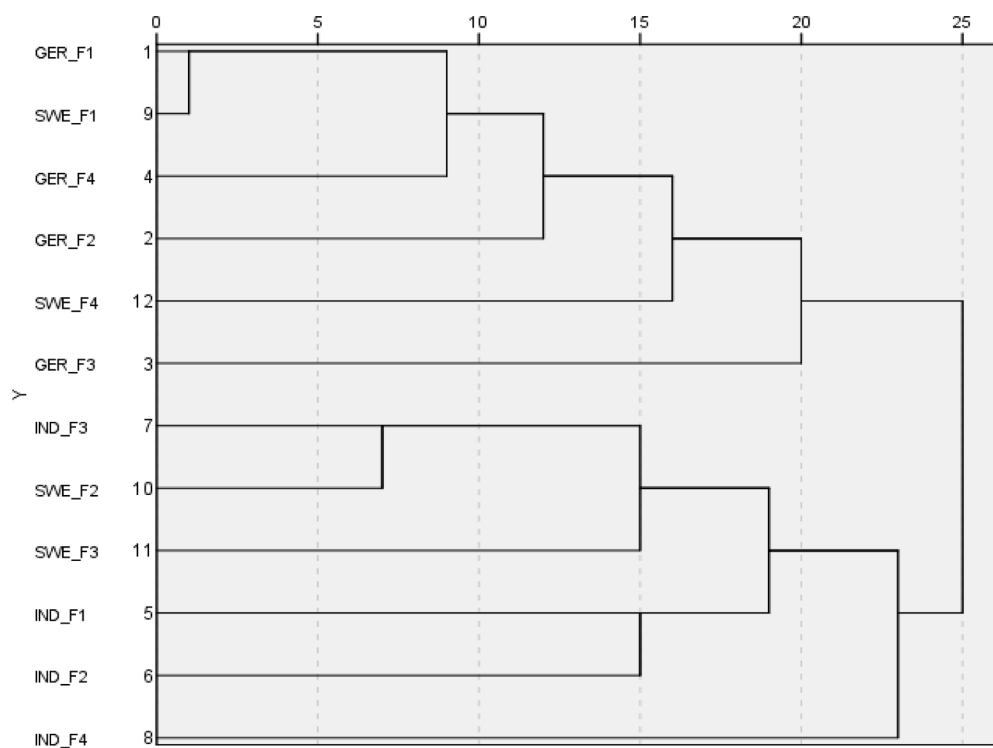
Clustering with method of complete linkage
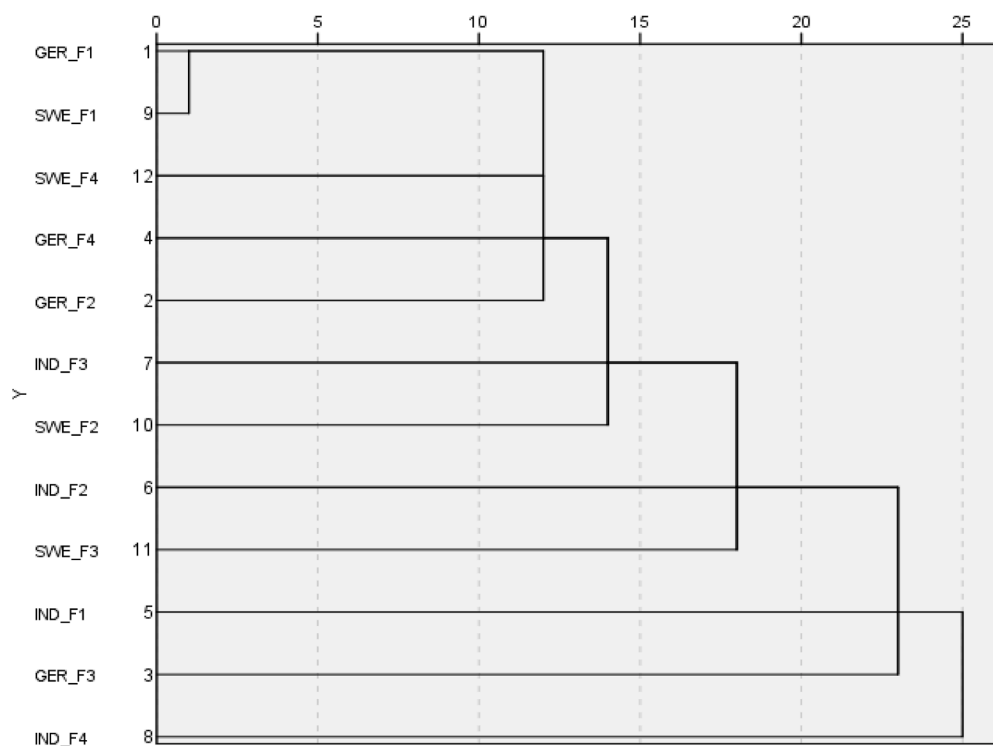
Clustering with method of single linkage

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