

Knowledge acquisition of generation Y entrepreneurs: Antecedents of entrepreneurs' learning choices

This paper seeks to explore how generation Y entrepreneurs learn; thereby identifying their learning needs, how these needs are affected by prior work and education, which sources of information are employed, and which factors are considered while selecting a source of information. In order to explore these issues, ten entrepreneurs have been interviewed using semi-structured questionnaires. Learning needs identified were grouped into six categories, in most groups the learnings needs became increasingly more specific as the startup developed. Further, the entrepreneurs' prior work experience provided useful learning that could be applied to the startup, especially when the work experience was related to the current startup and when the individual had high responsibilities within the firm, e.g. handling complex challenges. Further, the entrepreneurs' previous education provided learnings applicable to the startup operations; especially when the education was related to entrepreneurship or business management. The entrepreneurs used several sources of information; thereby network members represented the most preferred and most valuable source of information. Factors considered in the information source selection related to the quality, specificity, applicability and accessibility of provided information. Also, accessibility, time-efficiency, user-friendliness and credibility were considered factors. Further, costs involved while acquiring information were considered. However, no difference between financially constrained and financially less constrained entrepreneurs in the acquisition of information was found.

Keywords: *Entrepreneurial learning, Knowledge acquisition, Online videos, Generation Y, Financial constraints, Entrepreneurship*

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List of Abbreviations

EL: Entrepreneurial learning

MNC: Multinational corporation

OECD: Organisation for Economic Co-operation and Development

SME: Small and medium-sized enterprises

TED: Technology, Entertainment, Design

1. Executive summary

Entrepreneurs work in a fast changing, highly complex environment and thereby execute varying roles and tasks dependent on the life-cycle of the entrepreneurial venture (Frese & Gielnik, 2014). This dynamic environment demands constant learning from the entrepreneur in order to successfully explore and exploit entrepreneurial opportunities (Cope 2005b; Minniti & Bygrave, 2001). Especially younger entrepreneurs face nowadays numerous challenges (e.g. lack of work and entrepreneurship experience, lacking financial resources and limited networks) and opportunities (e.g. using social media to access information and connect to other users). Learning processes of younger entrepreneurs remain underrepresented in current literature. Especially, the antecedents of entrepreneurs' learning processes remain unexplored, e.g. *why* do entrepreneurs learn what they learn, where do they get the information from and which factors are considered in the choice of information source. This study aims to explore how younger in today's environment acquire knowledge needed for their business operations, and which factors influence the entrepreneurs' learning needs and choice of information source. Thereby, this paper employs a 'dynamic learning perspective' (Cope 2005b, p. 373) of entrepreneurship which assumes that entrepreneurs constantly learn; not only in the beginning phases but throughout the entire life-time of a venture (Cope, 2005b; Frese & Gielnik, 2014; Reuber & Fischer, 1993). A qualitative approach was used, whereby ten entrepreneurs were interviewed using semi-structured interviews. Entrepreneurs, ranged between 24 and 33 years, and hence belonged to the generation Y (a demographical cohort of individuals born between 1982 and 2004).

Findings can be grouped into four categories: (1) entrepreneurs' learning needs, (2) effects of previous education and work on learning needs (3) entrepreneurs' sources of information and (4) considered factors while choosing a source of information.

- (1) **The entrepreneurs' learning needs** depend on the life-cycle of the entrepreneurial venture and increase in specificity as the startup develops. Identified learning needs were grouped into six categories (cp. Cope 2005b). *First*, learning needs 'about oneself', e.g. time management, handling rejection or achieving work-life balance. *Second*, learnings about the business, include topics such as organisational structures, product design and process optimisation. *Third*, learning needs related to the environment and entrepreneurial networks include customer and supplier relationship management. *Fourth*, learnings related to small business management, e.g. learnings about business management and negotiations tactics. Hereby, the acquisition of IT knowledge by entrepreneurs, operating in app-related businesses, in order to better communicate with their developers was relevant. *Fifth*, learnings related to the nature of relationships, e.g. interact and working with people and understanding their behaviour. *Lastly*, funding and pitching of the product was of relevance before the launch.
- (2) **Effects of previous education and work:** Prior education: Several learnings were acquired through previous education. Hereby, the relatedness of the education to business management/ entrepreneurship and the relatedness of the degree to current startup operations was relevant to obtain helpful learnings. Prior work: Several learnings were acquired through previous work. Hereby, the responsibilities involved in previous work and the relatedness of the previous work to the current startup were relevant. *First*, respondents with more responsibilities and more complex challenges within the firm, stated that the learning were more relevant to the current startup compared to respondents with less responsibilities during their previous work. *Second*, the more related the previous work was to current business operations, the more relevant it was.
- (3) **Entrepreneurs' sources of information:** The most preferred source of information was 'network contacts'. Perceived advantages of network members as source of information were the specificity, applicability and uniqueness of information, the credibility of network members (which were mostly industry experts or practising entrepreneurs), the motivational factor of network members as role models and the high transferability of the information to own practices and hence the ability to prevent one's own mistakes. Further, all respondents used the Internet and books as information sources. Perceived advantages were low costs, accessibility

and large coverage of topics. However, perceived disadvantages related to the uncertainty to identify quality beforehand and the time needed to find specific, applicable information. Moreover, online videos, including YouTube videos and TED talks, were used by several respondents. Further, conferences were used only in the beginning and as the specificity of learning needs increased, conferences were not feasible anymore. Another source of information, workshops, seem to be a better alternative to large conferences as workshops are characterised by less people, lower costs, and more specific information.

- (4) **Considered factors while choosing a source of information:** The following factors were considered in the selection of information source: time-efficiency, quality, specificity, applicability, costs, cost-benefit ratio, accessibility, user-friendliness and credibility. Credibility was existent when experts or practising entrepreneurs provided the information. Concerning the effect of financial constraints on knowledge acquisition, it is vital to notice that most sources of information are inexpensive. Even the respondents who were financially less constrained mainly used the same sources of information to the same extent as the more constrained respondents. Reasons for this behaviour were that they did not see the value provided by the more expensive sources.

The role of reflection upon past experiences and determining actions

Especially, the respondents with prior startup experiences learned from previous successes and failures, combined with subsequent reflection. The importance of taking actions upon newly optioned information is crucial for learning effects ‘... benefits of reflection may be lost unless they are linked to action and commitment of some kind based on one’s reflective learning’ (Cope, 2005b, p. 387).

Practical implications

(1) Use of online videos for advanced training of employees; when online videos are used for advanced training of employees or within educational settings it is advisable to include subsequent reflection activities and also to determine future actions afterwards. (2) Universities as well as corporate firms are advised to establish networking events and mentoring/coaching programmes to enhance learning. (3) Aspiring entrepreneurs currently in paid employment are advised to seek high responsibilities, complex tasks that are ‘out of one’s comfort zone’ as these activities are likely to provide more relevant learnings for future startup operations. (4) As the relatedness of previous work to the startup was relevant, aspiring entrepreneurs are advised to engage in work that is related to startups (either work in startups or work related to the field of future startups). (5) Aspiring entrepreneurs engaged in education are advised to engage in a degree that is either related to entrepreneurship or to the field of the future startup.

2. Introduction

‘We now accept the fact that learning is a lifelong process of keeping abreast of change. And the most pressing task is to teach people how to learn.’ Peter Drucker

Entrepreneurs work in a fast changing, highly complex environment and thereby execute varying roles and tasks dependent on the life-cycle of the entrepreneurial venture (Frese & Gielnik, 2014). This dynamic environment demands constant learning from the entrepreneur in order to successfully explore and exploit entrepreneurial opportunities¹ (Cope 2005b; Minniti & Bygrave, 2001). Entrepreneurial activities are important for the economy as they create economic output, employment, innovation and growth (OECD, 2015).

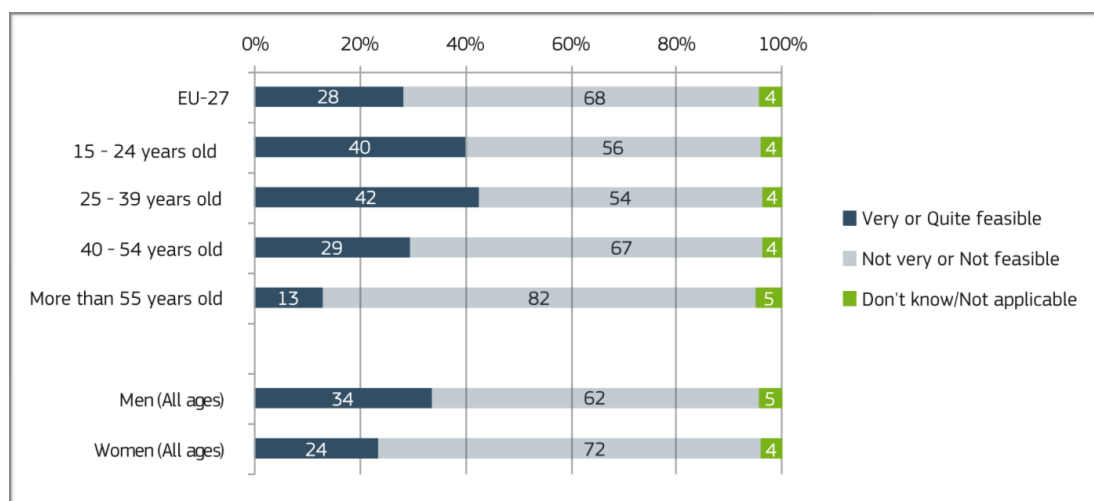
This paper focuses on entrepreneurial activities of generation Y entrepreneurs; generation Y describes a demographic cohort of individuals born between the early 1980s and 2000s (Weiler, 2004; Bolton, Parasuraman, Hoefnagels, Migchels, Kabadayi, Gruber, Komarova Loureiro & Solnet, 2013). More precisely, Strauss and Howe (2000) classify the generation Y as individuals born between the years 1982 and 2004. The focus of this study is to explore youth entrepreneurship and therefore individuals, belonging to the generation Y, between 18 and 33 years old were considered. The terms generation Y entrepreneurs and youth entrepreneurs are used interchangeably and refer to individuals between 18-33 years old. This group is of particular interest as they are exposed to different challenges and opportunities compared to entrepreneurs of older cohorts. **Challenges:** A report on youth entrepreneurship by the OECD identified six challenges youth entrepreneurs’ are likely to face when starting a business: (1) *Negative social attitudes* from important role models, e.g. parents or teachers, who do not recognise the opportunities of entrepreneurship; possibly leading to a lack of encouragements for entrepreneurial activities. (2) *Misfitting education and training programmes* that prepare students for paid employment rather than for entrepreneurship. (3) *Lacking work and entrepreneurship experience*, due to their age, younger entrepreneurs are less likely to have ‘sectoral, managerial or prior business experience’ (p. 10) and hence ‘may (...) lack the skills needed to set up or run their business’ (p.10). (4) *Lack of financial resources*, younger entrepreneurs are more likely to have low personal savings and also more difficulties in obtained debt financing. Younger entrepreneurs are more likely to score lower in these aspects). (5) *Limited networks*, youth entrepreneurs are more likely to have limited business related networks which could negatively affect startup operations. (6) *Market barriers*, due to

¹ The definition used in this paper views entrepreneurship as consisting of two related phases, *discovery* of entrepreneurial opportunities and *exploitation* of these opportunities (cp. Shane and Venkataraman, 2000). Further, ‘the term ‘exploitation’ should not be associated with the negative connotations it might have in other context. ‘Exploitation’ here refers to an opportunity being acted upon rather than merely contemplated.’ (Davidsson & Honig, 2003, p. 303).

lacking resources, younger entrepreneurs are more likely to start businesses in highly competitive industries with low entry barriers (OECD, 2015). **Opportunities:** The rise of the Internet in the past decades has altered the way information is spread; individuals are now able to create content and interact with other users (Asmussen, Harridge-March, Occhiocupo & Farquhar, 2013; Constantinides and Fountain, 2008). Web 2.0² elements, such as social networks, blogs, forums and wikis provide a great amount of information and enable individuals to create content and easily connect to other users (Constantinides, Romero & Boria, 2008). Online platforms, such as YouTube and TED.com, publish online videos covering a large variety of different topics, including business and entrepreneurship related topics (e.g. the platform TED.com displays 302 videos in the ‘business’ category and 46 videos of the topic ‘entrepreneurship’ (TED, 2016)). Moreover, crowd-funding platforms exist (e.g. Crowdcube or Startnext) where individuals can raise money for own purposes. These possibilities to easily access information, connect to other users and raise finances provided via these platforms could be valuable to young entrepreneurs who possibly lack work and entrepreneurship experience, finances and/or network contacts.

Concerning the perceived feasibility of self-employment, a study by the European Commission (EC, 2009) found that the two youngest age groups (15-24 and 25-39 years old) perceived self-employment and entrepreneurship as more feasible compared to individuals of older cohorts (respectively, 40% and 42 % indicated self-employment to be either very or quite feasible). These numbers decreased as age increased (29% of 40-52 years indicated self-employment as very or quite feasible and only 13% of individuals older than 55 years) (EC, 2009).

Figure 1: Perception of the feasibility of self-employment, 2009



Source: European Commission, 2009. *Entrepreneurship in the EU and beyond A survey in the EU, EFTA countries, Croatia, Turkey, the US, Japan, South Korea and China*, Flash Eurobarometer 283.

² Web 2.0 is defined as ‘a collection of open-source, interactive and user-controlled online applications expanding the experience, knowledge and market power of the users as participants in business and social processes. Web 2.0 applications support the creation of informal users’ networks, facilitating the flow of ideas and knowledge by allowing the efficient generation, dissemination, sharing and editing/refining of informational content’ (Constantinides and Fountain, 2008).

Comparing youth entrepreneurs to adult entrepreneurs, a larger number of youth entrepreneurs is concentrated in high competitive industries with low entry barriers. This could be a factor explaining the lower survival rates of businesses run by young entrepreneurs compared to the survival rates of businesses run by adult entrepreneurs. However, the businesses that do survive have a higher growth potential. Therefore, youth entrepreneurs have high risk but also high reward potential (OECD, 2012).

The numerous challenges and opportunities youth entrepreneurs face nowadays highlight the importance to explore learning processes of this group. Research on entrepreneurship has yielded three dominant theoretical perspectives aiming to explain the nature of entrepreneurship; the functional, personality and behavioural perspective (Stevenson & Sahlman, 1989). The *functional perspective* views the nature of entrepreneurship in an economic sense by regarding actions and responses taken by the entrepreneur in relation to his or her environment. Secondly, the *personality perspective* focuses on personality characteristics of the entrepreneur. Thereby, it is aimed at analysing ‘who’ an entrepreneur is and claims that an entrepreneur can be defined by certain character traits. Third, the *behaviour perspective* is a process-based view on entrepreneurship regarding the displayed behaviours in relation to its context (Stevenson & Sahlman, 1989; Cope 2005b). The term ‘dynamic learning perspective’, coined by Cope (2005b), describes a perspective on entrepreneurship which draws from the three perspectives mentioned above and further incorporates ‘theories and models from management, adult, and individual learning literature’ (Cope 2005b, p. 373-374). Hereby, it is recognised, contrary to the static approach of the personality perspective, that entrepreneurs constantly learn; not only in the beginning phases but throughout the entire life-time of a venture (Cope, 2005b; Frese & Gielnik, 2014; Reuber & Fischer, 1993). Entrepreneurial learning (EL) research has gained momentum since 2001, with increasing numbers of publications (Cope, 2005b; Wang & Chugh, 2014). However, academic publications in the field are ‘diverse, highly individualistic and fragmented’ depending on the perspective the respective authors take. Currently, no prevailing, universal definition of EL exists, although most definitions relate to ‘what and how individual entrepreneurs learn’ (p. 30) (Wang & Chugh, 2014). Cope (2005b) defined EL as ‘learning experienced by entrepreneurs during the creation and development of a small enterprise’ (p. 374). Politis (2005) defines EL as ‘a continuous process leading to the development of knowledge required for starting and managing a firm (p. 155). In this vein, Parker (2006) refers to EL as ‘what entrepreneurs learn about, how they learn, and why they learn.’ (p.3). Other definitions relate to the above as they include the process-based perspective of EL where an individual entrepreneur acquires, organises and applies information and knowledge to the context of the exploration and exploitation of entrepreneurial opportunities (cp.

Cope 2011; Miller 2012; Ravasi & Turati 2005; Minniti & Bygrave, 2001; Rae 2000). Minniti & Bygrave (2001) emphasise the relevance of this theoretical approach towards entrepreneurial learning stating ‘entrepreneurship is a process of learning, and a theory of entrepreneurship requires a theory of learning.’ (p.7).

Wang & Chugh (2013) differentiate between three pairs of learning types: (1) Individual and collective learning, (2) exploratory and exploitative learning and (3) intuitive and sensing learning. This paper focuses on individual learning defined as ‘the process in which individuals acquire data, information, skill or knowledge’ (Wang & Chugh, 2013, p. 36). Hereby, especially the process of accumulating a stock of knowledge in order to satisfy the individuals’ learning needs is examined. Learning needs of the entrepreneur describe what information the individual needs to obtain in order to operate his/her business (cp. Sexton Sexton, Upton, Wacholtz & McDougall, 1997; Cope 2005b). Knowledge resources ‘include the understanding of how to start up new organizations, how to manage people and processes, how to attain growth and competitive position, and how to stage technology and new product development (Brush, Greene, and Hart 2001; Wiklund and Shepherd 2003).’ (West & Noel, 2009).

2.1 Research question and goal

Learning processes of generation Y entrepreneurs remain underrepresented in current literature. Past research on entrepreneurial learning focuses on ‘what and how individual entrepreneurs learn’ (p. 30) (Wang & Chugh, 2014) but not on *why* entrepreneurs learn the way they do. Thereby, it remains unclear which factors play a role in learning processes of (young) entrepreneurs. Especially, how learning needs are influenced by factors, such as previous education or work; which sources of information are available to entrepreneurs; and which factors are considered while choosing a source of information, require exploration. Further, the unique challenges and opportunities young entrepreneurs face in today’s environment have not been explored in academic literature to date. Hereby, the role of online videos for learning purposes seems particularly interesting as these videos are inexpensive, easily accessible and offer a large variety of business-related topics.

In order to fill this research gap, this study aims to explore how generation Y entrepreneurs build their stocks of knowledge and which factors influence the entrepreneurs’ learning needs and choice of information source. The following central research question will be guiding through the paper:

How do generation Y entrepreneurs acquire knowledge needed for their business operations?

Research sub-questions

1. What information do generation Y entrepreneurs need to obtain in order to operate their businesses? (=learning needs)
2. How does the entrepreneur's previous education and work experience affect the learning needs?
3. What are sources of information available to generation Y entrepreneurs?
4. Which factors do generation Y entrepreneurs consider in the choice of information channel?
5. Do financially less constrained entrepreneurs choose more expensive information channels than financially constrained entrepreneurs?
6. Do financially constrained entrepreneurs draw more heavily on freely accessible online videos than less-constrained entrepreneurs?

Research goal

The research goal is to explore how young entrepreneurs learn, which factors influence their learning needs and choice of information source. Especially, identifying a) *generation Y entrepreneurs' learning needs*; b) *the effect of previous education and work on these learning needs*; c) *the available sources of information and considered factors in the source selection* and d) *the effect of financial constraints on source selection* are of crucial importance in order to guide entrepreneurs' learning choices during the venture creation process. Assessing the relevance of previous work and education, the effectiveness and feasibility of several knowledge acquisition channels and the need to spend money in order to obtain relevant information represents valuable insights for practicing entrepreneurs, education providers and corporate management. Research findings facilitate decision making in respect to feasible sources of information, the effectiveness of prior work and education, and how financially constrained entrepreneurs acquire information. Also, decision making in respect to the internal use of online videos for entrepreneurship education and advanced training of employees is facilitated.

The paper proceeds as follows: *first*, a literature review demonstrates entrepreneurs' learning needs, the effect of education and work experience on firm performance, entrepreneurs' learning mechanisms and the role of personal networks and online videos in knowledge acquisition. *Secondly*, the research methodology is explained, including sample selection, sample characteristics, measurements, data collection and data analysis. *Third*, findings show the respondents' learning needs, effect of prior education and work, sources of information, perceived advantages and disadvantages in the source selection and the role of financial constraints in source

selection. *Lastly*, the discussion elaborates on the key findings, research implications, limitations of the study and gives suggestions for further research.

3. Theoretical overview

3.1 The entrepreneurs' learning task: What do entrepreneurs need to learn?

This chapter seeks to elaborate on the first research sub-question: *What information do generation Y entrepreneurs need to obtain in order to operate their businesses? (= learning needs)*. Hereby, dimensions of the entrepreneurial learning task are discussed.

When referring to the entrepreneurial learning task it is vital to take two phases into consideration: (1) prior to start-up and (2) during the entrepreneurial process (Cope 2005b). (1) Prior to start-up, the prospective entrepreneur has already obtained experiences, information, learnings and knowledge throughout its lifespan. This accumulated knowledge build a 'stock of experience' which is highly individualistic as no entrepreneur has the same experiences as another. As knowledge is of accumulative nature, this stock of knowledge build the foundation for future learnings (Minnity & Bygrave, 2001; Reuber & Fischer, 1999). Entrepreneurial preparedness is defined as 'accumulated learning that individuals bring to the new venture creation process' (Cope 2005b, p. 379). The level of preparedness of the entrepreneur is hence influenced by experiences obtained prior to the venture creation. Preparing for entrepreneurship can be a proactive process whereby specific knowledge is acquired within time before the venture creation; nevertheless additional preparation for entrepreneurship occurs during the individual's life (Cope, 2001). Hence, all prior knowledge possessed by the entrepreneur shapes learning needs arising during the entrepreneurial process. Learning is crucial for entrepreneurs as it increases the abilities to execute entrepreneurial tasks and enhances the potential for venture success and personal growth through learning (Rae & Carswell, 2001). Major factors defining the entrepreneurial learning task are the entrepreneurs' understanding of his or her personal strengths and weaknesses as well as the businesses' in relation to the wider environment. This understanding requires an analysis of the current situation as well as a critical reflection from the entrepreneur. Further, the ability to look forward to see opportunities for business growth defines the entrepreneurs' learning needs (Cope 2005b). Learning required during the entrepreneurial process depends on circumstances related to the business and its environment. To use the words of Cope (2005b):

'In appreciating that the past, present, and future all impact on the entrepreneurial learning task, factors such as environment within which the business operates, the nature of business and its staff, and its concomitant level of growth will all have an appreciable role to play in

defining this learning challenge.(...) It is vital to view each entrepreneur's learning task as dynamic, contextual, and cumulative.' (Cope 2005b, p.379).

In this vein, Sexton et al. (1997) identified learning needs of growth-oriented entrepreneurs as well as preferred learning mechanisms. The authors found that learning needs of entrepreneurs vary due to differences in education and experience of the entrepreneurs as well as size and complexity of the entrepreneurial firm. Therefore, information that might be relevant for one entrepreneur would not be valued by another. In their study, entrepreneurs preferred specific and precise information taught by someone who has already experienced the same situation. The process of building a new venture involves complex tasks varying dependent on the stage of the process (Frese & Gielnik, 2014). At certain points the entrepreneur needs to take the roles such as of an innovator, manager or division vice president (Gartner, 1988). Cope (2005b) identified five key learning areas which incorporate research findings on EL:

Table 1: Content dimension of the entrepreneurial learning task

Learning about oneself: Learning issues include understanding one's strengths and weaknesses; one's changing role within the business; personal and family needs and objectives; areas for personal development; personal interests and motivations.
Learning about the business: Including strengths and weaknesses, opportunities and threats; internal business needs; requirements for growth; areas for development; understanding and facilitating one's staff; future direction.
Learning about the environment and entrepreneurial networks: Learning about how to manage relationships with existing and potential customers, suppliers, and competitors. Also about appreciating and maximizing the relationship with advisory agencies and support services such as the bank, the accountant.
Learning about small business management: Learning about how to run and control the business effectively, including important procedures and systems such as recruiting, salary and reward structures, and financial monitoring.
Learning about the nature and management of relationships: This regards both internal (to the firm) and external relationships. This final element of the learning task forms an integral part of the other four elements outlined above.

Source: Cope (2005b)

As mentioned above, learning needs of entrepreneurs build on knowledge that has been obtained through previous experiences, work or other relevant learnings. As generation Y entrepreneurs have a smaller 'stock of knowledge' due to their age and possibly limited work and entrepreneurship experience, their learning needs might be broader than the ones identified in current literature.

P1: Learning needs of generation Y entrepreneurs are more extensive than learning needs of growth oriented entrepreneurs (defined in current EL literature).

3.2 The effect of previous education and work on entrepreneurs' learning needs

This chapter sheds light on the relationship between human capital and entrepreneurial activities. The following research sub-question is elaborated on: *How does the entrepreneurs' previous education and work experience affect the learning needs?*

Human capital consists of *formal education* (e.g. university education), *informal education* (e.g. work experience), and *non formal education* (e.g. specific training courses without certificates or a specific curriculum). These types of education have the potential to increase an individual's knowledge and provide useful skills for entrepreneurs. According to human capital theory, individuals with a larger stock of human capital are better at perceiving and acting upon profitable opportunities (cp. Becker, 1964; Mincer, 1974; Polanyi, 1967). Knowledge is seen as a valuable resource as it has the potential to inform the firm about changes in the environment and thereby guides strategic decision making and actions (Cohen & Levinthal, 1990).

Past research provides several categorisations for knowledge, such as a division between *tacit* knowledge defined as 'knowing how' and *explicit* knowledge defined as 'knowing about facts and theories' (Grant, 1996, p. 111). Similarly, Minniti and Bygrave (2001) differentiate between two types of knowledge: (1) *specific knowledge* about the chosen market and (2) *general knowledge* about 'how to be entrepreneurial'. The first concerns technical issues related to the product or industry and can be acquired through direct experience, hiring experts. The latter can only be acquired through learning-by doing or direct observations (Minniti and Bygrave, 2001).

Davidsson & Honig (2003) studied the role of human capital on entrepreneurial activities among nascent entrepreneurs. Hereby, the authors focused on the frequency of gestation activities and on first sales and profitability of the startup. It was found that human capital was a predictor of which individuals would engage in nascent entrepreneurship but only weakly as to which of these individuals would successfully compete the startup process. More specifically, formal education was not found to determine the frequency of gestation activities and also not for the success of the startup during the exploitation phase, measured in sales and profit. Individuals who had previous startup experience or had taken business classes showed a higher frequency in gestation activities but no effect on sales or profitability. (Davidsson & Honig, 2003)

Past research tends to support a positive relationship between human capital and entrepreneurial activities. However, the results are inconsistent and conflicting studies exist as well. Further, findings do not offer a clear overview of which types of learning experiences are relevant to which stage of the entrepreneurial process (in Davidsson & Honig, 2003 referring to Gimeno et al.

1997). Unger, Rauch, Frese & Rosenbusch (2011) conducted a meta-analytical review of human capital research from the past three decades and found a small, but significant relationship between human capital and success ($r=.098$). Hereby, the relationship was stronger when human capital was related to current tasks of the entrepreneur (Unger et al., 2011).

P2: Task-related human capital (represented by prior education and work) negatively affects the entrepreneurs' learning needs at the beginning of the venture creation process.

3.3 Sources of information: How do entrepreneurs learn?

This chapter focuses on the sources of information available to generation Y entrepreneurs, and the possible factors considered in the choice of information channel. Research sub-questions relevant for this section are: *What are sources of information available to generation Y entrepreneurs?* and *Which factors do generation Y entrepreneurs consider in the choice of information channel?*. Further, the factor 'costs' involved in knowledge acquisitions is considered in this research. Therefore, online videos which represent an inexpensive, easily accessible source of information are highlighted. Hereby referring to the two research sub-questions: *Do financially less constrained entrepreneurs choose more expensive information channels than financially constrained entrepreneurs?* and *Do financially constrained entrepreneurs draw more heavily on freely accessible online videos than less-constrained entrepreneurs?*.

The entrepreneurs' learning mechanisms

Wang & Chug (2014) highlighted the following as learning mechanisms used by entrepreneurs: experimental learning, learning-by-doing, trial-and-error learning, learning from past experiences and learning from participation and the experience of others.

Entrepreneurial learning takes place in a contextual environment. A major claim is that 'learning is located within certain situations and contexts (Fox, 1997) and that learning is an intrinsically social process.' (Cope 2005b, p. 848). Entrepreneurial learning does not occur in isolation; rather it is embedded into external social networks. Wang & Chugh (2014) position entrepreneurial learning at the 'interface between organisational learning and entrepreneurship' (p. 24) and identified three key learning types namely, (1) individual and collective learning; (2) exploratory learning and exploitative learning; (3) intuitive and sensing learning. The first learning type refers to the question of whether learning takes place solely by one entrepreneur or within a social context. Drawing on Rae (2000) the authors conclude that EL can occur by an independent entrepreneur, within an entrepreneurial team or within an established firm. The second learning type depicts exploratory and exploitative learning which relates to the respective phase of the venture. The third learning type

relates to 'how' entrepreneurs learn, whether entrepreneurs learn 'by knowing relationships of facts through discovering possibilities' (intuitive learning) or by 'knowing facts or details based on external contacts through sights, sounds and physical sensations' (sensing learning). Finally, the authors conclude that the outcome of EL can incorporate the assimilation of new insights and behaviours, a change of existing insights and behaviours or new actions taken by the entrepreneur triggered by the new learning (Wang & Chugh, 2014).

Learning from failure

'Love the moment. Flowers grow out of dark moments. Therefore, each moment is vital. It affects the whole. Life is a succession of such moments and to live each, is to
SUCCEED' (Corita Kent)³

It is stated that entrepreneurs learn from successes and failures or any other problems or challenges that have occurred during the process of operating the business. These events in combination with the entrepreneurs' reflection upon the experience will have a greater learning effect: 'It is through reflection that experience is turned into learning' (Cope, 2005b, p. 385) (Cope 2003; Cope 2005b; Cope 2011). Learning from failure is also highlighted by Minniti and Bygrave (2001) stating that failure is as informative to entrepreneurs as success guiding future decisions and routines. Complementary, Cope (2011) points out that entrepreneurial failure represents a learning opportunity valuable for future ventures as it increases the entrepreneurs' 'level of entrepreneurial preparedness' (p. 618).

Network contacts as source of information

Referring to Lin et al. (1981) and Portes (1998), Davidsson & Honig (2003) state that social capital theory 'refers to the ability of actors to extract benefits from their social structures, networks and memberships'. Social capital describes the relationships an individual has to others. According to the strength of relationships, strong and weak ties are differentiated. Weak ties are loose relationships between individuals, whereas strong ties derive from family relationships. Strong and weak ties can provide an individual with valuable tangible and intangible resources that would otherwise be difficult to obtain (Burt, 2000; Ahuja, 2000). Davidsson & Honig (2003) studied the role of social and human capital on entrepreneurs' frequency of gestation activities during beginning phases of the venture and on first sales and profitability. As described above, they found human capital not to be a predictor for the firms' sales and profitability. However, social capital, consisting of strong and weak ties, was found to be a strong predictor for successful development of the startup and its profitability. Especially, the positive relationship between entrepreneurs who were

³ cp. Cope, 2011, p. 605

a member of a business network (Chamber of Commerce, Rotary or Lions) and the firms profits and first sales was significant.

Learning from online videos

This part highlights the value of online videos as source of information.

Generation Y, Millennials or digital natives are a few terms coined to describe the generation born between the early 1980s and 2000s. This generation is the only generation in history who was raised in a digital environment and exposed to rapidly changing new information technology (Weiler, 2004; Bolton et al., 2013). The information-seeking behaviour of generation Y students has been studied and contrasted to the mode of conduct of other generations. One study concluded that generation Y students are mainly visual learners with a high priority of saving time while seeking information (Weiler, 2004). Another study investigating the factor 'convenience' in information-seeking behaviours supports these findings. The authors suggest that convenience affects decisions with respect to academic and everyday-life information seeking. Further, convenience also influences the choice of information source, ease of use and user satisfaction. Convenience was found to be especially prevailing among subjects of generation Y, compared to subjects of older generations (Connaway, Dickey & Radford, 2011). Moreover, the response of entrepreneurs towards new information was studied. Thereby, it was found that younger entrepreneurs respond more sensitively to new information than older entrepreneurs, with response rates of 21% for young entrepreneurs compared to 14% for older entrepreneurs. Concluding that younger entrepreneurs are more likely to base their decision making on new information whereby older entrepreneurs are more likely to rely on past experience (Parker, 2006). Online videos are Web 2.0 tools which are user-generated and increasingly used for professional purposes (e.g. by educational institutions). Generally, watching online videos is widespread among youth groups. Two popular examples of online video platforms are YouTube and TED. First, YouTube is the third most visited website, after Google and Facebook (Alexa, 2015). Three-hundred hours of video are uploaded on Youtube every minute (YouTube 2015). Second, the organisation TED; the acronym is an abbreviation for Technology, Entertainment and Design reflecting the content variety of online videos displayed at the online platform. The organisation hosts conferences where presenters from various fields share their ideas in 'TED talks' with a maximum duration of 18 minutes. Since, 2006, these talks are available online on the company's website as well as on social media sites, such as Youtube. In 2012, TED talks reached the one billion view mark on the company's website, with a growth rate of an average of 17 new page views a second, adding to an average of 1.5 million views of TED talks every day, excluding the number of views on Youtube (TED 2015).

TED talks have a large variety of topics. Several concern management, leadership, ethical issues and entrepreneurship. Also, these talks are based on scientific evidence or from practising entrepreneurs. As entrepreneurs prefer to learn from experienced entrepreneurs (Sexton et al.) and do not yet have gathered own experience to base their decisions on, TED talks could represent a valuable source of information and insights into experiences made by other entrepreneurs. Several studies show the use of online videos for education purposes, however there is no mutual agreement on the effectiveness. Some studies show a larger use of online videos for educational purposes than others (Sugimoto & Thelwall, 2012). A study by Clifton & Mann (2011) explored the use of Youtube videos for nurse education. It was found that the videos had a positive effect on student engagement, critical awareness and triggered further learning. Advantages of the videos were the online accessibility and availability regardless of time and location. Further, using YouTube for teaching purposes, increased the students' attention and memory of the content (Clifton & Mann, 2011). This is supported by Mayer (2009) stating that it is easier to remember something that has been seen than heard. Advantages of online videos as source of information are the free availability, easy and convenient access and high diversity of topics. Several studies show the use of online videos for education purposes, however there is no mutual agreement on the effectiveness. Some studies show a larger use of online videos for educational purposes than others (Sugimoto & Thelwall, 2012). Research by Muhammed, Adcock and Sen (2014) examined the potential of YouTube videos as a learning tool for medical students. Hereby, it was found that the majority of videos concerning a specific topic were inaccurate and hence not recommended as a learning resource. 19.8-33% of the videos were identified as potentially useful as a learning resource. Therefore, the authors recommended the use of these videos by experts for classroom demonstration. Similarly, Clifton & Mann (2011) criticised the unregulated and possibly biased content. Comparing online videos and print media as learning tools, Merkt et al. (2011) found that the effectiveness of online videos in educational settings was comparable to print media (Merkt et al., 2011). Overall, research concerning the effectiveness of online videos compared to print media yields conflicting results. Therefore, this paper does not argue that online videos are more effective for learning purposes than print media, the advantage of online videos, however, lies in the low acquisition costs, higher convenience through easy accessibility and availability regardless of time and location.

P3: Financially constrained entrepreneurs will draw more heavily on free available online videos than less constrained entrepreneurs.

4. Research methodology

To explore the learning process of young entrepreneurs, a qualitative approach was used. Qualitative approaches are increasingly applied to social science in general since the 1980s (Huberman & Miles) and in similar vein also to the field of entrepreneurship research (e.g. Anderson and Jack, 2002; Cope, 2003; Dodd, 2002; Kisfalvi, 2002; Rae, 2000) (Berglund, 2007), several scholars highlight the importance of qualitative research within the entrepreneurship domain (Gartner and Birley, 2002; Cope 2005a). To use the words of Gartner and Birley (2002):

‘It is our opinion that many substantive issues in entrepreneurship are rarely addressed, and that many of the important questions in entrepreneurship can only be asked through qualitative methods and approaches.’ Gartner and Birley (2002).

Qualitative analysis allows to reveal ‘underlying meanings and patterns of relationships’ (Babbie, p. 394) which eventually could not be discovered to the same extent using other methodological approaches; in this study semi-structured interviews were used in combination with an analysis of online documents of the entrepreneur and the corresponding start-up to obtain deeper insights into the entrepreneurs’ learning process, its interactions and relationships with the entrepreneurs’ resources.

4.1 Sample selection

The study applies two techniques of non-probability sampling, purposive (judgemental) sampling and snowball sampling. Purposive sampling is a technique which was initially proposed by Glaser and Strauss (1967) and later modified by Strauss (1987) and Strauss and Gorbun (1990). Essentially, this technique is used to select a sample that is most appropriate to answer the given research question and fulfil the research objective (Mason, 2002). To explore the effect resources have on the knowledge acquisition process of generation Y entrepreneurs, two selection criteria were applied to entrepreneurs in order to identify the sample: *age* and *financial resources*. As entrepreneurs from generation Y were studied, the age ranges 24 from to 33. Moreover, two equal groups of resource-constrained entrepreneurs and less resource-constrained entrepreneurs were selected. Most entrepreneurs were identified through personal networks and contacting two co-working spaces in Cologne, Germany; one university incubator (Gateway) and a public incubator (Startplatz). The second technique, snowball sampling, is appropriate when it is difficult to locate certain members of a special population. Hereby, selected respondents give the researcher information to locate more members of the same population (Babbie, 2010). After the purposive sampling, several units were selected, however the number of resource-constrained entrepreneurs was not equal to less resource-constrained entrepreneurs; more resource-constrained entrepreneurs were selected. In order to

create two equal-sized groups, the later technique was applied. Hereby, one selected entrepreneur who has received several awards was aware of other entrepreneurs who have received financial resources and recommended them.

The representativeness of a study is increased by probability sampling. As this study employs non-probability sampling techniques, caution has to be paid by generalising the findings to the whole population of generation Y entrepreneurs. Hereby, a sample with equal numbers of respondents who are financially constrained as well as less constrained do most likely not represent the larger population. With the first technique (purposive sampling) a larger number of resource-constrained entrepreneurs were identified, identifying the remaining respondents with less resource constraints was more difficult.

4.2 Sample characteristics

The sample consists of ten entrepreneurs and varies in the following criteria: Age (24-33), Ø 27.8, Gender (female 30%, male 70%), Location (Germany (6), the Netherlands (1), USA (1), Guatemala (1), Hong Kong (1)), years of corporate work experience (0-6.5 years, Ø 3.26 years). Seven entrepreneurs had no previous startup experience, the remaining three had 1-2.2 years of startup experience. Five entrepreneurs were financially constrained and five were less financially constrained; the less constrained one received money from business angels, scholarships or crowd funding campaigns. The entrepreneurs differ in their level of education (relatedness to current business, number of years and obtained degree), in their work experience (relatedness to current business, number of years and positions within the firm). Three respondents had previous startup experience, these differed in the relatedness to the current business, organisational structure (existence of co-founders and number of employees), number of years and performance.

Table 2: Profile of respondents:

(1)	
<ul style="list-style-type: none"> • Founder/ CEO • Founded in 2014 • High growth aspiration • 4 employees • Uses contracting regularly • Technical services for events 	<ul style="list-style-type: none"> • Age: 25 • Location: Hong Kong, China • Educational level: Quit degree (business administration) during 2nd year • Work experience: 2 years at a student organisation (AIESEC) • Entrepreneurial experience: 2 years of previous startup experience (Online food delivery platform) • Financial constrain: Less constrained (Family network)

<p>(2)</p> <ul style="list-style-type: none"> • Founder/CEO • Founded in 2010 • Organic growth aspiration • 10 employees • Online shops for tobacco products 	<ul style="list-style-type: none"> • Age: 33 • Location: Berlin, Germany • Educational level: Bachelor in Media management, Master in Marketing, • Work experience: 4 years of work experience (online-marketing, marketing, account management) • Entrepreneurship experience: 2 years and 2 month online coaching platform • Financial constrain: Constrained
<p>(3)</p> <ul style="list-style-type: none"> • Founder/ CEO • Founded in 2014 • High growth aspiration • 7 employees • B2B and B2C App (food industry). Links supermarkets and consumers 	<ul style="list-style-type: none"> • Age: 30. • Location: Cologne, Germany • Educational level: 2 Bachelors of Art (cultural and media science), currently M.A in media science • Work experience: 2 years 7month in film production, executive assistant • Entrepreneurial experience: No previous startup experience • Financial constrain: Less constrained. Received approximately 310000 Euro through grants, awards and scholarships. Additionally, one business angel.
<p>(4)</p> <ul style="list-style-type: none"> • CEO team, 2 Founders • Founded in 2014 • High growth aspiration • 3 employees • Caffeinated beverage (product) 	<ul style="list-style-type: none"> • Age: 25 • Location: Berlin, Germany • Educational level: B.Sc. Economics • Work experience: 1.4 years of corporate work experience as project assistant (next to studies) • Entrepreneurship experience: No previous startup experience • Financial constrain: Less constrained due to business angels and successful crowd-funding campaign
<p>(5)</p> <ul style="list-style-type: none"> • CEO/ Founder • Founded in 2012 • High growth aspiration • 13 employees • Provider for personal development/performance workshops 	<ul style="list-style-type: none"> • Age: 24 • Location: Arnhem, the Netherlands • Educational level: 7th year of Bachelor in Psychology and Philosophy • Work experience: 2 years in student organisation (AIESEC) • Entrepreneurial experience: No previous startup experience • Financial constrain: Constrained
<p>(6)</p> <ul style="list-style-type: none"> • CEO team, 2 Founders • Founded in 2014 • High growth aspiration • 7 employees • Business consultancy 	<ul style="list-style-type: none"> • Age: 25 • Location: Munich, Germany • Educational level: B.Sc. Industrial Engineering (integrated degree program) • Work experience: Three years at Siemens as part of the degree • Entrepreneurial experience: Three previous startups (2012-2013) (workshops, online platform) • Financial constrain: Less constrained. Business investors.
<p>(7)</p> <ul style="list-style-type: none"> • CEO/ Founder • Founded in 2015 • High growth aspiration • 6 employees • Subcontracts suppliers • Online platform and app for fitness, health and nutrition 	<ul style="list-style-type: none"> • Age: 29 • Location: Guatemala-City, Guatemala • Educational level: Bachelor in Business Administration, MBA in Entrepreneurship • Work experience: Four years in student organisation - related to entrepreneurship (ENACTUS), Six years of corporate work experience, including executive position in MNC. • Entrepreneurship experience: No previous startup experience • Financial constrain: Constrained

<p>(8)</p> <ul style="list-style-type: none"> • CEO team, 3 founders • Founded in 2015 • High growth aspiration • 5 employees • Online B2B platform (fashion industry). Links manufacturers and retailers 	<ul style="list-style-type: none"> • Age: 28 • Location: Hamburg, Germany • Educational level: M.Sc. Industrial Engineering • Work experience: 4 years as business consultant • Entrepreneurship experience: No previous startup experience • Financial constrain: Less constrained. Two business angels and startup award (total 375.000Euro)
<p>(9)</p> <ul style="list-style-type: none"> • CEO/ Founder • Founded in 2013 • Organic growth aspiration • Sole proprietorship • Occasional outsourcing • Online job platform (focus: sustainable jobs) 	<ul style="list-style-type: none"> • Age: 30 • Location: Cologne, Germany • Educational level: B.Sc. Electrical Engineering • Work experience: 3.5 years of corporate work experience in the field of sustainability, 3 years in student organisation (AIESEC) • Entrepreneurial experience: No previous startup experience • Financial constrain: Constrained
<p>(10)</p> <ul style="list-style-type: none"> • CEO/ Founder • Founded in 2015 • High growth aspiration • 4 employees • Event organisation (fashion industry), online blog 	<ul style="list-style-type: none"> • Age: 29 • Location: Dallas, USA • Educational level: B.Sc. Business Administration, M.Sc. Marketing (2 years) • Work experience: 5 years of corporate work experience in sales, marketing and account management (including marketing at Coca Cola), 1 year in student organisation (AIESEC) • Entrepreneurship experience: No previous startup experience • Financial constrain: Constrained

4.3 Measurement and data collection

The semi-structured questionnaire consisted of five broad sub-topics. The first category, *characteristics of the entrepreneur*, concerned the previous education (no degree, non-completed degree, undergraduate degree, postgraduate degree), the relatedness of the education to the current business (unrelated, related), previous work experience (6 months, 1 year, 2 years, 3 years, greater than 3 years), previous startup experience (6 months, 1 year, 2 years, 3 years, greater than 3 years) and the relatedness of the previous work experience to the present startup operations (unrelated, related). Second, *characteristics of the firm*, covered the organisational structure of the firm (number of employees, team constellations). Third, *current learning needs*, the respondent was asked for his/her current learning needs, which was more specified by asking for specific areas the respondent needs more information to better manage his or her business. Consequently, questions concerning the *development of learning needs* with the duration of the business as well as factors influencing these learning needs were asked. In the last section, the questions were related to the *learning media* and how the entrepreneur acquires information, which channels were used and the respective motivation. Hereby, the existence and importance of the entrepreneurs' network as well as the existence and effect of financial resources were covered. In preparation for the interviews, the start-ups' website as well as online documents, such as interviews or press articles, concerning the entrepreneur were studied. Evaluating these information enhanced the knowledge of the

entrepreneur and the startup which allowed more specific and in-depth interviews. The interviews lasted from 50-70 minutes and were conducted face-to-face, using Skype and via telephone. Most questions were open and gave the respondent space for elaborations and explanations. In case of ambiguities, further questions were asked to clarify the issue. In case new topics emerged during the interview, further questions were asked.

4.4 Data analysis

Data was analysed by first grouping the statements made during the interview according to seven topics, (1) learning needs, (2) effect of previous education on learning needs, (3) effect of previous experience on learning needs, (4) effect of previous startup experience on learning needs, (5) sources of information, (6) role of personal network in knowledge acquisition and (7) factors considered during knowledge acquisition. These statements were then compared in order to identify patterns, similarities and differences among the respondents' behaviour.

5. Results

The findings are structured as follows: *first*, the entrepreneurs' learning needs are shown. *Second*, the effect of previous education and work on these learning needs. *Third*, sources of information and *fourth*, factors considered during knowledge acquisition; whereby the role of financial constraints are considered.

5.1 Learning needs

First, the respondents' learning needs were identified and how these learning needs developed from the beginning phase. Therefore, the respondents were asked which learning needs they had in the beginning and current phase of their businesses. Learning needs were specified as fields and topics the entrepreneurs had to learn in order to better operate their businesses. Further, relevant learnings the entrepreneurs had obtained during previous education and/or previous work experiences were noted. Learning needs during the startup and relevant learnings obtained during previous education and/or work were grouped according to the five content dimensions of the entrepreneurial learning task by Cope 2005b. A further category captures learning needs that did not fit in one of the defined categories.

Table 3: Content dimensions of the entrepreneurial learning task

Content dimensions of the entrepreneurial learning task cp. Cope 2005b	Learnings acquired during previous education	Learnings acquired during previous work education
1. Learning about oneself <ul style="list-style-type: none"> • Personal development (overcoming fears) B • Pricing/ Self-worth (for services) B • Time management B • Self-motivation B + G • Handling rejection G • Dealing with failure G • Work-life balance G 	<ul style="list-style-type: none"> • Time management • Presentation skills • Self-confidence 	<ul style="list-style-type: none"> • Time management • Presentation skills • Communication skills • Self-confidence • Manage complex challenges • Flexibility (problem solving) • Reflecting on failures and successes
2. Learning about the business <ul style="list-style-type: none"> • Organisational structure B + G • Business strategy B+G • Internal firm communication G • Product pricing B • Growth strategy G • Product design B • Product development G • Process optimisation G • Operational knowledge B + G 	<ul style="list-style-type: none"> • Analytical tools and skills to prevent and reduce risk • Business strategy 	<ul style="list-style-type: none"> • Business strategy • Team leadership • Team work • Innovative business models • Operational knowledge
3. Learning about the environment and entrepreneurial networks <ul style="list-style-type: none"> • Customer relationship management B • Building customer trust/retention B • Supplier relationship management B • Start-up dynamics/scene B • Start-up best-practices B 	<ul style="list-style-type: none"> • General knowledge about the business world 	<ul style="list-style-type: none"> • Customer relationship building
4. Learning about small business management <ul style="list-style-type: none"> • Entrepreneurship, business management B • Financial monitoring G • Marketing B + G • HRM (selection B, contracting B + G, dismissing B, leadership G, motivation G) • Sales B+G • Negotiation tactics G • Legal concerns G • IT B + G 	<ul style="list-style-type: none"> • Business management / Entrepreneurship • Management tools (writing analytical reports/ business plans) • Marketing knowledge and tools • Basic IT knowledge 	<ul style="list-style-type: none"> • Sales skills • Negotiation skills • Marketing tools and strategies • Financial knowledge and tools • Organisational skills • Analytical skills
5. Learning about the nature and management of relationships <ul style="list-style-type: none"> • Behavioural psychology (how people behave) B 	<ul style="list-style-type: none"> • Networking 	<ul style="list-style-type: none"> • Customer contact • Interacting with people • Working with people
Additional: Pre-launch <ul style="list-style-type: none"> • Funding B • Pitching B 	<ul style="list-style-type: none"> • Presentation skills 	<ul style="list-style-type: none"> • Presentation skills

B=Beginning phase, G=Growth phase

Learning about oneself

Learning about oneself: ‘Learning issues include understanding one’s strengths and weaknesses; one’s changing role within the business; personal and family needs and objectives; areas for personal development; personal interests and motivations.’ (Cope, 2005b, p. 380)

(1) Learning needs: The respondents stated the following learning needs that were associated with ‘learning about oneself’: First⁴, *personal development*, which can be triggered by overcoming fears. This learning field emerged in the beginning phases of the start-up referring to new challenges and situations ‘*out of the comfort zone*’ [6]. One respondent mentioned the effect of challenging and new situations on his learning process.

‘Burn the bridges behind you - So you can’t go back. [...] Jump from the cliff and hope you learn how to fly. [This behaviour] really helps to speed up learning.’ [6]

Second, *pricing/self-worth* refers to determining a price for one’s own services. Thereby, questions such as ‘*What can I ask for? What is too much? In which environment can I work for free?*’ [6] arose in the beginning of the startup. Third, *time management* refers to time-efficiency while working without corporate structures, official deadlines or supervision. This was mentioned in the beginning phases of the venture. Fourth, *self-motivation* refers to motivating oneself for work, including personal interests or setting goals. These aspects were relevant in the beginning. How to remain motivated after having received criticism or small setbacks, was relevant in further stages. Three aspects mentioned to be relevant in further stages of the business were *handling rejection*, *dealing with failure* and achieving a *work-life balance*. **(2) When asked how previous education and/or work experiences has affected the learning needs**, several learnings (including experiences, knowledge or skills) were stated. **Relevant learnings acquired through previous education:** In respect to learning about oneself, respondents mentioned that *time management*, *presentation skills* and *improved self-confidence* were learnings acquired during previous education that were helpful for current startup activities. **(3) Relevant learnings acquired through previous work:** Learnings acquired through previous work were *time management*, *presentation skills*, *communication skills*, *managing complex challenges*, *flexibility* (in respect to problem solving), *reflecting on failures and successes* and *improved self-confidence*. Managing complex challenges and flexibility in managing these challenges were highlighted by one respondent who has worked in executive positions within a MNC and hence had high responsibilities and faced complex challenges.

⁴ The order does not imply a ranking

‘I learned success depends on how to be flexible, adapt to problems, react fast and respond smart to problems.’ [7]

Further, learning from success and failure was mentioned by the three respondents who had previous startup experience. Thereby, costs, such as financial losses or damaged reputation, occurred. Two respondents stated that they had greater learnings from successes than from failure as failure only refers to a specific situation.

‘One only learns how something does not work. [...] [I] learned more from successes.’ [2]

Another respondent stated that failure in combination with subsequent reflection leads to a learning success:

‘Learning from mistakes relate to one situation. Personal growth comes afterward. Once one has reflected upon the experience.’ [6]

The last element, improved self-confidence was mentioned and referred to the ability to make more solid, rational decisions based on the experiences made. Also, believing in one’s own capabilities was helpful for the current startup:

‘I learned that it is never about having a particular skill. Every skill can be learned. It is always about what [the person] thinks [s/he is] capable of.’ [6]

Learning about the business

Learning about the business: ‘strengths and weaknesses, opportunities and threats; internal business needs; requirements for growth; areas for development; understanding and facilitating one’s staff; future direction.’ (Cope, 2005b, p. 380)

(1) Learning needs: Learning needs concerning the respondents’ own business related to the *organisational structure*, such as which business models are feasible. This was relevant in beginning and growth phases. Further, *business strategy* (relevant in the beginning and growth), *internal firm communication* (mentioned as relevant in the growth phase), *product pricing* (relevant in the beginning), *operational knowledge* (relevant in beginning and growth) and *product design* (beginning). Concerning the current learning needs, growth related topics were more relevant, such

as *growth strategies*, *product and portfolio development* and *process optimisation*. **(2) Relevant learnings acquired through previous education⁵:** Relevant learnings acquired during previous education were analytical tools to assess business performance, such as company analysis, business and growth strategies, and analytical tools and skills to prevent and reduce risk. **(3) Relevant learnings acquired through previous work:** The effect of previous work on assessing and operating the new venture were *business strategy*, experiences in *team leadership* and *team work*, *operational knowledge* and getting to know *new, innovative business models*. The last point was mentioned by a respondent who made an internship abroad and learned about innovative business models the company had in place. These learnings were integrated in the business model design of her startup.

Learning about the environment and entrepreneurial networks

Learning about the environment and entrepreneurial networks: Learning about how to manage relationships with existing and potential customers, suppliers, and competitors. Also about appreciating and maximizing the relationship with advisory agencies and support services such as the bank, the accountant.’ (Cope, 2005b, p. 380)

(1) Learning needs: Learning needs concerning the environment and entrepreneurial networks were relevant from the beginning on. Establishing and maintaining relationships to the businesses stakeholders as well as learning about other startups, practices of successful startups and about the startup scene (including networking events and support structures). The following topics were mentioned: *Customer relationship management*, *building customer trust/retention*, *supplier relationship management*, *start-up dynamics*, *start-up best-practices*. **(2) Relevant learnings acquired through previous education** Key learnings obtained during previous education were general knowledge about the business world and stakeholder relationships. **(3) Relevant learnings acquired through previous work:** Learning obtained during work was customer relationship building. Learnings mentioned in the fifth category are also related to relationships.

Learning about small business management

Learning about small business management: Learning about how to run and control the business effectively, including important procedures and systems such as recruiting, salary and reward structures, and financial monitoring. (Cope, 2005b, p. 380)

(1) Learning needs: Learning needs related to small business management arose in the beginning and growth phases of the startups. General learning about entrepreneurship and business

⁵ Acquired learnings from education and work overlap with the category ‘Learning about small business management’ and are mostly mentioned then.

management were mentioned to be relevant in the beginning, marketing (beginning and growth), sales (beginning and growth); HRM, distinguished between selection (more relevant in the beginning), contracting (beginning and growth), dismissing (beginning), leadership (growth) and employee motivation (growth). Further, financial monitoring, including cash flow management, accounting and investment, was relevant in the growth phase. Negotiation tactics became more relevant as the venture progressed.

‘[In the startup scene] are lots of sharks who want to make alliances [...]. Don’t let the shark fool you and make a win-win negotiation.’ [7]

Further, legal concerns increased as the venture grew. Three respondents (CEO/Founder, no co-founders, in app-related startups, no previous education or work related to IT) saw the need to obtain IT knowledge in order to better communicate with their employees or external parties (e.g. developers):

‘I am not a developer. It took me three years to realise that I need to understand it [basic IT knowledge] myself to better communicate and understand what is possible. In 2015 I focussed mainly on IT.’ [3].

In the same vein:

‘I didn't know a lot about the IT world. I read ‘programming for dummies’. [...] I didn't learn how to make it [app] myself [...]. I won't be a programmer, but the mindset helped me to find a programmer.’ [7]

Similarly,

‘[Obtained IT knowledge] affects how I explain processes to clients. It helps me understand graphic or web developers better, in such a way I can provide them with everything they need for a smooth project completion. I also can tell whether a good or poor job was done.’ [10]

(2) Relevant learnings acquired through previous education: Learnings helpful for the startup acquired through previous education were knowledge about *business management and entrepreneurship; management tools*, e.g. writing analytical reports or business plans; marketing knowledge and tools; basic IT knowledge.

‘Education has helped with how I approach problems, organise and prioritise them. I have also learned how to read vital stats, how to make projections, [...] how to write business, marketing plans and analytical reports.’ [10]

Similarly,

‘I am a control freak. I want to measure everything. [...] I became really good in marketing and financial analysis.’ [7].

(3) Relevant learnings acquired through previous work: Knowledge, tools and skills acquired through previous work were sales skills, negotiation skills, marketing tools and strategies, financial knowledge and tools, organisational skills and analytical skills.

Learning about the nature and management of relationships

Learning about the nature and management of relationships: This regards both internal (to the firm) and external relationships. This final element of the learning task forms an integral part of the other four elements outlined above. (Cope, 2005b, p. 380)

(1) Learning needs: Concerning relationships, the learning need mentioned in the beginning was behavioural psychology, meaning how people behave and generally understanding other people, their behaviours and motivations. **(2) Relevant learnings acquired through previous education:** Helpful learnings obtained during education was the time used for networking and the establishments of networks, in case of entrepreneurship related studies the network seemed to be more useful than in non-entrepreneurship/non business related degrees. **(3) Relevant learnings acquired through previous work:** Through their previous work, respondents gathered learnings in customer contact, generally interacting with people and working with people. Skills useful for current startup operations.

Additional: Pre-launch

Learning needs that arose before the launch of the venture could not be grouped in the categories above. The field funding and pitching, especially communicating the product to external parties, were relevant learning needs. Useful skills acquired through education and work were presentation skills.

The first proposition (Learning needs of generation Y entrepreneurs are more extensive than learning needs of growth oriented entrepreneurs (defined in current EL literature)) can be extended based on the findings. Learning needs of the entrepreneurs were broader in the beginning and became increasingly more specific as the venture developed. Learning needs defined in current EL literature can be group into five learning dimensions, this was also the case for identified learning needs of generation Y entrepreneurs. Further, one category related to prior startup activities was identified. Hence, the first proposition can be extended as follows: Learning needs of generation Y

entrepreneurs are more extensive than learning needs of growth oriented entrepreneurs, especially when prior education and/or work experience is not related to current startup operations.

5.2 The effect of previous education and work on learning needs

Two aspects determined the effect previous education and work experience had on learning needs during the startup; *first*, the relatedness of prior education and work experience to current business operations. *Second*, the amount of responsibilities, including the complexity of tasks, the individual had during prior work. First, previous education and work experience of the respondents differed; ranging from business related studies to non-business related studies, unfinished degrees to bachelor or master degrees. Also, work experience differed; from student organisations to SME's and MNC's, not related to the current startup and related to the startup. Further, three respondents had previous startups. From the 10 respondents, 3 asserted that learning from their previous studies (not business related) were not particularly helpful for current business activities; the startups operate in fields that are not closely related to the previous education. Similarly, one respondent found his previous work experience content-related not particularly helpful for his current business, only relevant soft-skills related to interactions with people were obtained; hereby, the previous work was not related to his current business activities:

'[Corporate] work experience was [content-related] not helpful for my current business operations. Would have helped if I had stayed within the organisation - but not outside.' [6]

Further, the three respondents with previous startup experience, found learnings obtained during the previous startup are most helpful for current operations, compared to learnings from previous education and work. Hereby, learnings obtained during previous startups are related to current startup operations due to the nature of startups. Second, the amount of responsibilities the individual had during prior work as well as the complexity of tasks determined how much relevant learnings for the current startup were obtained. With more responsibilities and more complex tasks, leading to greater learnings by the individual.

The second proposition (Task-related human capital (represented by prior education and work) negatively affects the entrepreneurs' learning needs at the beginning of the venture creation process.) relates to the effect prior education and work experience has on the entrepreneurs' learning needs in the beginning of the startup. It was expected that task-related education and work experience would reduce the entrepreneurs' learning needs in the early startup phases. Based on the findings, this can be confirmed as respondents with task-related education or work experience had more specific learning needs in the beginning of the startup, compared to respondents without task-related education or work. Moreover, the amount of responsibilities, including the individuals' position within the firm and complexity of tasks, the individual had during prior work affected the learning needs. Therefore, P2 needs to be extended as follows: Task-related human capital (represented by prior education and work) as well as the individual's amount of responsibilities during prior work negatively affects the entrepreneurs' learning needs at the beginning of the venture creation process.

5.3 Sources of information

When asked where the entrepreneurs obtain their information from, a variety of different information sources were mentioned. The use differs in the percentage of entrepreneurs using them, the perceived advantages and disadvantages, and the extent to which the sources were used (frequency and time).

Table 4: Perceived advantages and disadvantages of information sources

Information source	Use (%)	Perceived advantages	Perceived disadvantages	Extent (How/When?)
Internet (Online search/ wikis/ online blogs/ Facebook groups)	• 100%	<ul style="list-style-type: none"> • Broad coverage • Easily accessible • No/ low costs involved 	<ul style="list-style-type: none"> • Biased information • Diverse quality • Expenditure of time 	• Used to same extent (irrelevant of venture stage)
Books (printed/ online)	• 100%	<ul style="list-style-type: none"> • Large variety of topics • Good quality • Easily accessible • Relatively low costs involved 	<ul style="list-style-type: none"> • Expenditure of time • Not always possible to identify quality beforehand 	• Used more in beginning (20%)
Network members (Mentors, industry experts, entrepreneurs, suppliers, producers)	• 100%	<ul style="list-style-type: none"> • Specific information • Applicable/Unique • Time efficiency • Motivation (high relatedness) • High credibility of experienced entrepreneurs/experts • Reduce own mistakes 	/	<ul style="list-style-type: none"> • Preferred and most important information source (90%) • Actively invest time in networking activities (90%)

Information source	Use (%)	Perceived advantages	Perceived disadvantages	Extent (How/When?)
YouTube videos	<ul style="list-style-type: none"> • 60% 2/6: Financially less constrained 4/6: Financially more constrained 	<ul style="list-style-type: none"> • Large variety • Easily accessible • Time saving • Selectiveness • No risk (low switching costs) 	<ul style="list-style-type: none"> • Biases content • Diverse quality 	<ul style="list-style-type: none"> • Used to same extent (irrelevant of venture stage)
TED talks	<ul style="list-style-type: none"> • 60% 3/6: Financially less constrained 3/6: Financially more constrained 	<ul style="list-style-type: none"> • New perspectives • Entertainment • Inspiration • Broad overview 	<ul style="list-style-type: none"> • Superficial • Diverse quality/content 	<ul style="list-style-type: none"> • Used to same extent (irrelevant of venture stage)
Conferences	<ul style="list-style-type: none"> • 50% 2/5: Financially less constrained 3/5: Financially more constrained* (*One respondent had free access to several conferences) 	<ul style="list-style-type: none"> • Networking • Broad information • General overview 	<ul style="list-style-type: none"> • Low specificity • Low applicability • High costs involved: Opportunity costs, high switching costs, travel expenses, preparation time, accommodation 	<ul style="list-style-type: none"> • Used in beginning only
Workshops/ Webinars	<ul style="list-style-type: none"> • 50% 3/5: Financially less constrained 2/5: Financially more constrained 	<ul style="list-style-type: none"> • Quality • Specific information • Applicable • Moderate costs involved 	<ul style="list-style-type: none"> • Quality uncertain beforehand 	<ul style="list-style-type: none"> • Used occasionally (irrelevant of venture stage)
Business angels	<ul style="list-style-type: none"> • 30% 	<ul style="list-style-type: none"> • Specific advice • Industry experts • More experienced • Access to network 	/	<ul style="list-style-type: none"> • Weekly meetings (1) • Frequent phone calls (1) • Frequent meetings (1)
University events (not part of a degree)	<ul style="list-style-type: none"> • 30% 3/3: Financially less constrained 	<ul style="list-style-type: none"> • Networking • New trends • Diversity • Low/ no costs involved 	/	<ul style="list-style-type: none"> • Used occasionally (irrelevant of venture stage)
Online tutorials	<ul style="list-style-type: none"> • 20% 1/2: Financially less constrained 1/2: Financially more constrained 	<ul style="list-style-type: none"> • Easily accessible • Good quality • Low/no costs involved 	<ul style="list-style-type: none"> • No option to ask questions • Not tailored to specific needs 	<ul style="list-style-type: none"> • Used to obtain operational knowledge (programming, editing)
Academic publications	<ul style="list-style-type: none"> • 10% 1/1: Financially less constrained * (*Respondent is located at university incubator) 	<ul style="list-style-type: none"> • High quality • Low/ no costs involved 	<ul style="list-style-type: none"> • Complexity 	<ul style="list-style-type: none"> • Used sometimes (more in later venture stages)
University courses (not part of a degree)	<ul style="list-style-type: none"> • 10%* • 1/1: Financially less constrained * (*Respondent is located at university incubator) 	<ul style="list-style-type: none"> • High quality • Depths of information • Networking 	<ul style="list-style-type: none"> • Expenditure of time • Preparation and follow-up work 	<ul style="list-style-type: none"> • Used to acquire more complex IT knowledge (in later venture stages)

Most popular sources of information

Three sources used by all entrepreneurs were Internet (including general online search, wikis, online blogs and Facebook groups), books (including printed and ebooks) and network members (including mentors, industry experts, other entrepreneurs, suppliers and producers).

1. Network members

Out of these sources, 90% of respondents named *network members* to be the most valuable source of information. '*[The] very best way is to learn from a coach who is better than you.*' [5]. Mainly, because information provided were specific, uniquely and mostly directly applicable to his or her work.

'You can't reinvent the wheel. [I] take information from smart people. [...] Everybody needs mentors.' [3].

Further, the respondents could relate to other entrepreneurs as '*they have been in the same situation.*' [7] and saw a motivational aspect in talking to the entrepreneurs '*If they did it, I can do it.*' [7]. Also, experienced, practising entrepreneurs and industry experts were perceived as credible. The experiences and mistakes made by the other entrepreneurs helped some of the respondents to avoid or reduce making these mistakes themselves. Lastly, obtaining information from network members was seen as more time efficient compared to other available sources. 30% (=3) respondents had business angels; supplementary to the financial support, the business angels were seen as valuable information source and provided access to their network. Business angels were more experienced than the entrepreneurs and had greater industry insights allowing specific advice. Contact frequency ranged from one weekly meeting to frequent phone calls or meetings. From the 90% who recognised network members as most valuable information source, all actively seek to enlarge their network.

'It [keeping in touch] makes me accountable and has motivated me to learn more about their [network members] expertise.' [10]

Contact frequency to the network members varied among the respondents, some had 'mentors' referring to frequent contact whereby the mentor asked '*tough questions to reflect or reconsider business operations*' [7] or reflecting on '*what the business does or where the business is heading*' [3]. Networks developed through work (e.g. in co-working spaces, contact to suppliers), time at university, attendance of events (e.g. competitions, conferences or other meet-ups). One respondent highlighted the importance of a related network:

'It is important to have a network in the field you are actively working in.' [6]

Thereby, the network he [6] has obtained through his previous corporate work was not useful for his startup activities. However, the network that developed through activities related to his startup was valuable. No disadvantages were perceived in the use of network members as source of information.

2. Internet

'Internet' includes but is not limited to online search, wikis, online blogs, Facebook groups. All of the respondents used these online media to acquire information, the extent remained the same regardless of venture stage. Perceived advantages were the broad coverage of information, easy accessibility and low cost involvement. Perceived disadvantages included possible biased information due to user generated content, diverse quality and sometimes larger time investments needed to find relevant and useful information.

3. Books

'Books' include printed and online books. The perceived advantages were similar to using the Internet, in terms of variety, access, costs. Further mentioned was a higher quality of information identified by a book's reputation or ratings. Perceived disadvantages were time investments and the inability to identify the quality beforehand. 20% of respondents used books more in the beginning than in later venture stages, both operating online platforms.

Online videos: YouTube videos, TED talks and online tutorials

Online videos are differentiated between YouTube videos, TED talks and online tutorials. First, YouTube videos and TED talks were used by 60% of the respondents. Perceived advantages of YouTube videos were the large variety of topics/information, easy accessibility. More specifically, conferences videos were watched on YouTube, thereby speeches filmed at conferences were watched. Compared to the physical attendance of conference, advantages were time saving, as no travel costs are included. Selectiveness, as specific speeches could be watched rather than the whole conference. Low switching costs involved, when a speech was of low quality it is easier to switch to another speech compared to switching costs while physically attending a conference. Disadvantages named were possible biased content and diverse quality. Use of YouTube videos remained the same regardless of venture stage. Second, TED talks⁶, were used by an equal number of respondents; however, perceived advantages differed. TED talks were mainly watched for entertainment, inspiration, to obtain new perspectives or get a broad overview of a topic. Perceived disadvantages

⁶TED talks are not differentiated between TED, TEDx and TED-Ed.

were the superficial nature of the videos and varying quality. One respondent mentioned the need to take action once watched a video:

'It's not external it is internal - when [TED talks] make click and you start working on it. The magic is what you do with the information. [...] Most things about happiness, success and entrepreneurship are common knowledge, but it is not common practice.' [5]

TED talks were used to the same extent irrelevant of venture stage. Third, online tutorials were used by 20% of the respondents in order to obtain operational knowledge. One respondent self-taught himself programming and acquired this knowledge using online tutorials, books and websites. The other respondent used online tutorials to learn about photo editing. Perceived advantages named were easy access, low costs involved, good quality. Perceived disadvantages were the inability to ask detailed questions or obtain information concerning specific needs.

Conferences, workshops and webinars

First, 50% of the respondents attended conferences (larger than 20 people) in order to acquire information. All attended conferences in the beginning of the venture but not in later stages. Reasons were the low specificity of information provided. Larger conferences provide information at a level that most attendees are able to understand the information. Therefore, information provided at these conferences were too general for specific information needs entrepreneurs' had in further stages. Also, high costs involved hindered entrepreneurs to attend conferences over time. Costs, such as opportunity costs (e.g. lost work time, preparation time), high switching cost (e.g. leaving the conference when quality is lower than expected), travel expenses and accommodation costs.

'The calculation doesn't make sense. You invest days and don't get specific information. Networks don't fit either. [...] Have met interesting people though.' [6].

Perceived advantages were networking opportunities, broad information in the beginning to get a general overview of startup dynamics or particular topics. Second, 50 % of the respondents used occasionally, irrelevant of venture stage, either workshops or webinars. Perceived advantages were good quality, specificity and applicability of provided information and moderate costs involved, leading to a good cost-benefit ratio. Disadvantages were uncertainty of quality beforehand.

University events, courses and academic publications

University events include presentations, competitions and other events organised by a university. 30% of the respondents (3) used these events occasionally (irrelevant of venture stage) as information source. Of the respondents, one is located at a university incubator and subscribed for a degree but does not attend any courses or examinations. The other two, graduated recently and have friends who study at the universities where they attend events. Perceived advantages include networking opportunities, discovery of new trends and a large diversity of topics. Also no or low costs are involved. One respondent who is located at a university incubator used academic publications (has free access to university's database) (sometimes, increasingly in later venture stages) and university courses (not part of a degree) in order to obtain information. Perceived advantages of academic publications are high quality, low/no costs involvement. Perceived disadvantages were complexity. University courses were attended in later venture stages in order to acquire more complex IT knowledge. Perceived advantages were high quality, depths of information and networking opportunities. Perceived disadvantages were time investments arising through preparation, follow-up work and course duration.

5.4 Factors considered during knowledge acquisition: The role of financial constraints

While selecting sources of information, the entrepreneurs considered several factors: Time needed to acquire information (time efficiency), quality of information, specificity of information, applicability of information, costs involved, costs-benefit ratio, accessibility, credibility of information providers (preferred experienced entrepreneurs and experts) and user-friendliness.

'The main resource I have is time. If i sign up for something it has to be good. Title [or] certification don't matter.' [7]

50% percent of the respondents were financially constrained and the others were less constrained (received money from e.g. business angels, crowd-funding, awards and/or sponsorships). However, there was no difference in source selected based on the financial situation. The entrepreneurs who were less constrained did not spend the money on knowledge acquisition. Rather, they used the money for the development of the venture, e.g. for product development, marketing, personnel or contracting. The main arguments therefore were that not much money is not needed to acquire valuable information.

‘I had no money, and I had money. This didn't influence how much I spend. Generally, I didn't spend a lot cause the ones that pinch money from you are not good. [...] Finances affected my productivity. [...] Less finances - more pressure - higher productivity.’ [6 - less constrained]

‘One doesn't need so much money [to acquire information]. [...] [I] address network [members] first to save money.’ [4 - less constrained]

Two of the entrepreneurs who had less money stated that it is not necessary to spend much money to acquire information. They preferred to acquire information via their network or online. Further, two stated that money should not be the largest concern:

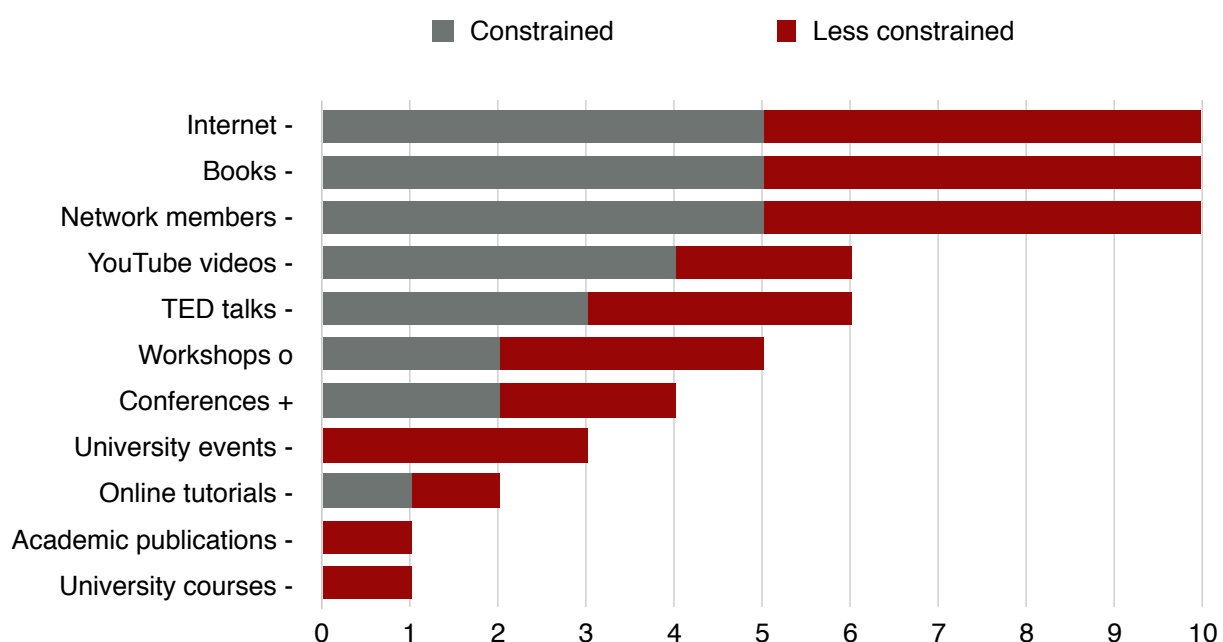
‘Money shouldn't be the biggest problem. If it's reasonable you can find the money.’ [7 - more constrained]

‘The money [I made], I spend on education. [The] most important asset of being an entrepreneur is yourself.’ [5 - more constrained]

Further, one financially constrained respondent stated that some channels are not feasible due to the costs involved:

‘There are some seminars I simply can't attend due to price but it also motivates me to find alternatives or directly reach out to experts.’ [10 - more constrained]

Figure 2: Source selection of financially constrained and less constrained entrepreneurs



As the chart⁷ above displays, there is no general pattern showing differences between constrained and less constrained entrepreneurs when choosing sources of information. Therefore, the **third proposition** (Financially constrained entrepreneurs will draw more heavily on free available online videos than less constrained entrepreneurs) has to be discarded as both groups of entrepreneurs use online videos almost to the same extent.

6. Discussion

6.1 Learning needs of generation Y entrepreneurs

Learning needs of generation Y entrepreneurs can be grouped into six categories; five according to Cope's content dimension of the entrepreneurial learning task and a further category relating to the phase prior to startup. *First*, learning needs 'about oneself' were relevant in the beginning and growth phases of the startup. Hereby, overcoming fears was challenging to young entrepreneurs when they faced unknown situations. Experiences made during prior work and education whereby the individual had to overcome challenges, take responsibilities, handle new situations or complex tasks had a positive effect on the personal development and self-confidence which was transferrable to startup activities. Further, reflection upon past failures and mistakes lead to learnings which could be used for further operations. Cope (2005b) also underlined that learnings occur only if the individual reflects upon critical events and takes actions. *Second*, learnings about the business were relevant in the beginning and growth phases of the business, learning needs reached from organisational structures, product design and pricing in the beginning to growth-related issues, such as growth strategies, product development and process optimisation in further stages. Hence, learning needs became increasingly more specific. *Third*, learning needs related to the environment and entrepreneurial networks were relevant from the beginning on; customer- and supplier relationship management was relevant to build customer trust and customer retention. Also, customers and suppliers acted as a valuable source of information and as co-developers of products and services. *Fourth*, learning related to small business management was relevant in beginning and growth stages. Similarly to the second category, learning needs developed from general, such as business management, to more specific practices; e.g. in the beginning general sales techniques were relevant, in further stages specific negotiation tactics were needed. Also, in the case of HRM, the learning needs became more specific. Where in the beginning selection and dismissing was relevant, in growth stages leadership and employee motivation was important. Another relevant

⁷One respondent had free access to several conferences and was excluded from the statistics because conferences are categorised as more expensive source of information. Without the free access, the respondent would have not been able to attend the conferences.

aspect was the acquisition of IT knowledge by entrepreneurs, operating in app-related businesses, in order to better communicate with their developers. *Fifth*, learnings related to the nature of relationships were mentioned to be relevant from the beginning on in order to interact and work with people and better understand why they behave in certain ways. This category influences stakeholder relationships as well. *Additionally*, how to fund a business and communicate the product to external parties was of relevance before the launch.

6.2 Antecedents of entrepreneurs' learning needs: The effect of previous education and work

(1) Relevant learnings acquired through previous education ranged from skills, such as time management and presentation skills, to improved self-confidence due to having a more solid base for decision making. Further, general knowledge about business practices as well as analytical tools to assess the current business performance were obtained. Also, operational knowledge, such as IT basics, was obtained during a previous degree and could be applied during startup operations.

Hereby, two relevant aspects appeared: (1) the relatedness of the degree to business management and (2) the relatedness of the degree to current startup operations; whereby the previous education was seen as more helpful when it was related to either business studies or to the field the startup is operating in. Also, the network established during the course of obtaining a degree was more relevant when the degree was related to entrepreneurship.

(2) Relevant learnings acquired through previous work ranged from skills, such as time management, organisation skills, presentation and communication skills, to more self-confidence due to experiences with managing complex challenges. Further, applied knowledge about business strategy, business models, team leadership, team work, and customer relationship management could be obtained. Also, operational knowledge and skills, including sales, marketing and financial topics were acquired. Especially, the respondents with previous startup experiences learned from previous successes and failures, combined with subsequent reflection.

Hereby, two relevant aspects appeared: (1) the responsibilities involved in previous work and (2) the relatedness of the previous work to the current startup. *First*, respondents with more responsibilities and more complex challenges within the firm, stated that the learning were more relevant to the current startup compared to respondents with less responsibilities during their previous work. *Second*, the more related the previous work was to current business operations, the more relevant it was. Whereby, previous startup experience was more related to current operations; respondents with corporate work experience and previous startup experience stated that the

learnings from the previous startup were more relevant to current operations than learnings from corporate work.

6.3 Generation Y entrepreneur's sources of information

The most preferred source of information was 'network contacts'. 90% of the respondents saw their personal network as most important and most preferred source of information. Accordingly, they actively invested time in order to enlarge their network. Perceived advantages of network members as a source of information were the specificity, applicability and uniqueness of information, the credibility of network members (mostly industry experts or practising entrepreneurs), the motivational factor of network members as role models and the high transferability of the information to own practices and hence the ability to prevent one's own mistakes. Several respondents referred to network members as 'mentors' and had frequent conversations with these mentors; these frequently from weekly meetings to contact depending on necessity. Activities with the mentors included reflecting upon business operations, developments and business environment to receiving advice concerning business related topics. Further, all respondents used the Internet and books as information sources. Perceived advantages were low costs, accessibility and large coverage of topics. However, perceived disadvantages related to the uncertainty to identify quality beforehand and the time needed to find specific, applicable information. Moreover, online videos, including YouTube videos and TED talks, were used by several respondents. However, it was mentioned that these videos were mainly used in order to obtain a broad overview of a topic or as inspiration but not to learn particular things. It was mentioned that taking actions after watching an online video is crucial to have a learning effect. The importance of taking action in learning processes is underlined by Cope (2005b) '(...) benefits of reflection may be lost unless they are linked to action and commitment of some kind based on one's reflective learning' (p. 387). Therefore, watching online videos in combination with subsequent reflection and taking actions will lead to learning outcomes. Further, conferences were used only in the beginning and as the specificity of learning needs increased, conferences were not feasible anymore. Hereby, perceived advantages were networking opportunities and obtaining a general overview. Perceived disadvantages were high costs involved and low specificity and applicability of information provided. Another source of information, workshops, seem to be a better alternative to large conferences as workshops are characterised by less people, lower costs, and more specific information. Workshops were used occasionally by several respondents. Further, university events, online tutorials, academic publications and university courses (not part of a degree) were used as sources of information by a small number of respondents.

Factors considered during choice of channel

The following factors were considered in the selection of information source: time-efficiency, quality, specificity, applicability, costs, cost-benefit ratio, accessibility, user-friendliness and credibility. Credibility was existent when experts or practising entrepreneurs provided the information. This is in consistent with Sexton et al. (1997) stating that entrepreneurs ‘prefer learning experiences that are short, to the point, content oriented, and taught by practicing professionals’ (p.1). Concerning the effect of financial constrains on knowledge acquisition, it is vital to notice that most sources of information are inexpensive. From the identified sources, one involved higher costs (conferences) and one moderate costs (workshops), the other nine⁸ sources are rather inexpensive. Whereby university courses and academic publications could be obtained without costs as the respondent was located at a university incubator and had free access to these channels. Even the respondents who were financially less constrained mainly used the same sources of information to the same extent as the more constrained respondents. Reasons for this behaviour were that they did not see the value provided by the more expensive sources.

6.4 Research implications

Theoretical implications

First, it was identified that learning needs of generation Y entrepreneurs are mainly covered by the five dimensions proposed by Cope (2005b). A further category refers to learnings required before starting the business, such as funding and communicating the product to potential investors or other external parties. Also, a development of learning needs dependent on stage of the venture has been identified, with more specific learning needs in some categories as the startup developed. *Second*, the importance of relatedness of previous education to business management/entrepreneurship and the relatedness of prior education to the field the startup is operating in, as well as the importance of the relatedness of previous work to current business operations, and the amount of responsibilities involved in previous work was identified. *Third*, sources used by entrepreneurs to acquire information have been identified as well as reasons for choosing these media; therewith contributing to closing the research gap *why* entrepreneurs learn what and how. *Further*, it was shown that there is no effect of financial constraints on source selection due to the low perceived value of more expensive sources of information, and the large availability of low-cost information sources, and the entrepreneur’s decisions to invest their money in business development rather than in learning activities.

⁸excluding business angels as they are seen as network contacts

Practical implications

First, regarding the use of online videos for advanced training of employees; online videos cover a large variety of topics. When they are used for advanced training of employees or within educational settings, it is advisable to include subsequent reflection activities and also to determine actions afterwards. Without reflection and actions, watching online videos is less likely to have a learning impact (cp. Cope 2005b). *Second*, universities as well as corporate firms are advised to establish networking events and mentoring/coaching programmes to enhance learning. *Third*, aspiring entrepreneurs currently in paid employment are advised to seek high responsibilities, complex tasks that are ‘out of one’s comfort zone’ as these activities are likely to provide more relevant learnings for startup operations. *Fourth*, as the relatedness of previous work to the startup was relevant, work that is related to startups (either work in startups or work related to the field of future startups) is advisable. *Fifth*, aspiring entrepreneurs engaged in education are advised to engage in a degree that is either related to entrepreneurship or to the field of the future startup. *Sixth*, in case of successes and failures, it is recommended to reflect upon these experiences and determine actions in order to obtain learnings from these (critical) events. *Further*, in respect to entrepreneur’s knowledge acquisition channels: establishing and maintaining a network related to the startups’ environments is beneficial. Conferences provide networking opportunities in the beginning but do not yield specific learning in growth phases of the venture.

6.5 Research limitations and future research

Limitations

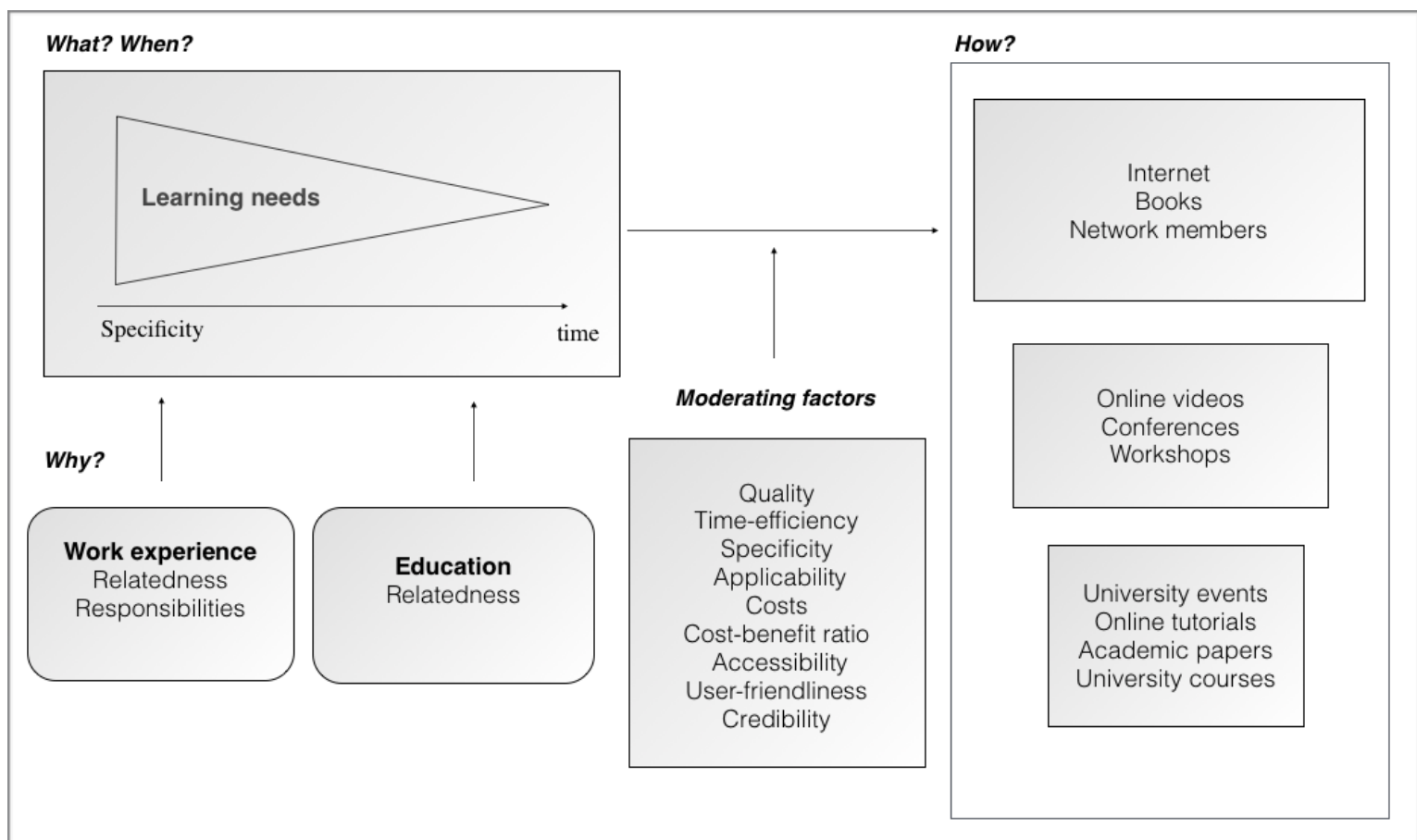
Limitations of the present study are the relatively small sample size. Also, a semi-structured questionnaire was used. Hereby, it was openly asked which information sources the respondents used; however, a list of possible sources was not presented. It is therefore possible that certain sources were used by a respondent but not mentioned in the interview. Further, beginning and growth phases differed among the respondents as the businesses did not have the same age. Moreover, online videos were not differentiated according to specific channels, e.g. YouTube videos were not grouped into topics or channels (e.g. channels by universities or entrepreneurs) and TED talks were not distinguished between TED, TEDx and TED-Ed.

Future research

Further research could more specifically identify the learning needs of entrepreneurs using quantitative survey measures. Hereby, a larger sample of entrepreneurs with differences in education (business related, non-business related), work experience (varying positions and

responsibilities within the firm) and startup experience (success of previous business, relatedness) could be used to obtain greater insights in the effects these factors have. Further, the entrepreneurs' role within existing team structures and the effect on learning needs could be explored (e.g. does the existence of co-founders reduce learning needs). Moreover, differences in growth aspirations, e.g. aiming for high, medium or organic growth, could affect the learning needs and sources of information, and are worth exploring in future research on EL. Also, the relationship between entrepreneurial learning activities and firm performance has not been elaborated. This could represent an interesting field of research.

Figure 3: The elements involved in entrepreneurs' knowledge acquisition process



7. Conclusion

The purpose of this paper has been to elaborate how generation Y entrepreneurs acquire knowledge needed for their business operations. The elements involved in the entrepreneurs' knowledge acquisition process are displayed in the figure above. Entrepreneurs operating in today's environment have access to a large variety of online and offline information sources, providing a learning environment where information can be obtained without large cost involvement's. The entrepreneurs' learning needs develop dependent on the life-cycle of the entrepreneurial venture and increase in specificity; also these learning needs are affected by previous work and education. Entrepreneurs use a variety of different information sources, several advantages and disadvantages are associated with the respective sources; hereby, several factors were considered in the choice of information source.

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10. Appendix

Questionnaire

1. Entrepreneur characteristics
Name
Age
Previous education (in years and degree; field of studies)
Previous corporate working experience (in years, field, position)
Previous start-up experience (in years, business field)
Other work experience (in years, field, position)

2. Firm characteristics
Name
Founded
Number of employees
Team constellation (Do you work in a team?)
Growth aspiration (level of growth - low, medium, high)

Definition learning needs: Fields and topics the entrepreneurs had to learn in order to better operate their businesses.

1. Learning needs (current and development)

- What are your current learning needs? In which areas do you need more information to better operate your business?
- Have you experienced different learning needs over time? Were other fields more relevant in the beginning? Do you expect other learning needs to arise in the future?
- Were there certain periods where you invested more time into learning activities and knowledge acquisition?
- Which factors affected your learning needs?
- How has your education and/or work/ startup experience affected your knowledge acquisition process? (What you needed to learn (topics) and where you got these information from?)

2. Knowledge acquisition

- How do you acquire knowledge to fulfil existing learning needs? Which channels do you use?
- What is your preferred learning media?

- Which factors are important to you during the knowledge acquisition process?
- What amount of financial resources do you have available for knowledge acquisition (low, medium, high) and how does that affect the knowledge acquisition? (e.g. which channel you use)

3. Network

- Do you have a network of people with expertise related to your business?
- How has your network developed?
- Did you invest time to enlarge your network?
- How has your network affected your learning needs and channels?

4. Outcome

- In which areas does knowledge affect your behaviour? Can you provide me with an example?

5. Concluding remarks

- Do you have any other comments regarding your knowledge acquisition process?

Key elements of interviews

#	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Organisational structure	<ul style="list-style-type: none">• Founder/ CEO• High growth aspiration• 4 employees• Regular contracting• Technical services for events	<ul style="list-style-type: none">• Founder/CEO• Organic growth aspiration• 10 employees• Online shop for tobacco products	<ul style="list-style-type: none">• Founder/ CEO• High growth aspiration• 7 employees• B2B and B2C App (food industry). Links supermarkets and consumers	<ul style="list-style-type: none">• CEO team, 2 Founders• High growth aspiration• 3 employees• Caffeinated beverage (product)	<ul style="list-style-type: none">• CEO/ Founder• High growth aspiration• 13 employees• Provider for personal development/ performance workshops	<ul style="list-style-type: none">• CEO team, 2 Founders• High growth aspiration• 7 employees• Business consultancy	<ul style="list-style-type: none">• CEO/ Founder• High growth aspiration• 6 employees• Subcontracts suppliers• Fitness/Health app	<ul style="list-style-type: none">• CEO team, 3 founders• High growth aspiration• 5 employees• Online B2B platform (fashion industry). Links manufacturers and retailers	<ul style="list-style-type: none">• CEO/ Founder• Organic growth aspiration• Sole proprietorship• Occasional outsourcing• Personal recruiting website	<ul style="list-style-type: none">• CEO/ Founder• High growth aspiration• 4 employees• Event organisation (fashion industry), online blog
Learning needs <ul style="list-style-type: none">• Development dependent on venture stage	<p>1 Beginning <i>(first startup)</i></p> <ul style="list-style-type: none">• Business models• Customer relationship management• Building trust/ customer retention• Sales/Marketing• Time management <p>2 Beginning <i>(current startup)</i></p> <ul style="list-style-type: none">• HRM• Employee selection• Event structures (what makes an event successful) <p>3 Currently <i>(after 2 years)</i></p> <ul style="list-style-type: none">• Marketing• Growth strategies• Operational• Contracting and legal issues	<p>1 Beginning <i>(first startup)</i></p> <ul style="list-style-type: none">• How to build up a business• Marketing & Sales (how to reach customers?)• Finding and contracting experts/ employees• Creating a website• How other successful startups operate <p>2 Beginning <i>(current startup)</i></p> <ul style="list-style-type: none">• In-house shipping• How to create processes• Supplier relationship management• Pricing <p>3 Currently <i>(after 6 years)</i></p> <ul style="list-style-type: none">• Process optimisation• Increase efficiency• Cash flow management• How to address special challenges (Achieve sales in e-commerce sector despite ban on tobacco advertising)	<p>1 Beginning</p> <ul style="list-style-type: none">• ‘Everything’• Entrepreneurship• How to start a business• Startup dynamics <p>2 Currently <i>(after 3 years)</i></p> <ul style="list-style-type: none">• IT <p><i>‘I am not a developer. It took me three years to realise that I need to understand it [basic IT knowledge] myself to better communicate and understand what is possible. In 2015 I focussed mainly on IT.’</i></p> <ul style="list-style-type: none">• Marketing• Strategy• Sales negotiation	<p>1 Beginning</p> <ul style="list-style-type: none">• ‘Everything was new’• Entrepreneurship• Product development• Funding/Financing <p>2 Currently <i>(after 2 years)</i></p> <ul style="list-style-type: none">• Organisational structures• Communication processes within firm• Financial reporting• HRM (hiring, leadership, motivation)• Legal• Work-life balance• Business growth• Food economics• Agriculture resource production	<p>1 Beginning</p> <ul style="list-style-type: none">• Entrepreneurship• Business management (basics)• How to build a business• How to conduct workshops & trainings• How to build a website <p>2 Currently <i>(after 4 years)</i></p> <ul style="list-style-type: none">• Increase profitability• Funding• New ways of financing• Marketing	<p>1 Beginning <i>(first startup)</i></p> <ul style="list-style-type: none">• ‘Everything’• Self-motivation• Behavioural psychology (how people behave)• business management and structures (business models)• Pricing: ‘What can I ask for? What is too much? In which environment can I work for free?’• Personal development• Overcome fears• HRM (Hiring & firing) <p>2 Beginning <i>(current startup)</i></p> <ul style="list-style-type: none">• HRM (leadership, motivation)• Visual harvesting• Photo editing <p>3 Currently <i>(after 2 years)</i></p> <ul style="list-style-type: none">• Sales• Sales psychology• Negotiation tactics• Increased specificity <p><i>‘Burn the bridges behind you - So you can’t go back.(...) Jump from the cliff and hope you learn how to fly. [This behaviour] really helps to speed up learning.’</i></p>	<p>1 Beginning</p> <ul style="list-style-type: none">• How to communicate product• Pitching• Product design (How to make the product look attractive) <p>2 Currently <i>(after 1 year)</i></p> <ul style="list-style-type: none">• Social media marketing• Legal advice• HRM• Product management• Marketing• Finance <p><i>‘[In the startup scene] are lots of sharks who want to make alliances (...). Don’t let the shark fool you and make a win-win negotiation.’</i></p> <ul style="list-style-type: none">• How to keep the energy up• How to handle failure• Dealing with rejection <p><i>‘I didn’t know a lot about the IT world. I read ‘programming for dummies’. I didn’t learn how to make it [app] myself (...). I won’t be a programmer, but the mindset helped me to find a programmer.’</i></p>	<p>1 Beginning</p> <ul style="list-style-type: none">• Industry specific processes (fashion industry)• Funding• Entrepreneurship (how successful startups operate) <p>2 Currently <i>(after 1 year)</i></p> <ul style="list-style-type: none">• Legal advice• HRM• Product management• Marketing• Finance	<p>1 Beginning</p> <ul style="list-style-type: none">• IT basics• Programming• Coding• Building a website <p>2 Currently <i>(after 3 years)</i></p> <ul style="list-style-type: none">• Direct marketing• Growth• Strategy• Sales/negotiation• Contacting firms	<p>1 Beginning</p> <ul style="list-style-type: none">• Focused on speciality (marketing and PR)• Entrepreneurship• Event management <p>2 Currently <i>(after 1 year)</i></p> <ul style="list-style-type: none">• Financial (investment, accounting)• Legal knowledge• Graphic Design• Web development• Online ads/ SEO• Mobile apps and investments• Business growth (product portfolio growth) <p><i>‘[Obtained IT knowledge] affects how I explain processes to clients. It helps me understand graphic or web developers better, in such a way I can provide them with everything they need for a smooth project completion. I also can tell whether a good or poor job was done.’</i></p>

Key elements of interviews

#	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Effect of previous education on learning needs	<ul style="list-style-type: none">- Quit degree (business administration) during 2nd year• Management tools• Analytical tools• Marketing tools (basics)	<ul style="list-style-type: none">- Bachelor in Media management, Master in Marketing• Marketing knowledge and strategies	<ul style="list-style-type: none">- 2 B. A . (cultural and media science), currently M.A in media science• A lot helped unconsciously• Theoretical background was helpful	<ul style="list-style-type: none">- B.Sc. Economics• Not the courses itself. But gained relevant experiences during work in student organisations	<ul style="list-style-type: none">- B.Sc. in Psychology and Philosophy (7th year)• Courses were not very helpful for current business operations	<ul style="list-style-type: none">- B.Sc. Industrial Engineering• Degree was not particular helpful for startup	<ul style="list-style-type: none">- B.Sc. Business Administration, MBA in Entrepreneurship• Skills and tools to prevent and reduce risk• Knowledge of business world• Valuable network contacts <p><i>‘I am a control freak. I want to measure everything.(...) I became really good in marketing and financial analysis.’</i></p>	<ul style="list-style-type: none">- M.Sc. Industrial Engineering• Presentation skills• Time management	<ul style="list-style-type: none">- B.Sc. in Electrical Engineering• Basic IT knowledge (html)	<ul style="list-style-type: none">- B.Sc. Business Administration, M.Sc. Marketing• Analytical skills <p><i>‘Education has helped with how I approach problems, organise and prioritise them. I have also learned how to read vital stats, how to make projections,(...) how to write business, marketing plans and analytical reports.’</i></p>
Effect of previous work experience on learning needs <ul style="list-style-type: none">• Acquired skills & knowledge useful for startup activities	<ul style="list-style-type: none">- 2 years (student organisation)• Presentation skills• Communication skills• Sales• Team leadership• Team work	<ul style="list-style-type: none">- 4 years (Online marketing, marketing, account management)• Marketing tools and strategies• Customer relationship building• Sales	<ul style="list-style-type: none">- 2.7 years (film production, executive assistant)• Customer contact• Interaction with people• Time management	<ul style="list-style-type: none">- 1.4 years (Student organisations, project assistant)• Finances• Organisation• Team leadership	<ul style="list-style-type: none">- 2 years (student organisation)• Event management• Sales• Team work• Presentation skills	<ul style="list-style-type: none">- 3 years (part of integrated degree program)• Soft skills (how to work with people)• Learned from experienced colleague• Learnings about corporate structures were not applicable to startup <p><i>‘[Corporate] work experience was [content-related] not helpful for my current business operations. Would have helped if I had stayed within the organisation - but not outside.’</i></p>	<ul style="list-style-type: none">- 4 years (student organisation). 6 years (executive position, intrapreneur in product development)• Negotiation skills• Presentation skills• Strategy• Analytical skills• Innovative business models• Faced lots of challenges in executive positions within MNC (e.g. competition, problems with suppliers) <p><i>‘I learned success depends on how to be flexible, adapt to problems, react fast and respond smart to problems.’</i></p>	<ul style="list-style-type: none">- 4 years (management consultant)• Customer contact• Negotiation skills• Presentation skills	<ul style="list-style-type: none">- 3.5 years (project assistant), 3 years (student organisation)• Knowledge about renewable energies• CSR	<ul style="list-style-type: none">- 5 years (sales, marketing, account management), 1 year (student organisation)• Sales• Marketing• Customer relationship management

Key elements of interviews

#	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Effect of previous startup experience on learning needs	<ul style="list-style-type: none">- Entrepreneurial experience: 2 years (Online food delivery platform)• Learned from mistakes• High costs involved (reputation, financial loss)• Customer contact• Sales• Customer relationship building• Team work• Time management	<ul style="list-style-type: none">- Entrepreneurship experience: 2.2 years (online coaching platform)• Compared to education and work experience. Previous startup experience was most useful.• Learnings from successes and failure: Failure is part of it - <i>‘One only learns how something does not work. (...) [I] learned more from successes.’</i>	/	/	/	<ul style="list-style-type: none">- Entrepreneurial experience: 2 years, 3 startups (workshops, online platform)• Learned a lot during previous startups• Personal development (e.g. overcome shyness, pricing ‘what am I worth?’, how to deal with rejection)• Hiring & firing people• Learning from mistakes: Situation specific. Reflection needed for personal growth <p><i>‘I learned that it is never about havng a particular skill. Every skill can be learned. It is always about what [the person] thinks [s/he is] capable of.’</i></p>	/	/	/	/
Sources of information	<ul style="list-style-type: none">• Google• Wikis• Ebooks• Network members• Experts• University events• TED talks and YouTube videos	<ul style="list-style-type: none">• 1. Network• 2. Internet• 3. Books (Books less than in the beginning)• Conferences used decreasingly. No new content. Hard to find conferences that fit a specific problems. Now, only for networking.• Workshop (cash flow - KPMG)• TED talks (Sometimes for entertainment - Too superficial to learn specific things)• Learning by doing <p><i>‘I try different things. Business management is like gardening. Several ways work. (...) It is a lot learning by doing. (..) like a black box.’</i></p>	<ul style="list-style-type: none">• Internet• Books• University courses• Academic publications (Statista all inclusive account - through university incubator)• University meet-ups• (Industry) experts• Mentors/ Business angel• No conferences anymore (not specific enough)	<ul style="list-style-type: none">• Internet• Books• Ask suppliers and producers• University meet-ups and competitions• Customer feedback (co-development)• Personal network• Business angels	<ul style="list-style-type: none">• Books• Internet• Personal network• Worked for conference and could join for free• TED talks, YouTube videos• TED talks to get an overview/ the bigger picture. Afterwards, buys the book. <p><i>‘It’s not external it is internal - when [TED talks] make click and you start working on it. The magic is what you do with the information. (...) Most things about happiness, success and entrepreneurship are common knowledge, but it is not common practice.’</i></p>	<ul style="list-style-type: none">• 1. Ask people in direct environment2. Facebook groups/ Online search• Online tutorials on editing (e.g. linda.com)• Workshops (less than 10 people)• Books• TED talks only for inspiration• No large conference anymore <p><i>‘The calculation doesn’t make sense. You invest days and don’t get specific information. Networks don’t fit either. (...) Have met interesting people though.’</i></p>	<ul style="list-style-type: none">• Internet• Books• Online videos (sometimes)• Mentors• Talking to entrepreneurs (motivation, better to relate to. <i>‘if they did it, i can do it’</i>)• Can’t hire experts (not the money available)• Does not attend seminars (not the time available)	<ul style="list-style-type: none">• Online blogs• Books• Workshops• YouTube and TED talks occasionally• 2 week trip to Silicon Valley (visiting startups)• Personal network• Network from business angels	<ul style="list-style-type: none">• Online tutorials (laracast.com), books & websites (Self-taught programming)• 20% offline: 1:1 meetings, local meet-ups• 80% online: (Technical) Conference videos on YouTube. Choose strategically, time saving, selectiveness. No risk when uninteresting• YouTube videos, TED talks occasionally (new perspectives)• Conferences used in beginning. Now they are not specific enough anymore. High costs involved (Lost work time, preparation, travelling, accommodation)	<ul style="list-style-type: none">• Internet• Books• Youtube (sometimes)• Webinars (sometimes)• Personal network members• Industry experts

Key elements of interviews

#	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Role of personal network in knowledge acquisition	<ul style="list-style-type: none">• Network through university events and previous work.• Learned a lot from network• Actively invest time to enlarge network	<ul style="list-style-type: none">• First source for information• No mentors. But close circle of people he asks frequently.• Important source of information• Consulted people who work in similar environment• Actively build network	<ul style="list-style-type: none">• 4 mentors (HR, personal development)• Business Angel & Friend. Meeting once a week to reflect• Specific information• Experiences from others <p><i>‘You can’t reinvent the wheel. [I] take information from smart people. (...) Everybody needs mentors.’</i></p>	<ul style="list-style-type: none">• Business angels: no regular meetings, but regular telephone calls• Network changes and gets more specific as business develops• Network developed gradually through business plan competitions, university contacts/ events• Consults partners, suppliers, producers,	<ul style="list-style-type: none">• Network developed through work• Has 3 mentors within team• Talks to more experienced people <p><i>‘Very best way is to learn from a coach who is better than you.’</i></p>	<ul style="list-style-type: none">• Network: First information source• Network developed during work (working in co-working spaces, conferences, contacting total strangers)• Recommendations by network members affect knowledge acquisition sources <i>‘If they recommend something I would do it. Whatever it costs.’</i>• Network obtained during corporate work was not helpful for startup activities. <p><i>‘It is important to have a network in the field you are actively working in.’</i></p> <p><i>‘The better my task management and team structures, the less I have to know myself.’</i></p>	<ul style="list-style-type: none">• 4 mentors• a) Founder of MBA (millionaire, entrepreneur)• b) Expert in product development• c) Founder of business accelerator & business angel• d) Sales/marketing expert for IT companies• Network developed during MBA• Mentors frequently ask <i>‘tough’</i> questions to reflects upon business• 2 mentors frequent contact, 2 others dependent on stage of business• Network is really important and helps• Listening to stories from other entrepreneurs. Most entrepreneurs already live it, have ideas and answers.• More important than financial resources	<ul style="list-style-type: none">• 2 Business angels (fashion industry), experts, knowledge about the industry, have a large network of valuable contacts from the industry• Network developed through competitions, startup events• Actively seeks to enlarge network	<ul style="list-style-type: none">• Prefers 1:1 talks• Learn from others• Reduce own mistakes	<ul style="list-style-type: none">• Main source for knowledge acquisition• Mentors in PR, marketing, fashion, design and web development• Network developed through attending industry related events, volunteering, and working on various projects• Invests time and keeps in touch on a regular basis <p><i>‘It [keeping in touch] makes me accountable and has motivated me to learn more about their [network members] expertise.’</i></p>
Factors considered during knowledge acquisition	Financial constrain: Less constrained	Financial constrain: Constrained	Financial constrain: Less constrained	Financial constrain: Less constrained	Financial constrain: Constrained	Financial constrain: Less constrained	Financial constrain: Constrained	Financial constrain: Less constrained	Financial constrain: Constrained	Financial constrain: Constrained
	Selection criteria <ul style="list-style-type: none">• Time• Efficiency• Quality Costs <ul style="list-style-type: none">• Does not spend much money on knowledge acquisition• Money is used for advertising and contracting.	Selection criteria <ul style="list-style-type: none">• Quality (sometimes hard to tell beforehand)• Price/Costs Costs <ul style="list-style-type: none">• Low costs are very important. Saving money is relevant. Company refrains from fast growth because it would be expensive.• Not necessary to spend much money because most information is available through network.	Selection criteria <ul style="list-style-type: none">• Specificity• Quality Costs <ul style="list-style-type: none">• Current sources are inexpensive• Did not invest own money Prices <ul style="list-style-type: none">• Consultancy days• Company analysis• Negotiation workshop• 6 months entrepreneurship accelerator program in Silicon Valley (paid 100000 Euro with sponsorship)	Selection criteria <ul style="list-style-type: none">• Time• Quality Costs <p><i>‘One doesn't need so much money [to acquire information]. (...) [I] address network [members] first to save money.</i></p> <p>—</p> <p>Received 12500 Euro through crowd-funding campaign on Startnext. Has business angels. Money is used for trade agreements (order raw materials in larger amounts), organic certification and business development.</p>	Selection criteria <ul style="list-style-type: none">• Applicability• Quality Costs <p><i>‘No restriction. Made money, spend on education. Most important asset of being an entrepreneur is yourself.’</i></p>	Selection criteria <ul style="list-style-type: none">• Specific• Fit to problems• Directly applicable• Related to work Costs <p><i>‘I had no money, and I had money. This didn't influence how much I spend. Generally, I didn't spend a lot cause the ones that pinch money from you are not good. (...) Finances affected my productivity. (...) Less finances - more pressure - higher productivity.’</i></p>	Selection criteria <ul style="list-style-type: none">• Main factor: Quality<i>‘The main resource I have is time. If i sign up for something it has to be good. Title, certification don't matter. I don't give a damn about certifications.’</i>• Access (online: good time zone; Seminar: time & place)• Experienced entrepreneurs: (higher credibility & easier to relate to) Costs <p><i>‘Money shouldn't be the biggest problem. If it's reasonable you can find the money.’</i></p>	Selection criteria <ul style="list-style-type: none">• Costs• Quality Costs <ul style="list-style-type: none">• does not spend much money on knowledge acquisition—Seed capital: 200.000 Euro + 2 business angels Total 375.000 Euro Mainly used for product development (e.g. hiring software developers).	Selection criteria <ul style="list-style-type: none">• Quality• Low costs• Efficient (time-saving) Costs <p><i>‘Most information are available for free. (...) No need to spend much money.’</i></p>	Selection criteria <ul style="list-style-type: none">• Time• User-friendliness• Inexpensive Costs <p><i>‘There are some seminars I simply can't attend due to price but it also motivates me to find alternatives or directly reach out to experts.’</i></p>