

# Reflection on master thesis: Sustainable Entrepreneurship: Values, social networks and spatial concentration

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## Introduction

This report is a reflection on the paper written for my thesis and a discussion of the materials that were included in the thesis paper. It also discusses materials that were not included in the thesis paper. It first discusses the topic of the thesis and the journal that was chosen as a prospective journal for publication of the paper. Then it goes on to discuss the literature, method and results. After the ethical considerations and data quality issues are covered, the relation with the supervisor is discussed.

## Discussion of topic and journal

When I started writing this thesis, I wanted to do research on the consumption of sustainable food. It amazed me that so many people in the world don't sufficiently think about their food in terms of health and sustainability, even though they eat at least three times a day. I thought food to be an overlooked issue in terms of its social and environmental effects, because it received so little attention in academic literature and even in my own programme. Because of this, I was interested in consumption geographies, food citizenship, ecological citizenship and environmental justice. However, none of these topics seemed appropriate for my MSc research until I finally came across ecopreneurship. Although this topic does not focus on the consumption of food, I could easily integrate market elements in my thesis this way while still focussing on a type of sustainable behaviour, although this was not consumption as such.

With an interdisciplinary subject like value-based sustainable entrepreneurship, many journals could be fitting for the thesis paper. The paper combines literature from environmental psychology, economic geography and entrepreneurship studies, while using spatial economic analyses. This makes the thesis highly interdisciplinary and leaves a wide choice of journals that could be written for. The journal chosen for this thesis is the *Journal of Economic Geography*. The reason for choosing this journal is that the main research question focuses on spatial concentration of economic activity, which is an economic geographic question. This is in line with the journal's identity. Although the rejection rate of this journal is high, the journal is known for giving quick replies to prospective authors and for its great peer review feedback. Therefore, even when the paper would be rejected, the feedback can be useful for improving the paper for submission to a lower ranking journal. Another high class journal that was considered was the *Journal of Business Venturing*. Although this journal does not match the topic of the paper as well as the *Journal of Economic Geography*, it has published the most papers on sustainable entrepreneurship. It even had a special issue on entrepreneurship and sustainable development in 2010, which covered many articles relevant to my research (Daneke, et al., 2010). However, this journal was rejected because the match between the journal's goals and the thesis paper was not as good as with the *Journal of Economic Geography*. Furthermore, dr. Aleid Brouwer has much experience with the *Journal of Economic Geography*, which makes it easier to adopt a style fitting for that journal.

### **Discussion of other theories I could have chosen**

After making the decision to focus on the entrepreneur instead of the consumer, the literature I chose focused mainly on ecopreneurship, which is entrepreneurship with the goal to improve or at least not further reduce environmental quality (Schaltegger & Wagner, 2011). Ecopreneurship does not necessarily integrate the social component of sustainability. At that time, I chose to focus on the environmental component, because I find environmental issues especially interesting and important. However, when exploring literature on social entrepreneurship, I found that there are many similarities between entrepreneurs with environmental goals and entrepreneurs with social goals, such as a lower importance of capturing economic value as opposed to social or environmental value (Mair & Martí, 2006; Zahra, et al., 2009; Bosma & Levie, 2010). Therefore, I changed my focus to sustainable entrepreneurship. This change was also supported by environmental psychology literature on environmental behaviour. Although altruistic social and altruistic biospheric values have a different effect on environmental behaviour, especially when trade-offs between environmental and social behaviour have to be made, they both have positive effects on environmental behaviour (De Groot & Steg, 2007, 2008). Furthermore, the line between different types of altruistic entrepreneurship is hard to draw, with many social entrepreneurs also adopting environmental goals and many ecopreneurs also adopting social goals (Holt, 2010).

Besides the shift from ecopreneurship to sustainable entrepreneurship, I made another theoretical shift in my research. In the first paragraph of the previous chapter I discuss how I would focus my analysis on the market. In the end, I did not do this because discussing the entrepreneur and the market as separate entities did not seem fitting in the small scale and niche based sustainable restaurant sector. My own experience with consuming in a more sustainable way is that the relationship between consumer and entrepreneur is more like a network or a community. Members established platforms for eating sustainably, such as facebook groups, blogs and websites and members would often place announcements for arranging a meeting. The combination of my focus on sustainable values and these types of networks or communities fitted with social network theory. Because of this, I also let go of most of literature that I previously used on the role of age, unemployment and the role of access to capital for sustainable entrepreneurship (Bates, 1990; Blanchflower & Oswald, 1998; Evans & Leighton, 1989; Reynolds, et al., 1995). Although these are all variables that can predict entrepreneurship, they are not in line with the argument that sustainable entrepreneurs are different from conventional entrepreneurs because of their values. To prove this difference in values, other entrepreneurship theory is not necessary.

After this shift of focus in my thesis, I reviewed but rejected other environmental psychological theories, such as social value orientations (Messick & McClintock, 1968; Joireman, et al., 2001) and value-belief-norm theories (Stern, 2000). Although these are useful in explaining how values are related to environmental behaviour, they focus on the individual. The network approach is better suited to my research than theories of individual behaviour, because the role of the social network is crucial in explaining spatial concentration, for instance from spill overs of knowledge (Huggins & Thompson, 2015). Because of the importance of the role of the social network in knowledge spill overs, it could be well used for explaining the spill over of sustainable values and knowledge.

An element of my thesis that I excluded because it would take too much space to construct another element in the thesis with theory, hypothesis and results, is the importance of universities in social capital creation. Although this can be very important for the creation of social capital, it is not part of the core of the theory. I would argue that to act sustainably in the restaurant sector, knowledge on the sustainability of food was required. Universities could offer this knowledge. Instead of a spill over effect of knowledge for innovation (Acs, et al., 2005), there could be a spill over effect of knowledge for sustainability, with the university at its centre. Adding to this argument, the university also has an ethical element in its education, which could add to the spill over effect by making persons more aware of normative issues such as unsustainable consumption. I also added literature on a university education as a life changing event. During life changing events that are, for instance, characterized by a change of environment, old habitual behaviour is replaced by new

habitual behaviour (Klößner, 2004). When this is combined with the right information on sustainability, individuals could adopt more sustainable habits.

To conclude, the social network theory of spill over is very useful in explaining regional economic differences, for instance when there are cultural differences between regions (Audretsch, et al., 2010). Because a key component of spill over is information sharing through face-to-face contact, social networks and social values relate to this. Therefore, it is a useful connection between regional economic difference and the values of sustainable entrepreneurs and their social networks. The key concepts that I eventually use in my thesis are displayed in Figure 1.

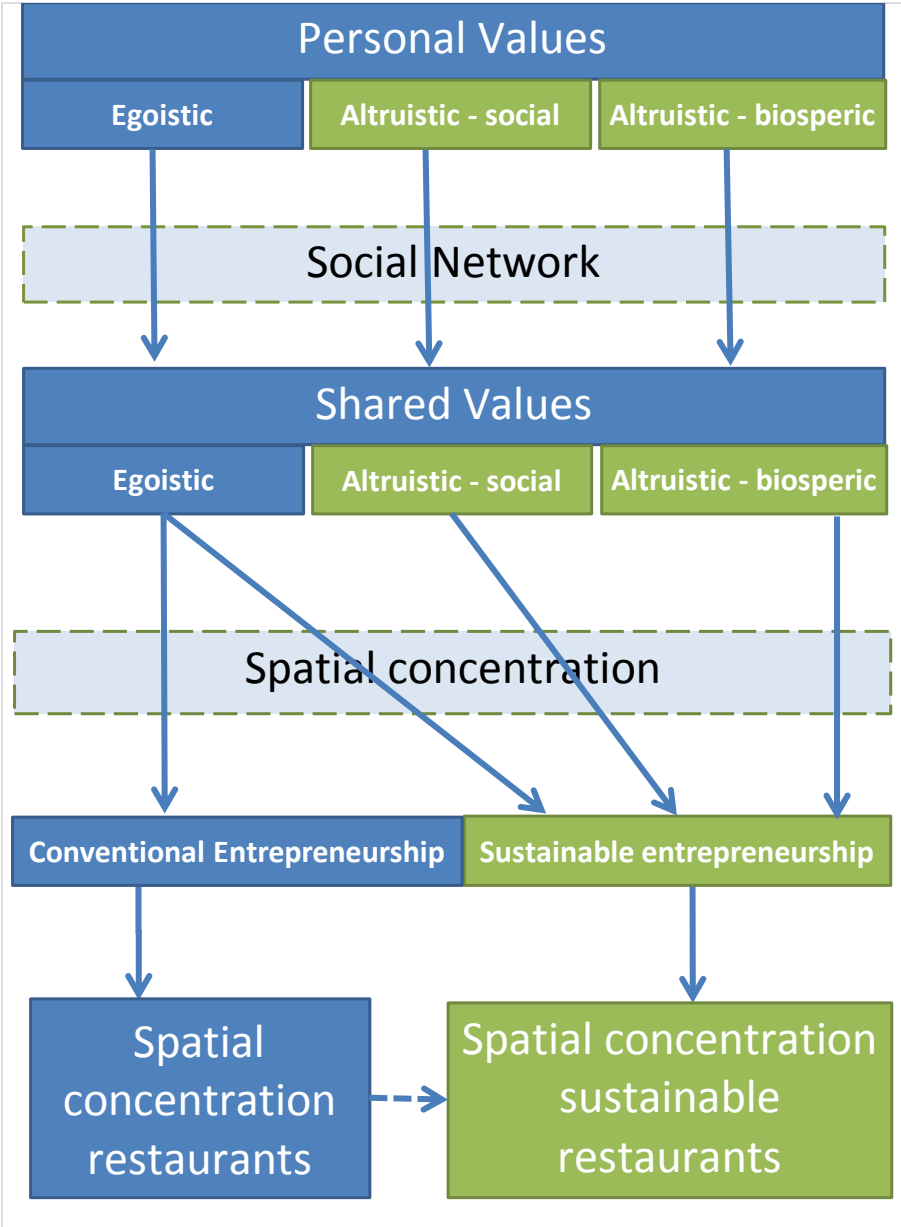


Figure 1. Conceptual model of the theory used in the thesis.

**Reflection of other methods I could have chosen and chosen methods now**

Because of my previous focus on market research, the choice for a quantitative methodology was already made because I had gathered my secondary data by the time I had finished my theoretical framework. Luckily, this also fitted well with my theoretical framework. However, primary data collection was required due to the importance of entrepreneurship values. For the additional collection of data on entrepreneurship values, I could have chosen interviews, focus groups and/or questionnaires. I chose for questionnaires because it allowed me to get a larger sample and to use

quantitative analysis, which I feel more comfortable with than qualitative analysis. Also, considering that I would write a paper for submission in a journal, it fitted better with the quantitative approach already taken. I felt that choosing only quantitative methodology would give me higher chances of paper submission to a high-quality economic journal.

The first and foremost issue with my methodology is that it misses a step that is present in my conceptual framework. The first research step is personal sustainable entrepreneurship values, the second is shared values and the final step is spatial concentration of social networks. In my research, I make a leap from personal values to spatial concentration, without analysing social networks, interaction and shared values. Because the theory on social networks and shared values indicates that the connection from personal values to shared values to spatial concentration of social networks is present in my research, it is not a major issue. However, it might have made my argument much stronger. I chose not to include this analysis in my thesis, because it would have required an additional data collection. Furthermore, I am not familiar with research on social networks and the accompanying methodology. Therefore, I chose not to perform this research step.

For the data collection of my secondary data, there were also some trade-offs to be made. My present definition of a sustainable restaurant only yielded a dataset of 600 restaurants in the Netherlands that satisfied the criteria. I could have adapted my criteria to include more restaurants, however, this would make for a less sustainable dataset. Therefore, I accepted the small number of restaurants, because I did not want to adjust my criteria for sustainable restaurants. Lowering the bar for restaurants could have the consequence that restaurants that are 'greenwashing' their unsustainable practices or restaurants with only a few sustainable options would be included.

After determining the method for the data collection it was a long and time consuming process to find the fitting methodology for the analysis of my hypotheses. My first issue considered the sample size of my sustainable restaurant data. I wanted to use a Moran's I statistic, but the dataset was not large enough to be aggregated on the municipality level, I could not use a Moran's I statistic. After many hours of exploring literature on cluster analysis, I came across Ripley's K (Duranton & Overman, 2005), which suited my data. A second problem involved a mismatch between my survey and the binary logistic regression. Because almost all data used in the regression was ordinal, with five categories, I had to transform all of these variables into five dummies. The result was only insignificant variables and multicollinearity issues. Therefore, I transformed all ordinal variables in a single dummy per variable, which resulted in a model with a larger explanatory power and less issues. However, it is likely that this transformation did result in a loss of information. I could have prevented this by using a different questionnaire design.

Another issue I had with the data analysis involves my secondary data. Because the sample of sustainable restaurants in the Netherlands was too small to aggregate to municipality level or a lower scale, it could not be corrected for population. Although aggregation was possible if a fishnet polygon was used, this also wouldn't allow for population correction because population data was aggregated on another level. Therefore, I performed the sustainable restaurant cluster analysis on uncorrected data. I did correct for population in the analysis on the entire LISA dataset, but excluded the results because they are not comparable to the results of the sustainable restaurant analyses. The results are included in the results chapter of this report.

One of my final issues was the problem of finding a test that could compare two clusters and determine whether they were significantly different from each other on the basis of location. Because ArcGIS did not have such a function, I gave the general and sustainable restaurant dataset both a binary variable to indicate whether they were in a cluster. However, after exporting the dataset to SPSS, it proved difficult to find a fitting test. My dataset violated an assumption in all of the tests that were discussed during my education. Eventually, I used a combination of McNemar's test and a simple chi-square test to execute the analysis. Although this is a very simple method, it should be able to reject or adopt the hypothesis that the sustainable and general restaurant clusters differ geographically.

Finally, as I planned to include the importance of the university in the thesis at first, I also developed a methodology for this. In this more extended method I would also assess the importance

of locating in an urban area and include this in the same analysis. The analysis would consist of an extra analysis on the primary as well and on the secondary dataset. For the primary dataset, the education of the entrepreneurs would be included in the binary logistic regression on entrepreneurial values as an extra predictor. Because the university is argued to influence the values of students, it would also be included in the factor analysis on entrepreneurial values. For the secondary data, a separate data analysis would be executed. The first part of this extended methodology would be executed in ArcGIS. Based on the academic literature for influence range of the university or based on the restaurant increment, a circle would be drawn around all universities and higher education institutes and all restaurants within this circle would be given a value for being near a university or higher education institute. The restaurants located in an urban area would also be given a value for being urban or not being urban, based on the definitions of the Dutch Bureau for Statistics (CBS). This connects to the literature in chapter 2.3 of the thesis, in which urbanisation economies are discussed. The second step is executed in SPSS. Both variables would be exported to SPSS and included in a regression with, as the dependent, a binary variable indicating the sustainability of the restaurants.

### **Reflection on ethical issues and data quality**

The ethical issue of this research are concerned with the data collection. To build my dataset of green restaurants, I used data mining techniques to gather information of the restaurant's location from websites. The main websites for this are the HappyCow online community for vegans and vegetarians and BewustBiologisch, a website for organic eating in the Netherlands. Because the HappyCow website stated in their disclaimer that it was not allowed to use data from their website, I sent them an e-mail asking whether I could use the restaurant data from their website. They replied that I could use their data and that they wanted the results once I was finished. This consent was needed, because it is not always legal to use data mining to gather data. The website for BewustBiologisch does not state any restrictions regarding the use of their data. However, they do state that they are not responsible for the correctness of the information on their website. Because I was not sure about the reliability of the data, I eventually checked all organic restaurants manually.

Another ethical issue concerns the survey. I could not guarantee anonymity, because I asked for the postal code of the restaurant. However, I made a statement regarding confidentiality of the data. Furthermore, I received an e-mail from one of the respondents, stating that the questions were too personal. I replied to this respondent, explaining why I needed these personal questions in the dataset. I did not receive any other complaints from respondents, so I did not adjust the survey.

Besides the survey's ethical issues, there are also some data quality issues. From the exactly 300 responses, only 205 could be used in the primary data analysis. The other responses had missing data for at least one of the variables and were therefore excluded from the analysis. This possibly lead to the low score for the Cronbach's Alpha for the factor analysis. Although this is not a problematic score, it is not ideal. An inconvenience during the first day that the survey was open, might have played a part in the low response rate. I received a number of e-mails from respondents who had tried to take the survey but had an error. After contacting the help service for the survey software, the issue was resolved. Although the error did not last longer than a day, it might have cost some responses, especially because it was the first day.

### **Discussion of other results that could have been included in the paper**

The results that I did not include in the paper are the results that are not comparable with other results or not necessary. The first graph I'd like to discuss is a graph of a result that I did include, although I did not include the graph itself. The graph in figure 2 is a very useful visualization of the results of the factor analysis in chapter 4.1.1. in my thesis, on entrepreneurship values. It shows which variables belong to which factor and it also shows which variables have the largest share in the factor effect. Eventually, I chose to display the variables in a table rather than in a graph, because it shows the factor loadings and it gives the possibility to also show the eigenvalues and diagnostic statistics in the graph.

Another result that I did not show is the logistic regression that I performed on the original ordinal survey data before I made the adjustment to binary data. This regression was not significant and had major collinearity issues due to the many dummies, even after controlling for the dummy trap. It might have worked with a backwards entry method, however, the results would be difficult to interpret, opposed to the results of the regression with only binary variables that was included in the thesis.

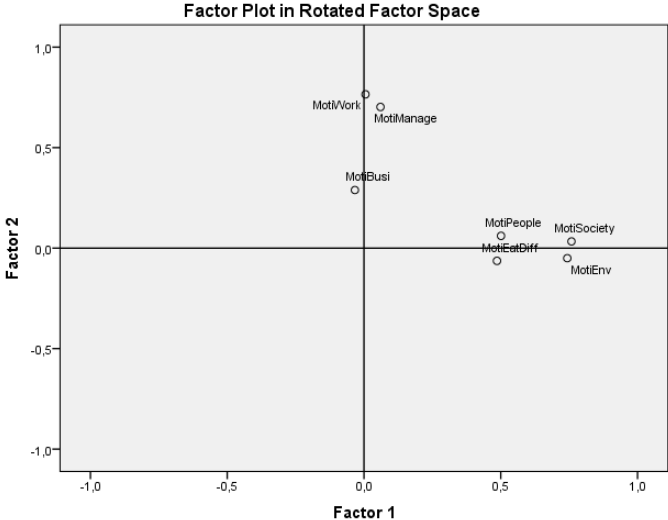


Figure 2. Rotated factor loadings graphically presented

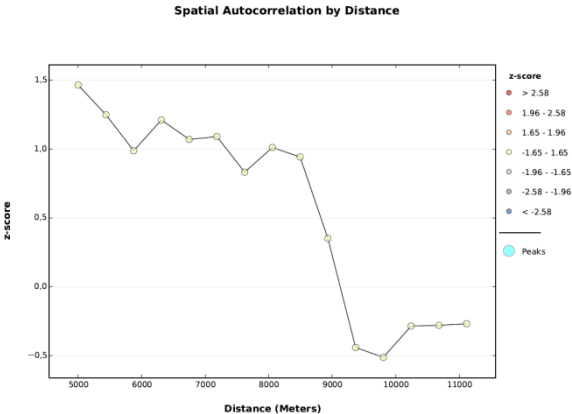


Figure 3. Incremental spatial autocorrelation of the LISA data corrected for population

Table 1. The Moran’s I for spatial autocorrelation: corrected and not corrected for population

	Moran’s I LISA	Moran’s I LISA corrected for population
Moran’s Index	0.151263	-0.051609
Expected Index	-0.000085	-0.083333
Variance	0.000006	0.002467
Z-score	60.163197	0.638701
P-value	0.000000	0.523018

The Moran’s I for spatial autocorrelation is significant,  $p < .001$ . However, when the dataset is corrected for the population, it is not significant (see table 1.) Where Moran’s index for the uncorrected LISA is positive, the corrected LISA dataset shows a negative index. The negative index indicates a negative spatial autocorrelation and spatial dispersion instead of concentration. These results show that it is highly likely that the size of the population has a large effect on spatial

concentration in the restaurant sector. This could for instance indicate that restaurants locate near their market and that their market is everywhere. This is also supported by the graph in figure 3, which shows a positive autocorrelation for the short distances. As indicated by McCann (1995), restaurants benefit from locating near each other to maximise consumer interest. The graph in figure 3 also indicates this, as autocorrelation sharply declines after eight kilometres.

When mapping the clusters for the LISA dataset with all restaurants, I mapped the results a number of times on three scales: neighbourhood, district and municipality. In some of these cluster mappings I corrected for population, while I did not correct for population in others. Eventually, I included the map in the thesis which most clearly showed the restaurant clusters. This analysis was performed on the neighbourhood level, although I also performed analyses on the district and municipality level. The map included in figure 4 is a cluster map on the neighbourhood level that was corrected for the number of inhabitants per neighbourhood. Although it can be argued that this is a more suitable clustering map due to the correction, it was not used because the cluster mapping for sustainable restaurants could not be corrected for population.

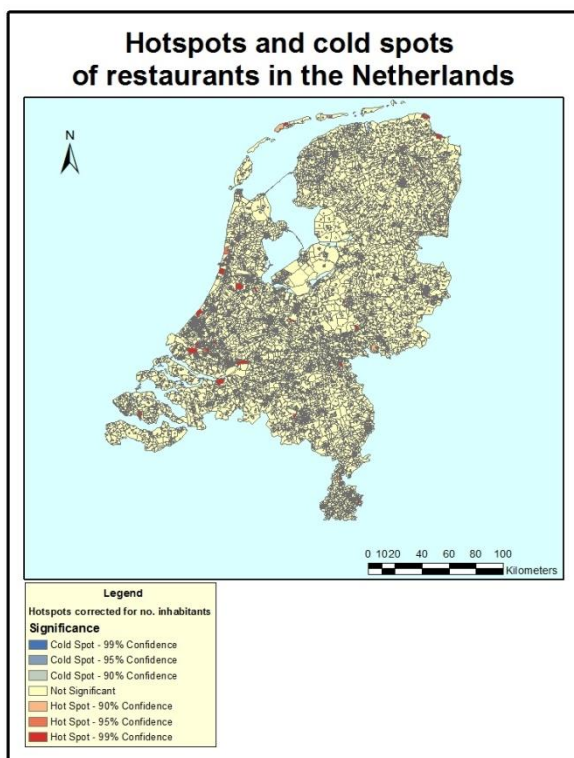


Figure 4. Hotspot analysis on the LISA data corrected for the number of inhabitants

I performed the fifth step on both the entire LISA dataset and on the sustainable restaurant selection. Because there was no difference between these analyses in terms of significance, I did not include both in my thesis. The McNemar's test for sustainable restaurants was significant, indicating that the locations of the general and sustainable cluster are different from each other,  $\chi^2(1) = 19.7$   $p < .001$ . This result is similar to the result of the LISA analysis,  $\chi^2(1) = 141.6$   $p < .001$ . The chi-square statistic for the sustainable restaurant selection indicates that the general and sustainable cluster are not independent,  $\chi^2(1) = 215.9$   $p < .001$ , just as the statistic for the LISA dataset,  $\chi^2(1) = 9843.7$   $p < .001$ . Finally, the binary logistic regression used to determine localization economies was significant for both the sustainable selection and the LISA dataset, with  $b = 2.947$  Nagelkerke  $R^2 = .442$   $p < .001$  for the sustainable selection and  $b = 2.746$  Nagelkerke  $R^2 = .403$   $p < .001$  for the LISA dataset.

### **Reflection on research process, own role and role of the supervisor**

The research process went from a broad subject and a messy structure to a more focussed and structured thesis, eventually. In the beginning, I needed much time to explore the literature and find a subject that suited my research interests. I believe that I have found this subject eventually and that Aleid has helped me very much in doing this. I also hope that from now on, I have to search less before starting the actual research.

It helped me very much to present my research idea to an audience during the Graduate Research Day. On the one hand I did not like to present without having results, on the other hand the presentation helped me in the process of finding the right method for the analysis. Presenting in only seven minutes was very useful for me, because it helped me to focus the research and structure my paper. Redesigning the conceptual model was also a great help in finding the structure.

The role of Dr. Aleid Brouwer, my supervisor, was activating. In previous experience, review meetings sometimes left me insecure or gave me the feeling that the amount of things I had to do was almost impossible. I never had this feeling during my master thesis with Aleid and I never left from a talk with Aleid with the feeling that I couldn't deal with my thesis issues. After a meeting, I always felt motivated to continue right away. Furthermore, Aleid had much useful information on the subject and allowed me to borrow books and gave me suggestions which could be useful. For instance, she gave me a key paper on restrictive social capital which felt like the final piece of the puzzle that I had been missing. Although this helped me in finding my way in the literature, I never had the feeling that the thesis wasn't the product of my own work. I felt like there was always plenty of room for me to pursue my own research interests and consider my personal interests in this research.

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