Education + Training
Development of entrepreneurial intention in higher education and the effect of gender - a latent growth curve analysis
Joensuu Sanna Viljamaa Anmari Varamäki Elina Tornikoski Erno

Article information:
To cite this document:
Permanent link to this document:
http://dx.doi.org/10.1108/ET-06-2013-0084
Downloaded on: 25 November 2015, At: 04:30 (PT) References: this document contains references to 86 other documents.
To copy this document: permissions@emeraldinsight.com
The fulltext of this document has been downloaded 1245 times since 2013*

Users who downloaded this article also downloaded:
Duygu Turker, Senem Sonmez Selcuk, (2009), "Which factors affect entrepreneurial intention of university students?", Journal of European Industrial Training, Vol. 33 Iss 2 pp. 142-159 http://dx.doi.org/10.1108/03090590910939049

Access to this document was granted through an Emerald subscription provided by emerald-srm:419011 []

For Authors
If you would like to write for this, or any other Emerald publication, then please use our Emerald for Authors service information about how to choose which publication to write for and submission guidelines are available for all. Please visit www.emeraldinsight.com/authors for more information.

About Emerald www.emeraldinsight.com
Emerald is a global publisher linking research and practice to the benefit of society. The company manages a portfolio of more than 290 journals and over 2,350 books and book series volumes, as well as providing an extensive range of online products and additional customer resources and services.
Emerald is both COUNTER 4 and TRANSFER compliant. The organization is a partner of the Committee on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive preservation.
Related content and download information correct at time of download.
Development of entrepreneurial intention in higher education and the effect of gender – a latent growth curve analysis

Sanna Joensuu, Anmari Viljamaa and Elina Varamäki
Business School, Seinäjoki University of Applied Sciences, Seinäjoki, Finland, and
Erno Tornikoski
Grenoble Ecole de Management, Grenoble, France

Abstract

Purpose – The objectives of this study are threefold: first, to analyze the development of intentions of individuals over time; second, to explore potential gender differences in intention development; and third, to analyze the relatedness of the initial level and development of the antecedents of intentions to the initial level and the development of intentions.

Design/methodology/approach – Ajzen’s Theory of Planned behavior is applied. Longitudinal data were collected in the fall of 2010, 2011 and 2012 in seven different universities of applied sciences, with students representing seven different study fields. In our data, there are 192 individuals with all three measurement waves and 104 individuals with two measurement waves. The analysis of change on multi-wave panel data is done using latent growth curve analysis with structural equation modeling.

Findings – Our empirical results are threefold. First, entrepreneurial intentions of higher education seem to decrease during their studies. Second, there is a gender difference in the initial level of entrepreneurial intentions and how intentions develop over time. Third, the initial level of intentions does not affect the future development of intentions.

Practical implications – In sum, the authors believe that the paper makes an important contribution to the field of entrepreneurial education by concluding that intention development in higher educational context is not a simple matter, but a rather complicated process during which young people can realize their true potential vis-à-vis entrepreneurial opportunities. From an educators’ point of view, such realization generally means a decrease in an individual's entrepreneurial intentions, which is a phenomenon that does not provide much encouragement for educators. On the other hand, one of the aims of any entrepreneurship education is to give younger people a more realistic picture about entrepreneurship. When someone is willing to start a new business in this kind of context, the authors, as educators, can be a degree more confident that such an individual is not launching his/her venture because of idealistic dreams.

Originality/value – By using a longitudinal design, the paper is one of the first to provide empirical evidence about the intention development over time. Ultimately, the paper hopes to have added richness to the ongoing discussion among academics and educators alike regarding the importance of intention development in entrepreneurship education.

Keywords University, Entrepreneurship, Entrepreneurial intention, Latent growth curve analysis, Longitudinal data, Student

Paper type Research paper

This research project has been funded by European Regional Development Fund and the support is gratefully acknowledged.
Introduction
A dynamic business environment requires a constant input of new start-ups, preferably innovative high growth start-up firms. At the same time, in developed countries with high general levels of education, there seems to be a lack of entrepreneurial drive (e.g. Xavier et al., 2013). As societies struggle to find a continuous supply of new entrepreneurs to fuel economic growth and to maintain or increase the level of education needed in a high-tech world, the question of how higher education affects formation of entrepreneurial intentions is becoming a crucial one.

Entrepreneurial intentions refer to the commitment of starting a new business (Krueger and Carsrud, 1993) by a graduate, either directly after graduation or in the future. Some studies suggest that higher education reduces the likelihood of entrepreneurship (Kangasharju and Pekkala, 2002; Henley, 2005; Pihkala, 2008; Wu and Wu, 2008; Nabi et al., 2010) while others suggest the opposite (Blanchflower and Meyer, 1994; Ertuna and Gurel, 2011; Lanero et al., 2011; Zhang et al., 2013). Reasonable arguments exist in favor of both views. On one hand, participating in higher education gives a person a resource advantage which may enable a successful career in entrepreneurship; on the other hand, with a higher education degree a person becomes a more desirable employee and may view salaried employment a more attractive alternative than entrepreneurship.

Another intriguing issue relates to how higher education and gender impact entrepreneurial intentions. In Finland, 25 percent of men and 31 percent of women have a higher education degree; while, only a third of entrepreneurs are female (Tilastokeskus, 2013). It would be simplistic to argue that higher education is to blame for the low proportion of female entrepreneurs. The differences suggest that gender differences in the development of entrepreneurial intentions in higher education deserve attention.

The development of entrepreneurial intentions has been extensively studied, but the overwhelming majority of studies have been cross-sectional, comparing, e.g. students in different age cohorts or different fields of study. Longitudinal studies are challenging from the point of view of data collection (e.g. Harte and Stewart, 2010), and few exists (e.g. Matlay and Carey, 2007) to help us create an understanding of how an individual’s intentions develop over time spent in higher education.

This research paper presents the results of tracking the changes in entrepreneurial intentions of students during their higher education studies in Finland. The objectives of this study are threefold: first, to analyze the development of intentions of individuals over time; second to explore potential gender differences in intention development; and third to analyze the relatedness of the initial level and development of the antecedents of intentions to the initial level and the development of intentions. The analysis of change on multi-wave panel data is done using latent growth curve (LGC) analysis with structural equation modeling.

The remainder of the paper is organized as follows. The following section will present our theoretical model. Thereafter we discuss our methodological choices before presenting the statistical analysis. Lastly, we discuss the implications of our study.

Review of literature and theoretical model
Intentions and their antecedents
In order to study the development of intentions, we will adopt an existing intention model, namely the Theory of Planned Behavior (TPB) by Ajzen (1991), which has become one of the most widely used psychological theories to explain and predict
The Theory of Planned Behavior (TPB) suggests that intention is the immediate antecedent of behavior and, thus, the stronger the intention to engage in a specific behavior, the more likely its actual performance should be (Ajzen, 1991). The linkage between intentions and actual behavior has received support in the entrepreneurial context (e.g., Kautonen et al., 2013). The core of the TPB is the idea that intentions have three conceptually independent determinants, namely attitude towards the behavior, subjective norm and perceived behavioral control (Ajzen, 1991, p. 188).

Attitude towards the behavior refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question. The more positive an individual’s perception regarding the outcome of starting a business is (see e.g., Shapero and Sokol, 1982; Autio et al., 1997; Krueger et al., 2000; Segal et al., 2005; van Gelderen and Jansen, 2006; Pruett et al., 2009) the more favorable their attitude towards that behavior should be and, consequently, the stronger the individual’s intention to go ahead and start a business should be.

Subjective norm refers to the perceived social pressure to perform or not to perform a behavior, i.e., starting a business. Subjective norm is based on beliefs concerning whether important referent individuals or groups approve or disapprove of an individual establishing a business, and to what extent this approval or disapproval matters to the individual (Ajzen, 1991, p. 195). Generally speaking, the more the opinion and the encouragement for enterprising activity of a particular referent group or individual matters to the individual the stronger the individual’s intention to start a business should be. Cialdini and Trost (1998) suggested that social norms have the greatest impact when conditions are uncertain. Pruett et al. (2009) operationalized social norms as family experience and support in addition to knowledge of others who had started businesses.

Perceived behavioral control refers to the perceived ease or difficulty of performing the behavior. It is based on beliefs regarding the presence or absence of requisite resources and opportunities for performing a given behavior (see Bandura et al., 1980; Swan et al., 2007). In general, the greater this perceived behavioral control, the stronger the individual’s intention to start up in business should be. According to Ajzen (1991) this is most compatible with Bandura’s (1977) concept of perceived self-efficacy.

According to Ajzen and Fishbein (2004), the three theoretical antecedents should be sufficient to predict intentions, but only one or two may be necessary in any given application. In other words, the TPB posits that the relative importance of the three factors can vary from one context to another. In most of the studies the best predictor of intentions has been perceived behavioral control (Shapero and Sokol, 1982; Boyd and Vozikis, 1994; Krueger et al., 2000; Autio et al., 2001; Melin, 2001; Kristiansen and Indarti, 2004; Linan, 2004; Henley, 2005; Segal et al., 2005; Urban, 2006; Sequeira et al., 2007; Wilson et al., 2007; Prodan and Drnovsek, 2010; Chen and He, 2011; Drost and McGuire, 2011; Finisterra Do Paco et al., 2011; Lee et al., 2011; Lope Pihie and Bagheri, 2011). The second-most common predictor has been attitudes (Zampetakis et al., 2009; Moi et al., 2011) followed by subjective norm (Aizzat et al., 2009; Lope et al., 2009; Engle et al., 2010; Siu and Lo, 2013).

Although there are very few previous longitudinal studies of changes in entrepreneurial intentions in higher education over time, we claim that changes in perceived behavioral control, in attitudes, and in subjective norm are the key ingredients in understanding the development of entrepreneurial intentions in higher education. As such, our theoretical model will reflect this emphasis on changes in these central antecedents of intention formation and development.
Gender
As both existing enterprise statistics and research on intentions (e.g. Crant, 1996; Kourilsky and Walstad, 1998; Shay and Terjesen, 2005; Wilson et al., 2004; Wang and Wong, 2004; Sequeira et al., 2007; Linan and Chen, 2009; cf. Pruett et al., 2009; Yordanova and Tarrazon, 2010; Kautonen et al., 2010; Lee et al., 2011; Zhang et al., 2013) have shown that women have less desire to start a new businesses than men, gender is included in our theoretical model as a factor influencing the initial level of entrepreneurial intentions and the development of intentions. Also and Isaksen (2012) found that among female Norwegian pupils at upper secondary school, youth enterprise experience had an indirect positive effect on entrepreneurial intentions through its effect on subjective norm and perceived behavioral control. A recent European Commission (2012) study on alumni of entrepreneurship programs found that female alumni score lower on entrepreneurial self-efficacy than their male counterparts, but higher than the control group (cf. Wilson et al., 2007; Kickul et al., 2008). In Zhao et al’s (2005) study, gender was not related to entrepreneurial self-efficacy but was directly related to entrepreneurial intentions. In their study women also had lower entrepreneurial intentions than men. Yordanova and Tarrazon (2010) found that gender effect on entrepreneurial intentions is fully mediated by perceived behavioral control and partially mediated by perceived subjective norms and attitudes. Zhang et al’s (2013) study also offers evidence that if both men and women receive entrepreneurship education, men have a higher log-chance of entrepreneurial intentions than females. Some earlier studies have also found differences in learning styles between men and women (Gallos, 1993; Kaenzig et al., 2007; Varamäki et al., forthcoming). According to these studies, women are not as happy with group work or active-based pedagogies as men are.

Impact of education on intention development
The impact of education on entrepreneurial intentions has been studied by Lee et al. (2011), Wilson et al. (2007), Sandhu et al. (2011), Millman et al. (2010), Nabi et al. (2010), Henley (2005), Franco et al. (2010), Fayolle et al. (2005), Blanchflower and Meyer (1994), and Kristiansen and Indarti (2004). At the general level, some studies suggest that higher education reduces the likelihood of entrepreneurship (Henley, 2005; Pihkala, 2008; Wu and Wu, 2008; Nabi et al., 2010). Others seem to show the opposite effect. For example, it was observed among Spanish university students that education had a positive effect on perceived entrepreneurship feasibility, which in turn affected entrepreneurial intention and behavior (Lanero et al., 2011). In Zhang et al’s (2013) study students from technological universities reported cross-sectionally higher entrepreneurial intentions, and if all students would have received entrepreneurship education, students from technological universities had a higher log-chance of entrepreneurial intentions than those from other universities. Blanchflower and Meyer (1994) found that additional years of schooling had a positive impact on the probability of being self-employed in the USA but not in Australia. Turkish senior students are more likely to have entrepreneurial intentions than freshmen (Ertuna and Gurel, 2011).

Instead of general impact of education, more effort has been put towards understanding the effects of entrepreneurship education in particular (Matlay and Carey, 2007; Mwasalwiba, 2010; Zhang et al., 2013). Studies show positive impacts of entrepreneurship education on intentions, attitudes and self-efficacy (e.g. Zhao et al., 2005; Souitaris et al., 2007; Jones et al., 2008; Wilson et al., 2009; Zhang et al., 2013), but negative impacts have also been reported (e.g. Pihkala and Miettinen, 2004; Oosterbek et al., 2010; Walter et al., 2013).
The intention development model
Based on the above review, we built a structural intention model for empirical exploration. Figure 1 presents the conceptual model of our study.

Methodology
Instrument and data collection method
The instrument used in this study has been developed and piloted in Finland. The scales are largely based on Kolvereid (1996). The data were collected using a self-administered questionnaire in the autumn of 2010, 2011 and 2012. Students from seven different universities of applied sciences representing seven different study fields were administered the questionnaire. There is always difficulty with data loss in longitudinal studies. For the analysis we accepted those individuals who had answers for at least two waves. In our data there are 192 individuals with all three measurement waves and 104 individuals with two measurement waves. We compared those students with all waves to those who were missing one wave on demographic variables (age, gender, mother’s or father’s professional background as an entrepreneur). Given no statistically significant differences between the groups, selective attrition did not appear to be operating in this longitudinal data. For missing data we used estimation of means and intercepts with Amos. Respondents who had already begun preparing for a business venture of their own before the first survey were excluded from the final data, because their entrepreneurial intentions had already been realized in preparatory actions before the follow-up. In the final analysis there were 296 responses. 60 percent of the respondents were female. The mean age for the respondents was 21 in year 2010.

Notes: ATT, attitudes; SN, subjective norm; PBC, perceived behavioral control; EI, entrepreneurial intentions

Figure 1.
The theoretical intention development model
Variables

Entrepreneurial intentions. An index of entrepreneurial intention was created by averaging eight items.

Subjective norm. The variable subjective norm has three items. Originally each item had a seven-point scale from 1 to 7. For the statistical analysis the scales were transformed to a $-3$ to $+3$ scale. In addition, motivation to comply was measured by three items (seven-point scale from 1 to 7) referring to each of the aforementioned belief questions. The belief based items (coded as ranging from $-3$ to $+3$) and the corresponding motivation to comply items (coded as ranging from 1 to 7) were multiplied, and then added to create an index of Subjective Norm.

Perceived behavioral control. An index of perceived behavioral control was created by averaging five item scores.

Attitudes towards entrepreneurship. An index of entrepreneurial attitude was created by averaging nine-item scores.

All the variables and their items are presented in Appendix 1. Table I presents Cronbach’s $\alpha$, minimum and maximum scores, means and standard deviations for the scales ($EI =$ entrepreneurial intentions, $SN =$ subjective norm, $PBC =$ perceived behavioral control, $ATT =$ attitudes).

Common method variance

We tested the possible effects of common method variance for the variables collected using Harman’s one factor test (Harman, 1976). If common method variance was a serious problem in the study, we would expect a single factor to emerge from a factor analysis or one general factor to account for most of the covariances in the independent and dependent variables (Podsakoff and Organ, 1986). All the items used to create the main variables, a total of 29 items, were factor analyzed using principal axis factoring where the unrotated factor solution was examined, as recommended by Podsakoff et al. (2003, p. 889). Kaiser’s criterion for retention of factors was followed. The sample size seemed to be large enough for the factor analysis, at least based on the Kaiser-Meyer-Olkin measure of sampling adequacy ($KMO = 0.88$).

Factor analytic results indicated the existence of nine factors with Eigenvalues $> 1.0$. The seven factors explained 62 percent of the variance among the 29 items, and the first factor accounted for 29 percent of the variance. Since several factors, as opposed to one single factor, were identified and since the first factor did not account

<table>
<thead>
<tr>
<th></th>
<th>Cronbach’s $\alpha$</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI 2010</td>
<td>0.86</td>
<td>1.0</td>
<td>6.8</td>
<td>3.3</td>
<td>1.1</td>
</tr>
<tr>
<td>EI 2011</td>
<td>0.89</td>
<td>1.0</td>
<td>6.6</td>
<td>3.2</td>
<td>1.2</td>
</tr>
<tr>
<td>EI 2012</td>
<td>0.88</td>
<td>1.0</td>
<td>6.8</td>
<td>3.0</td>
<td>1.2</td>
</tr>
<tr>
<td>SN 2010</td>
<td>0.76</td>
<td>$-63$</td>
<td>45</td>
<td>$-2.0$</td>
<td>15.8</td>
</tr>
<tr>
<td>SN 2011</td>
<td>0.74</td>
<td>$-63$</td>
<td>34</td>
<td>$-3.1$</td>
<td>14.1</td>
</tr>
<tr>
<td>SN 2012</td>
<td>0.70</td>
<td>$-54$</td>
<td>36</td>
<td>$-3.8$</td>
<td>14.8</td>
</tr>
<tr>
<td>PBC 2010</td>
<td>0.74</td>
<td>1.0</td>
<td>7.0</td>
<td>4.0</td>
<td>1.0</td>
</tr>
<tr>
<td>PBC 2011</td>
<td>0.73</td>
<td>1.0</td>
<td>6.0</td>
<td>3.9</td>
<td>0.9</td>
</tr>
<tr>
<td>PBC 2012</td>
<td>0.78</td>
<td>1.0</td>
<td>6.6</td>
<td>3.9</td>
<td>1.1</td>
</tr>
<tr>
<td>ATT 2010</td>
<td>0.75</td>
<td>1.8</td>
<td>6.9</td>
<td>4.9</td>
<td>0.8</td>
</tr>
<tr>
<td>ATT 2011</td>
<td>0.80</td>
<td>2.4</td>
<td>6.9</td>
<td>4.8</td>
<td>0.8</td>
</tr>
<tr>
<td>ATT 2012</td>
<td>0.82</td>
<td>1.0</td>
<td>7.0</td>
<td>4.7</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Table I.

Cronbach’s $\alpha$, minimum and maximum scores, means and standard deviations for the scales
for the majority of the variance, a substantial amount of common method variance does not appear to be present. Thus, we conclude that common method variance bias is not a threat to the validity of the results. One should bear in mind though that this procedure does nothing to statistically control for the common method effect: it is just a diagnostic technique (Podsakoff et al., 2003, p. 889). Hence, the possibility of common method issues cannot be fully discarded.

Results

Latent growth analysis
LGC modeling was utilized to test the model of development of entrepreneurial intent. LGC is a useful analytic tool for analyzing longitudinal data, because in addition to means, it accounts for both within person and between person variance in the statistical model. Multi-wave data allows for more effective testing of systematic inter-individual differences in change. The model includes two growth parameters: first, an intercept parameter representing an individual's score on the outcome variable at the initial state, and second a slope parameter representing the individual's rate of change over the time period of interest. (Byrne, 2010, p. 305). In this study we used three measurement waves at one-year intervals.

First we focused on modeling individual differences in growth. In order to examine growth of entrepreneurial intentions, a two-factor Latent Growth Model (LGM) was used. The Intercept factor describes the initial level of entrepreneurial intention (intercept mean) and individual differences at the initial level (intercept variance). The factor loadings for intentions were set at 1 for each time because the intercept is a constant for individuals across time. The Slope factor represents the rate of change (slope mean) and individual differences in growth patterns (slope variance). For testing a linear growth model, these factor loadings were fixed to correspond to a linear time scale (0, 1, 2). The parameters of growth were estimated using structural equation modeling with Amos 19.

The goodness of fit is presented with the following indices: \( \chi^2 \)-value, \( p \)-value, the root mean square error of approximation (RMSEA), normed fit index (NFI) and comparative fit index (CFI). The basic linear model of growth produced an excellent fit: \( \chi^2 = 0.024, p = 0.877, \) RMSEA = 0.000, NFI = 1.000, CFI = 1.000.

Characteristics of latent curve of intentions
The estimates of growth parameters of the linear model are presented in Table II (Icept, Slope and Error terms). The estimated mean for intercept is 3.3, which is the mean estimate for entrepreneurial intention at the beginning of studies. The mean estimate for the slope mean is \(-0.103\). That indicates a negative and a significant growth rate. Covariance between the initial state and growth rate \((-0.020)\) was not significant, which indicates that initial level is unrelated to the rate of change. The variance related to intercept is significant. The finding reveals strong inter-individual differences in initial scores. The variance related to slope is not significant. There are no inter-individual differences in growth trajectories.

Effect of gender on LGC
Gender (male) was used as a person covariate in the model. The model with standardized regression weights is presented in Figure 2. Gender has a significant effect on both the intercept and the slope parameters. For male students the initial level
of intention is higher. Gender (if male) also has a positive effect on the development of intentions over three years. The estimates of growth parameters of the linear model are presented in Table III. The model produced an excellent fit: $\chi^2 = 1.098$, $p = 0.578$, RMSEA = 0.000, NFI = 0.998, CFI = 1.000.
There is a strong difference between male and female students in the development of intentions. Female students’ mean estimate for the initial state is 3.1, the following year 3.0 and the third year 2.8. Estimates for the male students over the same time period are 3.5, 3.4 and 3.4. Male students have a higher initial level and intentions do not decrease as much as with the female students. The result supports our theoretical model with gender effect on the initial level and the development of entrepreneurial intentions.

Means, covariance structures and variances between intention, attitudes, subjective norm and perceived behavioral control
We tested the relatedness of the initial level and development of attitudes, subjective norm and perceived behavioral control to the initial level and the development of intentions. A multi-domain LGC model was created for testing (see Appendix 3). As Willett and Sayer (1996) suggest, covariation among the growth parameters across domains was included. Table IV presents the results related to entrepreneurial intention development. Other covariance structures are presented in Appendix 4. The mean estimates for slopes show that attitudes develop significantly in a negative direction. Also perceived behavioral control has a small negative development.

<table>
<thead>
<tr>
<th>ICEPT ← male</th>
<th>Estimate</th>
<th>SE</th>
<th>CR</th>
<th>p</th>
<th>Standardized regression weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLOPE ← male</td>
<td>0.366</td>
<td>0.130</td>
<td>2.817</td>
<td>**</td>
<td>0.174</td>
</tr>
<tr>
<td></td>
<td>0.136</td>
<td>0.046</td>
<td>2.970</td>
<td>**</td>
<td>0.214</td>
</tr>
</tbody>
</table>

Note: **p < 0.01

Table III. Estimates of growth parameters with gender

<table>
<thead>
<tr>
<th>Attitudes</th>
<th>Estimate</th>
<th>SE</th>
<th>CR</th>
<th>p</th>
<th>***</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATT ICEPT</td>
<td>4.876</td>
<td>0.043</td>
<td>113.378</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>ATT SLOPE</td>
<td>−0.072</td>
<td>0.022</td>
<td>−3.293</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>SN ICEPT</td>
<td>−2.061</td>
<td>0.893</td>
<td>−2.307</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>SN SLOPE</td>
<td>−0.866</td>
<td>0.491</td>
<td>−1.763</td>
<td>0.078</td>
<td></td>
</tr>
<tr>
<td>PBC ICEPT</td>
<td>4.030</td>
<td>0.055</td>
<td>73.023</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>PBC SLOPE</td>
<td>−0.065</td>
<td>0.028</td>
<td>−2.341</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

Table IV. Estimates of intercept and slope factors related to attitudes (ATT), subjective norm (SN) and perceived behavioral control (PBC); and covariances with entrepreneurial intentions (EI)
Subjective norm remains almost at the same level during studies. Covariance structures reveal that intercept of attitudes and perceived behavioral control are strongly related to the intercept of intentions. This means that the initial level of intentions is related to the initial level of attitudes and perceived behavioral control. Individuals with high values in entrepreneurial intentions also have high values in attitudes and perceived behavioral control. The initial level of subjective norm, however, does not seem to be related to the initial level of intentions; nor is the development of subjective norm related to the development of entrepreneurial intentions. The slope of attitudes and the slope of perceived behavioral control are strongly related to the development of entrepreneurial intentions. This result indicates that as students’ perceptions of their entrepreneurial ability and attitudes towards entrepreneurship undergo a moderate increase, so do their entrepreneurial intentions as well.

Variances show that there are strong inter-individual differences in the initial level of attitudes, subjective norm and perceived behavioral control. There are no inter-individual differences in the growth trajectories related to attitudes, subjective norm and perceived behavioral control.

The tested model produced a good fit: RMSEA = 0.072, NFI = 0.95, CFI = 0.97. Although the fit statistics with $\chi^2$-distribution (86.720, $p = 0.000$) is not good, the problems with $\chi^2$-statistics is widely known when the sample size is large (Byrne, 2010, p. 76).

The results give support for the hypothesized model except for the relatedness of subjective norm with entrepreneurial intentions. The initial level with subjective norm and the development of subjective norm seems to be unrelated to the initial level and the development of entrepreneurial intentions.

Discussion
We have made an attempt in this study to increase our understanding about the development of entrepreneurial intentions during first to third year university studies and the role of gender. Our empirical sample consisted of a unique panel data from seven different universities of applied sciences in Finland and students representing seven different study fields. The analysis of change on multi-wave panel data was conducted using LGC analysis with structural equation modeling.

In summary, our empirical results are threefold. First, entrepreneurial intentions of higher education seem to decrease during their studies. Second, there is a gender difference in the initial level of entrepreneurial intentions and how intentions develop over time. Third, the initial level of intentions does not affect the future development of intentions. Below we comment on each of these findings, relate them to the existing literature, and propose avenues for future research.

Intentions decrease during studies
The first objective of our study was to analyze the development of intentions of individuals over time. Our empirical observations over two and a half years confirm that, generally speaking, entrepreneurial intentions of a student of higher education institute seem to decrease. This observation is in line with earlier empirical studies concerning student populations (e.g. Fayolle et al., 2005; Henley, 2005; Pihkala, 2008; Wu and Wu, 2008; Nabi et al., 2010). Based on our study, it seems that individuals at the beginning of their studies seem to have greater self-confidence and will in starting their own businesses than they do after studying two and a half years. It is, however, quite typical that people overrate their intention to perform a distant action. Hence, in the
beginning of their studies a student may overrate their intent to start a business after graduation, whereas, by the time of graduation the student is more realistic about their own competencies, the requirements of starting their own businesses and other career options. More interestingly, people have a tendency to rate temporally distant actions based on positive aspects (pros), and temporally near actions based on negative aspects (cons) (Eyal et al., 2004). When students start their studies, the entrepreneurial act is temporally distant, so it is evaluated based on pros, therefore more positive intentions towards entrepreneurship. When the students are about to graduate, however, the probable entrepreneurial action is temporally closer. In these situations, students are more attached to the cons than pros, therefore, entrepreneurial intentions decrease compared to the initial level. Future studies could explore this phenomenon by comparing the kinds of attributes student attach to entrepreneurship and how these attributes, potentially, change during the studies.

The non-importance of initial intention level
According to empirical observations the initial level of intentions does not influence the development of intentions over three years of study (see also Pihkala, 2008). That is, the initial level of intentions does not condition the subsequent development of intentions. This is contradictory to some other studies (e.g. Varamäki et al., forthcoming). There are no significant differences between individuals in intention development. However, strong inter-individual differences can be found in the initial level of intentions.

Females have a lower level of initial intentions, and intentions decrease more than among males
The second objective of our study was to explore potential gender differences in intention development. Our empirical observations clearly demonstrate a gender difference in both initial level of intentions and the way in which intentions evolve over time. Indeed, male students seem to have higher intentions to begin with (see also Wang and Wong, 2004; Zhao et al., 2005; Sequeira et al., 2007; Linan and Chen, 2009; cf. Lee et al., 2011). More interestingly, the level of intentions among male students does not seem to decrease as much as the intentions of female students. Similar results have been observed earlier by other scholars (e.g. Zhang et al., 2013; cf. Wilson et al., 2009; Also and Isaksen, 2012). While it was out of the scope of our study, future studies could explore why the level of intentions among women decreases more than males. It might well be that there are difference in the way women and men learn in the higher educational setting. In some earlier studies differences in learning styles between men and women have been found. For example, women might react differently to pedagogical methods than males. As such, there might be differences in learning styles between men and women (Gallos, 1993). Also, the effectiveness and value of team-based pedagogical exercises for women students has been called into question, because women seem to be less happy with team-based exercises in business classes (e.g. Kaenzig et al., 2007). We encourage future studies to pay attention to learning styles of individuals to discover whether the differences observed in this study can be attributed to difference in learning styles of individuals.

The change in antecedents is related to the change in intentions
The third objective of our study was to analyze the relatedness of the initial level and development of the antecedents of intentions to the initial level and the development of
intentions. The results show that the initial level of intentions is related to the initial level of attitudes and perceived behavioral control but not to the initial level of subjective norm. Moreover, the change in attitudes and perceived behavioral control is related to the change in intentions. Once again, the change in subjective norm has no effect on the change in intentions.

These results mean that our empirical observations also seem to confirm the validity of the intention model put forward by Ajzen. More particularly, the model seems to have predictive relevance when the development of intentions is examined over time. While the model has been tested extensively, most empirical studies have been cross-sectional. Our three-point data supports the model as a whole, and identifies the non-significant role of subjective norm on the development of entrepreneurial intentions, conforming to some earlier studies (e.g. Zhang et al., 2013; cf. e.g. Siu and Lo, 2013; Engle et al., 2010; Aizzat et al., 2009).

Limitations and conclusion

While we believe that the results presented herein add to our understanding of the role of entrepreneurship education in the development of entrepreneurial intentions in higher education contexts, we acknowledge that the present research is not entirely beyond reproach.

From a theoretical standpoint, we limited our efforts to investigate the effect of higher education in general in entrepreneurial intentions and role of gender in this process. We do acknowledge that entrepreneurial education may have an impact on intention development during higher education studies although the earlier results are controversial. An interesting extension of our study would be to investigate whether participation in entrepreneurship education and different entrepreneurial pedagogy have effects on students’ entrepreneurial intentions. Furthermore, we limited our focus on one intention model when other possible approaches could have been available to study the development of entrepreneurial intentions. Again, future scholarly work could complement our results by investigating the same phenomenon through other theoretical lenses.

From an empirical standpoint, our sample was limited to higher education students in one country. Increasing our knowledge of the potential effects of the general environmental and cultural contexts on the formation of entrepreneurial intentions requires further research using versatile samples comprising university students in other countries. In addition, longitudinal designs are always demanding. The loss of data is problematic as seen in our study with three-point data collection during three years’ time. The missing data can bias conclusions drawn from the study and the obvious disadvantage in the loss of information resulting from the reduced sample size. On the other hand, longitudinal panel data are very rare. The strength of our data is its longitudinal nature and the fact that we were able to follow the development of entrepreneurial intentions at the individual level. There is, however, an opportunity for someone to improve data collection methods to minimize the loss of respondents between subsequent data collection phases.

In conclusion, we believe that our study makes an important contribution to the field of entrepreneurial education by concluding that intention development in higher educational context is not a simple matter, but rather complicated process during which young people can realize their true potential vis-à-vis entrepreneurial opportunities. From an educators’ point of view such realization generally means a decrease in an individual’s entrepreneurial intentions, which is a phenomenon...
that does not provide much encouragement for educators. On the other hand, one of the aims of any entrepreneurship education is to give younger people a more realistic picture about entrepreneurship. When someone is willing to start a new business in this kind of context, we as educators can be a degree more confident that such an individual is not launching his/her venture because of idealistic dreams. By using a longitudinal design, our study is one of the first to provide empirical evidence about the intention of development over time. Ultimately, we hope to have added richness to the continuing discussion among academics and educators alike regarding the importance of intention development in entrepreneurship education.

References


ET 55,8/9


Further reading


(The Appendices follows overleaf.)
Appendix 1

Variable (all measured on a seven-point Likert scale; translated from Finnish)

**Entrepreneurial intention**
How likely are you to start your own business and work as an entrepreneur after graduation (or while still studying)?
If you were supposed to choose between entrepreneurship and salaried work after graduation, which one would you choose?
How strong is your intention to embark on entrepreneurship at some point of your professional career?
How likely are you to embark on entrepreneurship after you have gathered a sufficient amount of work experience?
If you were supposed to choose between entrepreneurship and unemployment after graduation, which one would you choose?

**Subjective norm**
I believe that my closest family members think I should not/should strive to start my own business and to work as an entrepreneur after graduation.
How much attention do you pay to what your closest family members think if you strive to start your own business and to work as an entrepreneur after graduation?
I believe that my best friends think I should not/should strive to start my own business and to work as an entrepreneur after graduation.
How much attention do you pay to what your best friends think if you strive to start your own business and to work as an entrepreneur after graduation?
I believe that my significant others think I should not/should strive to start my own business and to work as an entrepreneur after graduation.
How much attention do you pay to what your significant others think if you strive to start your own business and to work as an entrepreneur after graduation?

**Perceived behavioural control**
If I established a business and started to work as an entrepreneur after graduation, my chance of success would be (good/bad)
If I really wanted to, I could easily start a business and work as an entrepreneur after graduation
There are very few/numerous things that are beyond my own control but could prevent me from starting my own business and working as an entrepreneur after graduation.
For me, starting my own business and working as an entrepreneur after graduation (very easy/very difficult)
If I established my own business and started to work as an entrepreneur after graduation, my risk of failure would be (very small/very big)

**Attitudes towards entrepreneurship**
To what extent do the following attributes correspond to your perceptions of entrepreneurship (i.e. establishing a business and working as an entrepreneur)? (not at all – completely)
Interesting
Esteemed
Worth pursuing
Boring
Fascinating
Despised
Good income level

Notes: In addition, motivation to comply was measured by three items (seven-point scale from 1 to 7) referring to each of the aforementioned belief questions. The belief based items (coded as ranging from −3 to 3) and the corresponding motivation to comply items (coded as ranging from 1 to 7) were multiplied, and then added to create an index of Subjective Norm. For the statistical analysis the scales were transformed to −3- +3 scale.

Table AI.
Variables and their items
### Appendix 2

#### Table AII.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EI 2010</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN 2010</td>
<td>0.090</td>
<td>1</td>
<td></td>
<td></td>
<td>0.122</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC 2010</td>
<td>0.561**</td>
<td>−0.046</td>
<td>1</td>
<td></td>
<td>0.000</td>
<td>0.429</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATT 2010</td>
<td>0.544**</td>
<td>0.008</td>
<td>0.496**</td>
<td>1</td>
<td>0.000</td>
<td>0.886</td>
<td>0.000</td>
<td>0.886</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>EI 2011</td>
<td>0.795**</td>
<td>0.036</td>
<td>0.501**</td>
<td>0.509**</td>
<td>1</td>
<td>0.000</td>
<td>0.625</td>
<td>0.000</td>
<td>0.625</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>SN 2011</td>
<td>0.138</td>
<td>0.516**</td>
<td>−0.002</td>
<td>−0.059</td>
<td>0.144*</td>
<td>0.058</td>
<td>0.000</td>
<td>0.973</td>
<td>0.421</td>
<td>0.048</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>ATT 2011</td>
<td>0.488**</td>
<td>−0.037</td>
<td>0.430**</td>
<td>0.592**</td>
<td>0.637**</td>
<td>0.637**</td>
<td>0.121</td>
<td>1</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.098</td>
<td></td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PBC 2011</strong> Pearson correlation</td>
<td>0.490**</td>
<td>−0.066</td>
<td>0.671**</td>
<td>0.456**</td>
<td>0.624**</td>
<td>−0.016</td>
<td>0.528**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Significance (two-tailed)</td>
<td>0.000</td>
<td>0.363</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.831</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EI 2012</strong> Pearson correlation</td>
<td>0.771**</td>
<td>0.107</td>
<td>0.526**</td>
<td>0.424**</td>
<td>0.835**</td>
<td>0.171*</td>
<td>0.495**</td>
<td>0.583**</td>
<td>1</td>
</tr>
<tr>
<td>Significance (two-tailed)</td>
<td>0.000</td>
<td>0.067</td>
<td>0.000</td>
<td>0.000</td>
<td>0.019</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SN 2012</strong> Pearson correlation</td>
<td>0.040</td>
<td>0.400**</td>
<td>−0.044</td>
<td>0.004</td>
<td>0.089</td>
<td>0.462**</td>
<td>0.004</td>
<td>0.100</td>
<td>0.133*</td>
</tr>
<tr>
<td>Significance (two-tailed)</td>
<td>0.495</td>
<td>0.000</td>
<td>0.453</td>
<td>0.945</td>
<td>0.223</td>
<td>0.000</td>
<td>0.958</td>
<td>0.889</td>
<td>0.023</td>
</tr>
<tr>
<td><strong>PBC 2012</strong> Pearson correlation</td>
<td>0.449**</td>
<td>−0.009</td>
<td>0.557**</td>
<td>0.278**</td>
<td>0.484**</td>
<td>0.055</td>
<td>0.382**</td>
<td>0.699**</td>
<td>0.578**</td>
</tr>
<tr>
<td>Significance (two-tailed)</td>
<td>0.000</td>
<td>0.872</td>
<td>0.000</td>
<td>0.000</td>
<td>0.453</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.738</td>
</tr>
<tr>
<td><strong>ATT 2012</strong> Pearson correlation</td>
<td>0.490**</td>
<td>0.023</td>
<td>0.464**</td>
<td>0.305**</td>
<td>0.564**</td>
<td>0.121</td>
<td>0.705**</td>
<td>0.468**</td>
<td>0.567**</td>
</tr>
<tr>
<td>Significance (two-tailed)</td>
<td>0.000</td>
<td>0.690</td>
<td>0.000</td>
<td>0.000</td>
<td>0.096</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.309</td>
</tr>
<tr>
<td><strong>Gender</strong> Pearson correlation</td>
<td>0.170**</td>
<td>−0.107</td>
<td>0.226**</td>
<td>0.045</td>
<td>0.191**</td>
<td>−0.048</td>
<td>0.041</td>
<td>0.248**</td>
<td>0.268**</td>
</tr>
<tr>
<td>Significance (two-tailed)</td>
<td>0.004</td>
<td>0.069</td>
<td>0.000</td>
<td>0.445</td>
<td>0.009</td>
<td>0.515</td>
<td>0.574</td>
<td>0.001</td>
<td>0.829</td>
</tr>
</tbody>
</table>
Appendix 3

Figure A1.
The multi-level LGC model for entrepreneurial intentions, attitudes, subjective norm and perceived behavioral control

Development of entrepreneurial intention
Table AIII.
The covariances and variances of the multilevel LGC model for entrepreneurial intentions, attitudes, subjective norm and perceived behavioral control

<table>
<thead>
<tr>
<th>Covariances</th>
<th>Estimate</th>
<th>SE</th>
<th>CR</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>eiICEPT → eiSLOPE</td>
<td>0.040</td>
<td>0.041</td>
<td>0.987</td>
<td>0.324</td>
</tr>
<tr>
<td>eiICEPT → attICEPT</td>
<td>0.471</td>
<td>0.055</td>
<td>80.639</td>
<td>***</td>
</tr>
<tr>
<td>eiICEPT → attSLOPE</td>
<td>0.014</td>
<td>0.024</td>
<td>0.587</td>
<td>0.557</td>
</tr>
<tr>
<td>eiICEPT → snSLOPE</td>
<td>−0.305</td>
<td>0.539</td>
<td>−0.566</td>
<td>0.572</td>
</tr>
<tr>
<td>eiICEPT → pbcICEPT</td>
<td>0.589</td>
<td>0.070</td>
<td>80.471</td>
<td>***</td>
</tr>
<tr>
<td>eiICEPT → pbcSLOPE</td>
<td>−0.037</td>
<td>0.031</td>
<td>−1.200</td>
<td>0.230</td>
</tr>
<tr>
<td>eiSLOPE → attICEPT</td>
<td>−0.038</td>
<td>0.017</td>
<td>−2.266</td>
<td>0.023</td>
</tr>
<tr>
<td>eiSLOPE → attSLOPE</td>
<td>0.049</td>
<td>0.009</td>
<td>5.413</td>
<td>***</td>
</tr>
<tr>
<td>eiSLOPE → snSLOPE</td>
<td>0.292</td>
<td>0.190</td>
<td>1.536</td>
<td>0.125</td>
</tr>
<tr>
<td>eiSLOPE → pbcICEPT</td>
<td>0.005</td>
<td>0.021</td>
<td>0.248</td>
<td>0.804</td>
</tr>
<tr>
<td>eiSLOPE → pbcSLOPE</td>
<td>0.048</td>
<td>0.011</td>
<td>4.317</td>
<td>***</td>
</tr>
<tr>
<td>attICEPT → attSLOPE</td>
<td>0.030</td>
<td>0.029</td>
<td>1.008</td>
<td>0.313</td>
</tr>
<tr>
<td>attICEPT → snICEPT</td>
<td>0.020</td>
<td>0.035</td>
<td>0.031</td>
<td>0.975</td>
</tr>
<tr>
<td>attICEPT → pbcSLOPE</td>
<td>−0.011</td>
<td>0.363</td>
<td>−0.029</td>
<td>0.977</td>
</tr>
<tr>
<td>attICEPT → pbcICEPT</td>
<td>0.377</td>
<td>0.046</td>
<td>8.149</td>
<td>***</td>
</tr>
<tr>
<td>attSLOPE → snSLOPE</td>
<td>−0.066</td>
<td>0.021</td>
<td>−3.146</td>
<td>0.002</td>
</tr>
<tr>
<td>attSLOPE → pbcICEPT</td>
<td>0.274</td>
<td>0.340</td>
<td>0.807</td>
<td>0.432</td>
</tr>
<tr>
<td>attSLOPE → pbcSLOPE</td>
<td>0.147</td>
<td>0.187</td>
<td>0.785</td>
<td>0.426</td>
</tr>
<tr>
<td>snICEPT → snSLOPE</td>
<td>−0.735</td>
<td>0.847</td>
<td>−0.869</td>
<td>0.385</td>
</tr>
<tr>
<td>snICEPT → pbcICEPT</td>
<td>0.357</td>
<td>0.429</td>
<td>0.833</td>
<td>0.405</td>
</tr>
<tr>
<td>snSLOPE → pbcICEPT</td>
<td>0.234</td>
<td>0.466</td>
<td>0.501</td>
<td>0.616</td>
</tr>
<tr>
<td>snSLOPE → pbcSLOPE</td>
<td>−0.073</td>
<td>0.235</td>
<td>−0.308</td>
<td>0.758</td>
</tr>
<tr>
<td>pbcICEPT → pbcSLOPE</td>
<td>0.007</td>
<td>0.043</td>
<td>0.152</td>
<td>0.879</td>
</tr>
<tr>
<td>eiICEPT → snICEPT</td>
<td>1.574</td>
<td>0.983</td>
<td>1.601</td>
<td>0.109</td>
</tr>
<tr>
<td>eiSLOPE → snICEPT</td>
<td>0.240</td>
<td>0.345</td>
<td>0.695</td>
<td>0.487</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variances</th>
<th>Estimate</th>
<th>SE</th>
<th>CR</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>eiICEPT</td>
<td>0.946</td>
<td>0.111</td>
<td>8.497</td>
<td>***</td>
</tr>
<tr>
<td>eiSLOPE</td>
<td>0.027</td>
<td>0.034</td>
<td>0.791</td>
<td>0.429</td>
</tr>
<tr>
<td>attICEPT</td>
<td>0.348</td>
<td>0.061</td>
<td>5.755</td>
<td>***</td>
</tr>
<tr>
<td>attSLOPE</td>
<td>0.041</td>
<td>0.027</td>
<td>1.551</td>
<td>0.121</td>
</tr>
<tr>
<td>snICEPT</td>
<td>1.35230</td>
<td>28.569</td>
<td>4.733</td>
<td>***</td>
</tr>
<tr>
<td>snSLOPE</td>
<td>11.662</td>
<td>12.815</td>
<td>0.910</td>
<td>0.363</td>
</tr>
<tr>
<td>pbcICEPT</td>
<td>0.567</td>
<td>0.089</td>
<td>6.367</td>
<td>***</td>
</tr>
<tr>
<td>pbcSLOPE</td>
<td>0.044</td>
<td>0.037</td>
<td>1.209</td>
<td>0.227</td>
</tr>
<tr>
<td>E1</td>
<td>0.298</td>
<td>0.070</td>
<td>4.252</td>
<td>***</td>
</tr>
<tr>
<td>E2</td>
<td>0.221</td>
<td>0.037</td>
<td>5.973</td>
<td>***</td>
</tr>
<tr>
<td>E3</td>
<td>0.195</td>
<td>0.069</td>
<td>2.818</td>
<td>0.005</td>
</tr>
<tr>
<td>E4</td>
<td>0.220</td>
<td>0.051</td>
<td>4.338</td>
<td>***</td>
</tr>
<tr>
<td>E5</td>
<td>0.244</td>
<td>0.033</td>
<td>7.357</td>
<td>***</td>
</tr>
<tr>
<td>E6</td>
<td>0.192</td>
<td>0.061</td>
<td>3.154</td>
<td>0.002</td>
</tr>
<tr>
<td>E7</td>
<td>1.13746</td>
<td>27.723</td>
<td>4.103</td>
<td>***</td>
</tr>
<tr>
<td>E8</td>
<td>90.366</td>
<td>13.688</td>
<td>6.602</td>
<td>***</td>
</tr>
<tr>
<td>E9</td>
<td>1.2097</td>
<td>26.204</td>
<td>4.583</td>
<td>***</td>
</tr>
<tr>
<td>E10</td>
<td>0.400</td>
<td>0.072</td>
<td>5.595</td>
<td>***</td>
</tr>
<tr>
<td>E11</td>
<td>0.218</td>
<td>0.035</td>
<td>8.282</td>
<td>***</td>
</tr>
<tr>
<td>E12</td>
<td>0.342</td>
<td>0.077</td>
<td>4.429</td>
<td>***</td>
</tr>
</tbody>
</table>

Note: ***p < 0.001
About the authors
Dr Sanna Joensuu, PhD, works as a Principal Lecturer in the Business School at the Seinäjoki University of Applied Sciences, Finland. Formerly she worked at the University of Jyväskylä in SME-related research and development projects. Her research interests include public relations, work life change and entrepreneurial intentions. Dr Sanna Joensuu is the corresponding author and can be contacted at: sanna.joensuu@seamk.fi

Dr Anmari Viljamaa, PhD, works as a Principal Lecturer in the Business School at the Seinäjoki University of Applied Sciences, Finland. Formerly she was a Vice Dean for Entrepreneurship in the Business School. Her research interests include, in addition to entrepreneurship education, the use and purchasing of expert services in SMEs, entrepreneurship policy and innovation systems. Her research has been published e.g. in Entrepreneurship & Regional Development, International Small Business Journal and The Service Industries Journal.

Elina Varamäki, PhD, works as a Research Manager and Associate Professor at the Seinäjoki University of Applied Sciences, Finland. Formerly she was a Dean of the Business School and a Professor in Entrepreneurship at the University of Vaasa. Her research interests include SME networking, entrepreneurial intentions, growth strategies of SMEs, family business and successions. Her publications has been accepted e.g. in Entrepreneurship and Regional Development, Journal of Enterprising Culture, Management Decision, International Journal of Networking and Virtual Organizations, Journal of Entrepreneurship and Small Business in the fields of small business growth, SME networking and family business, and she has presented papers at several conferences.

Erno Tornikoski PhD, is full Professor in Entrepreneurship in Grenoble Ecole de Management, France. Formerly he was the Dean of the Faculty and Research in ESC Saint-Etienne and Professor in Entrepreneurship in EMLYON Business School. His research has been accepted to publications in JBV, ETP, and SBE and deals with organizational emergence and legitimacy, social embeddedness and entrepreneurial resource acquisition, and entrepreneurial intentions among general population and students.

To purchase reprints of this article please e-mail: reprints@emeraldinsight.com
Or visit our web site for further details: www.emeraldinsight.com/reprints
This article has been cited by:

1. Sanna Joensuu-Salo, Elina Varamäki, Anmari Viljamaa. 2015. Beyond intentions – what makes a student start a firm?. *Education + Training* 57:8/9, 853-873. [Abstract] [Full Text] [PDF]