The impact of living on your own during study time on individual innovative behavior

Danny Nap
University of Twente
P.O. Box 217, 7500AE Enschede
The Netherlands

This paper analyzes the effect of moving out of the parental place, to live on your own during study time, on individual innovative behavior. It seeks to contribute to current literature by searching for additional antecedents of individual innovation. Hypothesizing that those individuals who leave their parental home to live on their own are more innovative than those who stay at their parental home during their study time, a questionnaire has been made and send out to test for possible relationships. Furthermore, attention is paid to the question whether there is a difference in the level of innovativeness between those students who have lived in houses with shared facilities compared with students who have lived in private houses where they do not have to share facilities. The analysis showed conflicting relationships in comparison with the hypotheses. However, by comparing means and using general linear modelling these relationships are not strong, so there are no significant results found.

Supervisors: 1e Dr. Matthias de Visser
2e Dr. ir. Sandor J. A. Löwik

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INTRODUCTION

An organization that does not innovate is nowadays hardly imaginable. Baumol pointed out that innovation really matters nowadays because 'virtually all of the economic growth that has occurred since the eighteenth century is ultimately attributable to innovation' (Baumol, 2002). Innovation is needed for sustaining competitive advantage(s) and has to be continued always, because stagnation means decline (Huizingh, 2011). Tushman and O'Reilly stated that organizations consider innovation as a main source for competitive advantage (Tushman & O'Reilly, 1996). However, previous research has mainly focused on the organizational and group levels of analysis according to Crossan, Lane & White (1999), Damanpour (1991) and West & Anderson (1996) (Balau, Faems, & Bij, 2012). Innovation is about creative ideas, and not only groups generate, promote, discuss, modify and at the end realize ideas, but individuals do this also (Scott & Bruce, 1994).

So innovative companies heavily rely on creative individuals. According to West and Farr (1989), the almost exclusive focus on determinants of innovation implies that there has been scant attention paid to innovation at the individual and group levels (Scott & Bruce, 1994). Baldridge and Burnham stated that individual characteristics, like age, sex and personal attitudes do not appear to be important determinants of individual innovation (Baldridge & Burnham, 1975). However, previous studies have already identified several antecedents of individual innovative behavior. Like Scott and Bruce, who found that leadership, support for innovation, managerial role expectations, career stage, and systematic problem-solving style are significantly related to individual innovative behavior (Scott & Bruce, 1994). The article of Balau *et al* show that there are more individual characteristics found that show positive (e.g. openness, pro-activeness and education) or negative (e.g. aggressive humor) relationships with innovative behavior. (Balau, Faems, & Bij, 2012). But in general, little attention has been paid to individual innovative behavior. Innovation is seen as the generation, acceptance and implementation of new ideas, processes, products, or services (Thompson, 1965).

The goal of this paper is to find alternative explanations of individual innovation by finding alternative antecedents of individual innovative behavior. This is from a theoretical perspective meaningful because of the scarce attention which is paid to this in current literature, despite the fact that innovation nowadays is widely acknowledged as the source of competitive advantage for firms (Balau, Faems, & Bij, 2012). New ideas will arise by learning, because of the knowledge individuals will acquire. Leaving your comfort zone is a way to learn. Individuals will have to step out of their comfort zone because "through involvement in experiences that are beyond one's comfort zone, individuals are forced to move into an area that feels uncomfortable and unfamiliar - the groan zone. By overcoming the anxious feelings and thoughts of self-doubt, while simultaneously sampling success, individuals move from the groan zone to the growth zone" (Brown, 2008). The concept of the comfort zone reminds me to what most of the headmasters said during the opening at open days at several universities. During open days, many headmasters stimulate future students to leave their parental home and move into halls and become independent and venturous. This can be seen as an example of leaving the comfort zone by leaving your comfortable and familiar parental home and move to a place which is not familiar. Because there is especially not many attention paid to individual innovative behavior which is concentrated on early-life experiences, it is interesting to see if there is a difference in the level of innovativeness of the individuals who have lived in their parental home during study time in comparison with the individuals who have lived on their own during study time. This because of the potential value companies can have if they are aware of the value of living on your own during study time. So companies can take this possible student step into account during interviews. To see whether there is a relationship between the place of residence during study time and individual innovative behavior or not, and to see if it is wisely to live on your own during study time, as headmasters stimulate, in terms of individual innovative behavior, the following main question comes up:

To what extent are former students, who have lived on their own during their study time, more innovative than those who did not?

THEORETICAL BACKGROUND AND HYPOTHESES

Every student has to make a choice when starting with or during their study, staying at your parental home or searching for a room to live on your own during your study time. Radio One's Online student guide assumes there are three suggestions for students who want to leave their parental home; staying in the college halls of residence, renting a room privately in a family home or sharing a flat or house with other students (Holdsworth, 2006). Christie *et al.* recognize also that there are three types of student accommodations for students who want to leave their parental home; halls, digs and shared flats /houses (Christie, Munro, & Rettig, 2002). Nowadays 42% of the Dutch students choose to stay at home during their study time (Apollo, 2014), despite the fact that leaving the parental home, to attend university, can be an important first step to adulthood and independence (Patiniotis & Holdsworth, 2005). Although, the process of leaving the parental home can also be seen as a disordered transition, because it is not 'final' and therefore it can be better described as living away from home instead of living on your own. (Furlong & Cartmel, 1997). This is because many students will often return to their parental home during holidays for example (Goldscheider & Goldscheider, 1999). So some students choose to stay at home during their study, especially young people from low-income backgrounds, where the first step to adulthood is seen as leaving school and find work, tend to be more hesitant (Patiniotis & Holdsworth, 2005). But there are also students who choose to leave out of their their parental home situation during their study time.

Van Rosmalen and van der Zon noted that most popular arguments for students to live in halls have to do with travel time, motivation to live on you own, living near school and making new social contacts in the (new) area, so they can socialize (Rosmalen & Zon, 1993). Per October 2013 there were 576.000 Dutch fulltime students in the Netherland, from which 309.000 Dutch fulltime students made the choice to leave their parental home (54%). About 70-75% of the students live in an accommodation with shared facilities, 10% of the students in an accommodation with own facilities and 15-20% live in an independent place of residence (Apollo, 2014). So Apollo divides student accommodations in the same three categories as mentioned above. Students will step out of their comfort zone and will learn new things in a new environment. Students who leave home will face challenges, such as adaption to a completely new environment. They leave home, move into an apartment or dormitory without adult supervision, learn to manage their own affairs and assume adult responsibilities in a short period of time (Bernier, Larose, & Whipple, 2005). If students make their choice to live on their own and leave their parental home, they will become independent to a larger extent (Pascarella, Bohr, Nora, Zusman, & Inman, 1992). Moving away from home for education is a first step into the transition

to independent living, it is related to changing opinions and the creation of new ways of viewing the world (Mulder & Clark, 2002). This will lead to a bigger responsibility at an early age.

Many studies have already showed that living in halls will have a positive impact on students such as higher grades and better retention grades (Rutledge, 2012). Students who have lived on their own during their freshman-year scored significantly higher on critical thinking than those who commuted during their freshman-year (Pascarella, Bohr, Nora, Zusman, & Inman, 1992). Criticality and creativity are interwoven with each other, especially when thinking involves figuring things out to solve problems (Paul, 1993). So, in this way it can be said that those who leave their parental home during their freshman-year score higher on creativity as well and as Farr and West already noted, the difference between creativity and innovation is more one of emphasis than of substance (West & Farr, 1990).

Students who do not leave their parental home take less frequently pass-fail courses and participate less frequently in an honors program. The educational attainment of the students who leave home to attend college is higher than that of those who stay at their parental place (White & Lacy, 1997). Students who live at home during their study are less fully engaged in academic activities than the students who have left their parental home (Chickering, 1974). Koellinger found out that individuals with high educational attainment are more likely to start innovative rather than imitative business (Koellinger, 2008), because high intelligence is one of the individual characteristics that is systematically associated with creativity and inventiveness (Root-Bernstein, 1989).

Furthermore, living in halls will stimulate students to be more involved in school life, which will contribute to the social integration of students. The social integration of students will lead to new social contacts which in turn lead to new possibilities to learn from peer students. Knowledge of individuals is an outcome of being part of a social context, so new ideas can arise when students are interacting with each other in a social context (Spender, 1996). Students who live in halls can spend more time at their universities, so they have greater opportunities to speak with fellow students and interact with them. This will attribute to the chances of students in developing more on a personal level (Astin, 1999). Moreover, students who live on a campus have a greater chance of developing a sense of personal accomplishment and more social features and are more open towards diversity (Pike, 2002).

Because of the bigger responsibility at an early age, the better social integration, the higher level of critical thinking, the higher educational attainment, the better opportunity to develop social skills and the more open attitude towards diversity of students who live on their own during study time, I think these students are more innovative than students who did not live on their own during study time.

Hypothesis 1: Students who have lived on their own during their study time will be more innovative than students who did not

In addition, Moos and Lee found some significant differences between types of living settings. Students who live in residence halls perform better academically and are more active in student organizations than students who are living in independent houses. Despite these facts, students who lived in independent houses (private student accommodations/studio) perceive the highest levels of supportive achievement, intellectual orientation and independence, while students in dependent houses (residence halls) perceived their social environments to be the lowest in each of these areas. The article showed that the students who lived in independent houses are more oriented towards personal and academic growth. Besides, they have more emphasis on freedom and on the enhancement of intellectual and cultural pursuits (Moos & Lee, 1979). Brothers and Hatch are mentioning the aspect of living in a controlled setting when living in a residence hall. The students living in independent houses would rather be left alone and to mind their own business. Students who have lived in dependent houses are more seen as conservative and traditional. Students who have lived in independent flats enjoyed the flexible living patterns, freedom and independence (Brothers & Hatch, 1971). Because of the more progressive attitude of the students who have lived in independent houses and the fact that they are more oriented toward personal and academic growth it is reasonable to think that the students who have lived in independent houses are more innovative than the students who have lived in dependent houses (Moos & Lee, 1979).

Hypothesis 2: Students who have lived in independent houses (private student accommodations/studio's) are more innovative than students who have lived in dependent houses (university halls of residence/ house or flat rooms)

METHODS

Sample. To test the hypotheses, information about individuals who have already studied at a higher education level is needed in combination with their level of innovativeness. To measure the level of innovativeness, the individual has to possess work experience. Therefore, the sample consist of individuals who are 30 years or older, who have studied at least at a HBO level and possesses work experience. Because this data is not available, research to find these information has to be done. In order to collect data from the sample, who meet the criteria of being 30 years or older, have studied at least at a HBO level and possessing work experience, a questionnaire is developed. The former students will be asked about their living situation during their study time and their level of innovativeness. To approach former students who are 30 years or older, personal networks will be used. In the end, 100 completed questionnaires were obtained. This number of respondents is considered as sufficient, after consultation with the first supervisor, to make it possible to deliver a valid outcome for this study. However, one person filled out the questionnaire twice so in the end 99 individuals were willing to complete the questionnaire within a week. The questionnaire was mainly sent out online via Google forms and via friends from friends by a group of 4 persons, consisted of three originally Dutch students and one originally German student. Therefore, the questionnaire can be seen as semi-anonymous. However, a good estimate of the response rate is difficult to provide, because it cannot be said to how many people the survey was finally sent. The questionnaire consisted of two parts. In the first part, individuals were asked to fill in questions about individual backgrounds and characteristics. In the second part, individuals were asked to fill in 14 items, measured on an seven-point Likert scale, ranging from 1= to a very small extent to 7= to a very large extent, with respect to their level of innovativeness. The questionnaire has been prepared in English and we expect that former students who have studied at least at a HBO level are able to fill out the questionnaire, despite the fact that most of the respondents have spent their study time in the Netherlands or Germany. Of the 99 respondents there are 13 respondents that do not meet the requirements of being 30 years or older, being a (former) student at a HBO level at least and possessing work experience. So, the final sample consists of 86 individuals. Of the respondents, 79% is male with a mean age

of 44 years and mean tenure of 20 years. Although age and tenure are not normally distributed, we can still assume that these numbers are a good estimate for the sample, because the medians are 43 years for age and 19 years for tenure.

Measures

Dependent variable. To determine whether an individual is innovative and to what extent this individual innovative is, is more difficult to obtain. To figure out to what extent someone is innovative, the paper of Mom *et al* will be used. This study is about ambidexterity and defines ambidexterity at a manager's level as 'a manager's behavioral orientation toward combining exploration and exploitation related activities within a certain period of time' (Mom, Bosch, & Volberda, 2009). Jansen *et al.* see ambidexterity as 'the ability to pursue exploratory and exploitative innovation simultaneously' (Jansen, Volberda, & Bosch, 2005). The paper of Mom *et al.* can be used to determine the level of innovativeness of an individual, because ambidexterity is about initiate versus execute innovation and occurs sequentially as innovations evolve, so it is about exploration and exploitation activities (O'Reilly & Tushman, 2008). So, for measuring the level of innovativeness we will look to what extent an individual engage in work related activities that are related to exploration and exploitation activities as can be seen in the following paper of Mom *et al.* in table 1 (Mom, Bosch, & Volberda, 2009).

Table 1. Factor Analysis for Managers' Ambidexterity

	Factors[b]	
Items[a]		
To what extent did you, last year, engage in work related activities that can be characterized as follows:	1	2
A manager's exploration activities ($\alpha = 0.90$)		
Searching for new possibilities with respect to products/services, processes, or markets	0.82	−0.05
Evaluating diverse options with respect to products/services, processes, or markets	0.84	−0.05
Focusing on strong renewal of products/services or processes	0.79	−0.02
Activities of which the associated yields or costs are currently unclear	0.74	−0.05
Activities requiring quite some adaptability of you	0.83	0.01
Activities requiring you to learn new skills or knowledge	0.76	−0.06
Activities that are not (yet) clearly existing company policy	0.72	−0.13
A manager's exploitation activities ($\alpha = 0.87$)		
Activities of which a lot of experience has been accumulated by yourself	0.08	0.75
Activities which you carry out as if it were routine	−0.18	0.71
Activities which serve existing (internal) customers with existing services/products	−0.08	0.75
Activities of which it is clear to you how to conduct them	−0.11	0.80
Activities primarily focused on achieving short-term goals	−0.03	0.69
Activities which you can properly conduct by using your present knowledge	−0.03	0.81
Activities which clearly fit into existing company policy	0.00	0.75

[a]Items are quoted from our survey. All items were measured on a seven-point scale (1 = to a very small extent to 7 = to a very large extent).

[b]Extraction method: principal component analysis. Rotation method: Varimax with Kaiser normalization. Explained variance: 60%.

Because the model focusses on managers, there were some complications about the construct validity. Considering the fact that this paper is about individuals we, as a group of 4 students, had to look at the model with the notion that this paper concerns individuals and not managers. Therefore, we had to make a trade-off; or searching for a different model to measure innovativeness for individuals or reformulate some activities from the model of Mom *et al.* so it works for individuals as well. After consultation, we decided to reformulate the model to make it work for individuals because we had to deal with time pressure while writing this paper. To do this, we substituted the first two kinds of activities of the exploration part, because we believe that these two activities are fully focused on activities of a manager. We replaced them by adding the following two activities; '(Ideas about) introducing any new or improved work processes' and 'Using an external network to exchange information (e.g. with universities, suppliers, competitors etc.)' because they were already used by (Vermeulen, O'Shaughnessy, & Jong, 2003) and (Kalyar, 2011) for similar purposes. Besides, we found these kind of exploration activities more suitable for our research sample. We checked for reliability after receiving the completed questionnaires. The reliability analysis showed scores of 0.858; 0.791 and 0.803 for respectively explorations activities, exploitation activities and exploration and exploitation activities together by using Cronbach's Alpha. According to the rule of thumb of (George & Mallery, 2003) it can be said that these scores are good and therefore reliable (Gliem & Gliem, 2003).

Independent variable. To measure the living situation during study time of the sample there is decided to make four categories of living. First there is the parental place, the place where you do not live on you own, where you live together with your parent/parents. Second there is the living situation of being out of your parental place and you live with roommates with shared facilities, like in an university hall of residence, house or flat room. In third place, there is the situation you live independently where you do not have to share facilities, like in a studio. Finally, in the fourth place, there is the category called 'other', for individuals who did not live in one of the accommodations mentioned in categories one to three during their study time. The individuals who have lived in category 2, 3 or 4 for at least '0-12 months' are seen as individuals who have lived on their own during study time. Respondents were asked to fill in the time ('0 months', '0-12 months', '13-24' months, '25-36 months', '37-48 months' or 'More than 48 months') they lived in each of the four categories mentioned above.

Control variables. There are already some variables which had an influence on innovativeness. Someone´s experience may influence their level of ambidexterity according to (Daft & Lengel, 1986) because increased levels of experience are associated with an increased ability to interpret and deal with a larger diversity of ambiguous cues (Mom, Bosch, & Volberda, 2009). To control for experience, work experience will be included in the model, which is expected to positively relate to ambidexterity. Hambrick and Mason (1984) stated that the younger people are, the more likely they are to pursue innovative strategies, because older people dislike change from the status quo and they show greater adherence to the existing norms of the organization. (Shane, 1995) Therefore age will be included as control variable, which is expected to relate negatively to innovativeness. Tenure is also included as a control variable because long tenured individuals are not

willing to innovate and avoid commitment towards innovative behavior, so tenure is expected to relate negatively to innovativeness (Balau, Faems, & Bij, 2012). The final control variable is gender, because men and women differ in behavior patterns (Instone, Major, & Bunker, 1983). In the area of creativity is seems that women are slightly more creative than men, but there are also studies which show the opposite, so there is not a clear overall 'winner' (Baer & Kaufman, 2006) However, to see if there are gender differences within our sample, gender is included as a control variable.

RESULTS

The dependent variable, innovativeness, can be seen as normally distributed. However, the four categories of the independent variable are far from normally distributed, as can be seen at the frequencies in appendix 1. In appendix 1, the amount of individuals per living accommodation is showed in combination with the duration (0= 0 months, 1= 0-12 months, 2= 13-24 months, 3= 25-36 months, 4= 37-48 months and 5= more than 48 months). The level of innovativeness of the individuals who stayed at their parental home during their study time is also not normally distributed.

By using general linear modelling it is possible to run variance analysis. An advantage of the general linear model is that you can add control variables in the model. The basic model with included innovativeness and the control variables (age, gender, tenure and work experience) by using general linear modelling are in table 2.

Table 2. Test of Between-Subject Effects

Dependent Variable: innovativenessscale

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3,874[a]	4	,969	1,421	,234
Intercept	29,515	1	29,515	43,317	,000
gender	1,967	1	1,967	2,887	,093
tenure	,235	1	,235	,344	,559
age	2,037	1	2,037	2,990	,088
workexperience	1,933	1	1,933	2,837	,096
Error	55,192	81	,681		
Total	1913,556	86			
Corrected Total	59,066	85			

a. R Squared = ,066 (Adjusted R Squared = ,019)

As can be seen of table 2, the base model is not significant because the significance level is 0.234, which is > 0.05. R squared is 0.066, which means that the model explains 6.6% of the variability of the response data around the mean, so this is a very low score.

Table 3. Parameter Estimates (Basic Model)

Dependent Variable: innovativenessscale

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	6,432	,962	6,685	,000	4,517	8,346
[gender=Female]	-,386	,227	-1,699	,093	-,838	,066
[gender=Male]	0[a]	.	.	.	.	.
tenure	-,007	,013	-,587	,559	-,033	,018
age	-,062	,036	-1,729	,088	-,134	,009
workexperience	,056	,033	1,684	,096	-,010	,122

a. This parameter is set to zero because it is redundant.

In table 3 can be seen that females are less innovative compared with men. Tenure and age seem to have a negative influence on innovativeness, which corresponds to the literature. Work experience seems to have a positive influence on innovativeness, which corresponds also to the literature. So the relationships between the control variables tenure, age and work experiences are confirmed by the parameter estimates. However, caution about the interpretations, because the basic model (Table 2) does not show significant results. By including the independent variables in the basic model, the model becomes even less significant with a significance level of 0.481. In table 4 there can be seen that there are no significant results, if the duration per accommodation is compared with the level of innovativeness within the same accommodation. Except that it seems that individuals who did not have lived in an university hall of residence/ house or flat room are significantly less innovative than those who did for a period of more than 48 months (-0.038). However, we have to keep in mind that the basic model is not significant and the model with the independent variables included is even less significant.

Table 4. Parameter Estimates (with independent variables included)

Dependent Variable: innovativenessscale

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	6,352	1,909	3,327	,001	2,535	10,170
[gender=Female]	-,341	,263	-1,296	,200	-,867	,185
[gender=Male]	0[a]	.	.	.	.	.
tenure	-,001	,014	-,074	,941	-,028	,026
age	-,080	,049	-1,634	,107	-,178	,018
workexperience	,064	,046	1,387	,170	-,028	,155
[parentalhome=0]	,105	,407	,257	,798	-,709	,919
[parentalhome=1]	-,377	,424	-,888	,378	-1,224	,471
[parentalhome=2]	-,410	,404	-1,014	,315	-1,218	,398
[parentalhome=3]	-,123	,436	-,283	,778	-,995	,748
[parentalhome=4]	,051	,350	,145	,885	-,650	,751
[parentalhome=5]	0[a]	.	.	.	.	.
[campusflat=0]	-,038	,639	-,060	,952	-1,315	1,239
[campusflat=1]	,574	,720	,797	,428	-,865	2,013
[campusflat=2]	-,072	,838	-,086	,931	-1,747	1,603
[campusflat=3]	,203	,758	,268	,789	-1,312	1,719
[campusflat=4]	,311	,706	,440	,661	-1,101	1,723
[campusflat=5]	0[a]	.	.	.	.	.
[studio=0]	-,187	,424	-,441	,661	-1,036	,661
[studio=1]	-,606	,532	-1,140	,259	-1,669	,457
[studio=2]	-,361	,443	-,814	,419	-1,247	,526
[studio=3]	-,426	,474	-,897	,373	-1,374	,523
[studio=4]	-,216	,411	-,526	,601	-1,038	,606
[studio=5]	0[a]	.	.	.	.	.
[other=0]	,995	,485	2,052	,044	,025	1,965
[other=1]	,985	,560	1,760	,083	-,134	2,104
[other=2]	,967	,598	1,617	,111	-,229	2,164
[other=3]	,856	,862	,993	,325	-,867	2,579
[other=4]	,597	,670	,891	,376	-,742	1,936
[other=5]	0[a]	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

For hypotheses 1 it is important to compare the individuals who have lived at their parental home during their study time with those who did not. The next report comes up in table 5 by comparing the means. The report shows that the people who did not leave the parental home seem to be more innovative than the individuals who did, although this difference is small. To see whether the difference is significant, the general linear model is used, as can be seen in table 6.

Table 5. Comparing means of the level of innovativeness for those who have moved out of their parental place, and so have lived on their own, with those who did not

Moved	Mean	N	Std. Deviation
Yes	**4.602198**	**65**	**.8469416**
No	**4.772109**	**21**	**.7968750**
Total	**4.643688**	**86**	**.8336050**

Table 6. Parameter Estimates (with the variable Moved included)

Dependent Variable: innovativenessscale

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	6,291	1,013	6,213	,000	4,276	8,306
[Moved=0]	,108	,232	,467	,642	-,353	,569
[Moved=1]	0[a]	.	.	.	.	.
[gender=Female]	-,388	,228	-1,701	,093	-,843	,066
[gender=Male]	0[a]	.	.	.	.	.
tenure	-,007	,013	-,545	,587	-,033	,019
age	-,057	,038	-1,494	,139	-,133	,019
workexperience	,050	,036	1,365	,176	-,023	,122

a. This parameter is set to zero because it is redundant.

The category 'moved 0', those who did not move out of their parental home, consist of 21 individuals, so the category 'moved 1' those who did move out of their parental home, consist of 65 individuals. By using the general linear model, we see the next results. The model has a significant level of 0.331, which is again not significant. The individuals who did not move out of their parental home (moved 0) are more innovative than the individuals who did move out of their parental home (moved 1). However, the score is 0.108, so the result is not significant. By using ANOVA we can test for significant differences between means. The ANOVA result can be seen in table 7. Table 7 ,with the results of the One-Way ANOVA, shows that the difference is not significant because the score of 0.420 > 0.005. Taken the report of the means, the general linear model and the ANOVA into account, we can state that H1 can be rejected. Also by splitting the innovativeness scale up into an exploration scale and an exploitation scale, there are not significant results found.

Table 7. Results of One-Way ANOVA

innovativenessscale

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,458	1	,458	,657	,420
Within Groups	58,608	84	,698		
Total	59,066	85			

For hypotheses 2 it is important to compare the amount of innovativeness between the individuals who have lived in houses with shared facilities with those who have lived in houses where they did not have to share facilities. Figure 1 and 2 are given to make it visible by using scatterplots. There can be seen that both scatterplots do not show a linear relationship.

The scatterplot in figure 1 shows that there is no obvious relationship between the level of innovativeness and living in an university hall of residence/ house or flat room. There is also no obvious relationship between the level of innovativeness and living in a studio as can be seen in figure 2. By comparing the means, in table 8 and 9, we see that if you have lived in a house with shared facilities for the duration of 0-12 months you score higher on innovativeness than if you have lived in a house where you did not have to share facilities during the same period. For the remaining timescales the differences are negligible.

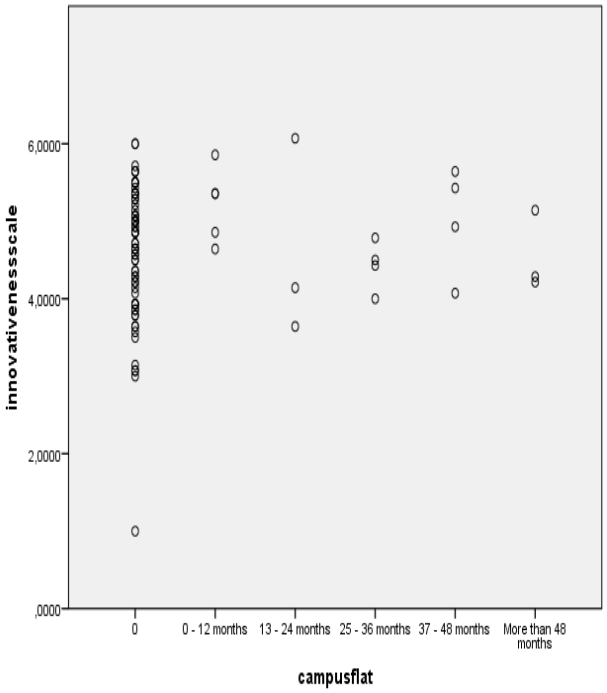

Figure 1. The relationship between the level of innovativeness and living in an university hall of residence / house or flat room

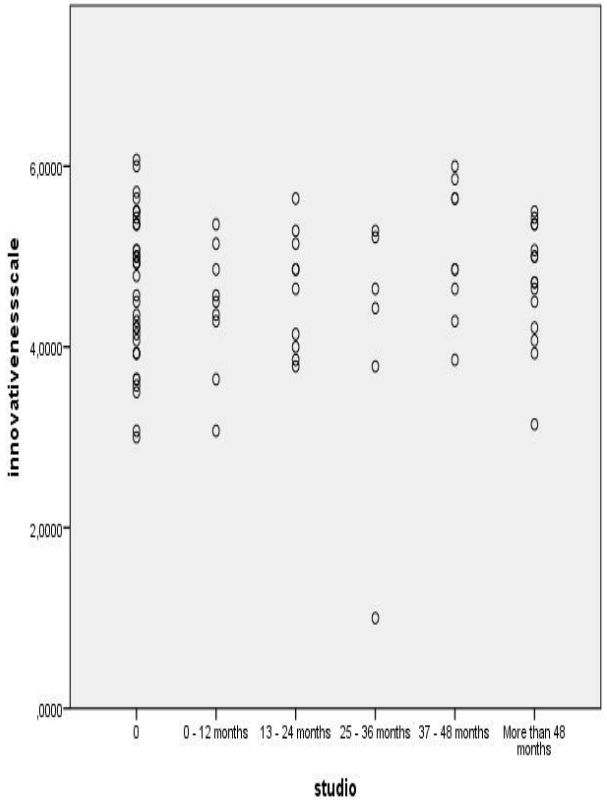

Figure 2. The relationship between the level of innovativeness and living in a studio

Table 8. The mean level of innovativeness per period in an university hall of residence / house or flat room

innovativenessscale

campusflat	Mean	N	Std. Deviation
0	4,597015	67	,8704506
0 - 12 months	5,214286	5	,4764881
13 - 24 months	4,619048	3	1,2824035
25 - 36 months	4,428571	4	,3247185
37 - 48 months	5,017857	4	,6983335
More than 48 months	4,547619	3	,5167269
Total	4,643688	86	,8336050

Table 9. The mean level of innovativeness per period in a studio

innovativenessscale

studio	Mean	N	Std. Deviation
0	4,667954	37	,8114851
0 - 12 months	4,420635	9	,7128954
13 - 24 months	4,621428	10	,6468570
25 - 36 months	4,059524	6	1,5968187
37 - 48 months	5,071429	9	,7500000
More than 48 months	4,709524	15	,6571355
Total	4,643688	86	,8336050

Because it is important for hypothesis 2 to compare more than two groups, ANOVA is used to test this hypothesis. ANOVA analyses the differences in means within groups and differences in means between groups. The hypothesis is tested based on one independent variable. This variable is divided into four values; Both no (not lived in a dependent house and not in an independent house), Dependent house (lived in a dependent house, but not in an independent house), Independent house (lived in an independent house, but not in a dependent house) and Both (lived in a dependent house and an independent as well). If we look at table 10, there can be seen that the individuals who have lived in dependent houses during their study are more innovative than those who have lived in independent houses.

Table 10. Comparing means of the level of innovativeness for those who have lived in a dependent house and not in an independent house with those who have lived in an independent house and not in a dependent house

innovativenessscale

Kindofaccomo	Mean	N	Std. Deviation
Both no	4,622120	31	,8277076
Dependent house	4,904762	6	,7418491
Independent house	4,575397	36	,9167925
Both	4,763736	13	,6810011
Total	4,643688	86	,8336050

However, table 11 with the results of the One-Way ANOVA shows that the difference is not significant because the score of 0.778 > 0.005. So there is a difference but it is not a significant one. Considering the tables above, H2 can be rejected, although we have to keep in mind that the difference is not significant.

Table 11. Results of One-Way ANOVA

innovativenessscale

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,779	3	,260	,365	,778
Within Groups	58,288	82	,711		
Total	59,066	85			

DISCUSSION

In this study we wanted to test the relationship between the extent of innovativeness of individuals who have lived on their own during their study time compared with those who did not. The study does not provide evidence that the individuals who have lived on their own during study time are more innovative than those who did not. The results show us that the former students who stayed at their parental home are more innovative than those who have lived on their own during their study time. So former students, who have lived on their own during their study time, are less innovative than those who did not. Only, caution is needed, because the models are not significant and the differences are small.

It could be that the level of innovativeness of an individual is not related to the place of residence during their study time, but that the reason behind the choice to live on your own during your study time is much more relevant. As (Rosmalen & Zon, 1993) already noted, travel time is an important argument to move out of your parental home. However it could be that those who exactly did not want to move out of their parental home, but had to because of the travel time, have a very negative effect on the level of innovativeness of those who lived on their own on average. If those who have travel time as their main reason to live on their own will be left out of the sample, it could be possible that the level of innovativeness will increase on average.

Besides, higher educational attainment, is not only influenced by leaving the parental home as (White & Lacy, 1997) stated. Sewell and Shah stated that many other factors influence educational attainment as well, like the quality of education in a certain region and differential access to educational facilities according to social class of an individual (Sewell & Shah, 1967). So it may be possible that these other factors have much more effect on educational attainment and the place of residence is just one of the factors. Moreover, these other factors can already play a significant role on educational attainment even before students have to decide whether they want to live on their own during their study time or not. So the place of residence does not really matter anymore because other factors already influence the level of educational attainment for most part before students have to make a decision on their place of residence during study time.

With respect to the hypothesis that the individuals who live in independent houses are more innovative than those who live in dependent houses, it has to be said that the number of respondents for 'living in an university hall of residence, house or flat room' was very limited. Only 6 out of 86 respondents lived in a dependent house compared with 36 who have lived in an independent house, disregarding the individuals who have lived in an independent house and in a dependent house as well during a certain time. There is a possibility that the people did not understand the answer possibility of 'university hall of residence', it could be that some people did not know what this was. The only University which possesses a campus with places reserved to provide accommodations to students on university is the University of Twente in the Netherlands.

Moreover it is possible that the respondents wanted to give themselves relatively good scores on innovative activities, because the questionnaire was sent out to friends in the first place. This can explain the fact of that the differences in means are very small. Furthermore, it can be that the respondents overrate themselves.

Limitations. The current study provides a first attempt in testing a possible relationship between the place of residence during study time and the extent of innovativeness. Considering the fact of the scarce attention, which is paid to individual innovative behavior antecedents nowadays, it was difficult to come up with strong hypotheses. This thesis showed that the models with the control variables, and the independent variables as well, were not significant at all. Further research has to be done to report further findings with regard to individual innovative behavior. This was a report which had to be written down in the period of eight weeks, which is a limited period of time. However, by further digging through the data base it may be that there are some valuable insights in it, but considering the fact there was only limited time for this bachelor thesis there was no time available to dig through the whole data base. So for future research to a relationship between the level of innovativeness and the place of residence during study time, it can be helpful to make use of the information of the database according to this paper as a possible starting point.

Conclusion

By a final sample of 86 individuals, this study does not provide new alternative explanations in individual innovative behavior so far. Unfortunately the findings in this bachelor thesis do not contribute to the literature, in the sense of finding alternative explanations of individual innovative behavior. Individuals who have lived on their own during study time are not more innovative than the students who stayed at their parental home during their study time. Moreover, students who have lived in independent houses are not more innovative than the students who have lived in dependent houses. The relationships found in this paper are not significant. However, because of the results in this bachelor thesis there can be seen that the place of residence during study time for students does not really matter considering individual innovative behavior. Nevertheless, hopefully this thesis will inspire scholars to search for other possible antecedents of individual innovative behavior.

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APPENDICES

Appendix 1. Duration per living accommodation of individuals (0= 0 months, 1= 0-12 months, 2= 13-24 months, 3= 25-36 months, 4= 37-48 months and 5= more than 48 months).

campusflat

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	67	77,9	77,9	77,9
	0 - 12 months	5	5,8	5,8	83,7
	13 - 24 months	3	3,5	3,5	87,2
	25 - 36 months	4	4,7	4,7	91,9
	37 - 48 months	4	4,7	4,7	96,5
	More than 48 months	3	3,5	3,5	100,0
	Total	86	100,0	100,0	

parentalhome

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	28	32,6	32,6	32,6
	0 - 12 months	14	16,3	16,3	48,8
	13 - 24 months	11	12,8	12,8	61,6
	25 - 36 months	6	7,0	7,0	68,6
	37 - 48 months	12	14,0	14,0	82,6
	More than 48 months	15	17,4	17,4	100,0
	Total	86	100,0	100,0	

studio

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	37	43,0	43,0	43,0
	0 - 12 months	9	10,5	10,5	53,5
	13 - 24 months	10	11,6	11,6	65,1
	25 - 36 months	6	7,0	7,0	72,1
	37 - 48 months	9	10,5	10,5	82,6
	More than 48 months	15	17,4	17,4	100,0
	Total	86	100,0	100,0	

other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	64	74,4	74,4	74,4
	0 - 12 months	8	9,3	9,3	83,7
	13 - 24 months	4	4,7	4,7	88,4
	25 - 36 months	2	2,3	2,3	90,7
	37 - 48 months	3	3,5	3,5	94,2
	More than 48 months	5	5,8	5,8	100,0
	Total	86	100,0	100,0	