6-8-2013

HOW DO NASCENT ENTREPRENEURS USE IMAGINATION IN THE VENTURE CREATION PROCESS? A WEEKLY DIARY STUDY

Arjan J. Frederiks  
*University of Twente, a.j.frederiks@utwente.nl*

Michel L. Ehrenhard  
*University of Twente*

Aard J. Groen  
*University of Twente*

Recommended Citation
Available at: [http://digitalknowledge.babson.edu/fer/vol33/iss4/2](http://digitalknowledge.babson.edu/fer/vol33/iss4/2)
HOW DO NASCENT ENTREPRENEURS USE IMAGINATION IN THE VENTURE CREATION PROCESS? A WEEKLY DIARY STUDY

Arjan J. Frederiks, University of Twente, NL
Michel L. Ehrenhard, University of Twente, NL
Aard J. Groen, University of Twente, NL

ABSTRACT

Imagination is important in the venture creation process according to the literature, but little is known about how entrepreneurs use their imagination. We analyzed weekly diaries that were kept by entrepreneurs. We found that to imagine the future state of the company, and scenarios and plans, entrepreneurs need to use prospective thinking and counterfactual thinking. To imagine the (inter)actions of stakeholders of the company, entrepreneurs need to use prospective thinking and perspective taking. Our findings suggest that entrepreneurs indeed use their imagination and that business outcomes of imagination differ significantly by the imagination process.

INTRODUCTION

The entrepreneurship literature abundantly states that imagination is used by entrepreneurs (Baron & Ensley, 2006; Cornelissen & Clarke, 2010; Gartner, 2007; Sarasvathy, 2001; Witt, 1998; 2007). Yet, very little is known about how imagination is actually used by entrepreneurs. We address this gap by empirically exploring the relationships between imagination processes and their different entrepreneurial uses.

Basically, imagination is the creation of mental images of external objects, events or situations not present to the senses. The creation of these mental images can be split up in three separate processes. The first process is prospective thinking, which means thinking about what the future might look like (Kahneman & Tversky, 1982). The second process is counterfactual thinking, which means thinking about what the present would look like based on an alternative past (Byrne, 2008). The third process is perspective taking, which means thinking about what someone else’s thoughts and actions would look like (Markman, Klein, & Suhr, 2009).

For which business uses these imagination processes are used by entrepreneurs is unknown. We study the use of imagination by researching weekly diaries of nascent high-tech entrepreneurs. Therefore, our research question is: “How do nascent entrepreneurs use imagination in the venture creation process?” Answering this question gives us insight in whether imagination is used by entrepreneurs and for which purposes. These results help, among others, entrepreneurship support organisations to better support entrepreneurs by taking these imagination processes into account in their training programs.

We start by discussing the theoretical relations between the four imagination processes and present eight imagination outcomes. In the methods section we explain how we coded and
The entrepreneur and characteristics

Analysed the diaries. After that we present the results of the analyses and in the last section we discuss the results and draw conclusions.

Theoretical Framework

Imagination

The term “imagination” or “to imagine” is used in everyday language and, therefore, it has no commonly accepted definition. Some authors see imagination as a process (Mills, 1959), whereas others see imagination as the outcome of a process (Gendler, 2011). Hence, imagination is a multidimensional construct, arguably consisting of four different processes that create fictional mental images that could become true (Frederiks & Ehrenhard, 2012). We have found a fourth imagination process, motor skills imagination, which is focused on imagining how one moves his/her body (Markman et al., 2009). However, there is no direct link to entrepreneurship and, therefore, this process is kept out of this analysis. The other three imagination processes will be discussed in more depth below. After that, eight business related outcomes of imagination processes are discussed.

Imagination Processes

Prospective Thinking: Prospective thinking is “the ability to ‘pre-experience’ the future by simulating it in our minds” (Gilbert & Wilson, 2007, p. 1352). According to Kahneman and Tversky (1982), it can be used for three judgmental activities. The first is prediction. One can predict situations or events by imagining them. For instance, one can imagine how two people that you know well, but have never met before – for example, your business partner and a potential customer – might get along. How can you “know” whether these people will or will not like each other?

The second judgmental activity for which one uses prospective thinking is assessing the probability of a specified event. Whereas prediction assumes a specified, currently existing situation and an imagined future situation, assessing the probability assumes a specified, currently existing situation, and a specified future situation. One can imagine the ease with which this future state can be reached, within the constraints of a realistic model of the economic situation and market conditions.

The third and last judgmental activity is assessing conditioned probabilities. Entrepreneurs may ask themselves: “If the economy goes into a double-dip, what are the likely consequences for my company?” This mental simulation assumes a specified, not currently existing starting situation and an imagined future situation. To run such a mental simulation, one needs to imagine how to get from the current situation to the specified starting situation. Only when one can mentally bridge that gap, one can run such a simulation.

Counterfactual Thinking: Counterfactual thinking is imagining “what might have been” in a given situation. According to Kahneman and Tversky (1982), it can be used for two judgmental activities. The first is counterfactual assessment. One can use counterfactual simulations to “modify” a past event and simulate what would have happened and how it might have affected the present (Byrne, 2005; Roese, 1997). If two events happen after each other -- event A happens first,
event $B$ happens afterwards -- one can use counterfactual assessment to see how event $B$ looks like, if event $A$ would have been different.

The second judgmental activity is assessment of causality. With assessment of causality states there is a pre-specified event $B$ and it is mentally tested whether event $B$ still would be possible even after event $A$ was changed. An example of an assessment of causality would be: Would we still have made a loss (event $B$), if we had not merged with that company we bought three years ago (event $A$).

**Perspective Taking:** A third imagination process is perspective taking. With perspective taking, one puts oneself in someone else's position. Perspective taking is a cognitive process that is highly related to, but different from, empathy, which is an intuitive emotional aspect (Lamm, Batson, & Decety, 2007). Using perspective taking, one can imagine the actions and feelings of other people. Moreover, perspective taking can also be used to imagine oneself being in the situation of another. Perspective taking can be useful to entrepreneurs when they, for instance, imagine how potential customers would use a possible new product or service.

**Business Related Outcomes of the Imagination Processes**

Besides the aforementioned three processes of imagination, eight outcomes of imagination can be distinguished, which are the outcomes of the imagination processes (Chiles, Bluedorn, & Gupta, 2007; Felin & Zenger, 2009; Frederiks, Ehrenhard, & Groen, 2012; Szulanski & Amin, 2001). The first category they find is “idea and opportunity creation”. This states that entrepreneurs use their imagination to create new business and opportunities to start a business (e.g. Chiles et al., 2007; Felin & Zenger, 2009). The second category is “(inter)action of stakeholder”, where entrepreneurs imagine how stakeholders act and react on the actions, products and services of the entrepreneur. Imagining how a future customer would react on your product is an example of this category (e.g. Galinsky, Maddux, Gilin, & White, 2008; Hart & Sharma, 2004).

The third category is about imaging a likelihood. In the third category, “Likelihood of company/product”, entrepreneurs imagine how likely it is that the company or product will be successful or unsuccessful (e.g. Zhao, Hoeffler, & Dahl, 2012; Zhao, Hoeffler, & Zauberman, 2011). The fourth category is “Scenarios/plans for company/product”, where entrepreneurs imagine plans or scenarios to reach an imagined future state of the company or product (e.g. Felin & Zenger, 2009; Szulanski & Amin, 2001). In the fifth category entrepreneurs imagine the aforementioned “Future state of the company or product” (e.g. Chiles et al., 2007; ogilvie, 1998). The sixth category is about imagining the “Social impact of the company or product”. A (social) entrepreneur imagining how his/her product would improve the lives of many people or animals would be an example of this sixth category (e.g. Buchholz & Rosenthal, 2005; McVea, 2009).

The seventh category, “Development of entrepreneur” is about entrepreneurs imagining how they can develop themselves or their personal situation. For example, imagining how one should improve one’s behaviour in a specific situation, would fit this category (e.g. Byrne, 2005; 2008). The last category, “Sensing an artefact”, is about imagining an artefact via the senses: seeing, hearing, feeling, tasting, and smelling. One could, for example, imagine how potential customers would physically interact with the product (e.g. Dahl, Chattopadhyay, & Gorn, 1999; Schlosser, 2003).

These eight categories all discuss different business related outcomes of the four imagination processes. Whether some imagination processes lead to specific business related outcomes,
or whether some of these eight outcomes are more the result of one imagination process than another imagination process is unknown. In this study we explore the existence of these suggested relationships.

Methods

Measurements

The 194 mainly nascent high-tech entrepreneurs that participated in a university related one-year incubation program in the Netherlands were requested to fill out an online weekly diary. Filling out the diaries was an official part of the incubation program for both research reasons and as a reflection moment for the entrepreneurs. To stimulate filling out the online diaries on the intranet of the incubation program, the entrepreneurs were not allowed to subscribe for the weekly trainings if they did not fill out the diaries for more than two weeks in a row. Only in exceptional cases, like illness, this rule was not applied. In the diary they were asked to answer the following four questions:

- What were the most important things that you learned in the past week?
- What results have you made in the past week?
- What issues have you been most concerned with in the past week?
- What are the next steps that you are going to take in the coming weeks?

To reduce skewed perception of the behaviour, an interval-contingent recording with fixed schedule was chosen (Bolger, Davis, & Rafaeli, 2003; Laurenceau & Bolger, 2005): the entrepreneurs were asked to fill in independently their weekly diaries (cf. Larsen & Kasimatis, 1990), near the end of their workweek. The information the entrepreneurs entered were not discussed with them. An anonymized diary entry can be found as an example in Appendix A.

In the full dataset of 4698 diary entries, there were 126 entries of which the entrepreneurs kept the pre-filled, standard answers: “I have learned nothing in the past week,” “I have made no results in the past week,” “I have not been concerned with any issues in the past week,” and “I have no plans for next steps at this moment.” These entries have been removed from the data set. In the next step, we read entries of which three out of the four questions were answered with the pre-filled, standard answers. We decided to remove these entries if the non-standard answer were not useful. Examples of not useful answers are: “nothing,” “holidays,” and “didn’t have time.” This resulted in a population of 4529 diary entries.

Sampling

The entrepreneurs that participate in the university related incubation program are mainly nascent, high-tech (potential) entrepreneurs from the Netherlands who differ in their progress. The participants in the incubation program differ in their experience: some do not have a business idea yet, but want to become an entrepreneur; others have a business and want their business to grow. They participate in this program to get trainings, office facilities, and a personal coach. A convenient sample of 3016 entries of 125 entrepreneurs (67%) has been selected from the full study population by the first author. This selection was based on alphabetical order of the first name (Aa... - Mi...) of the participants. The entrepreneurs in the convenient sample did not differ
significantly on the amount of filled in diaries and on gender. In the sample, the diaries have been filled out by 125 entrepreneurs of which are 104 male, 19 female and two entrepreneurs did fill out their gender. The entrepreneurs in the sample have filled out these diaries in total for 3016 times, which means that they filled out the diaries for $\mu=24.13$ weeks in a year ($\sigma^2=16.006$ weeks/year). No differences have been found between male and female entrepreneurs in their use of imagination.

Research Design and Procedures

Four final year business administration bachelor students, independent from each other, coded the sample in multiple steps. In the introduction meeting the first and second author presented and discussed the concepts with the four coders, who had read about these concepts before this meeting and a code book was created. The goal of this introduction meeting was to take away any possible vagueness or ambiguity from the coders, and give them the same understanding as the concepts.

After discussing the coding of a random subsample, the full sample of 3016 entries was divided in six sets of approximately 500 entries. Based on the codebook, the four coders coded one set of 500 entries per week. Every week the codes of the set of the week before were discussed to see whether all four coders agreed unanimously to the three aforementioned issues. Often the coder with a different opinion realized, based on the arguments of the others, why the codes of the others was better than his/her own codes. At each meeting also the codebook was further developed by adding new phrases that signalled a specific imagination process or outcome. A final version of the codebook can be found in Appendix B. After six weeks the whole sample of 3016 entries was coded and all the difficult codes had been discussed.

By convincing each other based on arguments, the coders reached a unanimous decision about all the codes in the sample. For the entries they coded in the first week, they had often different codes, whereas for the entries that were coded in the later weeks, they often had the same codes. Therefore, this last step ensured that the entries that were coded in the first weeks were coded in the same way as the entries that were coded in the last weeks.

Results

For every imagination process, the co-occurring imagination outcomes have been generated. In Table 1 an overview is given of how often an imagination process and outcome were connected. Of the 605 times the entrepreneurs used their imagination, they used prospective thinking 430 times (71.1%), counterfactual thinking 114 (18.8%) times, and perspective taking 61 times (10.1%).

When looking at the outcome of imagination processes, it can be seen that when entrepreneurs use their imagination they most often imagine the (inter)action of other people (175 times, 28.9%). They also often imagine the future of the company (160 times, 26.4%) and imagine scenario’s and plans for the company (161 times, 26.6%). The other outcomes have been found relatively little. Especially the social impact of the products and the company is an aspect these entrepreneurs hardly mention.

When looking at the relationships between the imagination processes and their outcomes, some interesting results can be shown. In Table 2 an overview can be found of which imagination
The entrepreneur and characteristics

The process is used for each imagination outcome. To come up with new ideas and opportunities, only prospective thinking is necessary. To imagine the (inter)action of stakeholders, mainly prospective thinking is used (62%) but also perspective taking (28%) and counterfactual thinking (10%). To create scenarios and plans one mainly uses prospective thinking (71%), but also counterfactual thinking (27%). To imagine the future of the company, one also mainly uses prospective thinking (77%), but also counterfactual thinking (20%). As the other outcomes have not been found very often in the dataset, the other results in the Table have to be interpreted carefully.

In Table 3 an overview is given of what imagination outcomes are created when an entrepreneur uses a specific imagination process. When one uses perspective taking, one is mainly imagining the (inter)actions of a stakeholder, whereas when one uses prospective thinking, one often imagines scenarios and the future of the company and the (inter)action of a stakeholder. Counterfactual thinking is mainly used to create scenarios and plans and the future of the company.

To test whether the imagination processes lead to specific business outcomes of imagination, we analyzed the contingency table in Table 1. We used Fisher’s exact test for $r \times c$ contingency tables (Mehta & Patel, 1983; 1986), because more than 20% of the expected values in a Pearson’s chi-squared test are below 5 (Agresti, 2007). Fisher’s exact test with Monte Carlo simulations revealed that the business outcomes of imagination differ significantly by imagination process ($p < 0.001$).

We also checked whether the use of imagination by the entrepreneurs changed over time during the process, but no significant results have been found.

Conclusion and Discussion

Discussion

Looking at the dataset as a whole, it is remarkable that entrepreneurs mainly imagine (inter)action of stakeholders, the future of the company, and scenarios and plans for the company. When scholars mention in the literature that entrepreneurs use their imagination, they most often mention that this is to come up with ideas and opportunities (Frederiks et al., 2012). Especially for nascent entrepreneurs one can argue that they mainly think about their business idea, or opportunity and use a business development program to improve this. However, apparently most of the entrepreneurs were already a few steps further in the entrepreneurial process and thought and focused more on how their company should look like in the future, developed scenarios and plans to reach these future states, and thought about the stakeholders they needed to reach these goals. Besides that, when the literature discusses the creation of ideas and opportunities, they often discuss prospective thinking (Cornelissen & Clarke, 2010; Felin & Zenger, 2009) and counterfactual thinking (Baron, 2000; Gaglio, 2004). From our dataset, counterfactual thinking cannot be related to the creation of ideas and opportunities. This may be due to the fact that entrepreneurs in our dataset did not write much on the creation of their business idea.

The Fisher’s exact test showed that business outcomes of imagination differ significantly by imagination process. This means that different imagination processes lead to different business related outcomes. When looking at the specific outcomes of the imagination processes, it was found that when one imagines the future of the company, this is mainly done with prospective thinking (77%) and counterfactual thinking (20%). When entrepreneurs think about the future of
their company they mainly try to predict and pre-experience that future, while using prospective thinking. When they use counterfactual thinking, they may look back what went wrong, and how then their “improved” future company would look like.

Imagining scenarios and plans is also an important outcome of the imagination processes of the entrepreneurs. They mainly use prospective thinking (71%) and counterfactual thinking (27%) to come up with scenarios and plans. When entrepreneurs create various scenarios and plans, they mainly predict and pre-experience these scenarios, while using prospective thinking. They also use counterfactual thinking to come up with scenarios and plans that have their root in counterfactual scenarios.

The entrepreneurs imagine the (inter)action of stakeholders, mostly by using prospective thinking (62%). The amount of perspective taking is much lower (28%). From the literature it is expected that perspective taking is the main process for imagining the actions of other people. Apparently, when entrepreneurs think of their stakeholders, their focus is more on the results of the future actions, than on the specific actions, feelings and thoughts of the stakeholder.

The results also showed that prospective thinking is the imagination process that has used most (71.1%) by the entrepreneurs. On a second place counterfactual thinking can be found (18.8%). This is consistent with the results of literature review, as these two imagination processes are mentioned most often in the literature by business and entrepreneurship scholars (Frederiks et al., 2012).

Implications

The results of this study add to our limited knowledge on the use of imagination by entrepreneurs. Some imagination processes, like prospective thinking and counterfactual thinking, are used more than other imagination processes. This means that not every imagination process is equally important to entrepreneurship.

These findings question the results of one of the few empirical findings on imagination in entrepreneurship. Baron (2000) suggests that entrepreneurs use less counterfactual thinking than non-entrepreneurs. Although we did not compare our results to non-entrepreneurs, the fact that counterfactual thinking is an important imagination process, suggests differently. These findings may support Gaglio’s (2004) conceptual findings. She suggests that people engaging in counterfactual thinking are more likely to find opportunities. As entrepreneurs often find opportunities, it is not remarkable that we find that entrepreneurs use much counterfactual thinking when they imagine.

The sample consists of mainly nascent high-tech entrepreneurs. We showed that they often use prospective thinking and counterfactual thinking to come up with future states of their companies and to create scenarios and plans to reach these future states. Entrepreneurs who need to think of how their company may look like in a few years from now, may use psychological enablers to force themselves to use prospective thinking or counterfactual thinking.

These results are also important to the incubation program. In this incubation program they offer, among other support, trainings to the entrepreneurs. This research shows that entrepreneurs
use their imagine to a certain extent. Not every entrepreneur may use prospective thinking or counterfactual thinking as much as needed. Therefore, incubation programs could give trainings to entrepreneurs to make them aware of and enable their use of imagination.

Limitations

Several limitations of this research need to be addressed. First of all, a non-random part of the dataset has been studied and this limits the external validity and hence the generalizability of the study. However, because the first name of a person does not influence any of the variables discussed in this research, we have no reason to expect that the sample, which was selected by selecting the first two-third of the population based on alphabetical order on the first name of the entrepreneur, differs from the rest of the population.

The construct validity of this research may be limited by the fact that the four questions the entrepreneurs had to answer in the diary were not specifically designed to capture the imagination of the entrepreneurs. Besides that, the questions may have steered the entrepreneurs to answer in a specific way that made them think more about prospective thinking and counterfactual thinking as the entrepreneurs were asked about the past week and the coming weeks.

The internal validity of this research may be limited by the fact that not every entrepreneur took the diaries as serious as the other entrepreneurs. Although it was asked to fill in the diaries every week, on average the entrepreneurs filled out the diary once in the two weeks ($\mu=24.13$ weeks in one year, $\sigma^2=16.01$) and some of them filled in the diaries a few times, others almost every week. Moreover, some just answered the questions in one or two sentences, some wrote multiple paragraphs to each question. Also the fact that filling out the diaries was a requirement for the entrepreneurs to be allowed to go to classes on various business topics, and the fact that they were reminded of this several times may have influenced the research.

Further Research

This research is just a beginning to fill the gap of empirical research on the use of imagination within business and it opens up several areas for future research. First, as this is an explorative study, we need explanatory studies to prove or disprove the findings of this study. This study shows how several imagination processes are often used for different outcomes of imagination. A regression analysis may show whether some imagination processes do this significantly. Adding outcome variables as quality of business idea, profit, number of FTE's or other success measures may give more information on the importance of imagination on the success of the company.

Second, some people may use imagination for other imagination outcomes than other people. By using an exploratory factor analysis it could be found that entrepreneurs can be divided in several groups of “imaginers”. Some entrepreneurs may turn out to be more “dreamers” that keep imagining different futures of a company, whereas others may imagine such a future once or twice and then continue to think about how to realise such a future.

Third, an advantage of using diaries is that it contains much rich, in-depth data. Therefore, a more qualitative approach may be used to get more information from the dataset. It may give information on, for instance, the situation in which entrepreneurs start to imagine about their company.
Fourth, this study focused on mainly nascent, high-tech entrepreneurs. We now also need studies on how and when experienced entrepreneurs and business managers use their imagination. All these studies may then also contribute to the question of which imagination process leads to which imagination outcome.

**CONCLUSION**

This study has made a start with empirical research on imagination in business by coding the diaries of 125 entrepreneurs in a one-year university related incubation program in the Netherlands. This research shows that these entrepreneurs mainly use their imagination to imagine a future state of their company, the scenarios and plans to reach that future state, and the (inter)action of the stakeholders that are needed to bring the company to that future state. This study also found that entrepreneurs mainly use prospective thinking and counterfactual thinking when they imagine. To be more specific: when entrepreneurs imagine the future state of the company they mainly use prospective thinking and some counterfactual thinking. When they imagine the scenarios and plans they also use mainly prospective thinking and counterfactual thinking, but already more counterfactual thinking and less prospective thinking then when they imagined the future state. When they then imagine the (inter)action of the stakeholders that they need to make the future state come reality by implementing the scenarios and plans, they also mainly use prospective thinking and some counterfactual thinking, but also perspective taking plays here quite an important role.

In closing, we suggest that further research on this topic is important, not only for building and testing theory on this particular topic, but also for focusing more attention on the creative aspects of business and management. For this reason, we hope that our study on the use of imagination by nascent entrepreneurs may contribute to a better understanding of this concept for entrepreneurship specifically and for business studies more generally.

**CONTACT:** Arjan J. Frederiks; a.j.frederiks@utwente.nl; (T): +31-53-4893797; (F): +31-53-4893919; University of Twente, P.O. Box 217, 7500AE Enschede, The Netherlands.

**ACKNOWLEDGEMENTS**

The data reported here were taken from a larger database developed as part of the VentureLab Twente Project. The VentureLab Twente Project has been supported by funds from the European Fund for Regional Development, the Provinces of Overijssel and Gelderland, the Twente Region, and the Go foundation. The database version used in the present analyses was 1/25/12-12:33. For further information about the VentureLab Twente Project or the data used here, please contact the first author. The authors would like to thank Gerrit Kaper, Jeroen Tolsma, Ruud van Beek and Mart van den Bos for helping them with the coding.
REFERENCES


APPENDIX A: EXAMPLE OF A DIARY ENTRY

Take: [NameParticipant]
Nr: #15
Start: [Date] [Time]
End: [Date] [Time]

Learnings
I have reviewed many of the lessons I had learned last year in [BusinessDevelopmentProgram] and studied and re-read chapters in the following books:

• “Technology Ventures - from Idea to Enterprise” by Dorf & Byers
• “Business Model Generation” by Osterwalder & Pigneur
• “Value Merchants” from Jim Anderson
• “Earth Inc. - using nature’s rules to build sustainable profits” by Gregory Unruh.
• “From Green to Gold” by Daniel Etsy and Andrew Winston.

Results
With my business partner [NameBusinessPartner] we have further developed our business plan. We also had serious discussions on the potential value of a partnership with the interim management firm [NameInterimManagementFirm]. The partners of [InterimManagementFirm] want us to join them in developing solutions for implementing sustainability in organisations. Our conclusion so far is that besides a short term assignment there are more threats and risks than benefits involved. Next [F]riday October 15 we will discuss with them face to face again. My impression so far is that this issue is distracting us from the important thing we need to pay attention to. On Monday October 4, we had an excellent review meeting with [Director] from [BusinessSchool] and he is fully [] on board with our concept. The interest of [BusinessSchool] is in the following areas:

1. Co-facilitating a Learning Network;
2. Support in initial analysis phase of sustainability assignments;
3. Executive and organizational development programs for the organisations we will be transforming;
4. Coaching and sparring partner Additional internal or external research;
5. Processes development in areas such as leadership development, change management.

The meeting with [Professor] from [University] has been scheduled on November 18, For this meeting [Professor] has also invited [Researcher] (sustainability, change and leadership processes) and [BusinessDirectorResearchInstitute1]. Meeting with [BusinessDirectorResearchInstitute2] is still pending.

Issues
We have not made any progress on our company name. Next week I have my final Business Panel presentation on [BusinessDevelopmentProgram] with an interview for the book; having a good name would be quite useful...!Next Monday, October 11, I have a second and final interview for a long interim management assignment with [Company]. It seems I am the only remaining candidate for this assignment. However I have mixed feelings about this: I do need [t]he income, so far this has been a very quiet year, but right now we are making great progress on our new venture, and this assignment brings money but it is actually the “wrong” assignment and diverts
focus from our new venture. I will see how this develops and if I can bring a sustainability aspect into the equation and free time to further build on our new venture. Having a substantial income for a longer period could also provide a more stable base to develop and market our venture.

**Next steps**

- Prepare Business Panel presentation for next Thursday October 14.
- Get appointment with [DirectorDevelopmentAgency] to explain new venture and identify potential areas of cooperation. A good relation with [DevelopmentAgency] could provide for interesting commercial leads.
- Discuss current rapid developments with my [PersonalCoach].

**APPENDIX B: CODEBOOK “IMAGINATION IN DIARIES”**

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
<th>Examples*</th>
<th>Doubt/Difficult/ Different*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prospective</td>
<td>Prospection is the “ability to ‘pre-experience’ the future by simulating it in our minds” (Gilbert &amp; Wilson 2007).</td>
<td>“expect” “seems” “will” “Hopefully” “Because otherwise...” “(I wonder) if I should have...” “If I...”</td>
<td></td>
</tr>
<tr>
<td>Counterfactual</td>
<td>imagining “what might have been or might happen” if non-factual assumptions are made.</td>
<td>“What if...” “Because otherwise...” “(I wonder) if I should have...” “If I...”</td>
<td></td>
</tr>
<tr>
<td>Perspective</td>
<td>The third stream of research focuses on the possibility to imagine people, by perspective taking i.e. putting oneself in someone else’s position.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition: Imagining...</th>
<th>Examples*</th>
<th>Doubt/Difficult/ Different*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideas &amp; Opportunities</td>
<td>... new business ideas and opportunities to start a business</td>
<td>IDE for a new company</td>
<td></td>
</tr>
<tr>
<td>Development of entrepreneur</td>
<td>... how the entrepreneur can improve him/herself.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future</td>
<td>... a future state of the company or product.</td>
<td>FUT for an existing company</td>
<td></td>
</tr>
<tr>
<td>Likelihood</td>
<td>... the likelihood / feasibility of company</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensing Artifact</td>
<td>... to sense (seeing, hearing, feeling, tasting, smelling) an artifact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenarios / Plans</td>
<td>... a plan or steps towards a future state of company</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acting with Stakeholders</td>
<td>... acting with stakeholders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Societal Impact</td>
<td>... impact on society of company / social consequences of company</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The “Examples” or “Doubts” are hints that help recognizing the right application of imagination. However, finding these hints in the text does not mean automatically that this application is found. Always use your critical thinking to see whether that category really fits the text.
### TABLE 1: CO-OCCURRENCE ANALYSIS

<table>
<thead>
<tr>
<th></th>
<th>Prospective Thinking</th>
<th>Perspective Taking</th>
<th>Counterfactual Thinking</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idea and Opportunity Creation</td>
<td>20</td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>(Inter)action of stakeholder</td>
<td>108</td>
<td>49</td>
<td>18</td>
<td>175</td>
</tr>
<tr>
<td>Likelihood of company/product</td>
<td>25</td>
<td>2</td>
<td>13</td>
<td>40</td>
</tr>
<tr>
<td>Scenarios/plans for company/product</td>
<td>115</td>
<td>3</td>
<td>43</td>
<td>161</td>
</tr>
<tr>
<td>Future state of company/product</td>
<td>128</td>
<td>5</td>
<td>33</td>
<td>160</td>
</tr>
<tr>
<td>Social impact of company/product</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Development of entrepreneur</td>
<td>32</td>
<td>1</td>
<td>6</td>
<td>39</td>
</tr>
<tr>
<td>Sensing an artefact</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>430</td>
<td>61</td>
<td>114</td>
<td>605</td>
</tr>
</tbody>
</table>

### TABLE 2: CO-OCCURRENCE ANALYSIS – HOW OUTCOMES OF IMAGINATION PROCESSES ARE INVOKED BY IMAGINATION PROCESSES

<table>
<thead>
<tr>
<th></th>
<th>Prospective Thinking</th>
<th>Perspective Taking</th>
<th>Counterfactual Thinking</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idea and Opportunity Creation</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>20</td>
</tr>
<tr>
<td>(Inter)action of stakeholder</td>
<td>62%</td>
<td>28%</td>
<td>10%</td>
<td>175</td>
</tr>
<tr>
<td>Likelihood of company/product</td>
<td>63%</td>
<td>5%</td>
<td>33%</td>
<td>40</td>
</tr>
<tr>
<td>Scenarios/plans for company/product</td>
<td>71%</td>
<td>2%</td>
<td>27%</td>
<td>161</td>
</tr>
<tr>
<td>Future state of company/product</td>
<td>77%</td>
<td>3%</td>
<td>20%</td>
<td>166</td>
</tr>
<tr>
<td>Social impact of company/product</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td>Development of entrepreneur</td>
<td>82%</td>
<td>3%</td>
<td>15%</td>
<td>39</td>
</tr>
<tr>
<td>Sensing an artefact</td>
<td>33%</td>
<td>33%</td>
<td>33%</td>
<td>3</td>
</tr>
</tbody>
</table>

### TABLE 3: CO-OCCURRENCE ANALYSIS – HOW IMAGINATION PROCESSES LEAD TO IMAGINATION OUTCOMES

<table>
<thead>
<tr>
<th></th>
<th>Prospective Thinking</th>
<th>Perspective Taking</th>
<th>Counterfactual Thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idea and Opportunity Creation</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>(Inter)action of stakeholder</td>
<td>25%</td>
<td>80%</td>
<td>16%</td>
</tr>
<tr>
<td>Likelihood of company/product</td>
<td>6%</td>
<td>3%</td>
<td>11%</td>
</tr>
<tr>
<td>Scenarios/plans for company/product</td>
<td>27%</td>
<td>5%</td>
<td>38%</td>
</tr>
<tr>
<td>Future state of company/product</td>
<td>30%</td>
<td>8%</td>
<td>29%</td>
</tr>
<tr>
<td>Social impact of company/product</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Development of entrepreneur</td>
<td>7%</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>Sensing an artefact</td>
<td>0%</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>430</td>
<td>61</td>
<td>114</td>
</tr>
</tbody>
</table>