

EXAMINING THE FACTORS THAT INFLUENCE  
CONSUMERS' WILLINGNESS TO USE A RESTAURANT  
RECOMMENDATION AGENT

By  
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# Table of Contents

<b>Table of Contents</b>	<b>ii</b>
<b>List of Tables</b>	<b>iv</b>
<b>List of Figures</b>	<b>vi</b>
<b>Abstract</b>	<b>vii</b>
<b>Acknowledgements</b>	<b>ix</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Background . . . . .	1
1.2 Research goals . . . . .	3
1.3 Importance of research . . . . .	4
1.4 Thesis outline . . . . .	6
<b>2 Literature review</b>	<b>7</b>
2.1 Introduction . . . . .	7
2.2 Technology Acceptance Model (TAM) . . . . .	8
2.3 Technology Acceptance Model 2 (TAM2) . . . . .	9
2.4 Theory of Planned Behavior . . . . .	11
2.5 Selected model . . . . .	12
2.5.1 Effects of attitude on Willingness to use . . . . .	13
2.5.2 Effects of each of the perceptions on Attitude . . . . .	15
2.5.3 Effects of the scenario's and the moderators . . . . .	17
2.6 Conclusion . . . . .	21
<b>3 Research Methodology and survey design</b>	<b>22</b>
3.1 Introduction . . . . .	22

3.2	Survey design . . . . .	22
3.2.1	Willingness to Use . . . . .	23
3.2.2	Attitude . . . . .	23
3.2.3	Perceived Usefulness . . . . .	23
3.2.4	Perceived Ease of Use . . . . .	24
3.2.5	Understandability . . . . .	24
3.2.6	Entertainment value . . . . .	25
3.2.7	Involvement . . . . .	25
3.3	Survey manipulation . . . . .	26
3.3.1	Data collection . . . . .	27
3.3.2	Determining the appropriate number of respondents . . . . .	27
3.3.3	Conclusion . . . . .	28
<b>4</b>	<b>Survey findings</b>	<b>29</b>
4.1	Introduction . . . . .	29
4.2	Descriptive statistics . . . . .	29
4.3	Factor analysis . . . . .	31
4.4	Reliability analysis . . . . .	33
4.5	Conclusion . . . . .	34
<b>5</b>	<b>Analysis</b>	<b>36</b>
5.1	Introduction . . . . .	36
5.1.1	The effects of Attitude on Willingness to use . . . . .	36
5.1.2	The effects of the perceptions on attitude . . . . .	39
5.1.3	The effects of the scenario's and moderators . . . . .	41
5.2	Conclusion . . . . .	45
<b>6</b>	<b>Conclusion</b>	<b>47</b>
6.1	Discussion . . . . .	47
6.2	Limitations . . . . .	49
6.3	Future research . . . . .	49
	<b>Bibliography</b>	<b>50</b>
<b>A</b>	<b>Survey items</b>	<b>53</b>
<b>B</b>	<b>SPSS output</b>	<b>55</b>
<b>C</b>	<b>Survey</b>	<b>59</b>

# List of Tables

1.1	Web site benefits to consumers . . . . .	4
2.1	Research hypothesis . . . . .	21
3.1	Project scenario's . . . . .	26
4.1	Kaiser-Meyer-Olkin measure of sampling adequacy . . . . .	32
4.2	The rotated component matrix . . . . .	33
4.3	Cronbach's $\alpha$ for survey constructs . . . . .	34
5.1	Model summary . . . . .	37
5.2	Output regression model: attitude - willingness to use . . . . .	38
5.3	Model summary . . . . .	40
5.4	Output regression model: Perceptions - Attitude . . . . .	40
5.5	Regression output with location as independent variable . . . . .	42
5.6	R and R square for different models . . . . .	43
5.7	The effects of visualization of different perceptions . . . . .	43
5.8	Hypothesis supported/rejected . . . . .	46
A.1	Constructs and items used in survey . . . . .	54
B.1	cronbach's $\alpha$ for Enjoyment . . . . .	55
B.2	Eigenvalues components . . . . .	56
B.3	Location added to the model Attitude - Willingness to use . . . . .	56
B.4	Location added to the regression model . . . . .	57

B.5	Model summary: location - pu . . . . .	58
B.6	Effect of location on perceived usefulness . . . . .	58

# List of Figures

2.1	Basic concept underlying User Acceptance models . . . . .	8
2.2	Technology Acceptance model . . . . .	9
2.3	Technology Acceptance model 2 . . . . .	10
2.4	Theory of planned behavior . . . . .	12
2.5	Conceptual framework . . . . .	13
2.6	Effect of Attitude on Willingness to use . . . . .	15
2.7	Effect of each of the perceptions on attitude . . . . .	16
2.8	Location moderates the effects of the perceptions on attitude . . . . .	18
2.9	Visual representation has a direct effect on perceptions . . . . .	19
4.1	Frequency chart: willingness to use . . . . .	30
4.2	Frequency chart: difficulty in imagining scenario . . . . .	31
C.1	Screenshot of website with only text . . . . .	63
C.2	Screenshot of website with text and pictures . . . . .	64

# Abstract

In this thesis we wanted to test what factors influence the acceptance of a restaurant recommender system. A restaurant recommender system is a website that offers personalized restaurant recommendations based on the consumers characteristics.

There is a lot of theory about how consumers come to accept technology. These models form the basis of our own model.

In this study, we used different scenario's to test different aspects of the model. In the scenario's we let the variables location and presentation change each time, to create 4 different scenario's.

We found for instance that attitude is not the only variable that has a direct effect on willingness to use. There are 3 other variables that have a direct effect on willingness to use, namely perceived ease of use and enjoyment (both positive) and understandability (negative).

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Dwain Chang

# Chapter 1

## Introduction

### 1.1 Background

The internet has been around since 1969, and the infrastructure for the modern internet has been around since 1984, but it wasn't until the mid nineties that it has been put to use in commercial applications<sup>1</sup>.

Almost every business has an Internet website and in almost every business we can find applications that use the internet for doing business. According to projections made, the U.S. online retail sales were expected to rise 11% to \$156 billion in 2009<sup>2</sup>. Nowadays, you can find information about almost anything you can think of on the Internet, and the information that is made available is constantly growing (in august 2005, there were approximately 70,392,567 websites indexed<sup>3</sup> and this number is constantly growing). The growing number of web-pages and information made available has its advantages. For instance, one can quickly share knowledge about anything with anyone, anyplace and anytime. But the acceleration of information that is made

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<sup>1</sup><http://www.walthowe.com/navnet/history.html>

<sup>2</sup><http://www.hotelmarketing.com>

<sup>3</sup><http://www.boutell.com/newfaq/misc/sizeofweb.html>

available also has its disadvantages. One of which is an information overload, where people would not be able to process the huge amount of information made available.

This problem is also recognized by online retailers. Because they have so much to offer, they try to use intelligent systems to aid the consumer in making a purchase choice. These systems are called recommender systems or recommendation agents. Recommender systems try to profile a customer and make recommendations about a product the customer might like. This way the customer doesn't have to browse through the entire site which contributes to the ease of online shopping.

Recommender systems enhance E-Commerce sales in three ways (Schafer, 1999):

1. Turn browser into buyers by helping customers find what they are wishing to buy, and limiting the chance that a visitor of a website might look over a site without buying anything.
2. Improve cross selling by suggesting additional products for the customer to purchase.
3. Recommender systems improve loyalty by creating a value-added relationship between the site and the customer.

Recommender systems are applied to many types of product and service offerings. Amazon.com and Bol.com for instance use recommender systems when selling their products. Netflix<sup>4</sup> uses recommender systems to predict how much someone will enjoy a certain movie and TVGids.nl<sup>5</sup> uses a recommender system to create a personalized

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<sup>4</sup><http://www.netflixprize.com/>

<sup>5</sup><http://www.tvgids.nl/index.php>

television guide.

One area where no such recommender system is being used is in the *restaurant industry*. Although numerous websites exist where restaurants are being rated and criticized, the concept of a personalized recommender system for restaurants is completely new. During this project we would like to examine whether such a system would be of use to a consumer and what factors play a role in the acceptance of such a system.

## 1.2 Research goals

During this research we want to examine if a recommender system that recommends restaurants to users would be useful for consumers. We would like to know what factors influence the consumers' willingness to accept the restaurant recommender system.

In this research we call the "consumers' willingness to use" our dependant variable. We want to research what factors influence the dependant variable, and that is why we formulated the following research question:

*"How is the consumers' willingness to use a restaurant recommender system influenced?"*

The main research question will be broken down into sub questions as follow:

1. What are the factors that influence consumers's willingness to use such a system?
2. How can these factors be effectively studied and analyzed?

### 1.3 Importance of research

In this project we want to examine what factors influence the acceptance of the application that we proposed earlier (restaurant recommender system). Previous research (Dellaert and Stremersch, 2005) shows why customers, who plan to use a website, require different benefits in different situations. Furthermore, they show the importance of anticipated benefits and the number of benefits that are seen as important by consumers.

Dimension	Description
Relevance	The extent to which the user perceives the information to be relevant and applicable to accomplish a certain task
Understandability	The extent to which the user perceives the information to be clear of meaning, easy to understand and easy to use
Reliability	The extent to which the user perceives the information to be accurate, dependable and consistent
Adequacy	The extent to which the user perceives the information to be sufficient and complete
Scope	The extent to which the user perceives the information to cover a wide range and variety of topics
Usefulness	The extent to which the user perceives the information to be informative and valuable
Usability	The extent to which the user perceives the web site visually appealing, easy to use and user friendly
Speed	The extent to which the user perceives the web site to be fast
Entertainment value	The extent to which the user perceives the web site to offer immediate pleasure for its own sake
Navigation	The extent to which the user perceives the web site to be easy to navigate
Tailored information	The extent to which the user perceives the web site to provide tailored or personalized information to meet specific needs
Hyperlinks	The extent to which the user perceives the web site to offer an adequate number and clear links
Decisional control	The extent to which the user perceives that the web site supports own decision-making and flexibility

Table 1.1: Web site benefits to consumers

Table 1.1 shows an overview of the benefits that are defined by Wendel and Dellaert (2009). There are several models that can be used for this research. For instance, Venkatesh and Davis (2003) evaluated several existing models that could explain technology acceptance and formulated the Unified Theory of Acceptance and the Use of Technology (UTAUT).

Although models like the technology acceptance model (Venkatesh and Davis, 2006) and the UTAUT (Venkatesh and Davis, 2003) describe a great deal on what factors

play a role in technology acceptance, these models do not account for different situations a potential user might be in. For instance, if we take a look at a recommender system for restaurants it might be that users who look for restaurants outside of their home town accept such a system more easily than users who look for restaurants inside of their home town.

During this research, we will evaluate several models on the topic of technology acceptance and user behavior for our research model and we will create and test different scenarios a potential user might be in.

Although hard to measure in monetary terms, the use of recommender systems in general is very practical and does enhance doing business for reasons mentioned earlier. A recommender system for restaurant preferences can be a very practical tool. The consumer would benefit from this tool in various ways. For instance, the user can get to know restaurants he otherwise would never have tried before. Also, when the user would travel to a foreign city he would always know what restaurant he would like, so in the ideal situation he would find a restaurant that would really fit his preferences.

It is important to understand why and how people decide to use a new information system, because although an information system can have obvious advantages, when it is not used, it will be worthless. Companies can use Information Systems for different reasons. Some of which are: to cut production costs, to improve output or to improve quality of production or services. Implementing an Information System

can be very costly, and still the results aren't always positive. To sum up some facts (Legris and Colletterte, 2003):

- 26% of all IS projects and less than 23.6% of large company projects are completed on time and within budget (with all requirements fulfilled)
- 46% of all projects were over budget, late, and with fewer features and functions than originally specified
- 28% of all projects were cancelled

## 1.4 Thesis outline

In chapter 2 of this thesis we will evaluate several existing models that describe why people accept certain technology and take a look how these models are used in other studies. Chapter 2 will be our literature review, where based on the literature we will construct our hypothesis for our research.

In chapter 3 we will discuss our research methodology. We will motivate how and why we will set up our research and describe the methods that we use. We will also explain how the survey is designed and how we will collect our data.

In chapter 4 we will evaluate the data that we have gathered for this research. We will describe some basic statistics about our data, and elaborate on the results of our reliability analysis.

In chapter 5 we will explain the outcome of the regression analysis that is done in this study, and will motivate why we accept or reject certain hypothesis.

Chapter 6 is the final chapter of this thesis. In this chapter we will evaluate what is done, and give recommendations for further research.

# Chapter 2

## Literature review

### 2.1 Introduction

In this paper we want to examine whether a recommender system would work for restaurant selections. In other words, we want to examine what factors influence the consumers' willingness to accept a restaurant recommender system.

Research regarding the acceptance of technology and how people behave around a new system is a very popular topic of research. In this chapter we like to address some popular models that we used in our conceptual model. Figure 2.1 presents the basic conceptual framework underlying the class of models explaining individual acceptance of information technology that forms the basis of this research.

In the next paragraphs we will evaluate the Technology Acceptance Model (TAM), its successor (TAM2) and the Theory of Planned Behavior (TPB). TAM is one of the most widely used theories that model how users come to accept and use a technology. Its main constructs are perceived usefulness and perceived ease of use. TAM2 is an extension of TAM and focuses on what determined the main constructs of TAM. The TPB is the theory that focuses on the link between people's attitude and behavior and



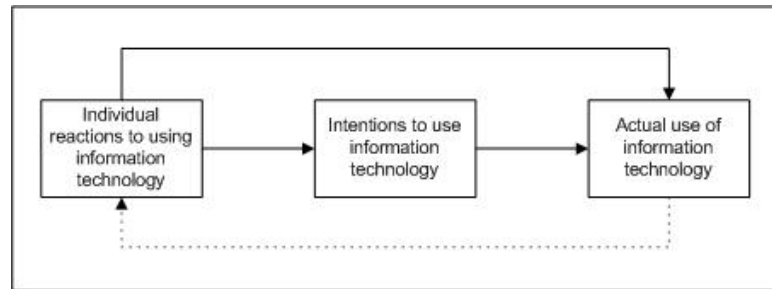


Figure 2.1: Basic concept underlying User Acceptance models

has been applied in many fields such as advertising, public relations and healthcare.

## 2.2 Technology Acceptance Model (TAM)

The technology acceptance model is one of the most widely used models when trying to explain usage and acceptance of Information Systems. The basis for this model lies in another model, the Theory of Reasoned Action (TRA)(Fishbein and Ajzen, 1975). TAM has become well-established as a robust, powerful, and parsimonious model for predicting user acceptance. Numerous empirical studies have found that TAM consistently explains a substantial proportion of the variance (typically about 40%) in usage intentions and behavior. It theorizes that an individual's behavioral intention to use a system is determined by two beliefs: perceived usefulness, defined as the extent to which a person believes that using the system will enhance his or her job performance, and perceived ease of use, defined as the extent to which a person believes that using the system will be free of effort.

TAM theorizes that the effects of external variables (e.g., system characteristics,

development process, training) on intention to use are mediated by perceived usefulness and perceived ease of use. According to TAM, perceived usefulness is also influenced by perceived ease of use because, other things being equal, the easier the system is to use, the more useful it can be (Venkatesh and Davis, 2006)

Figure 2.2 shows the TAM. The model was developed over time. Various variables were added and removed from the original model proposed by Davis (1986).

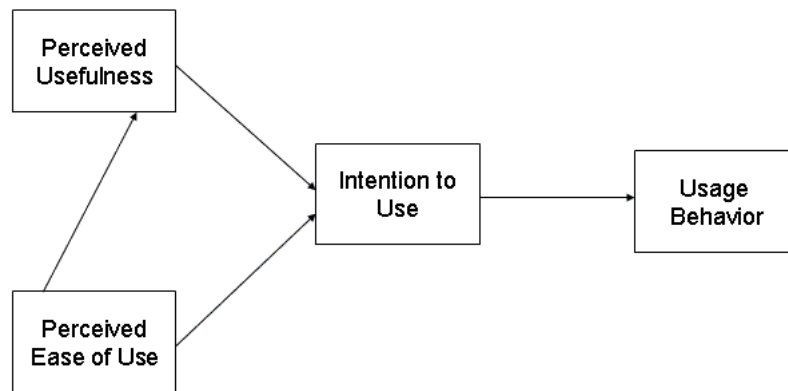


Figure 2.2: Technology Acceptance model

### 2.3 Technology Acceptance Model 2 (TAM2)

A better understanding of the determinants of perceived usefulness enables us to design organizational interventions that would increase user acceptance and usage of new systems. That is why the authors extended the Technology Acceptance Model with additional determinants.

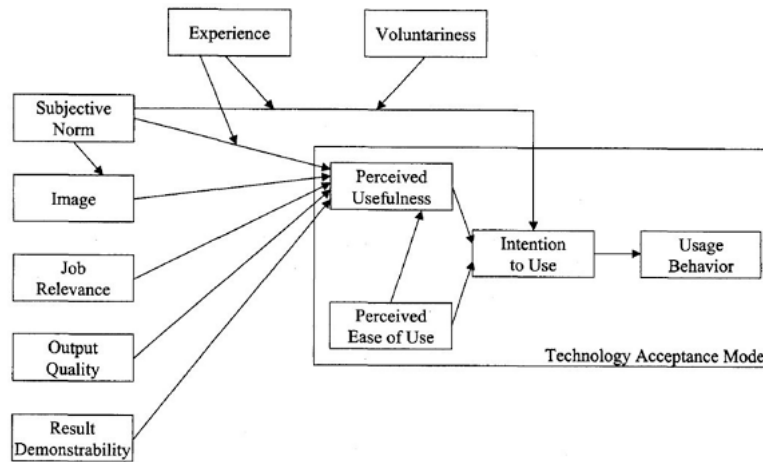


Figure 2.3: Technology Acceptance model 2

TAM2 reflects the impacts of three interrelated social forces impinging on an individual facing the opportunity to adopt or reject a new system (Venkatesh and Davis, 2006) : subjective norm, voluntariness, and image. Subjective norm is defined as a person’s perception that most people who are important to him think he should or should not perform the behavior in question. TAM2 theorizes that, in a computer usage context, the direct compliance-based effect of subjective norm on intention over and above perceived usefulness and perceived ease of use will occur in mandatory, but not voluntary, system usage settings. To give an example, in a mandatory setting, when a company decides to use new technology, the employee will be forced to use the new technology and subjective norm will influence perceived usefulness.

Image can be defined as the degree to which use of an innovation is perceived to enhance one’s status in one’s social system. An individual may perceive that using a system will lead to improvements in his or her job performance (which is the definition of perceived usefulness) indirectly due to image enhancement, over and above

any performance benefits directly attributable to system use. This identification effect is captured in TAM2 by the effect of subjective norm on image, coupled with the effect of image on perceived usefulness.

Empirically, the relationship between perceived output quality and perceived usefulness has been shown before. Venkatesh and Davis (2006) expect output quality to be empirically distinct from, and to explain significant unique variance in, perceived usefulness over and above job relevance because a different underlying judgmental process is involved. TAM2 theorizes that result demonstrability, which is defined as the tangibility of the results of using the innovation, will directly influence perceived usefulness. This implies that individuals can be expected to form more positive perceptions of the usefulness of a system if the co-variation between usage and positive results is readily discernable.

## 2.4 Theory of Planned Behavior

With the development of the Theory of planned behavior Ajzen (1991), tries to provide a framework for dealing with the complexities of human social behavior. The theory incorporates some of the central concepts in the social and behavior sciences, and it defines these concepts in a way that permits prediction and understanding of particular behaviors in specified contexts.

Figure 2.4 shows that the intention is important in predicting user behavior. Intention in turn is influenced by attitude, subjective norm and perceived behavioral control.

Some important constructs in this model are for instance(Ajzen, 1991): Attitude toward a behavior which is defined as the degree to which performance of the behavior

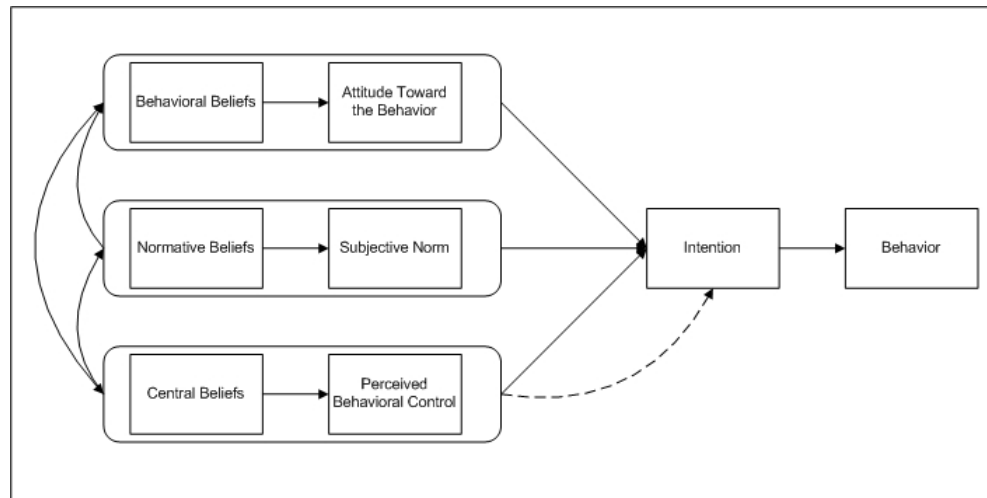


Figure 2.4: Theory of planned behavior

is positively or negatively valued. Subjective norm is the perceived social pressure to engage or not to engage in a behavior. Perceived behavioral control refers to people's perceptions of their ability to perform a given behavior. Intention is an indication of a person's readiness to perform a given behavior, and it is considered to be the immediate antecedent of behavior. Behavior is the manifest, observable response in a given situation with respect to a given target.

## 2.5 Selected model

The model that we have selected for our research is largely based on the Technology Acceptance Model, in combination with the theory of Reasoned Action and the Theory of Planned Behavior. Figure 2.5 shows our proposed model. We have carefully selected constructs from different models and put them together in our own model. In the following paragraphs of this chapter we will elaborate more on the constructs

of this model. For ease of analysis, we will break the model down into 3 parts. We want to examine the following effects:

1. Effect of Attitude on Willingness to Use (2.5.1)
2. Effects of each of the perceptions on Attitude (2.5.2)
3. The effects of the scenario's and moderators (2.5.3)

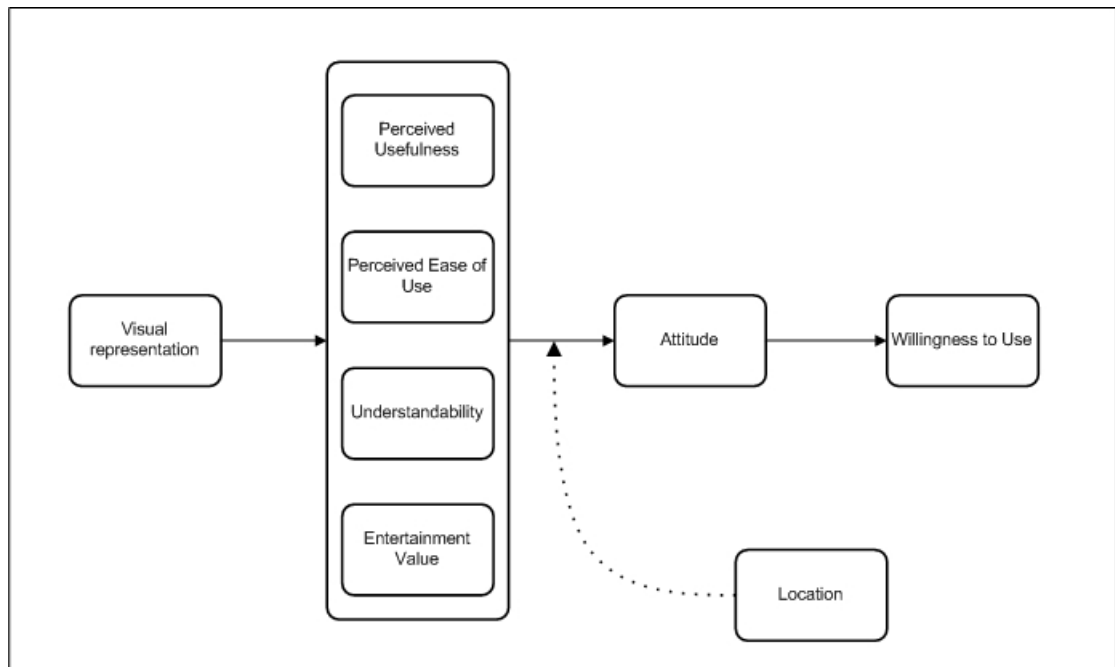


Figure 2.5: Conceptual framework

### 2.5.1 Effects of attitude on Willingness to use

To make analysis of the model easier, we divide the model into sub models. The first part of the model is shown in figure 2.6.

Attitude is defined as the attitude toward a restaurant recommender system. Attitude towards the restaurant recommender system is very important. Cheung and Lee (2005) state that in an online selling environment, 80% of customers with a positive attitude towards an online selling environment, would use the system again within 2 months and 90% of these customers would recommend the system to others, whereas 87% of dissatisfied customers would permanently leave without any complaints.

Elliot and Speck (2005) supports this claim. In their study, they used an online shopping scenario and asked undergraduate students to evaluate the effects of six website factors and two individual characteristic variables on attitude towards a retail website. He states that it is important for customers to grow a positive attitude toward a system and managers should focus on this by emphasizing the factors that have a positive influence on attitude.

When the technology is fairly new, consumers make judgements about that technology based on their past experiences. Previous studies (Dabholkar, 1996) showed that a positive attitude towards using technological products will have a positive effect on the expected quality, which in turn will have a positive effect on the intention to use that technology.

Ajzen (1991) says that Attitude towards behavior usually predicts behavioral intention with a high degree of accuracy, along with subjective norms and perceived control over the behavior.

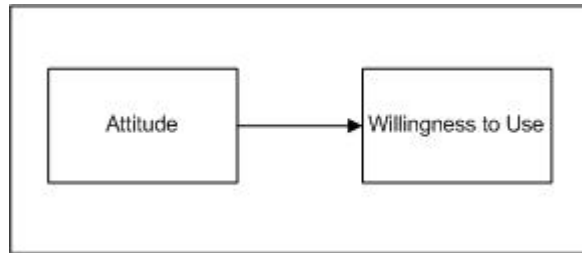


Figure 2.6: Effect of Attitude on Willingness to use

In our model we hypothesize that attitude influences the consumers' willingness to use the system. We hypothesize that when a consumer has a positive attitude towards restaurant recommender systems, he will be more likely to be willing to use the system. Therefore we propose:

- *Hypothesis 1: Attitude has a positive direct effect on Willingness to use*

### 2.5.2 Effects of each of the perceptions on Attitude

Figure 2.7 shows the second part of our proposed model. In this part of our research we want to examine the effects that our perceptions have on attitude. We will explain what these constructs mean and formulate a hypothesis for each one.

E-commerce is booming business now a day, and customers satisfaction is becoming harder to satisfy. It is important to learn what factors influence attitude toward a system. According to the Elliot and Speck (2005), 5 factors influence attitude, which are ease of use, product information, entertainment, trust and currency.

Perceived usefulness is defined as the degree to which a person believes that using a particular system would enhance his or her job performance (Davis, 1986). In this research project we define job as the task of selecting a restaurant instead of one's work.



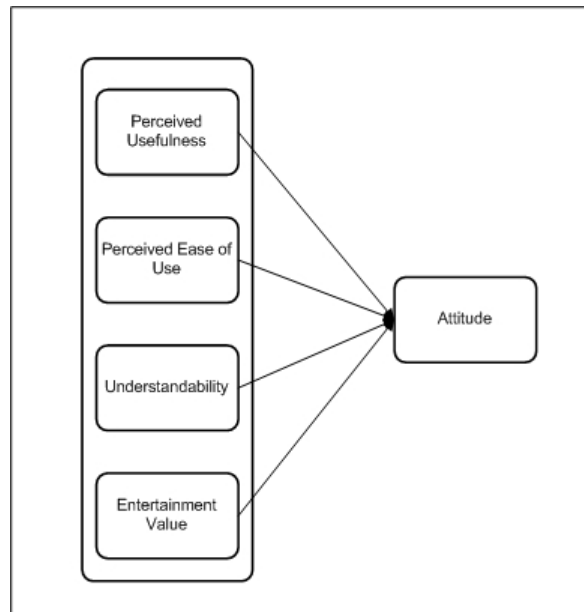


Figure 2.7: Effect of each of the perceptions on attitude

Perceived ease of use is defined as the degree to which a person believes that using a particular system would be free of effort (Davis, 1986). Various researches have shown the importance of these 2 constructs. Empirical tests (Davis, 1986; Saade and Bahli, 2005; Schafer, 2007; Adams, 1992) suggests that perceived usefulness and perceived ease of use have a direct effect on Attitude. For instance, Saade and Bahli (2005) used an extended version of the technology acceptance model to measure the acceptance of an Internet based learning system. Among other hypothesis, they hypothesized and found that perceived usefulness and perceived ease of use directly influences attitude. Therefore we formulate the following hypothesis:

- *Hypothesis 2a: Perceived Usefulness has a positive direct effect on Attitude*

- *Hypothesis 2b: Perceived ease of use has a positive direct effect on Attitude*

Understandability is one out of the 13 concepts that is important for website development (Wendel and Dellaert, 2009). Understandability is defined as the extent to which the user perceives the information to be clear in meaning, easy to understand, and easy to use. Research (Cheung and Lee, 2005; Lee and Kozar, 2006) suggest that understandability, when present on a website, is a significant factor in boosting user satisfaction and business performance. Based on this, the following hypothesis is formulated:

- *Hypothesis 2c: Understandability has a positive direct effect on Attitude*

Entertainment value is also one out of the 13 concepts defined by Dellaert and Dabholkar (2009), that is important for website development. Entertainment value is defined as the extent to which the user perceives the web site to offer immediate pleasure for its own sake. According to Koufaris (2002), it is important for consumers to have a pleasant experience with the technology or else he might neglect using it again. Enjoyment is also important because it can influence customer loyalty. Chen and Chang (2003) also support this claim. They state that entertainment is an important factor in consumers (online) shopping experience. Based on these facts we formulate the hypothesis 2d:

- *Hypothesis 2d: Entertainment value has a positive direct effect on Attitude*

### **2.5.3 Effects of the scenario's and the moderators**

The third part of our model describes the scenarios. In this project we will let 2 variables change to create 4 different scenarios'. The 2 variables that we will use to

create the scenarios are Location and Visual representation. In this study we define location as the place a user wants to eat, which can be inside of his home town, or in a strange town. Visual representation is what the user gets to see in his scenario, either a screenshot of a website that uses only text, or a screenshot of a website that uses text and images.

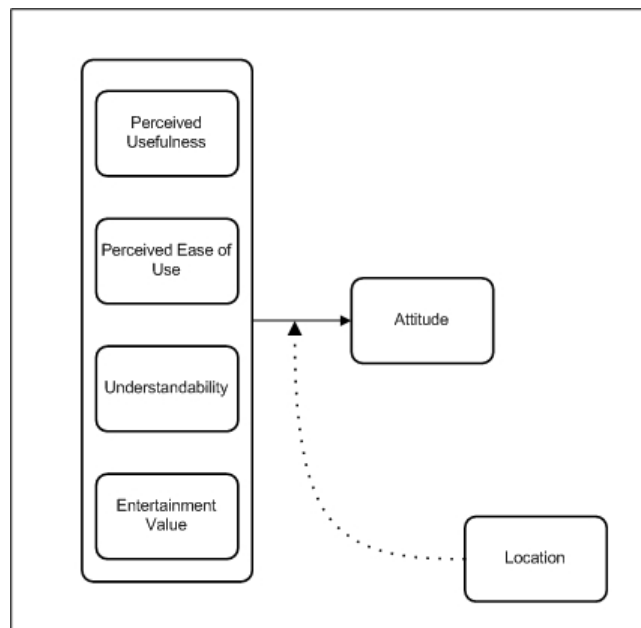


Figure 2.8: Location moderates the effects of the perceptions on attitude

Dellaert and Dabholkar (2009), demonstrated the importance of situation in explaining the relative importance of anticipated benefits and the number of benefits that are seen as important by consumers. The authors note that consumers, who experienced anticipated positive affect, found the entertaining aspect of a web site more important than other benefits. Their results also showed that consumers, who experienced stronger anticipated positive effect, experienced more salient benefits. They also discuss the importance of situations when using different media. They

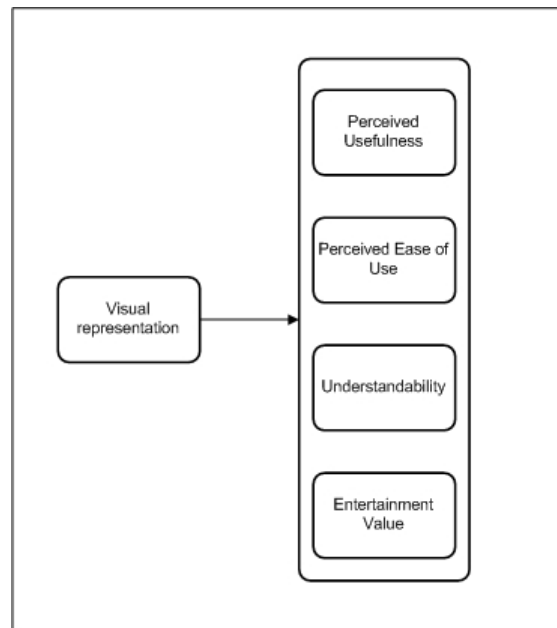


Figure 2.9: Visual representation has a direct effect on perceptions

state that Media channel benefits are important to consumers, and this importance varies across usage situations. For example, in some usage situations, consumers may be time sensitive and prefer a media channel that saves them time, whereas in others, they may focus on those media channels that offer better information quality.

In line with this research, when a consumer needs to select a restaurant to eat in, the location he wants to eat may be an important usage situation. Based on this we add Location to our research model. During this research we want to measure the effects that location has on different constructs. Mainly, we want to measure whether location influences the relationship between perceived usefulness of the restaurant recommender system and attitude.

We hypothesize that Location will moderate the effect of perceived usefulness on

Attitude when the restaurant recommender system is used to select a restaurant in a strange town. Figure 2.8 shows the relationship between the variables:

- *Hypothesis 3: Location will moderate the effect of perceived usefulness on attitude*

We use Visual representation as a construct to create different scenarios in our model. Visual representation is based on output quality as defined in the TAM2 (Venkatesh and Davis, 2006).

In this project we will create 2 scenario's with the representation of the output. In one scenario, the respondent will be shown the output of the system using only relevant information and only text. In the other scenario we will display the output of the system using more details such as images.

Sundar (2000) conducted an experiment with 3 scenarios. One where news was displayed using text and pictures, one where news was displayed using text, pictures and audio and one scenario where news was displayed using text, pictures and video. After the news was displayed, respondents of the study had to fill in a questionnaire to test their memory and perceptions. Results suggested that pictures and audio are particularly powerful psychological cues, whereas in general, multimedia tends to hinder memory for story content and leads to negative evaluations of the site and its content.

We hypothesize that Visual representation will have a direct effect on our perceptions. Based on this, the following hypothesis can be formulated which can also be seen in figure 2.9:

Hypothesis
1. Attitude has a positive direct effect on Willingness to use
2a Perceived Usefulness has a positive direct effect on Attitude
2b Perceived ease of use has a positive direct effect on Attitude
2c Understandability has a positive direct effect on Attitude
2d Entertainment value has a positive direct effect on Attitude
3 Location will moderate the effect of perceived usefulness on attitude
4a Visual representation will have a direct effect on perceived usefulness
4b Visual representation will have a direct effect on perceived ease of use
4c Visual representation will have a direct effect on Understandability
4d Visual representation will have a direct effect on Entertainment value

Table 2.1: Research hypothesis

- *Hypothesis 4a: Visual representation will have a direct effect on perceived usefulness*
- *Hypothesis 4b: Visual representation will have a direct effect on perceived ease of use*
- *Hypothesis 4c: Visual representation will have a direct effect on Understandability*
- *Hypothesis 4d: Visual representation will have a direct effect on Entertainment value*

## 2.6 Conclusion

Table 2.1 shows the final hypothesis that we have constructed based on the literature from the previous paragraphs. In the next chapter we will evaluate how we can test these hypothesis.

# Chapter 3

## Research Methodology and survey design

### 3.1 Introduction

In this chapter we will explain the methodology behind our research. We will explain how we set up our research survey, and how we collected our data.

### 3.2 Survey design

Most of the items that were used in the survey are extracted from previous research. For all of the items we used a 5-point Likert scale except for the dependant variable willingness to use. In the following paragraphs we will elaborate on each item in the survey<sup>1</sup>. For completeness we add a table with all constructs and items and the sources from which they are derived in appendix A.1.

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<sup>1</sup>All of the items were translated to Dutch, because the survey was focused on people living in the Netherlands

### **3.2.1 Willingness to Use**

In his study, Mathieson (1991) made a comparison between the technology acceptance model and the theory of planned behavior. Both models predicted user intentions pretty well, but the technology acceptance model had a slight empirical advantage, because it is easier to apply. To measure the users intention to use the technology at hand, the author used 3 7-point Likert scale items with the endpoints being strongly agree/strongly disagree. Based on these items we formulated and used the following 2 items for our project:

- Assuming I have the ability to use this restaurant recommender system, I would
- I plan to use a restaurant recommender system in the future

### **3.2.2 Attitude**

Previous research (Venkatesh and Davis, 2003) showed that attitude towards the acceptance of an information system is an interesting construct. To measure attitude we formulated the following 2 items (based on Venkatesh and Davis (2003)):

- I have a positive opinion about the website described in the scenario
- The website described in the scenario is a good idea
- The website described in the scenario is of worth to me

### **3.2.3 Perceived Usefulness**

In Adams (1992), 118 respondents were surveyed for their attitude towards 2 messaging technologies: voice and electronic mail. In this research, 2 studies were done,



which focussed on the psychometric properties of these two constructs and their relationship. The authors used six items in their scale and based on these items we formulated our own for this study:

- This system will allow me to save time in deciding where to eat out
- I believe that this system makes it easier for me to select a restaurant when deciding to eat out
- Using this system helps me select better restaurants to eat in
- I believe that it is useful to have personalized restaurant recommendations like in the scenario

### **3.2.4 Perceived Ease of Use**

Adams,et.al (1992) also formed the foundation for the constructs used to measure Perceived Ease of Use in our project. The 4 items used here are:

- Learning to use the system would be easy for me
- I think it is easy to use this system
- Using this system is intuitive
- I would not have any problems using this system

### **3.2.5 Understandability**

In his study, Davis (1986) used Understandability as a construct that influenced technology acceptance. In our study, we use 3 items to measure understandability, which are based on prior research (Wendel and Dellaert, 2009),(Davis, 1986):

- The results in shown to me are clear
- The results shown to me are easy to understand
- The results shown to me are easy to comprehend

### **3.2.6 Entertainment value**

Entertainment value is also measured in various studies as a determinant of attitude. Just as with Understandability, Wendel and Dellaert (2009) used a 7-point Likert scale (strongly disagree/strongly agree) to create 4 items to measure Entertainment value. Davis (1986) used slightly different scales to measure entertainment and created items like: I would find using ... enjoyable (likely/unlikely) and using ...would be(pleasant/unpleasnt). Based on prior research (Wendel and Dellaert, 2009),(Davis, 1986), the following 3 items were formulated and used in our survey.

- I think that using this system is entertaining
- This system makes it more fun for me to select a restaurant
- Using this system would make my task of selecting a restaurant more enjoyable

### **3.2.7 Involvement**

The items used in this constructs are based on the work of Coyle and Thorson (2001). The authors used involvement as control variable in their study to measure the effects of interactivity in marketing websites:

- I general, I love to eat out

- Eating out is important to me
- Eating out is relevant to me

### 3.3 Survey manipulation

The survey was constructed using the constructs and their items as mentioned in the previous paragraph. We have created different (imaginary) scenario's under which the respondents were asked to fill in the questionnaire. There are 2 variable that vary in this research (location and visual representation), which leads to the following 4 scenario's (see table 3.1) : For the construction of the survey we used a well known

Scenario's	
Home town/Text	Strange town/Text
Home town/Pictures	Strange town/Pictures

Table 3.1: Project scenario's

online tool among students.

As mentioned earlier, there are 4 different questionnaires, that are each slightly different from each other. The respondents are asked to image themselves in the imaginary situation that they have to decide to eat out. In one scenario, the respondent is asked to imagine wanting to eat out in his own home town, where as in another scenario they are asked to imagine that they want to eat out in a foreign city. In both cases the respondents have to consider the use of an online restaurant recommendation website.

The respondents are shown a screen shot of an imaginary website, either with only textual information, like C.1, or a screen shot of a imaginary website, like image C.2 which can be found in the appendix.

The complete questionnaire for scenario 1 (the respondent is shown textual information and has to decide to use the website for selecting a restaurant inside of his home town) is shown in Appendix C.

### 3.3.1 Data collection

The data collection for this project is done by (online) survey. We used a well known data collection utility among students called thesis tools<sup>2</sup>. Thesis tools is free for students and can be used to build questionnaires and spread them online.

We created 4 slightly different questionnaires, with 1 of 2 variables that is changing in each scenario, see table 3.1. The questionnaires were randomly distributed among respondents.

### 3.3.2 Determining the appropriate number of respondents

Before we can start the analysis of our research, we need to know the appropriate sample size. To calculate the appropriate sample size we use the following formula (Bartlett and Higgins, 2001) :

$$n = \frac{t^2 * s^2}{d^2}$$

Where: n = the sample size we want to calculate, t= the value for selected alpha level, s= the estimate of standard deviation in the population and d= the acceptable margin of error for mean.

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<sup>2</sup>[www.thesistools.com](http://www.thesistools.com)

We calculate  $t$  for alpha level of 5%. The value for  $t$  for an alpha level of 2.5% in each tail is 1.96.  $s$  is calculated by dividing the number of points on the scale by the number of standard deviations. This would lead to the following: (Number of points on the scale)/(Number of standard deviation) =  $7/6 = 1.167$  For  $d$  we need to estimate the acceptable margin of error for the mean. This is done by multiplying the points on the primary scale (7) by the acceptable margin of error, which is set at 3% ( $7*3\% = 0.21$ ). Putting this all together leads to a sample size of:

$$n = \frac{1.96^2 * 1.167^2}{0.35^2} \approx 118$$

In this study, we focus on consumers in the Netherlands. In 2009, almost 75% of the internet population(11 million) stated that they have used the internet to purchase something online<sup>3</sup>. In this study, the larger part of our respondents belong to a younger age group (16-40) because this group represents the largest group of internet users in the Netherlands.

### 3.3.3 Conclusion

In this chapter we have seen how the research methodology was put out. After the literature review, we create constructs to measure different aspects of users responses in a questionnaire. The next step in this project will be to put the questionnaire online for data collection. In the next chapter we will show some basic descriptive statistics about our respondents.

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<sup>3</sup><http://www.cbs.nl/nl-NL/menu/themas/vrije-tijd-cultuur/publicaties/artikelen/archief/2009/2009-068-pb.htm>

# Chapter 4

## Survey findings

### 4.1 Introduction

In this chapter we will describe some basic descriptive statistics about our data set. We will also document on the reliability analysis that we have done before going over to our regression analysis, which will be discussed in the next chapter of this thesis.

### 4.2 Descriptive statistics

Our data set consists of 137 cases. That means that 137 people have filled in our questionnaire. Some respondents missed a question here and there. Out of the 137 respondents, 134 filled in the questionnaire completely. In our analysis, we kept this in mind by telling SPSS not to use the missing data in the analysis.

We inserted a control question to check whether people truly kept the scenario in mind that they had to follow. At the end of the questionnaire, we asked the respondents if they had imagined to select a restaurant in their home town or in a foreign town, and then compared what they had answered to what they really had to do. Out of the 137 people, about 28 gave a wrong answer.

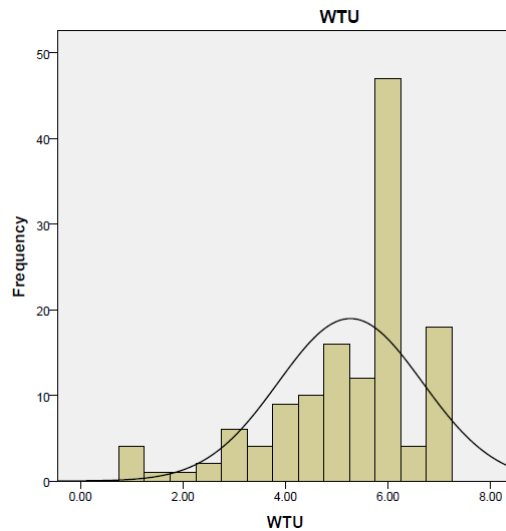


Figure 4.1: Frequency chart: willingness to use

137 people ranging from age 15 to 60 answered our questionnaire. Figure 4.1 shows that the majority of people who answered the questionnaire was willing to use the restaurant recommender system. Figure 4.2 shows that the majority of people did not find it difficult to imagine themselves using the system in the scenario they were put in (1 represents very hard, 9 represents very easy).

If we take a look at the ratio man to women who have answered the questionnaire, we see that this is almost equal (49% men, 51% women). Most of these respondents had a high level of education (51% had a bachelors degree and 29% had a masters degree). Almost 79% of our respondents live in a big city (more than 100,000 residents), 86% of the respondents stated that they go out to eat between 1 and 5 times. Almost everyone who lives in a big city (98%) stated that there are more than 10 restaurants in his city and the majority stated that they know a little bit about these restaurants.

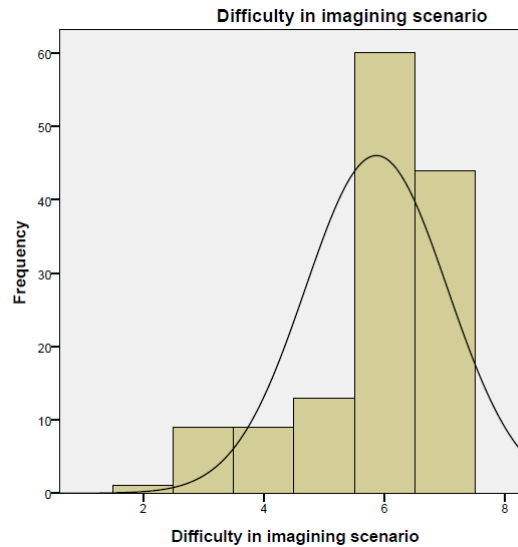


Figure 4.2: Frequency chart: difficulty in imagining scenario

### 4.3 Factor analysis

Factor analysis is a technique used to identify clusters of variables. The Kaiser-Meyer-Olkin (KMO) measures of sampling adequacy measures sampling adequacy. The KMO statistic varies between 0 and 1. A KMO statistic of close to 1 means that factor analysis should reveal distinct and reliable factors. On the other hand, a value close to 0 means that factor analysis is likely to be appropriate. For values smaller than 0.5 one should consider to collect more data, values greater than 0.5 are acceptable. We should keep in mind that values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are superb (Field, 2009).

Taking a look at table 4.1 (SPSS output), we see that the KMO value of our data set is 0.718 which means that we should expect distinct and reliable factors.



Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.718
Bartlett's Test of Sphericity	Approx. Chi-Square	1503.120
	df	136
	Sig.	.000

Table 4.1: Kaiser-Meyer-Olkin measure of sampling adequacy

A principal component analysis was conducted on 17 items with orthogonal rotation (varimax). We have already seen that the KMO value for this data set was 0.718 which indicated that it is acceptable to do factor analysis, and we can expect good factors. Furthermore, in our analysis, we see that 5 components had an eigenvalue of larger than 1 (see table B.2) and in combination explained 78% of the variance. Table 4.2 shows the rotated component matrix. The table shows 5 factors, with each scale loaded perfectly to its own factor (Factor1 represents perceived usefulness, factor2 represents perceived ease of use, factor3 represents understandability, factor4 represents enjoyment and factor5 represents involvement).

	1	2	3	4	5
Perceived usefulness 1	.794				
Perceived usefulness 2	.891				
Perceived usefulness 3	.702				
Perceived usefulness 4	.855				
Perceived ease of use 1		.824			
Perceived ease of use 2		.851			
Perceived ease of use 3		.754			
Perceived ease of use 4		.790			
Understandability 1			.895		
Understandability 2			.933		
Understandability 3			.911		
Enjoyment 1					.781
Enjoyment 2					.869
Enjoyment 3					.885
Involvement 1				.834	
Involvement 2				.901	
Involvement 3				.890	

Table 4.2: The rotated component matrix

## 4.4 Reliability analysis

Reliability means that a measure, or in our case the questionnaire, should consistently reflect what it is measuring (Field, 2009). To do this, we use Cronbach's  $\alpha$ , which is the most common measure of scale reliability.

Taking a look at table 4.3 we see that all the scales have a cronbach's  $\alpha$  value higher than 0.8 (a value of 0.8 or higher means that the scale is very reliable). The cronbach's  $\alpha$  for the scales for perceived usefulness, perceived ease of use, understandability and involvement cannot be increased substantially by deleting any

Scale name	Number of items	Cronbach's $\alpha$
Willingness to use	2	.906
Attitude	3	.903
Perceived usefulness	4	0.888
Perceived ease of use	4	0.828
Understandability	3	0.909
Enjoyment	3	0.882
Involvement	3	0.854

Table 4.3: Cronbach's  $\alpha$  for survey constructs

question, so we can assume that these scales are consistent. The cronbach's  $\alpha$  for Enjoyment however can be increased substantially by deleting Enjoyment1. When this is done, the cronbach's  $\alpha$  increases from 0.88 to 0.94 (table B.1 shows the statistics for this scale).

Because the cronbach's  $\alpha$  for Enjoyment is large and very reliable, and all 3 items of Enjoyment load very well on 1 factor, we decide to keep all items of Enjoyment for further analysis.

## 4.5 Conclusion

137 respondents between the age of 15 and 60 answered the questionnaire. Out of these respondents the majority was willing to use the restaurant recommender system. The majority of the respondents did not find it difficult to imagine using the restaurant recommender system and the scenario they were put in.

Factor analysis shows good factor extraction. Every perception was loaded good, as well as the construct involvement.

Cronbach's  $\alpha$  analysis showed very reliable scales, which indicates that the questionnaire is consistent in reflecting the constructs that it aims to measure.

In the next chapter we will conduct more in depth statistical analysis to try and answer our hypothesis and research questions.

# Chapter 5

## Analysis

### 5.1 Introduction

To analyze our model and test our hypothesis, we use linear regression analysis. Regression analysis is a way of predicting an outcome variable from one or several predictor variables (Field, 2009).

#### 5.1.1 The effects of Attitude on Willingness to use

In chapter 2 we hypothesized that attitude will have a direct effect on willingness to use. To measure the effect of attitude on willingness to use, we use linear regression. We use willingness to use as dependent variable and create 3 models. We use willingness to use as the dependent variable in all of the models. In each model, we use attitude along with some other variables as independent variables. We use the following independent variables in the models:

1. Attitude
2. Attitude, gender, age, education and income

Model	R	R square
1	.712	.507
2	.719	.517
3	.794	.631

Table 5.1: Model summary

3. Attitude, gender, age, education and income along with perceived usefulness, perceived ease of use, understandability, enjoyment, involvement, location and presentation

Table 5.1 gives an overview of the model summary for model 1, 2 and 3 where model 1 is the model where only attitude is used as predictor variable, model 2 is the model where the other social demographics are entered as predictor variables into model 1, and model 3 is the model with all other variables that we have used.

In the column labeled R are the values of the multiple correlation coefficient between the predictor and outcome. The R square value tells us how much of the variability of the outcome is explained by the predictors. In model 1, attitude accounts for 50.7% of the variation in willingness to use. Taking a look at the model summary reveals that the model doesn't change that much, when we measure the effects of attitude on willingness to use, with or without social demographics as predictors. However, when we take a look at the R square for model 3, we see that the explained variability increases with more than 10%. This means that some of the extra added variables influence the model significantly.

Just as we suspected, table 5.2 reveals that none of the social demographic variables are significant enough to be included into this sub-model. In chapter 2 we

Model	Variable	Beta	Significance
1	(Constant)	1.031	.007
	Attitude	1.122	.000
2	(Constant)	1.146	.054
	Attitude	1.149	.000
	Gender	-.148	.368
	Age	.014	.243
	Education	-.044	.636
	Income	-.095	.436
3	(Constant)	.407	.607
	Attitude	.795	.000
	Gender	-.253	.111
	Age	.014	.263
	Education	.036	.708
	Income	-.082	.516
	PU	.109	.421
	PEU	.330	.023
	Understandability	-.301	.004
	Enjoyment	.331	.004
	Involvement	.064	.494
	Location	-.035	.853
	Presentation	-.094	.557

Table 5.2: Output regression model: attitude - willingness to use

hypothesized that attitude will have a positive direct effect on willingness to use. Because attitude is significant (.000) and has a positive coefficient (1.122), we can conclude that attitude has a positive direct effect on willingness to use and so we can conclude that hypothesis 1 is supported.

*Hypothesis 1: Attitude has a positive direct effect on Willingness to use* : supported

Table 5.2 also reveals some other interesting facts. We can see that attitude is not the only variable that influences willingness to use directly. We see that perceived ease of use and enjoyment have a positive direct effect on willingness to use, where as understandability has a negative direct effect on attitude.

Although not hypothesized, further exploration reveals that location does not have any influence on this sub-model. Table B.3 in the Appendix shows that location is not significant enough to have a direct effect on willingness to use, and location is not significant enough to moderate the effect of attitude on willingness to use.

### **5.1.2 The effects of the perceptions on attitude**

In the next part of our model, we want to test the effects of our perceptions (perceived usefulness, perceived ease of use, understandability and enjoyment), as well as involvement on attitude. In this sub-model, attitude is our dependent variable, and the perceptions along with involvement are our independent variables. We also enter age, gender, income and education into the model.

Table 5.3 tells us that 50.8% of the variation in attitude is explained by our



R	R Square
.713	.508

Table 5.3: Model summary

Model	Variable	Beta	Significance
1	(Constant)	.994	.080
	PU	.375	.000
	PEU	.250	.017
	Understandability	-.031	.665
	Enjoyment	.214	.008
	Involvement	-.034	.624
	Gender	-.133	.238
	Age	-.025	.004
	Education	.204	.002
	Income	-.041	.625

Table 5.4: Output regression model: Perceptions - Attitude

independent variables(R square).

Table 5.4 shows us that the perceptions perceived usefulness, perceived ease of use and enjoyment are significant. That means that they influence the model. Furthermore, we see that these 3 perceptions all have a positive  $\beta$  coefficient, which indicates a positive direct relationship with the dependent variable attitude.

If we take a look at the other independent variables that we have added to the model, we see that age and education are also significant. From the  $\beta$  values we can conclude that when someone is more educated, we will be more likely to have a positive attitude towards the restaurant recommender system. Based on this model, when someone is younger, he will be more likely to have a positive attitude towards the restaurant recommender system, although it has to be noted that this  $\beta$  value is very

small.

Based on this analysis, we can draw the following conclusions regarding our hypothesis:

- Perceived Usefulness has a positive direct effect on Attitude : supported
- Perceived ease of use has a positive direct effect on Attitude : supported
- Understandability has a positive direct effect on Attitude : rejected
- Entertainment value has a positive direct effect on Attitude : supported

### **5.1.3 The effects of the scenario's and moderators**

In the next test that we perform, we want to measure the effects of the variable location (we want to test if location plays a role, whether direct or indirect). In our hypothesis we hypothesized that location will moderate the effect of perceived usefulness on attitude.

We enter location into the model directly, to test whether location has a direct effect on attitude, and after that we enter location into the model as interaction effect with the variable perceived ease of use.

Table B.4 (in the appendix) shows us that location does not have a direct effect on attitude, because the variable location is not significant and thus does not add value to the model. Table B.4 also shows us the model with location as predictor variable and the interaction between location and perceived usefulness. In chapter 2 we hypothesized that location will moderate the effect of perceived usefulness on

Dependant Variable	Beta	Sig.
PU	.606	.000
PEU	.207	.074
UND	-.041	.764
ENJ	.263	.088

Table 5.5: Regression output with location as independent variable

attitude. Because the interaction variable in our model is not significant we can reject this hypothesis.

- Location will moderate the effect of perceived usefulness on attitude : rejected

Although location did not moderate the effect of perceived usefulness on attitude, we did find something interesting. In a linear regression model (output can be found in table B.6, with perceived usefulness as dependent variable and location as independent variable, we found that location does play a significant role. From the table we can conclude that someone who is wants to eat in a foreign city will be in a higher category of perceived usefulness, or to say in other words, someone who want to eat in a strange city will find the system more of use, than someone who wants to eat inside of his own city.

Table 5.5 shows the output of 4 regression models with location as independent variable and our perceptions as dependent variable. We see that not only perceived usefulness is directly effected by location, but also perceived ease of use and enjoyment(both marginally).

The last experiments that we perform is to test what the effects are of the visualization scenario's (we used text as opposed to pictures) on our perception (perceived

Dependent	R	Rsquare
PU	.252	.063
PEU	.358	.128
UND	.315	.099
ENJ	.377	.142

Table 5.6: R and R square for different models

Variable	PU		PEU		UND		ENJ	
	Est.	Sig.	Est.	Sig.	Est.	Sig.	Est.	Sig.
(Constant)	3.221	.000	4.078	.000	3.590	.000	3.620	.000
Gender	.384	.012	.020	.856	0.13	.924	-.234	.118
Age	-.008	.467	-.021	.013	.016	.101	-.006	.583
Education	.014	.867	.178	.003	.071	.326	-.241	.003
Income	.032	.768	-.041	.618	-.197	.045	.083	.441
Presentation	.249	.103	.155	.170	.382	.005	.428	.005

Table 5.7: The effects of visualization of different perceptions

usefulness, perceived ease of use, understandability and enjoyment).

4 regression models were build. In each regression model we used the same independent variables, namely, age, gender, education, income and presentation.

Table 5.6 combines the model summary for each model into one table. We can see that the R square values for each model is very low, which means that this model will not do very well in predicting.

Table 5.7 gives an overview of the estimates for different predictor variables on perceived usefulness (PU), perceived ease of use (PEU), understandability (UND) and enjoyment (ENJ) respectively, along with their significance levels.

#### *Perceived usefulness*

Taking a look a table 5.7, we see that the variable presentation is not significant at

the 5% level. However, if we relax this criteria a little bit, we can say that presentation does influence perceived usefulness (marginally). From this table we can conclude that when a respondent was shown a scenario where pictures were used instead of just plain text, the respondent is more likely to give a higher perceived usefulness rating.

#### *Perceived ease of use*

Table 5.7 also shows the results of a regression model where we want to measure the effects of presentation on perceived ease of use. From this table we can conclude that presentation is not significant enough to contribute to our model and so presentation does not influence perceived ease of use. Ease of use however, is influenced by age and education. The younger someone is, the more likely it is that it is easier for him to use the restaurant recommender system. Also, when someone is more educated, he will find it easier to use the restaurant recommender system.

#### *Understandability*

Table 5.7 also shows us the results of a regression model where we wanted to measure the effects of presentation on understandability. Taking a look at the significance level of the variable presentation, we can conclude that this variable does influence the model. Furthermore, we can draw the conclusion that a respondent who was in the scenario where pictures were presented instead of plain text, is more likely to have a higher understanding of what is being presented to them.

#### *Enjoyment*

Finally, from table 5.7 we see our regression model where we wanted to measure the effects of presentation on enjoyments. The variable presentation is significant, so it influences the model. We can conclude that someone who was just shown text in the scenario will more likely enjoy the use of the recommender system less, or someone

who is shown a scenario where pictures are used, are more likely to enjoy the use of the recommender system. Furthermore, education also has a direct effect on enjoyment, meaning that when someone is more educated, he will enjoy the use of the restaurant recommender system more.

## 5.2 Conclusion

Table 5.8 shows an overview of the all the hypothesis that we have constructed and whether our research supports or rejects these hypothesis.

From the 10 hypothesis we reject the hypothesis that location will have a moderate effect on the relationship between perceived usefulness and attitude. Also, we reject the hypothesis that understandability has a positive direct effect on attitude. For completeness, other test reveal that not only attitude, but also perceived ease of use, understandability and enjoyment have a direct effect on willingness to use.

From our second sub-model we can conclude that perceived usefulness, perceived ease of use and enjoyment all positively effect attitude, which is consistent with our hypothesis. But other test reveal that there are more variable that directly influence attitude, which are age and education.

In the third sub-model we wanted to investigate the effects of location and visualization on different variables. We found that location did not moderate the effect of perceived usefulness on attitude, but location did have a direct effect on perceived usefulness. Furthermore we found that presentation is important for the perceived usefulness, understandability and enjoyment of the restaurant recommender system.

	Hypothesis	Supported
1	Attitude has a positive direct effect on Willingness to use	Yes
2a	Perceived Usefulness has a positive direct effect on Attitude	Yes
2b	Perceived ease of use has a positive direct effect on Attitude	Yes
2c	Understandability has a positive direct effect on Attitude	No
2d	Entertainment value has a positive direct effect on Attitude	Yes
3	Location will moderate the effect of perceived usefulness on attitude	No
4a	Visual representation will have a direct effect on perceived usefulness	Marginally
4b	Visual representation will have a direct effect on perceived ease of use	No
4c	Visual representation will have a direct effect on Understandability	Yes
4d	Visual representation will have a direct effect on Entertainment value	Yes

Table 5.8: Hypothesis supported/rejected

# Chapter 6

## Conclusion

### 6.1 Discussion

In this chapter we will attempt to answer our research question from chapter 1. *"How is the consumers' willingness to use a restaurant recommender system influenced?"*

To facilitate the answering of this question we broke this research question down into two parts:

1. What are the factors that influence consumers's willingness to use such a system?
2. How can these factors be effectively studied and analyzed?

Chapter 2 forms the basis for answering the first sub-question. In chapter 2 we explored different models that are uses in previous studies just like this one. From these studies, extracted some factors and hypothesized that these factors influence consumers' willingness to use a restaurant recommender system.



In chapter 3 we attempted to examine whether these extracted factors truly influence the consumer's willingness to accept a restaurant recommender system. In chapter 3 we described how the study was set up. We used an online questionnaire, where respondents were asked to imagine they were in 1 out of 4 scenarios.

For a company or someone who wants to set up a restaurant recommender system, he has to take in mind the following points:

- To influence the acceptance of the system, a positive attitude towards the system should be created. Attitude towards the recommender system has the biggest effect on the consumer's willingness to use the system, but is not the only factor. Other factors are for instance, perceived ease of use, understandability and enjoyment.
- Attitude towards the system in turn can be positively influenced by the system's perceived usefulness, perceived ease of use and entertainment value. Age and education also have a direct effect on attitude.
- One way to boost the perceived usefulness of the restaurant recommender system is to make the visual presentation more attractive, by adding pictures to the text. The restaurant recommender system is also perceived more useful when it is used for selecting a restaurant in a strange town.
- Visual enhancing the output also enhances the understandability and entertainment value.

## 6.2 Limitations

There are a few limitations in how the data is collected. Instead of a questionnaire, it could have been better to use a prototype of the system and see how consumers respond. In the questionnaire, respondents were shown a screen shot of the website, and its options were written down. The respondents couldn't actually press anything, so the simulation was actually really based on how the respondents perceived that the system would work, instead how it actually would work. There is so much information one could share when using a real prototype website, instead of a questionnaire for this study.

## 6.3 Future research

The limitation above can also be an opportunity for further research. It might be interesting to implement a prototype of a restaurant recommender system, and use the same hypothesis as in this study. It might be interesting to see whether the results differ or not, when someone actually can use the system, instead of just imagining being in a scenario.

Another interesting topic in this area might be to compare how people perceive a restaurant recommender system, that gives personalized recommendations, as described in the scenario's in this thesis against a website that gives general recommendations, which are widely available on the Internet.

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# Appendix A

## Survey items

Construct	Question	Source
Willingness to Use	Assuming I have the ability to use this restaurant recommender system, I would	Mathieson (1991)
	I plan to use a restaurant recommender system in the future	Mathieson (1991)
Attitude	I have a positive opinion about this restaurant recommender system	Mathieson (1991)
	Using this system is a good idea	Mathieson (1991)
	A restaurant recommender system is of value to me	Mathieson (1991)
Perceived Usefulness	This system will allow me to save time in deciding where to eat out	Adams (1992)
	I believe that this system makes it easier for me to select a restaurant when deciding to eat out	Adams (1992)
	Using this system helps me select better restaurants to eat in	Adams (1992)
	I believe that it is useful to have personalized restaurant recommendations like in the scenario	Adams (1992)
Perceived Ease of Use	Learning to use the system would be easy for me	Adams (1992)
	I think it is easy to use this system	Adams (1992)
	Using this system is intuitive	Adams (1992)
	I would not have any problems using this system	Adams (1992)
Understandability	The results shown to me are clear	Davis (1986)
	The results shown to me are easy to understand	Wendel and Dellaert (2009)
	The results shown to me are easy to comprehend	Wendel and Dellaert (2009)
Entertainment Value	I think that using this system is entertaining	Davis (1986)
	This system makes it more fun for me to select a restaurant	Wendel and Dellaert (2009)
	Using this system would make my task of selecting a restaurant more enjoyable	Davis (1986)

Table A.1: Constructs and items used in survey

# Appendix B

## SPSS output

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Enjoyment 1	7.03	4.320	.634	.410	.947
Enjoyment 2	7.24	2.842	.879	.825	.728
Enjoyment 3	7.26	2.819	.849	.811	.762

Table B.1: cronbach's  $\alpha$  for Enjoyment



**Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance
1	5.168	30.400	30.400	5.168	30.400
2	2.694	15.848	46.247	2.694	15.848
3	2.360	13.883	60.131	2.360	13.883
4	1.904	11.198	71.329	1.904	11.198
5	1.177	6.922	78.252	1.177	6.922
6	.695	4.087	82.338		
7	.623	3.667	86.005		
8	.478	2.811	88.815		
9	.354	2.081	90.896		
10	.338	1.986	92.882		
11	.280	1.645	94.528		
12	.247	1.456	95.983		
13	.210	1.234	97.217		
14	.173	1.015	98.232		
15	.129	.761	98.993		
16	.097	.573	99.566		
17	.074	.434	100.000		

Extraction Method: Principal Component Analysis.

Table B.2: Eigenvalues components

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.051	.370		2.840	.005
	Attitude	1.116	.094	.723	11.884	.000
2	(Constant)	1.049	.370		2.836	.005
	Attitude	1.136	.096	.736	11.814	.000
	dummy_location	-.160	.163	-.061	-.980	.329
3	(Constant)	1.322	.477		2.772	.006
	Attitude	1.062	.126	.688	8.402	.000
	dummy_location	-.847	.775	-.324	-1.094	.276
	loc_att	.177	.195	.283	.908	.366

a. Dependent Variable: WTU

Table B.3: Location added to the model Attitude - Willingness to use

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.587	.524		1.119	.265
	PU	.354	.098	.341	3.616	.000
	PEU	.419	.103	.334	4.078	.000
	Understandability	-.032	.076	-.030	-.417	.677
	Enjoyment	.104	.079	.108	1.315	.191
	Involvement	-.044	.071	-.046	-.628	.531
	dummy_location	.055	.127	.034	.438	.662
2	(Constant)	.981	.561		1.748	.083
	PU	.330	.095	.319	3.483	.001
	PEU	.238	.103	.190	2.302	.023
	Understandability	-.032	.072	-.030	-.439	.661
	Enjoyment	.226	.079	.237	2.851	.005
	Involvement	-.017	.069	-.018	-.249	.804
	dummy_location	.171	.137	.104	1.249	.214
	Gender	-.167	.115	-.102	-1.453	.149
	Age	-.022	.009	-.196	-2.407	.018
	Education	.231	.068	.281	3.396	.001
	Income	-.092	.093	-.091	-.988	.325
3	(Constant)	.798	.603		1.323	.188
	PU	.389	.118	.375	3.307	.001
	PEU	.270	.110	.215	2.449	.016
	Understandability	-.041	.073	-.039	-.563	.575
	Enjoyment	.216	.080	.226	2.682	.008
	Involvement	-.036	.073	-.037	-.495	.621
	dummy_location	.731	.678	.446	1.078	.283
	Gender	-.158	.116	-.097	-1.370	.173
	Age	-.023	.009	-.205	-2.491	.014
	Education	.230	.068	.282	3.369	.001
	Income	-.088	.093	-.087	-.941	.349
	loc_pu	-.146	.173	-.383	-.844	.401

a. Dependent Variable: Attitude

Table B.4: Location added to the regression model

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.348 <sup>a</sup>	.121	.115	.82182

a. Predictors: (Constant), dummy\_location

b. Dependent Variable: PU

Table B.5: Model summary: location - pu

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.543	.099		35.816	.000
	dummy_location	.606	.141	.348	4.298	.000

a. Dependent Variable: PU

Table B.6: Effect of location on perceived usefulness

# Appendix C

## Survey

Geachte respondent,

Ik ben momenteel bezig met een onderzoek voor mijn master scriptie en heb hierbij uw hulp nodig. Het volledig invullen van deze vragenlijst zal maar 5 minuten in beslag nemen. Tijdens het beantwoorden van de vragen moet u zich voorstellen dat u zich in de volgende denkbeeldige situatie bevindt: U zit thuis en wilt uit eten gaan binnen uw eigen stad. Uw taak is om een restaurant te selecteren in uw eigen stad. Voor deze taak overweegt u gebruik te maken van een website die restaurant aanbevelingen doet. Stelt u zich eens voor dat u op een website zit die restaurant aanbevelingen doet op basis van uw voorkeuren en kenmerken. U wilt gaan uit eten en overweegt dit systeem te gebruiken om een restaurant uit te kiezen in uw eigen stad. Op de website zijn onder andere de volgende opties aanwezig:

- Het is mogelijk om persoonlijke aanbevelingen te krijgen op basis van uw persoonlijke kenmerken.
- Voordat de website aanbevelingen kan doen moet u zich eerst registreren en een aantal vragen over uw voorkeur qua eten en restaurants beantwoorden.
- Op basis van deze antwoorden zal de website een profiel voor u creëren waar u uw persoonlijke restaurant aanbevelingen kunt bekijken. Het registreren hoeft maar 1 keer gedaan te worden.

- Aanbevelingen kunnen op 3 manieren worden aangepast:
  1. Je kunt aangeven dat je een aanbeveling niet leuk vind.
  2. Je kunt zelf aangeven dat je alleen aanbevelingen wilt zien van een bepaald type voedsel.
  3. Je kunt aangeven dat je alleen aanbevelingen wilt zien voor restaurants in een bepaalde stad.
- Het gebruik van de website is geheel gratis
- De afbeelding hieronder is een voorbeeld van hoe de website zijn aanbevelingen voor iemand zou doen <sup>1</sup>.

Geef aan in hoeverre u het eens bent met de onderstaande stelling(en)  
 Mocht de website zoals beschreven in het scenario beschikbaar zijn, dan zou ik er gebruik van maken

Ik zal gebruik maken van zo een website in de toekomst

Ik sta positief tegen over deze website zoals beschreven in het scenario

De website zoals beschreven in het scenario is een goed idee

De website zoals beschreven in het scenario is van waarde voor mij

Ik denk dat het nuttig is om gepersonaliseerde aanbevelingen voor restaurants te hebben zoals beschreven in dit scenario

Ik denk dat deze website het makkelijker maakt voor mij om een restaurant uit te kiezen bij de beslissing om uit te gaan eten

Met behulp van deze website zal ik betere restaurants uitkiezen om in te eten

Deze website bespaart mij tijd in mijn taak om een restaurant uit te kiezen om in te eten

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<sup>1</sup>images are removed to end of this appendix

Het leren gebruiken van de website zou gemakkelijk zijn voor mij

Ik denk dat het gemakkelijk is om deze website te gebruiken

Het gebruik maken van deze website is intuïtief

Ik zou geen problemen hebben om deze website te gebruiken

De resultaten die worden gepresenteerd zijn voor mij duidelijk

De resultaten die worden gepresenteerd zijn voor mij makkelijk te begrijpen

De resultaten die worden gepresenteerd zijn voor mij gemakkelijk te interpreteren

Ik denk dat het gebruik van deze website leuk is

Deze website maakt het leuker voor mij om een restaurant te selecteren

Deze website zou mijn taak om een restaurant te selecteren leuker te maken

Ik ben geïnteresseerd in het uit eten gaan in het algemeen

Uit eten gaan is belangrijk voor me

Uit eten gaan is relevant voor mij uit

Geslacht

Man

Vrouw

Leeftijd:

Hoogst voltooide opleiding

Basis school

Middelbare school

MBO

Bachelor

Master

Gemiddeld inkomen per maand

minder dan 500

500 - 1500

1500 - 3000

3000 +

Hoe vaak gaat u ongeveer uit eten (per maand)

nooit

1-5 keer

5-10 keer

10+ keer

Welke optie omschrijft uw stad het beste? Mijn stad is een:

Grote stad (meer dan 100.000 inwoners)

Kleine stad (minder dan 100.000 inwoners)

Hoeveel restaurants zijn er ongeveer in uw stad?

1-5

5-10

10+

Hoe bekend bent u met de restaurants in uw stad?

Geef aub antwoord op de volgende vraag

Was het moeilijk om het gebruik van dit voorgestelde systeem voor te stellen zoals

beschreven in het scenario?

Terwijl u de vragenlijst heeft beantwoord, stelde u zich voor dat u zocht naar een restaurant in uw eigen stad of een vreemde stad?

Eigen stad

Vreemde stad

<b>Restaurant</b>	Peking Duck House
<b>Openingstijden</b>	Dinsdag –zondag 12:00- 22:30
<b>Telefoon</b>	(212) 759-8260
<b>Type</b>	Chinees
<b>Bezorging</b>	Bij minimum 25 euro, tot 22:00 uur

<b>Restaurant</b>	Aurora SoHO
<b>Openingstijden</b>	Zondag – donderdag 17:00 – 23:00 Vrijdag – zaterdag 17:00-00:00
<b>Telefoon</b>	(212) 334-9020
<b>Type</b>	Italiaans
<b>Bezorging</b>	Geen

<b>Restaurant</b>	Hell's Kitchen
<b>Openingstijden</b>	Zondag – donderdag 17:00 – 23:00 Vrijdag – zaterdag 17:00-00:00
<b>Telefoon</b>	(212) 334-2543
<b>Type</b>	Mexicaans
<b>Bezorging</b>	Geen

Figure C.1: Screenshot of website with only text



<b>Restaurant</b>	Peking Duck House
<b>Openingstijden</b>	Dinsdag – zondag 12:00- 22:30
<b>Telefoon</b>	(212) 759-8260
<b>Type</b>	Chinees
<b>Bezorging</b>	Bij minimum 25 euro, tot 22:00 uur



<b>Restaurant</b>	Aurora SoHO
<b>Openingstijden</b>	Zondag – donderdag 17:00 – 23:00 Vrijdag – zaterdag 17:00-00:00
<b>Telefoon</b>	(212) 334-9020
<b>Type</b>	Italiaans
<b>Bezorging</b>	Geen



<b>Restaurant</b>	Hell's Kitchen
<b>Openingstijden</b>	Zondag – donderdag 17:00 – 23:00 Vrijdag – zaterdag 17:00-00:00
<b>Telefoon</b>	(212) 334-2543
<b>Type</b>	Mexicaans
<b>Bezorging</b>	Geen



Figure C.2: Screenshot of website with text and pictures