

**DEVELOPMENTAL NETWORKS AND PROFESSIONAL IDENTITY:  
A SURVEY OF ACTIVE AND FORMER JUNIOR ENTERPRISE MEMBERS**

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## **Abstract**

**Principal Topic** - This paper presents findings from an empirical survey of Junior Enterprise members and alumni in Central Europe. The study aims to examine the linkages between developmental networks and professional identity when alumni undergo career changes to embark on entrepreneurship. Our paper argues that the developmental network membership contributes to competence development and entrepreneurial identity and both elements contribute to overall employability.

**Method** - Data collected from active and former members of Junior enterprises supported our hypotheses. As a result the study showed the linkages between entrepreneurial competences and developmental networks in a cross-industry sense. Few quantitative studies have examined entrepreneurial competences in a cross-industry setting in the context of organisational/strategic change, and few have adopted developmental network perspective.

**Result** - The results seem to provide a good way to confront entrepreneurs with their own qualities and with areas for improvement and discussion. The findings elucidate differences between entrepreneurial identity configuration drivers with regard to the competence development processes of the individuals. Overall, our study repudiates the traditional mentoring perspective in favour of the „developmental network perspective” (Cotton, Shen, & Livne-Tarandach, 2011b).

*Keywords:* junior enterprise, entrepreneurial identity, competence development, developmental networks

# 1 INTRODUCTION

Professional identity development, such as through the exploration of self-awareness processes (Hall, 2002) as well as competence development processes occur over the course of time (Kailer, 2009). As far as entrepreneurship education approaches are concerned there is a stream of literature that points out that introducing the right mix of teaching methods could play crucial role in strengthening entrepreneurial competences. Studies identify many possible approaches to entrepreneurial learning. (Dylan, William, & Jonathan, 2000) for instance underline the meaning of an action learning approach. Dhaliwal (2010) describes an approach integrating simulations and games of managing the business, and organising meetings with some of the best entrepreneurs (Dhaliwal, 2010). Harkema and Schouten (2008) indicate examples of student-oriented learning of entrepreneurship based on psychological tests for selection of appropriate students, and on planning of learning by the student himself/herself, and using personal coaching. According to Hanke, Kisenwether and Warren (2005), the introduction of problem-based learning and distance learning approaches enhances students' self-efficacy and their capacity to manage uncertainty. An interesting approach involving works of fiction or film productions is described by Bumpus and Burton (2008). There is a clear understanding that entrepreneurial learning promotes the emergence of entrepreneurship and enterprising undertakings among students and graduates of higher education institutions. Entrepreneurial intentions are therefore encouraged by a combination of entrepreneurial competences and self-efficacy of the students or graduates.

The aim of this paper is to introduce the notion of “developmental networks” to the individual path towards a career as an entrepreneur. Relational capabilities and networking competences both are not purely a career development issue for employees (Cotton, Shen, & Livne-Tarandach, 2011a); they are equally and even more important for entrepreneurs. Networking capabilities are a complex bundles of skills that are embedded in network structures and can generate a positional advantage based on superior contacts. The resource-based-view (RBV) specifies that a startup firm's competitive advantages may derive from such individual networking capabilities (unique bundles of resources) which the individual firm owner possesses (Farley Simon & David, 2011). These capabilities help convert selected strategies (e.g. internationalization of born global companies) in the process of shaping positional advantages. Therefore, in line with the RBV, the combinations of networking capabilities available mediate the linkages between the chosen competitive strategy and the positional advantages achieved in the market (Liao & Zhang, 2006).

Generally speaking the literature suggests that networking capabilities of the individual entrepreneur have an influence on the organizational performance. More precisely scholars have found that entrepreneurs must do two things: one is conducting the present business efficiently, the other is to network and create future opportunities (Zott & Amit, 2007). One has to keep in mind that entrepreneurs are doing this context-dependent as high rates of change in technology and markets and the unprecedented scale of globalization bring market opportunities as well as competitive threats for all firms from developing and developed countries, leading to a strong demand for greater flexibility in particular for small and medium enterprises (Shimizu & Hitt, 2004).

This paper seeks to answer the following research question on an empirical basis: *How does work experience from a developmental network influence the linkage between entrepreneurial competences and the formation of an entrepreneurial identity?*

We focus our research question on Junior Enterprises (JE) as an example for a developmental network. After a brief introduction to the concept of Junior Enterprises we analyse the developmental networks theory to date with a consideration of the entrepreneurial context in which developmental networks occur.

## **2 REVIEW OF THE LITERATURE**

### **2.1 DEVELOPMENTAL NETWORKS AND ENTREPRENEURSHIP**

Referring to the research question presented above we focus our empirical analysis in this paper on a particular type of developmental network. We discuss the role of Junior enterprises as a developmental network with a specific impact for entrepreneurial career pathways (Briga, Yvonne, & Naomi, 2010). The basic principles of a Junior Enterprise Network – entirely student-managed, non-profit, conducting projects to bridge the gap between university and business – have not changed since the first Junior Enterprise has been set up in France, in 1967. Since then the concept of Junior Enterprise has spread not only all over France, but as well to other countries and nowadays even world wide. The junior enterprise allows the student to establish configurations of human, social, and organizational capital. An important aspect of a junior enterprise therefore is the configuration which combines skill-based development and market-based employee relations. Junior enterprise members have the opportunity to build up relationships and establish network contacts. The individual member profits from building up a carefully selected set of network contacts and entrepreneurial processes that collectively define an entrepreneurial context that allows the business-unit to perform in a real life business situation. Junior Enterprises are defined as a network run by students who are working for a special kind of training firm, that tries to foster entrepreneurial thinking and acting, called Junior Enterprise. Despite operating in the regular market Junior Enterprises unlike normal companies are non-profit organisations that are not exposed to all risks of the market. Normally there are little or no fixed costs and the Junior Enterprise office is located at university. This office is free of charge and there is no need for the Junior Enterprise or the Junior Entrepreneurs to generate a certain amount of turnover or profit. The fostering of entrepreneurial mindsets is one of the main objectives of the Junior Enterprise concept. Thereby network members found their own company, and direct it until they finish their studies. After graduation members usually stay in contact with the Junior Enterprise Network and offer mentoring to the students. In our perspective Junior Enterprises are an excellent example for a developmental network as they offer the benefit of having a mentoring relationship for an individual's personal and professional development which is important as discussed in the literature (Kram, 1985; Kram & Isabella, 1985). By definition developmental networks are described as multiple, shorter-term developmental relationships stemming from different social realms (Chandler & Kram, 2007; de Janasz et al., 2003; Higgins & Kram, 2001; Higgins & Thomas, 2001, (Hetty van, 2004; Wang, Noe, Wang, & Greenberger, 2009). The Junior Enterprise can be understood as a “developmental network” because from a theoretical point of view it is conceived as an egocentric constellation of interactive developers inside and outside of a focal person's employing organization who provide career and/or psychosocial support (Higgins & Kram, 2001) through relationships of varying strength (Wanberg, Welsh, & Hezlett, 2003: 41). As described in the literature the Junior Enterprise as a developmental network includes also extraorganizational developers but the empirical research about the role of such a developmental network is scarce. As far as

the empirical research focusing on developmental networks is concerned the authors in this field have primarily focused on how the structure (e.g., network size and diversity) of an individual's developmental network (Bozionelos, 2006; Higgins & Thomas, 2001; van Emmerik, 2004 (Tsai & Ghoshal, 1998) relates to certain individual career outcomes—primarily pay, promotions, and satisfaction. The authors of this paper contribute to the existing developmental networks literature and argue that the development of entrepreneurial identity is context-dependent on the membership and working experience gained from a Junior Enterprise networks (Anne & Robert, 2011). The developmental network can be compared to a mediator influencing the relationship between entrepreneurial competences and the development of entrepreneurial identity (and therefore the willingness of the single individual to start a new firm). Our novel approach therefore analyzes developmental networks in the light of entrepreneurial intentions and shows how these networks affect the intentions and the identity of the entrepreneur.

The analysis of these two topics is not only important for the stream of literature in the field of developmental networks but will also generate linkages to the literature dealing with entrepreneurial competence development as scholars have shown that outstanding networkers among entrepreneurs are more likely to perform better because of their networking competences. Analysing the developmental network literature in more details we build our research on the mentoring-context literature, focusing on the framework by Higgins and Kram (2001) for the developmental network perspective, who suggest that developmental networks are structured in a diverse way. Higgins and Kram (2001) define developmental network range as a specific conceptualization of developmental network diversity, since it most closely captures changes in the current career environment that prompt individuals to look outside the organization for developmental assistance (Higgins & Kram, 2001). According to their perspective developmental networks include ties from a number of different social systems, such as one's employer, school, community, professional associations, and so on. Developmental network diversity and developmental relationship strength are the two core dimensions of our typology. They underline that entrepreneurial networks are characterised by a high developmental network diversity and high developmental relationship strength.

In the next section of this article, we develop the concept of entrepreneurial competences in greater detail. We begin with an overview of entrepreneurial competences which have an influence on entrepreneurial intentions.

## **2.2 COMPETENCES AND ENTREPRENEURSHIP**

Our paper contributes to the literature stream focusing on a practice-based view of learning as a means of entrepreneurial education and HRD development (Verzat, Byrne, & Fayolle, 2009). The paper conceives the entrepreneurial practices gained in a Junior Enterprise as been inevitably and inextricably related to socially embedded experiences and relations (David & Chris, 2011). The competence-based approach in HRD was driven by several factors, some global in nature, others particularly European.

### **2.1.1 Cognitive and learning competences**

Cognitive entrepreneurial competences are important as they enable entrepreneurs to perceive opportunities and therefore they are the critical antecedents of opportunity perceptions (Linan & Chen, 2006). Cognitive competences are primarily related to »knowing that« and »knowing why« knowledge. According to Delamare Le Deist and Winterton (2005) cognitive competences can be understood as conceptual or theoretical knowledge on the one hand and understanding on the other. Gagne states that descriptions of cognitive competences don't offer the answers to the question "what do individuals know", but to the question "what are individuals capable of doing".

From the perspective of developmental networks it can be argued that they are able to convey the knowledge and understanding on how to establish a new business and how to encourage its growth, especially through the promotion of self-employment concept, through the knowledge and understanding of business planning processes and in the environment available entrepreneurial support mechanisms as pointed out by the European Commission (European Commission 2008). Junior Enterprises as developmental networks are therefore able to provide basic knowledge about marketing, management techniques, protection of intellectual property, commercialization of innovation, and venture capital availability. They play an important role for entrepreneurial learning as entrepreneurial learning methods should be interactive and action oriented as pointed out in the literature (Kailer, 2009). Junior enterprises have an impact on entrepreneurial competences as they involve students but also graduates as much as possible. They can motivate students to start their own firm. Of course we admit that role playing and discussion of case-studies is also beneficial in the context of entrepreneurial learning but junior enterprises can function as a complementary instrument for the recognition of action learning approaches in the opportunity recognition phase. They are appropriate for learning about the process of business idea commercialization, they involve entrepreneurs from practice and real life situations as well as business plans. In such organisations creativity, which seems to be very important for the entrepreneurial individual, can be encouraged by the use of group techniques for generation of new ideas through "real life" cases, which are developed from existing businesses (e.g. marketing surveys, marketing plans). Junior enterprises stimulate entrepreneurial learning and the development of entrepreneurial identity.

Functional competences are associated with practising the profession of entrepreneur and with mastering various entrepreneurial situations (Delamare Le Deist and Winterton 2005). They are practical intellectual skills related to the understanding of entrepreneurial concepts and relationships between them, mastering different rules connected with these concepts and entrepreneurial decision making as well (Richey 2000). Entrepreneurial learning related to the transfer of so-called functional competences needed to carry out certain tasks or to implement some innovative work or business approaches, should focus on actual business situations, on innovation, on intrapreneurial initiatives, or on creation of new firms, and on finding the ways to enter new markets, etc. Functional competences are therefore antecedents for entrepreneurial action. Within these competences, a distinction can be made between two broad categories of activities (Henrik & Per-Erik, 2011):

(1) Formal learning, that is planned and organised learning activities, mainly financed by the employer and taking place during working hours. Formal learning also implies that participants are certified or given a certain grade. In practice, formal learning is often organised through internal or external courses.

(2) Informal learning in the daily work, that is, learning through participation in development projects, staff-meetings, job rotation, team-based work, etc. As used here, informal learning refers to learning that occurs regularly in work as well as in everyday life, but subordinated to

other activities (e.g. work practices) in the sense that learning is not their primary goal. That is, learning while you are primarily focused on performing another task. As a learning process, informal learning in and through the daily work is characterised by a low degree of planning and organising.

### **2.1.2 Behavioural entrepreneurial competences**

This line of research sought to identify the behavioural characteristics unique to entrepreneurs. They represent the answer to the question how entrepreneurs behave in certain situations and they influence the development of entrepreneurial intentions by which we denote entrepreneurial actions that are aimed at the creation of new ventures or creating new values in existing ventures. Within the concept of behavioural competences we can distinguish between social competences and metacompetences (Braun, 1993). Social competences are the skills related to successful functioning in a society. They are outward orientated. Meta-competences on the other hand are inward orientated. They are conceptual skills of learning and reflecting. They encourage the acquisition of other competences as well (Delamare le Deist and Winterton 2005). When analyzing the behavioural entrepreneurship competence literature we find as a recurring theme in the topic of network competence where it is argued that potential and existing entrepreneurs are excellent in networking. They are efficient in their management of today's business demands, while also adaptive enough to changes in the environment. Among the behavioural competences associated with entrepreneurial behaviour we should highlight in particular competences related to: researching and realisation of entrepreneurial opportunities, production of creative ideas, taking responsibility for the execution of such ideas or other activities, handling the uncertainties and risks, creating favourable coalitions within an organisation, initiative taking, problem solving and overcoming potential barriers. Entrepreneurial behavioural competences and intentions are influenced by the attitude towards entrepreneurship, mediated by the situational factors as for instance developmental networks as we argue in this paper.

## **3 THEORETICAL FRAMEWORK**

Referring to the conceptual background of the survey we reviewed streams of literature on the linkages between antecedents of entrepreneurial action and the entrepreneurial identity (3.1) and developmental networks and the entrepreneurial identity (3.2) to identify the key variables that should be included in the theoretical framework. Most of the studies that we draw upon for this contribution were carried out in the past decade.

### **3.1 ANTECEDENTS OF ENTREPRENEURIAL ACTION**

The idea that an entrepreneur is in some way different from others is commonly held. In the following we will develop and discuss antecedents as influencing factors on entrepreneurial action that allows making those differences visible by comparing Junior Entrepreneurs with regular students. This model is derived from literature which suggests that possible factors might be personality traits, competences and knowledge, characteristics of the company someone works for (Kailer, 2007b), entrepreneurial framework conditions like

culture, education and training, available resources – financial and non-financial, family background and friends (Kailer, 2009). The authors of this contribution argue that the entrepreneurial action requires three contextual entrepreneurial action factors and antecedents for entrepreneurial action have undergone extensive discussion in the literature about entrepreneurial activity by students. The authors of this paper have structured the influence factors into a) cognitive competences and b) behavioural competences.

#### *a) Cognitive competences*

When we discuss cognitive competences we talk on the one hand about entrepreneurial knowledge (implicit and explicit know-how) as a relevant factor on the other hand about the motivation to become an entrepreneur. Both aspects have an impact on the competencies of the entrepreneur and therefore on the propensity to start a business. The competence development theory proposes that the decision to initiate a startup company is influenced by many factors including exposure to educational experiences. These experiences may influence a person's desire to pursue a career congruent with his or her learning experiences (Shapero and Sokol 1982 cited in Casson & Yeung). According to Wickham (2004) entrepreneurial management skills include:

- Strategy skills – this is the ability in general to find the most advantageous position against the competitors. Moreover it means though to also be able to understand the needs of every participant in the market, to position the company in the most competitive way and to arrange the supplying to the demand of the customers.
- Planning skills – Effective planning requires the ability to think ahead. It is the ability to decide what is possible to do and what should be achieved. Planning involves the assessment of the future, the identification of the desired objectives in that future, the development of different scenarios of action to achieve the prior set objectives and ultimately the selection of an action chosen from the defined alternatives.
- Marketing skills – include the ability to accomplish an organization's objectives by identifying and anticipating customers' needs. Good marketers are able to attain the customers' attraction, to communicate the needs in an appealing way and to finally achieve the company's sales objectives.
- Financial skills – are described as the capability to invest assets with the minimum loss, trying to increase the bottom line and to follow the in and out cash flow.
- Project management skills – include good organizing abilities, include the definition of the project aims and the definition of the actual resource requirements and administrative support necessary. A project manager has to be able to set up various tasks in a schedule with the focus on the end date of the project starting from the assignment day.
- Time management skills – An effective time management includes the ability of giving preference to certain problems, jobs and interruptions by knowing what is more important at the point of time. It is moreover about being able to manage time in the most productive way, if necessary in time of a certain schedule.

The student who decides to become a member of a Junior Enterprise might have obtained entrepreneurial management knowledge through Entrepreneurship courses provided by the



university. The Junior Enterprise allows to train cognitive competences through practical work experience.

*b) Behavioural competences*

Not only cognitive competences but also behavioural competences are important elements when we talk about entrepreneurial identity. Several decades ago McClelland (1961) mentioned the link between certain personality characteristics and entrepreneurial success and he attributed a person's need for achievement as an important ingredient of entrepreneurial success. As far as behavioural competences are concerned the need for achievement is one of the most popular characteristics associated with entrepreneurs (Harris & Gibson, 2008). McClelland (1961) declares in his study that need for achievement is a strong entrepreneurial trait (Venesaar, Liiv, Liiv, & Pihlak, 2008). An important trait that individuals with a high need for achievement show is that they prefer to take responsibility for problem solving processes, master complex tasks, seek financial gratification for success and determine risks based on goals – skills (Harris & Gibson, 2008). Individuals with an internal locus of control believe that most events in their lives depend upon their own actions, such as hard work. In contrast, those with an external locus of control believe that events in their lives depend on chance, luck, fate or other outside agencies. The internal locus of control is typical for successful entrepreneurs though it should be held in mind that a too high internal locus of control is not good either, as individuals with extreme internal locus of control may be less well adjusted and face to risk to overestimate their abilities to control their lives (Nieuwenhuizen, 2008). Perhaps the most widely cited description of entrepreneurs is the willingness to assume risk. A person's risk-taking propensity can be defined as his or her orientation towards taking chances in uncertain decision-making contexts (Tajeddini & Mueller, 2009). Another important concept when discussing entrepreneurs is the Big-Five personality traits model. It is broadly suggested that the Big-Five personality traits predict essential differences in observed actions and reactions (McCrae and Costa 1999). An important entrepreneurial behaviour is the attitude towards risk and can be traced back to early writers in economic research. Entrepreneurs often have to make decisions with high uncertainty because they must make investment decisions before they know the outcomes of those investments (Caliendo, Fossen, & Kritikos, 2009; Sandner & Spiegel, 2010). Results from previous studies tell us, first, that less riskaverse persons are more likely to become entrepreneurs given that they start their business out of regular employment. Caliendo et al. (2009) found that opportunity seeking entrepreneurs are more willing to take risks than necessity entrepreneurs. In addition, entrepreneurs who are motivated by creativity are more risk-tolerant than other entrepreneurs (Caliendo et al., 2009; Sandner & Spiegel, 2010). Risk taking is an important aspect of the entrepreneurial personality as it has an effect on the motivation of the individual to start entrepreneurial activities. Another characteristic of entrepreneurs is the ability to tolerate the ambiguity associated with seeking solutions to problems because such persons tend to accept ambiguous circumstances as attractive in contrast to intimidating. Entrepreneurs behave as non-conformists by nature. Sexton and Bowman (1996) again report that entrepreneurs have a higher tolerance for ambiguity than managers (Tajeddini & Mueller, 2009). Another characteristic is known as need to control which is one of the basics for success in establishing a business. The need for power means to have the need to influence situations and people in the environment. Timmons and Spinnelli (2007) consider the need for power low as an entrepreneurial trait (Timmons & Spinnelli, 2007). Ajzen (2002) discusses as "antecedents" the set of cognitive variables that would exert their influence on intention (personal attitude towards the behavior, perceived social norms, and perceived behavioral

control) (Ajzen, 2002). More favorable “antecedents” would make more feasible the intention of carrying that behavior out, and the other way round (Liñán, 2004).

### **3.2 DEVELOPMENTAL NETWORKS AS A CONTEXT FOR ENTREPRENEURIAL IDENTITY**

We argue that developmental networks are an important contributor to the development of entrepreneurial identity. We contribute to the stream of literature which supports the idea of the “developmental network perspective” of an entrepreneur. Indeed, empirical research on strong ties has shown that strong ties exhibit the highest levels of trust and are particularly helpful during times of uncertainty (Krackhardt, 1995). Thus, the entrepreneurial developmental network is made up of developers who are highly motivated to act on behalf of the (potential) entrepreneur and who collectively provide access to a wide array of information. When operating in markets, network structure literature suggests two main options to enhance contacts. One alternative is based on the establishment of strong ties based networks in order to achieve business success in the target market. The other alternative is based on the use of weak ties within a network structure. Research in this field is highlighting the importance of weak ties in early stages of firm growth as a prerequisite to competitive advantage and performance. The authors of this paper decided to follow the perspective of the structure-based network for this study, assuming that individuals can profit simultaneously from having strong ties and weak ties. Therefore we suggest that the greater an individual's network orientation the higher will be the level of entrepreneurial identity and the stronger will be the positive relationship between entrepreneurial competences and entrepreneurial identity. Individuals with a high number of network contacts have the flexibility to respond to new competitive behaviors and therefore are at a definite advantage; they can easily redeploy critical resources and use the diversity of strategic options available to them to compete effectively (Park & Jang, 2010). Thus, as competitive intensity increases, the authors hypothesize that the positive relationship between entrepreneurial competences and networks should be strengthened. We argue in line with the literature that developmental network is a multidimensional construct and it needs to integrate a) structure and b) density as pointed out in the literature. Therefore we argue in this study that that greater the entrepreneurial competences and the developmental network, the stronger will be the positive relationship between the network context and the entrepreneurial identity.

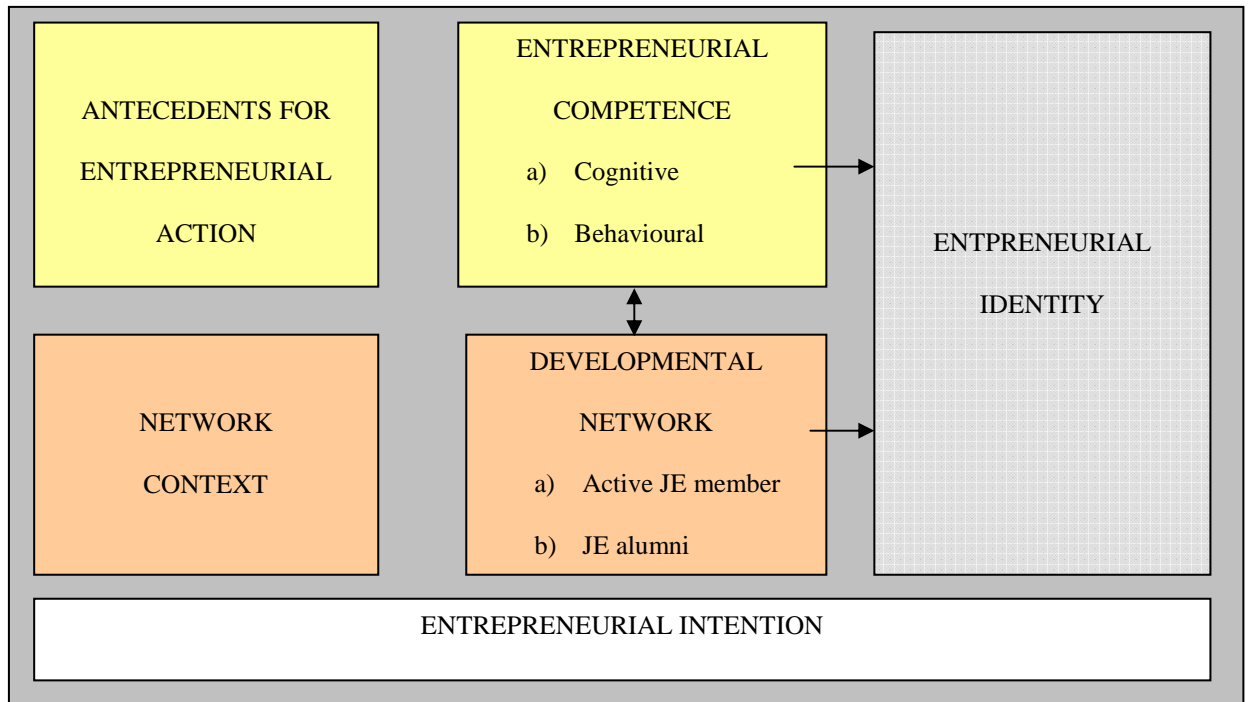


Figure 1: Conceptual Framework of the Paper

### 3.3 HYPOTHESES

We acknowledge that there will be always debates about what factors to be included into any theoretical framework. Based on the development of our theoretical framework, the linkages between cognitive, behavioural, entrepreneurial competences and entrepreneurial identity, information gathered from the literature review, we argue that practices relating to these constructs are actively implanted in the developmental network concept. Our research is designed to investigate four hypotheses about the acquisition of competences in junior enterprises and their relationship to the development of entrepreneurial identity.

The first and most important hypothesis of the conceptual framework is that developmental networks affect entrepreneurial identities. We formulate hypothesis I:

#### **Hypothesis I**

*H<sub>0</sub>: There is no relationship between entrepreneurial identities and developmental networks.*

*H<sub>1</sub>: Entrepreneurial identities are affected by developmental networks.*

The second hypothesis claims that the development of cognitive competences has an effect on the entrepreneurial identity. We formulate Hypothesis II:

#### **Hypothesis II**

*H<sub>0</sub>: There is no relationship between entrepreneurial identities and cognitive competences.*

*H<sub>1</sub>: Entrepreneurial identities are affected by cognitive competences.*

The third hypothesis claims that behavioural competences affect entrepreneurial identities. We derive our hypothesis III:

### **Hypothesis III**

*H<sub>0</sub>: There is no relationship between entrepreneurial identities and behavioural competences.*

*H<sub>1</sub>: Entrepreneurial identities are affected by behavioural competences.*

The last hypothesis is that entrepreneurial competences and developmental networks are interrelated. We state hypothesis IV as:

### **Hypothesis IV**

*H<sub>0</sub>: There exists no linkage between entrepreneurial entrepreneurial competences and developmental networks.*

*H<sub>1</sub>: Entrepreneurial competences are linked with developmental networks..*

## **4 EMPIRICAL RESEARCH AND RESULTS**

### **4.1 RESEARCH PROCESS**

This study focused on a total population of approximately 20.000 people who were interviewed by e-mail for this survey. This sum includes Junior Entrepreneurs and Alumni of Junior Enterprises (JEs). The large number of interviewees is a criterion for a quantitative analysis instead of a qualitative analysis (Ilieva, Baron, & Healey, 2002). According to literature the methodology used has a deep impact on the response rates of the survey and on the results (Meyer, 2011). For the purpose of our survey we used the competence set used in the Austrian Survey on Collegiate Entrepreneurship 2006 (Kailer, 2007a). Our web-based survey instrument was conceptualized as a multi-form online survey. The respondents received a link via e-mail and connected directly to the web site, which displayed the questionnaire. The URL of the survey form was placed in a cover letter, allowing the respondent to subsequently fill out the questionnaire. The e-mails were sent out in 2009 over the internal databases of the national confederation of each participating country of the JADE network. We consider the web-based survey as the best tool to reach the alumni of the JADE network as each JE organization collects the contact information of their former members, so the chance for reaching as many Alumni as possible was therefore the highest using a web-based questionnaire. Overall our study is based on 980 valid responses, 587 of currently active JE Members and 393 of former JE Members.

### **4.2 STATISTICAL ANALYSIS AND RESULTS**

Before we conducted the empirical analysis dimensionality of the measurement scales had been checked. Multi-item scales of competences and were checked for their convergent validity by using the Cronbach Alpha reliability measure. Furthermore the scales' reliability was tested by using principal component analysis and the Kayser-Meyer-Olkin (KMO) measures of the adequacy as well. Statistical analysis was performed in the SPSS environment (Field, 2005). In the first step of the analysis we used linear regression analysis examining cause-effect relationship between entrepreneurial identity as the dependent variable and entrepreneurial competences' constructs as independent variables. We tested correlations and performed a linear regression to determine the effect of competence factors and the entrepreneurial identity development in the Junior Enterprise. First we performed stepwise

linear regression in order to omit insignificant entry factors. The dependent variable of our conceptual model – entrepreneurial identity – was measured as the respondent’s intention to continue his or her career in the future in terms of entrepreneurial action as an entrepreneur. For the linear regression the control variables were collected about the respondent’s education type (field of study), age, gender, length of work experience, position in Junior Enterprise and nationality and have been transformed to dummy variables.

Our first hypothesis stated that the relationship between the developmental networks and entrepreneurial identity would be positive and linear for potential entrepreneurs. The relationship was estimated for prospective entrepreneurs (those who do not have their own enterprise but plan to start it at the latest in forthcoming three years) and maybe entrepreneurs (those who do not have their enterprise but may start it sometime in the future). The regression coefficient of the linear regression equation was found positive and significant for both active (0.64) and former Junior Enterprise members (0.66).

In the second step of the analysis we checked the cause-effect relationship between independent variables of competences of entrepreneurial identity on the one hand as dependent variable on the other for the whole sample. We used the method of simultaneous inclusion of all independent variables in the regression model. The model in this case contains a slightly smaller, moderate proportion of the variance of independent variables (adjusted  $R^2=0.336$ ), and it is also statistically significant ( $F=3.937$ ,  $p<0.001$ ). Statistically significant independent variables in the model and their effects on the dependent variable are presented in the following table 1. As can be seen in the table, and which is quite interesting, behavioural competences, developmental networks, entrepreneurial competences and cognitive competences as predictors have a positive impact on entrepreneurial identity as a dependent variable. Since the regression function fitted the data well, we found some – but limited – support for the second part (nonlinearity) of our analysis. Therefore we cannot reject our hypotheses number II and III.

Table 1: Results of regression analysis (entrepreneurial identity as dependent variable)

Independent variable	Beta	P
Developmental Networks (hypothesis I)	0,312	0,012
Cognitive competences (hypothesis II)	0,412	0,004
Behavioural competences (risk taking, personal strength) (hypothesis III)	0,380	0,002

Source: Statistical analysis

In the third step of our analysis we investigated the correlation between concrete network activities carried out within a Junior Enterprise and the development of either learning competences or behavioural competences. This reflection was based on the findings of the preliminary stages of our regression analysis regarding competences as predictors for entrepreneurial identity. To find linkages between the competence constructs and the developmental networks, we used analysis of simple, bivariate correlations. The results are presented in the following Table 2 and they demonstrate that we cannot reject hypothesis IV.

Table 2: Correlation between developmental networks activities and entrepreneurial competences

Activities carried out within	* $p < 0,05$ ; ** $p < 0,01$ ; *** $p < 0,001$
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Developmental network (Junior Enterprise)	Cognitive and Learning Competence	Behavioural Competence	Sign.
Scenario-Planning	0.422**	0.195	h.s.
Negotiation.	0.336**	0.113	h.s.
Problem based learning.	0.238*	0.011	s.
Group techniques for creating new ideas.	0.378**	0.319**	h.s.
Mentoring.	0.276**	0.207	h.s.
Marketing.	0.298**	0.107	h.s.
Task coordination.	0.221*	0.190	s.

Source: Statistical analysis

Group techniques for creating new ideas is the only task which shows a significant correlation for learning competences as well as behavioural competences. Moreover, group techniques for creating new ideas show a strong significant correlation with behavioural competences. According to the respondents scenario-planning, negotiation and group techniques are the activities which are significantly associated with learning competences, and not associated with behavioural competences. These are also the approaches which have probably the highest potentiality for strengthening the entrepreneurial identity. Mentoring and Marketing also have a strong significant correlation with learning competences but no correlation with behavioural competences. Task coordination has a significant correlation with learning competences but no correlation with behavioural competences.

Summarizing the results of our analysis show support for the proposed hypotheses on the effects of competences and entrepreneurial identity resulting from activities carried out in developmental networks. While there is a significant difference in the types of activities carried out within developmental networks. Further analyses will dig into these findings to not only confirm their robustness but also give us a deeper understanding of these results.

## 5 DISCUSSION AND IMPLICATIONS

This study contributes to two main lines of research in several ways. The first stream is research on developmental networks, a relatively new perspective in mentoring research. Our underlying assumption – that people develop their entrepreneurial identities through their membership to developmental networks constitutes a relational perspective, consistent with recent career theory. We know little about the dynamics of identity development through the cultivation of important relationships over time. Our research advances the understanding of developmental mentoring networks through examining these networks' connection with an entrepreneurial identity development. The second stream of research concerns the development of entrepreneurial competences and their linkage with entrepreneurial identity formation of active and former Junior entrepreneurs. Statistical analysis shows that the creation of entrepreneurial identity is not only affected by entrepreneurial competences, but also by a mix of activities carried out in a developmental network. Both learning and cognitive competences affect the entrepreneurial identity, but not in terms of weakening the entrepreneurial intentions, but rather in terms of their strengthening. This seems logical to a certain extent. Namely, the one who learns proactively acquires entrepreneurial knowledge and skills, which might be also applied in practice. Among the developmental network

activities that contribute to the formation of the entrepreneurial identity are different entrepreneurial competence constructs including cognitive competences and behavioural competences.

Based on the findings of our study we suggest further steps particularly in terms of repeating the survey on a larger sample. This would allow the use of a more complex conceptual model and the simultaneous verification of all cause-effect connections between constructs in the model - competences, self-efficacy and entrepreneurial intentions. An interesting approach might be the analysis if the developmental network acts as a mediator or moderator in a path model. An analysis of the smaller sample of the experienced entrepreneurs in our sample would allow the use of advanced statistical methods (e.g. PLS modelling) to enable the inclusion of impacts of the developmental network activities and the identification of interactions between all the constructs in the conceptual framework. On the other hand the testing of the relations on a larger sample (as pursued in this survey) has enabled us to investigate the relevance of developmental networks for the creation of entrepreneurial identity as a first step. Implications from our survey are twofold. First, we suggest to integrate work place related activities into Entrepreneurship education curriculums of universities or higher education institutions because we support the idea that Junior Enterprise activities contribute to the development of entrepreneurial intentions among students and graduates. Second, we consider Junior Enterprises as an important instrument for enhancing the employability of graduates as they offer the possibility to combine the acquisition of theoretical knowledge with practical business skills.

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