

# An explorative study on factors associated with sustainable food consumption among students

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## Abstract

In order to maintain a liveable world, sustainable food consumption becomes of greater importance as the world population keeps growing and natural resources become depleted. This study aims to explore behaviors and factors associated with sustainable food consumption. The study is based on a qualitative study design, which is given sense to by means of 14 in-depth interviews among students. The questionnaire consisted of open questions focused on factors associated with organic food consumption, questions on background variables and a behavior checklist. Several types of behavior were identified, being the consumption of tap water, limiting waste, freezing food, storing products in optimal conditions, cooking for more people and/or days, and eating less meat. Factors associated with sustainable food consumption as identified in this study are positive and negative beliefs, barriers and abilities, the role of social pressure, emotions, moral considerations, parental consumption, past behavior, values, means, knowledge and perceived urgency. The results of this study indicate that the framework on factors associated with organic food consumption is not comprehensive enough, and needs some expansion in order to be of predictive value for sustainable food consumption as well.

## Keywords

Sustainable foods, Food consumption, Consumer behavior

## Introduction

The demand for sustainable food is growing. By 2050, the world will have to feed 9.6 billion mouths (UN, 2013). This means an estimated seventy to hundred per cent more food has to be cultivated without endangering the human living conditions and planet's resources. Continuous supplies of ecosystem services are necessary for human well-

being, such as access to food and good health (Butler & Aluoch-Kosura, 2006). Therefore, creating sustainable food markets becomes of greater importance. Within one year, the market share of sustainable food within the Netherlands increased from 3.5 per cent to 4.5 per cent (Monitor Duurzaam Voedsel 2011). However, only little research has been done in order to identify the factors associated with the choices and considerations towards sustainable food consumption. Sustainability, as defined by Vermeir and Verbeke (2007, p. 542), is “a combination of economic (profit), ecological (planet) and social (people) aspects”. All three elements have to be balanced around development and environmental concerns (Kuhlman & Farrington, 2010). Taking these aspects into account will support the goal of achieving sustainable development (World Bank, 2003). In order to stimulate more sustainable food consumption in the future, it is perceived as being crucial that we get to know more about factors associated with young people’s decision for sustainable food consumption. Therefore, the aim of this study is to explore behaviors and factors associated with sustainable food consumption. The focus of this study lies on the next two objectives:

*“To what extent are sustainable food consumption behaviors present?”*

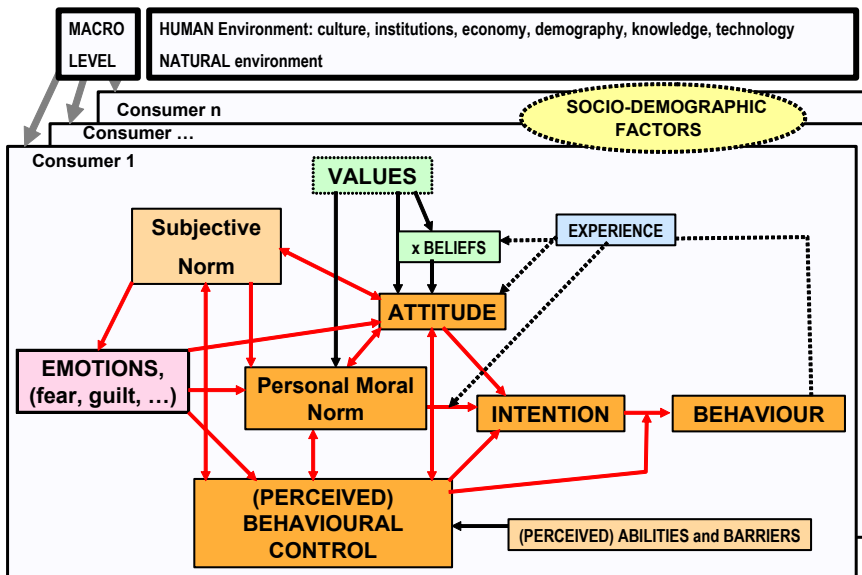
*“What factors are associated with the choice for sustainable food consumption?”*

Although there is a clear distinction between organic foods and sustainable foods, it seems like there are a lot of similarities for the consumer, like the price difference compared to conventional food and the moral reasoning of doing something good for society. Over the years, a lot of research has been done on understanding and predicting behavior in the field of organic food consumption (i.e., Arvola et al., 2008; Hughner, McDonagh, Prothero, Shultz & Stanton, 2007). In order to explore factors that are influencing people’s decision for sustainable food consumption, this study will be based on a framework of factors associated with organic food consumption.

### **Theoretical framework**

A framework that is often used to predict and understand human behavior in specific contexts is Ajzen’s (1985) Theory of Planned Behavior (TPB). Core concepts within the TPB (1985) are intention, attitude, perceived behavioral control, and subjective norm. The individual’s intention to perform certain behavior represents how hard a person is willing to try or put effort in order to perform certain behavior. Perceived behavioral control (PBC) represents someone’s individual judgment of how well one expects to be able and capable to execute certain behavior. PBC is influenced by perceived barriers and

perceived abilities (Ajzen, 1991). Attitudes represent the psychological tendency to form positive or negative feelings or thoughts about a particular entity, including behavior (Albarracín, Johnson & Zanna, 2005). The subjective norm holds the individual perception of social pressure to perform or not perform certain behavior (Ajzen, 1991). Ajzen (1991, p. 188) concludes: "The more favourable the attitude and subjective norm with respect to a behavior, and the greater the perceived behavioral control, the stronger should be an individual's intention to perform the behavior under consideration". Recently, a lot of research has been done on the predictive value of the TPB (1985) in the field of organic and sustainable food consumption (Arvola et al., 2008; Robinson & Smith, 2002; Vermeir & Verbeke, 2006; Vermeir & Verbeke, 2007). Overall conclusion: the TPB (1985) does not cover all relevant factors in order to predict sustainable nor organic food consumption. Aertsens, Verbeke, Mondelaers and Van Huylenbroeck (2009) did a review on determinants related to organic food consumption and they found that, besides the TPB by Ajzen (1985) and the values theory by Schwartz (1992), several additional variables are associated with organic food consumption (see figure 1).



**Figure 1.** Integrated framework on personal determinants of organic food consumption. An adopted TPB-model based on the literature related to organic food consumption (Aertsens, Verbeke, Mondelaers & Van Huylenbroeck, 2009, p. 1141).

It is assumed that there are similarities between factors associated with organic food consumption and sustainable food consumption, but only little research has done to confirm this assumption. This framework as proposed by Aertsens et al. (2009) could therefore be a starting point.

## Materials and Methods

Since we do not have knowledge of the factors associated with sustainable food consumption, there is chosen for a qualitative study design. This is given sense to by means of in-depth interviews. By doing so, participants were given the opportunity to share their personal experiences and perspectives towards sustainable food consumption. This is of high value for this research, as it helps to gain more detailed information and supports a better insight in complex topics as decision making and behavioral patterns (Hennink, Hutter & Bailey, 2011).

### Participants and procedures

Participants were recruited at Maastricht University, located in the Netherlands. There is chosen to recruit at two different faculties, being the Faculty of Health, Medicine and Life Sciences (FHML) and the Faculty of Arts and Social Sciences (FASoS), because their students are expected to be orientated on different aspects of sustainable food consumption. Students at the FHML are expected to focus on health-related issues and consequences, and students from the FASoS are expected to focus on the social aspects and consequences. There is chosen for higher educated young adults because they in general have some knowledge and insight on the concept of sustainability. In addition, students are in the stage of personal development where they establish a personal framework of values and beliefs on which they will base their future decisions and behavior. As the study population can be reached mainly within the university building, interviewees were approached and interviewed at the canteen within the two faculties. Participants were randomly selected on base of the inclusion criteria, being native Dutch speaker, student at the FHML or FASoS, living away from home, and to some extent responsible for groceries. During two weeks, 14 interviews were conducted. This number was enough to not hear new information from any of the participants. At this point we reached information saturation (Hennink, Hutter & Bailey, 2011). During the interviews, confidentiality and anonymity were guaranteed because of the one-on-one setting of the interviews and the fact that participants were not identifiable by means of the transcripts or within further information processing. In addition, there was an oral informed consent. All this together means that there were no ethical issues at hand in the data collection process (Flick, 2014).

## Measurement

The questionnaire consisted of open questions and some questions on background variables (i.e., age, study track, composition of household, responsibility for grocery shopping, sources of income). The questions were focused on the variables identified in the model by Aertsens et al. (2009) and expanded by two more variables: perceived urgency and awareness of the problem. The following topics were addressed: behavior, experience, attitude, emotions, perceived behavior control, perceived barriers and abilities, subjective norm, personal values, perceived urgency, awareness, personal moral norm. To establish a behavior inventory, a checklist was included in the interview guide. This checklist consisted of certain sustainable actions and was based on sustainable consumption checklists provided by Greenpeace (n.d.) and the Consumentenbond (n.d.a; n.d.b). After the first two interviews, small adjustments to the interview guide were made. This was because of the considerable overlap between the questions. The interviews were recorded by a digital recorder, and immediately transcribed afterwards.

## Analyses

All interviews were used in the analysis. After preparing the data for analysis by transcribing the interviews, Nvivo10 was used to code the interviews by the hand of a codebook. The codebook was based on the framework by Aertsens et al. (2009) as discussed in chapter one, and completed with a content analysis by scanning through seven of the fourteen interviews (Boeije, 2005). The same framework by Aertsens et al. (2009) was used to guide the actual analyses. To validate the results, academic literature was consulted.

## Results

Types of behavior that were mentioned by the participants to be of relevance by consuming sustainable food products are eating less meat, paying attention to the country of origin of the products, buying organic and seasonal products, reading labels and checking for certifications, consuming tap water, paying attention to packaging material and trying to limit their waste. They cook for more people or more days, freeze leftovers and store products in the advised way. While purchasing sustainable food products, participants claimed to have several considerations. First of all, they pay attention to the price, taste and freshness of the products, and whether products are perceived to be good for their health. In addition, they said to take into account the quantities of their groceries (i.e., the amount of products they buy), certifications on package materials, and ease and comfort while doing groceries. Participants mentioned a lot of variation within the levels of consciousness regarding sustainable food consumption behaviors. Besides, only a

few participants argued to be aware of the different factors involved with sustainable food consumption. When the participants were asked: “What do you do in the field of sustainably handling your products?” all participants responded with saying they are very aware of how to treat products in the right way so nothing gets spilled. They mentioned that their motivation would be that they did not want to waste anything. When students had to waste products, they claimed to feel bad about it. Participants claimed to be aware of how to store their products in a most sustainable way (i.e., freeze products).

### **Attitudes, Perceived behavioral control and Subjective norm**

The elements mentioned by the participants were positive and negative beliefs towards sustainable food consumption, barriers and abilities towards purchasing sustainable food products, and the perceived role of social pressure. There were more positive sides than negative sides of sustainable food consumption detected by the participants. *Positive beliefs* as mentioned by the participants were economic advances by limiting waste and buying seasonal products, better quality of products and therefore better for their health, and better prospects for the environment. *Negative beliefs* mentioned by the participants are that it is assumed to be expensive to buy sustainable food products. This was complemented with a feeling of distrust. Participants perceived the sustainable-mark as a commercial trick. Participants assured that the lack of transparency around the production process and the ascription norms of certificates prevented them from purchasing sustainable food products. Even though the high awareness among the participants, they claimed they have to give priority to other elements due to some perceived *barriers*. Participants experienced barriers like lack of income, knowledge and time. In addition they struggled with the lack of supply within the supermarkets (i.e., the lack of a sustainable alternative), a certain distrust in the world systems which prevents them to believe in sustainable food products, and the difficulty of changing habits. The *abilities* perceived by participants are the fact that sustainable alternatives could turn out to be cheaper (i.e., when you buy fruits and vegetables at the local market), you save time by cooking for more days, some products only have a sustainable variant (i.e., bananas), some supermarkets already use signs to direct you towards sustainable choices, and a restricted budget for food consumption prevents you from buying too much which in return prevents excessive waste. *Subjective norms* tend to vary a lot among the participants for numerous reasons. Participants suggested to be influenced by the behavior they experienced in their direct environment in two distinctive ways. Some felt triggered by experiencing extensive wasting or other types of behavior that are contradicting sustainable food consumption; they claimed it motivated them to pay more attention to their own behavior. The second

way is that friends were showing comparable behaviors and felt therefore stimulated to maintain own habits. Participants made a distinction between one-on-one situations, which inspires and stimulates to reconsider your own behavior, and a group context, in which people felt forced to adapt as much as possible to the social norms present and paid less attention to their own behavior. All participants confessed to be sensitive for the influence of their social environment.

### **Emotions, Personal moral norms, Experience and Values**

Elements put forward by the participants contained positive and negative emotions, moral considerations, past behaviors, parental consumption, and several values. The participants identified a few *emotions*, being justice towards people, animal and resources, satisfaction about them taking responsibility, the feeling of guilt, and the feeling of empathy towards the world surrounding them. Some participants dealt with mixed emotions. Participant 6: “I feel a bit ripped off because I perceive it as being a commercial trick. On the other side I think of the benefits that come with it, so I have mixed feelings. I still have not figured out how I actually feel about it”. All participants acknowledged the importance of sustainable food consumption. When being asked about *personal moral norms*, participants admitted they put their self-interest in the first place. Not one of the participants seemed to be driven by in-group welfare. However, participants were very concerned with the condition of the environment and long-term effects. To gain inside on *experience*, participants were asked about their upbringing, and the habits and alterations they gained from this. Participants inherited some of their habits from their parents (i.e., planning groceries, raising awareness, how to treat products, buying organic, freezing leftovers, minimizing waste). However, participants made on several point different choices regarding their behavior towards more sustainable (i.e., increasing the minimization of waste, sort waste, eating more healthy, purchasing organic products, reducing meat consumption) but also less sustainable food consumption (i.e., buying less organic due to price, paying less attention to the nutritive value of food, not sorting waste). Participants thought of different *values* regarding sustainable food consumption. Perceived values were that the sustainable food products contain fewer additives, are of better taste, and are healthier than conventional food. Other values mentioned by the participants were that you have more knowledge on what happened to a product, that the products are beneficial for people, planet and profit, and that you support small enterprises and with it the in-group welfare. In addition, some participants also identified a certain excitement and curiosity towards sustainable products, and claimed they would sustainably consume food to distance themselves from others. Other participants mentioned that they would sustainably consume food because it meets the social standard.

### Knowledge and Perceived urgency

Additional elements identified by the participants were the lack of knowledge on sustainability and an increase in perceived urgency. Participants acknowledged not having sufficient knowledge on the topic of sustainable food consumption and therefore feeling unsure about the right ways of purchasing and handling sustainable food products. Concepts related to sustainable food consumption as suggested by the participants were organic production, fair trade, longer lasting products, higher prices, taking future generations into account, better for the environment, minimizing waste, higher product quality, preventing source depletion, animal welfare, taking consequences into account. Even though participants claimed to be aware of the urgency of sustainable food consumption, they also admitted not to pay enough attention to the topic or argued they have to prioritize. This *perceived urgency* was translated into spending time on information searching and participants claiming to practice on certain elements of sustainable food consumption. Some participants considered their study to be of influence on their sense of perceived urgency. Participant 13: “Maybe unconsciously, but my study forces me to think critically about the world”.

### Future behavior: Reasons and Means

Most participants said they expected themselves to consume food more and more sustainable in the future, although they remained skeptical about their actual ability in real life. Participants assigned this *motivation* to concerns about animal welfare, and the increase of media-attention that helped to raise awareness. Other reasons for sustainable food consumption in the future addressed by the participants’ concerned personal health beliefs, the feeling of guilt, and one participant argued taste to be of relevance. There were different *means* mentioned by the participants that were expected to be of help in increasing sustainable food consumption in the future. One was the provision of information, which includes explanation about certification, better insight in the meaning of labels and certifications, more transparency in the production process, clearly identifiable shelves in the supermarket, raising awareness, and some sort debate about pros and cons of sustainable food consumption. Other means addressed was higher salaries, social support like subsidies, clear labels, accessibility to sustainable food products and quality (i.e., value for money).

## Discussion/Conclusion

Goal of this explorative study was to identify the factors associated with sustainable food consumption. It focused on the presence of sustainable food consumption behaviors,



and the factors associated with the choices and considerations towards sustainable food consumption.

### **Sustainable food consumption behaviors**

The results showed several sustainable food consumption behaviors. There is a high score on behaviors like consuming tap water, limiting waste, freezing food, storing products under optimal conditions, and cooking for more people and/or days. These results indicate that the participants pay more attention to handling their food products in a sustainable way than purchasing the right products. The purchase of sustainable food products seems to be steered by a combination of the characteristics of the product (i.e., price, taste, freshness, healthiness), elements of self-interest (i.e., ease and comfort), and both social and physical environment (i.e., packaging materials, certifications and quantities). Although the list of behaviors was drawn from Greenpeace (n.d.) and the Consumentenbond (n.d.a; n.d.b), it has never been researched whether the proposed behaviors comply.

### **Factors associated with sustainable food consumption**

It seems like several factors can be associated with the choice for sustainable food consumption. Among them are *negative and positive beliefs*. Positive beliefs mentioned by the participants were perceived benefits for environment, animal welfare and health, and to some extent personal economic advances. A negative belief identified in this research, is that sustainable food consumption is assumed to be expensive. This is in contrast with Aertsens et al. (2009), who argues that costs are only of small influence on attitudes. This could be explained by the fact that sustainable food products in general are more expensive than organic products, and our research population only possesses a student budget. However, this assumption is inconsistent with research conducted by Loureiro and Lotade (2005), who compared the willingness to pay for both fair trade and organic coffee. They concluded that consumers are willing to pay more for fair trade than for organic coffee. These contradicting findings can be explained by the fact that the majority of Loureiro and Lotade's (2005) respondents existed of fulltime workingwomen, and the participants in this study were all students with a restricted budget, and therefore probably more concerned about price. Furthermore, Aertsens et al. (2009) named no other negative beliefs, which leave their framework incomprehensive in comparison to the numerous negative beliefs identified in this research. Another factor that seems to be related to sustainable food consumption is formed by a list of *barriers and abilities*. Barriers mentioned by the participants were lack of supply, income, time and knowledge, the difficulty of changing habits, and distrust in the world system. Abilities of sustainable

food consumption mentioned by the participants were that it could be cheaper and save you time, some products only come with a sustainable variant, signs in supermarkets that guide you to the right products, and that it prevents you from overconsumption. Barriers matching to the model by Aertsens et al. (2009) are the relatively high price premium, lack of supply and availability of sustainable alternatives, and a lack of trust. Despite these similarities, a lot of barriers and abilities as identified in this research remain unnoticed by Aertsens et al. (2009). Although the results indicate that social pressure is not something the participants really experience, it is still of relevance to include this element due to the fact that participants acknowledged their surroundings inspire them. We therefore conclude that *social norms* seem to both stimulate and hinder personal behavior. The stimulation part is acknowledged by Aertsens et al. (2009) as well. However, they leave out the hindering part. This can be explained by the assumption drawn by Bamberg, Hunecke and Blöbaum (2007), who explain how people are mainly steered by social norms not because of social pressure but because they reflect the most appropriate and beneficial behavior. You could argue social norms work in both ways. Results showed that *emotions* play a role in the decision-making process of participants, and seem to have a lot of overlap with *personal moral norms*. Whether there is a correlation between those two cannot be said; further research would have to point this out. Aertsens et al. (2009) only identified the emotion 'fear', whereas this study identified several emotions, including justice, satisfaction, guilt and empathy. This is explained by the ability of studying emotions at different levels, as proposed by Laros and Steenkamp (2005). In their research they propose a hierarchy of consumer emotions, in which they make a distinction between positive and negative affect. This research identified both positive and negative emotions, whereas Aertsens et al. (2009) only brought up negative emotions. The balance between personal experienced barriers and interest in buying more environment friendly products seems to be both present in organic and sustainable food consumption. However, participants claimed to in the end always put self-interest in the first place. This difference in balance is explained by the fact that the participants are all students, and considered a shift in this balance in the future, when perceived barriers would become less restricting. Therefore, it can be concluded that personal moral norms as identified by Aertsens et al. (2009) is also found to be of relevance for sustainable food consumption. Most behaviors identified in this study seemed to be steered by personal priorities and habits acquired by *parenting*. This conclusion is supported by Reinaerts, De Nooijer, Candel and De Vries (2007), who found parental consumption and past behavior as a stimulating factor for fruit and vegetable intake among school children. Comparable results were found in a study after the association between parenting styles and practices, and consumption of

sugar-sweetened beverages among adolescents (Van der Horst et al., 2007). The results on experience (investigated at hand of upbringing and living back home situation) are in line with Aertsens et al.'s (2009) expectations that the norms and values acquired during upbringing influence the development of attitudes and behaviors towards organic food consumptions. Although Robinson and Smith (2002) claimed past behaviors to be the best predictions for intentions to purchase sustainable food products, this research detected that participants changed their behavior once living away, and made different choices than their parents did. An argument for this could be the fact they have to prioritize as a student due to smaller budgets. Another explanation lies with the fact that they gain knowledge during their study and decide to do things different. Some participants even claimed their study to have been of relevance in constructing their behavior. Results indicate that behavior is influenced by *values* regarding sustainable food consumption. Besides, Vermeir and Verbeke (2006) already identified values to be of relevance in understanding sustainable food consumption. All values as proposed by Aertsens et al. (2009) were also found in this research. In addition, we found the value 'health' to be of relevance. This is probably caused by the fact participants were derived from a faculty focused on health sciences. Several studies found that better knowledge improves attitudes and increases involvement (Gracia & Magistris, 2007; Stobbelaar, 2007). Positive attitudes and being more involved raises behavioral intentions, and thus increases the chance on sustainable food consumption. Another value not identified by Aertsens et al. (2009) and found to be of relevance is the value 'economic beneficial'. Values are interpreted as motivators, and the economic benefit of not spoiling anything was a frequent named motivation among participants to handle food products in a sustainable way. Participants mentioned several *means* that would help them to achieve sustainable food consumption in the future, being clear provision of information, bigger budgets, social support, accessibility to sustainable food products, more time and higher quality of the products. It is already argued how important the provision of clear and reliable information is within the decision-making process. The proposed mean of clearly visible and notable labels/certificates is in line with Gordier (2003), who states that the awareness among consumers of general sustainable labels is very low. In addition, Lockie, Lyons, Lawrence and Mummery (2002) concluded a positive relation between income and willingness to pay higher price premiums.

## Conclusions

This research seems to be in line with previous research on organic food consumption. However, future research cannot be blindly based on Aertsens et al.'s (2009) framework as this study identified some additional elements. This indicates the framework by Aertsens

et al. (2009) has to be expanded with elements like past behavior, parental consumption, means, general knowledge, and perceived urgency in order to be predictive for sustainable food consumption. The identification of types of behavior and associated factors in this study may lead to further research that will help to understand and predict the much needed sustainable food consumption in the future.

### Limitations

The first limitation was experienced during data-collecting. It was hard to find Dutch people at the FASoS, because this faculty offers mainly English-taught courses and therefore attracts foreigners. This resulted in interviewing people that were all in the same social group. It is assumed that these similarities among participants result in having information saturation in an earlier stage, which could result in not identifying other relevant factors associated with sustainable food consumption. A second limitation of this research is hidden in the analysis phase. Qualitative research is based on interpretations made by the analyst. In order to guarantee quality of the findings, triangulation should be included in the process (Boeije, 2005). However, this did not happen due to the fact this research is only done by one investigator. Therefore, the qualitative value of the analysis and conclusions could be harmed. A third limitation was noticed while analysing. Only a small selection of the participants actually puts words into practice and really consumes sustainable, which makes the results hypothetical and no hard data. This puts the credibility of the conclusions at risk, as it can be doubted whether the results are an acceptable reflection of reality. A final limitation of this research is the fact that it mainly focused on personal determinants associated with sustainable food consumption, and lost sight of the physical environmental determinants. This may lead to a wrong interpretation of the results, as focus lies only on psychosocial factors. Within the field of health promotion, it is known that a combination of past behavior, the TPB (1985) and environmental factors form the base for us to understand and predict future behaviors (De Bruijn et al., 2006).

### Recommendations

This research is of explorative nature and not conducted in a standardized way. This means both intern and extern validity can be harmed (Hennink, Hutter & Bailey, 2011). Therefore, quantitative research is needed to determine whether the findings can be generalized. Besides, quantitative research is needed to examine how the different factors identified in this research are associated with sustainable food consumption. I would propose a questionnaire, including all the identified factors associated with sustainable

food consumption, and a list of behaviors and considerations towards sustainable food consumption. I recommend linear regression for analysing. This methodology will help to determine which factors are interrelated, and what the predictive values of these factors are (Berger, Imbos & Janssen, 2008).

## Role of the student

Milou Lusterms was an undergraduate student working under the supervision of Dr. J. de Nooijer when this study was performed. The topic was proposed by the student. The design of the questionnaire, the processing of results, the formulation of conclusions and the writing of paper were done by the student. During the process, the student received feedback from the supervisor.

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