DETERMINANTS OF THE INTENTION TO USE THE INTERNET TO LOSE WEIGHT

This study investigates which determinants might influence the intention to use the internet to lose weight.

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Samenvatting

De afgelopen jaren is er steeds meer aandacht gegeven aan het groeiend aantal mensen met obesitas. Het aantal inwoners van Nederland boven de twintig, dat leidt aan overgewicht of obesitas is meer dan 43% (CBS, 2016). In het verleden zijn er al onderzoeken gedaan om dit aantal te verlagen en ook zijn er tests gedaan met online programma's. In deze studie wordt onderzocht welke determinanten van invloed kunnen zijn op de intentie om het internet te gaan gebruiken om af te vallen. Het model van dit onderzoek is gebaseerd op het originele UTAUT-model van Venkatesh, Morris, Davis & Davis (2003). De onderzochte determinanten die horen bij dit model zijn: performance expectancy, effort expectancy, social influence en facilitating conditions. Met behulp van de literatuur is nog een aantal determinanten toegevoegd aan het originele model, onder andere de digitale operationele, informationele, sociale en mobiele vaardigheden van de respondenten. Tevens zijn een aantal persoonlijke karakteristieken toegevoegd, namelijk sociale eenzaamheid, motivatie, schaamte en self-reported health. De laatste determinant die onderzocht werd was ervaring. Verder werd gekeken of leeftijd, geslacht, opleidingsniveau en BMI nog een modererend effect tussen de variabelen weergaven. De onderzoeksvraag bij dit onderzoek luidt: "*Wat zijn de determinanten die invloed hebben op de intentie om het internet te gebruiken om af te vallen?"*

Om de onderzoeksvraag te kunnen beantwoorden is gebruik gemaakt van een online enquête. Er is gekozen voor online, zodat iedereen die toegang heeft tot het internet kan deelnemen aan het onderzoek. Er zat geen leeftijdsgrens aan het onderzoek, aangezien obesitas ook bij alle leeftijden voorkomt in Nederland[1]. De respondenten werden vergaard via Twitter en Facebook en binnen 2 weken hadden 305 deelnemers de enquête volledig ingevuld. Alle respondenten kregen dezelfde vragenlijst, welke bestond uit demografische vragen en voornamelijk 5-point Likertschaal vragen. De items voor de vragenlijst werden samengesteld uit bestaande literatuur.

De resultaten van het onderzoek laten een positief effect zien van sociale invloed, motivatie en ervaring op de intentie om het internet te gebruiken om af te vallen. Dit betekent hoe meer gemotiveerd of ervaren iemand is, hoe groter de intentie om het internet te gebruiken om af te vallen zal zijn. Hetzelfde geldt voor de sociale invloed, hoe meer iemand sociaal beïnvloed wordt door omstanders om het internet te gebruiken om af te vallen, hoe groter de intentie van deze persoon. Ook is er een modererend effect te zien tussen performance expectancy en leeftijd en effort expectancy en leeftijd wat wijst op het gegeven dat oudere mensen meer beïnvloedt worden door deze verwachtingen. Nog een modererend effect werd gevonden tussen sociale invloed en geslacht, wat inhield dat vrouwen meer beïnvloed worden door de sociale invloed van buitenstaanders.

Managers van online afvalprogramma's zouden deze kennis kunnen gebruiken om zich voornamelijk te richten op een positieve eerste ervaring voor de deelnemers of bezoekers van hun website/app. Dit kan leiden tot het terugkomen op de website en ook tot nieuwe aanwas van andere bezoekers in hun sociale omgeving. Een aanbeveling voor toekomstig onderzoek is om het daadwerkelijke gebruik van websites of online programma's mee te nemen in plaats van de intentie of het onderzoek toch ook offline plaats te laten vinden.

[1] http://statline.cbs.nl/Statweb/publication/?VW=T&DM=SLNL&PA=83021NED&D1=17-23&D2=0-13,37-42&D3=0&D4=l&HD=150430-1349&HDR=T&STB=G1,G2,G3

Abstract

During the last few years the growing amount of people with obesity has received lots of attention. The amount of inhabitants in the Netherlands that is dealing with overweight or obesity is more than 43% (CBS, 2016). In the past, several campaigns and researches are been done to decrease this amount and researches did tests with (online-)interventions. Therefore, this study investigates which determinants might influence the intention to use the internet to lose weight. This is done with a research model based on the original UTAUT-model of Venkatesh, Morris, Davis & Davis (2003). The determinants, or independent variables, of this model are: performance expectancy, effort expectancy, social influence and facilitating conditions. Some determinants are added to the model, with help of the literature. Namely digital skills (operational, informational, social and mobile), personal traits (social loneliness, motivation, shame and self-reported health) and experience. This study also measured if there were any moderating effects between the variables and age, gender, education and BMI. The intention to use the internet to lose weight is the dependent variable. The research question is: *"What are the determinants of the intention to use the internet to lose weight?"*

To answer this research question an online survey was used, which means that everyone who has access to the internet could participate in this research. This study has no age-limit, because obesity (in the Netherlands) occurs in all the age groups[2]. The respondents were gathered on Twitter and Facebook and within two weeks 305 respondents filled in the full survey. All respondents got the same survey, which included demographic questions and mostly 5-point Likert scale questions. The items for the survey were composed out of existed literature.

The results of this study showed a positive effect of social influence, motivation and experience on the intention to use the internet to lose weight. Based on this results, it means that the more motivated or experienced someone is, the more likely the intention is that he/she would use the internet to lose weight. The same for social influence, the more someone is social influenced by others to use the internet to lose weight, the bigger the intention of the person might be. During the moderator analysis a significant effect was shown between performance expectancy and age, effort expectancy and age, what indicated that older people are more influenced by those expectations to intent to use the internet to lose weight. Moreover another moderating effect, between social influence and gender, was shown, what indicated that women are more influenced by social influence of their friends or colleagues to intent to use the internet to lose weight.

Managers of online weight websites could use this knowledge to achieve more participants in their program, to mainly focus on a positive, first experience for their users. This can lead to someone's return to the program or new participants due to the social influence in someone's environment. A recommendation for further research might be to measure the actual use of lose weight websites and to let the research also take place offline.

[2] http://statline.cbs.nl/Statweb/publication/?VW=T&DM=SLNL&PA=83021NED&D1=17-23&D2=0-13,37-42&D3=0&D4=l&HD=150430-1349&HDR=T&STB=G1,G2,G3

1 Introduction

Brindal et al., (2012) concluded that obesity and overweight are still increasing in many countries. The difference between overweight and obesity is defined by the WHO as follows: a BMI greater than or equal to 25 is overweight and a BMI greater than or equal to 30 is obesity. In the Netherlands, 43.1% of all the inhabitants is dealing with overweight or obesity (CBS, 2016). Of that 43.1%, 11.7% has obesity and 31.4% is moderately overweight. In comparison, in 1991 only 30.5% of the population in the Netherlands was overweight or obese. Each year at least 2.8 million people globally pass away due to being overweight or obese (WHO, 2014)[3]. Being an obese can induce metabolic abnormalities, diabetes and other disorders. The reasons for the rise of obesity can be found in the growing availability of food and the decreasing of physical activity of the world population (Grundy, 1998). Worldwide, 44% of the diabetes, 23% of the heart diseases and 7-41% of certain cancers are the result of overweight and obesity (WHO, 2014)[4]. The reasons why people lose weight vary greatly among people (Teixeira, Going, Sardinha & Lohman, 2005). One of the most common reasons is that people lose weight because of the idea that weight loss has positive health benefits (Hankey, Leslie & Lean, 2002; O'Brien et al., 2007).

Twenty years ago losing weight mostly took place offline. The rise of internet-dieting programs started in the mid-1990's and have expanded since then. Nowadays 15 million people turn to the internet every month for weight-loss information (Cassell & Gleaves, 2009). An advantage of the internet is that it allows written material, video or photo material, direct communication, social support and chat rooms (Tate, Wing & Winett, 2001; Hwang, et al., 2010). Research shows that more people are turning to the internet for diet and fitness information and they say that information they found online has impacted their behavior (Saperstein, Atkinson & Gold, 2007). eHealth applications like apps or web-based interventions to increase a physical activities or healthier meals are used more often (Webb, Joseph, Yardley & Michie, 2010). Of the adults in the United States 72% uses the internet and 52% their mobile device to find health-related information (Fox, 2011). Another 67% increased their understanding of health issues due to the information on the internet (Baker, Wagner, Singer & Bundorf, 2003).

The purpose of this study is to explore the determinants of the Dutch population for using the internet to lose weight. This study uses the Unified Theory of Acceptance and Use of Technology (UTAUT) as point of departure. Included are: performance expectancy, effort expectancy, social influence and facilitating conditions. Digital operational, informational, social and mobile skills are added as determinants in this study, because the intention to use the internet to lose weight can be dependent of the digital skills of an individual. The personal traits, social loneliness, motivation to lose weight, shame for body or weight and self-reported health are added, because a personal trait might also influence the intention of an individual to use the internet. The last measured determinant is the experience. Identifying a person's determinants for weight loss may help tailoring an appropriate weight loss program online. Showing what an important determinant for the Dutch population is, can also offer strategies and answers to the government and managers of losing weight websites (Weight Watchers, Weight Care, Weegclub, Personal Body Plan and so on). A new strategy that knows on which determinant the sector has to focus. The government can use

[3] http://www.who.int/entity/gho/ncd/risk_factors/overweight_text/en/index.html

[4] http://www.who.int/mediacentre/factsheets/fs311/en/

the outcomes of this study, for example by determine their policy on how their inhabitants can decrease the obesity number in their country.

The research question is:

„What are the determinants of the intention to use the internet to lose weight?"

2 Theoretical Framework

2.1 UTAUT Model

This study will use the *„Unified Theory of Acceptance and Use of Technology"* (UTAUT) to investigate and explain the acceptance of losing weight websites (Venkatesh, Morris, Davis & Davis, 2003). Originally the UTAUT model was developed to explain the determinants that influence the acceptance and use of ICT among employees. In this study, and in numerous other studies, the model is used in the consumer context (e.g. Escobar-Rodriquez & Carvajal-Trujillo, 2014). The UTAUT Model combines eight different models and theories about the acceptance and use of a new technology: the Theory of Reasoned Action: TRA (Fishbein & Azjen, 1975); Social Cognitive Theory: SCT (Bandura, 1986); Technology Acceptance Model: TAM (Davis, 1989); Motivational Model: MM (Davis, Bagozzi & Warshaw, 1992); Theory of Planned Behavior: TPB (Azjen, 1991); Model of PC Utilization: MPCU (Thompson, Higgings & Howell, 1991); Combination of TAM & TPB: C-TAM-TPB (Taylor & Todd, 1995); Innovation Diffusion Theory: IDT (Rogers, 1995). The UTAUT model is a strong model to explain technology acceptance (Kijsanayotin, Pannarunothai, & Speedie, 2009). The original model includes four determinants; performance expectancy, effort expectancy, social influence and facilitating conditions (Figure 1). It also conducts four moderators: gender, age, experience and voluntariness of use. Various other technologies tested by UTAUT on different people are technological tools such as: internet banking (Martins, Oliveira, Popovic, A. (2014), new interactive school boards (Tosuntas, Karada, Orhan, 2015), e-learning (Mohammadyari & Singh, 2015) and mobile user acceptance (Zhou, 2008).

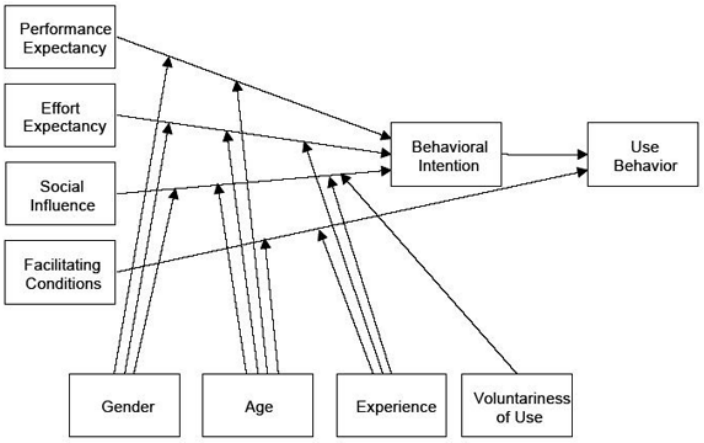

Figure 1. UTAUT MODEL (Venkatesh, et al., 2003)

This study adapts the UTAUT model to determine the factors that predict the use of the internet for losing weight in the Netherlands. The basic model of UTAUT (Figure 1), consists already some factors that hypothesized to be related to the use of a technology. In addition to those factors some others will also be tested in this study.

2.1.1 Behavioral intention to use the internet to lose weight

Some reasons why people are using the internet are: health problem that a loved one has, health problem that the respondent has and information is online easy to find (Ybarra & Suman, 2005). The advantages of the internet are that it offers a widespread access to the information. Same as the advantages for interactivity, anonymity and information tailoring (Cline & Haynes, 2001). Although more people are using the internet for health information, little is known about why people in the Netherlands turn to this

information and if there is a specific group that turns to the internet. The dependent variable in the UTAUT model is the actual use, but in this study it is the *intention to use websites for weight loss.* Zhou (2008) argued that the user's intention is the most important factor that can influence the user acceptance and use of technology. Venkatesh et al. (2003) concluded a direct positive relation between behavior intention and actual behavior. In this study the behavioral intention to use an internet website to lose weight variates. It diverges from the intention to look on the internet for a recipe for a healthy meal, going to a forum to find extra motivation to lose weight or to apply for a half year program to lose weight.

2.1.2 Performance Expectancy

Performance Expectancy is defined as the level where an individual believes that using the system/new technology can help to increase their work performance (Venkatesh et al., 2003). According to several authors (Rogers, 1995; Davis, 1989; Venkatesh et al., 2003) it is similar to the relative advantage of the Innovation Diffusion Theory and to the perceived usefulness of Technology Acceptance Model. The performance expectancy variable turned out to be the strongest predictor of the intention to use. (Venkatesh et al., 2003). It is proven that the performance expectancy influences the intention to use internet. In this study the performance expectancy means the user perception of performance improvement by using lose weight websites, i.e., it is the degree to which an individual believes that using the internet will help to attain gains in losing weight. We hypothesize that:

H1: Performance expectancy has a positive influence on the intention to use the internet to lose weight

2.1.3 Effort Expectancy

Effort Expectancy is defined as the extent to which users believe that using an application or technology is free of effort (Venkatesh et al., 2003). Or in other words the degree of ease associated with the use of the system. Abu Shanad & Pearson (2007) concluded that if a system is relatively easy to use individuals will be more willing to learn about it and use it more intensively. This construct is similar to the perceived ease of use in the Technology Acceptance Model. This construct argues that a technology that is perceived to be easier to use, is more likely to be used (Davis, 1989). Several studies indicated that the perceived ease of use is positively associated with behavioral intention (Ong, Lai & Wang, 2004; Davis, 1989; Moore & Bensabat, 1991). The effort expectancy in this study will be if the internet and the websites for weight loss are considered free of effort, comfortable to use and easy to adopt for individuals. We propose that:

H2: Effort expectancy has a positive influence on intention to use the internet to lose weight

2.1.4 Social Influence

Social Influence is defined as the degree to which an individual thinks that important others believe he/she should use the new system or technology (Venkatesh et al., 2003). The support of others has an important impact on the action a potential user will take, because individuals adapt beliefs, attitudes and behaviors to their social circles (Salancik & Pfeffer, 1978). This construct is a combination of the subjective norm in the TRA, TBP, TAM and C-TAM-TPB models, the image in the IDT model and the social factors in the MPCU model. Some studies show a significant relationship between social influences and the intention to adopt a technology or system (Lu, Yao & Yu, 2005; Lin & Anol, 2008; Wu, Tao & Yan, 2007; Al-Shafi, Weerakkody & Janssen, 2009; Al-Gahtani, Hubona & Wang, 2007). Others studies show no relationship between the two constructs (Carlsson, Carlsson, Hyvönen, Puhakainen & Walden, 2006; Jeng & Tzeng, 2012). Users of (mobile) internet may belong to several social circles and social image is rendered critical for many people. Those circles influence an individuals' opinion, attitude and decision by interactions and communications.

These influences can be explained by the subjective norm and the social image (social influence), who can influence the behavioral intention (Lu, et al., 2005).

The social influences in this study refer to the perceived pressures from the social network of the individuals to make or to not make the decision to use websites for losing weight. The expectation is that a social network can affect the individual's opinion, decision, behavior and confidence to use the internet to lose weight through interaction and communication. This study expects that social influence is an important part in this context, because if important others believe the individual should use a website to lose weight, he or she might be affected and follow their lead. We hypothesize that:

H3: Social influence has a positive influence on the intention to use the internet to lose weight

2.1.5 Facilitating Conditions

Facilitating Conditions is defined by Venkatesh et al. (2003) as: "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system". This construct is based on the constructs perceived behavioral control (TPB, C-TAM-TPB), compatibility (IDT) and facilitating conditions (MPCU). Venkatesh et al. (2003) concluded that there is a direct causal relationship between facilitating conditions and behavior use. But prior studies are not consistent in their results between facilitating conditions and the use behavior. For example, Gupta, Dasgupta & Gupta (2008) showed that the facilitating conditions positively impact the use of the internet in their study about the acceptance of eGovernment in India. While Al-Gahtani, Hubona & Wang' (2007) study showed an insignificant result between those two in their study over the differences between use and acceptance of IT in North America and Saudi Arabia.

In this study facilitating conditions for lose weight websites reflect the processes and resources that facilitate an individual's ability to utilize those websites. Access to the internet is in this study a facilitating condition. In the Netherlands 94% of all the households have access to the internet (Eurostat, 2012[5]). In the context of this study the access to the internet is believed to have a positive influence on the behavioral intention to use a website to lose weight. That is also what Joshua & Koshy (2011) illustrated: the more convenient access respondents or individuals have to a computer (or other device) with internet, the more proficient their use of the internet. This study is focusing on the *amount of devices* (with internet access), because this study is held under the inhabitants of the Netherlands, which means that only measuring the access will probably show no effects, while 94% of the households in the Netherlands has access. It is plausible to say that the more devices (with access to the internet) a person has, the bigger the chance is that he or she will visit a lose weight website. Because when someone has for example a mobile phone with internet, which is available during the whole day and when traveling, it is more likely that they will turn to the internet than when they only have a personal computer with internet at home. Thus we hypothesize, that:

H4: The amount of devices (with internet access) has a positive influence on the intention to use internet to lose weight

[5] http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Information_society_statistics/nl

2.2 Digital Skills

As said in the last paragraph 94% of the households in the Netherlands has access to the internet. However, not every citizen with access to the internet is able to complete assignments that the government thinks every internet user can perform (Van Deursen & Van Dijk, 2009). Individuals that don't have easy access to the internet, also may not have the digital skills to use the ICT (Goulding, 2001). This study is focusing on losing weight online, so it's important for the individuals to have a certain level of digital skills. If individuals don't know how to use mobile internet or how to read feedback, then losing weight online might not be the solution for them. There are several skills needed to use the internet. To measure the different digital skills Van Deursen, Helsper & Eynon (2014) created and defined four types of digital skills:

- Operational skills: the skills to operate digital media
- Mobile skills: skills to handle skills on a mobile device
- Information skills: skills to search, select and evaluation information in digital media
- Social skills: skills to communicate and participate in activities that take place on digital platform

The operational and mobile skills are basic skills and the informational and social skills are skills required to comprehend and use online content. In this study the *operational skills* are used, because individuals need to know how to use the internet or Wi-Fi before he/she can actual use the internet to lose weight. *Mobile skills* are added because nowadays individuals can also use their phone to apply to a lose-weight program or keep up with their program on an online-app. Many health consumers find it challenging to find and understand relevant online health information, and determining the content reliable (Lee, Hoti, Hughes & Emmerton, 2014). And several studies show that not all the health information on the internet is reliable, specific or to generalize (Impicciatore, Pandolfini, Casella & Bonati, 1997; Jadad & Gagliardi 1998; Synnot, Hill, Summers, Filippini, Osborne, Shapland, Colombo & Mosconi, 2014). Finding the right health information online is important, that´s why the *information skills* are added to this study. *Social skills* are added, because individuals can get motivated or influenced by others on digital platforms or social media. For example, an individual wants to lose weight, has access to the internet and the right skills to deal with the online information. The change he/she might use the internet for information about weight loss, might be bigger than for an individual that has a lack of digital skills. Thus, we hypothesize that:

H5a: Operational skills have a positive influence on the intention to use internet to lose weight
H5b: Mobile skills have a positive influence to the intention to use internet to lose weight
H5c: Information skills have a positive influence to the intention to use internet to lose weight
H5d: Social skills have a positive influence on the intention to use internet to lose weight

2.3 Personal traits

Besides adding the construct Digital Skills to the original UTAUT model, this study also adds personal traits. Four types of personal traits are considered; social loneliness, motivation to lose weight, shame for body/figure and self-reported health. All four can be traits that influence the intention to use the internet to lose weight.

2.3.1 Social Loneliness

McKenna, Green & Gleason (2002) concluded that social lonely individuals turn to the internet with the idea that they can interact with others and express themselves online better than they do offline. Social loneliness can be a motive to use the internet in a way that individuals feel less social lonely if they use the internet and that feelings of loneliness may decrease if they are online (van den Eijnden, van Rooij &

Meerkerk, 2007). Morahan-Marint & Schumacher (2003) found out that lonely individuals are using the internet and e-mail more and more likely to use the internet for emotional support than others. The link between social loneliness and overweight can be found in the study of Lauder, Mummery, Jones & Caperchione (2006), who found out that loneliness is related to a higher BMI among adults. And the Gezondheidsraad (2003) concluded in the Netherlands that overweight can cause psychic problems as loneliness or depressions, or the other way around that overweight can be a cause of loneliness. Many individuals who suffer from a physical or mental condition or who feel inferior because the society does not accept their special identity, use their participation in an online group to reduce feelings of loneliness and social isolation (Barak, Boniel-Nissim & Suler, 2008). This study has the assumption that a drive for individuals to use the internet might be to relieve problems like loneliness. In other words *social loneliness* can be a personal trait that influences the intention to use the internet to lose weight. Therefore the expectation is the lonelier the respondents are, the more likely they are to turn to the internet to find information about their weight problems. Instead of asking someone offline to help them or to give them information.

H6: Social loneliness has a positive influence on the intention to the internet to lose weight.

2.3.2 Motivation to lose weight

Motivation to lose weight is an important personal trait, because the internet and feedback can keep people motivated in their online weight-loss goal (Nederend, 2009). Motivation has a positive influence on losing weight and remain at that weight (Gagne, Ryan & Bargmann, 2003; Gillison, Standage, Skevington, 2006; Teixeira, et al., 2004). The internet can also make sure people will be motivated. Several studies concluded that social support online, can keep motivating people (Hwang et al., 2010). Or the internet can bring addition to the motivation to increase the motivation to modify a diet and do physical activities (Saperstein, Atikinson & Gold, 2007).

In this study the motivation to lose weight might be even more important, because to turn to the internet to look for lose weight websites/tips, the individual already needs to have some certain of motivation. Thus, we hypothesize that:

H7: The motivation to lose weight has a positive influence on the intention to use the internet to lose weight

2.3.3 Shame for body or weight

Another personal trait that can influence the individuals to turn to the internet is *shame for body or weight*, because a low self-esteem or shame about health or body can lead to the use of the internet (Armstrong, Philips & Saling, 2000). Shame or reduced anxiety can be a reason why people turn to the internet (Brouwer, Oenema, Crutzen, de Nooijer & Burg, 2009). In this study the 'shame-construct' means the shame for body or weight in a way that people are scared to show how they really look and maybe even stay home because they are afraid of reactions on their weight. People might stay in their houses more, but they still need information how to lose weight. The internet is then available, because the internet is more anonymous (Cline & Haynes, 2001). For instance, an online chat room about weight loss entails greater anonymity, less perceived social risk and less social responsibility (Morahan-Martin & Schumacher, 2000). So if individuals are ashamed and want to know how to lose weight or want to talk about it, they might want to communicate or search anonymous on the internet first for tips and information. We propose that:

H8: Shame for body or weight has a positive influence on the intention to use the internet to lose weight

2.3.4 Self-reported health

The last personal trait of this study is the perceived health, or in other words the *self-reported health* of the individual. Concluded is that obesity has a negative impact on self-rated health among adults (Okuson, Choi, Matamoros & Dever, 2001). Anderson, Eyler, Galuska, Brown & Brownson (2002) concluded that de strongest predictor of trying to lose weight was satisfaction with body size. Here satisfaction was associated with a better self-rated health. This study expects that individuals with a lower or negative self-reported health and higher weight are more likely to lose weight. Because individuals who rate themselves healthy, might think they don't have to lose weight or they think they are healthy enough.

H9: A negative self-reported health has a positive influence on the intention to use the internet to lose weight

2.4 Experience with online weight loss

Another difference between the original UTAUT model and this study is the 'prior experience'. In the original UTAUT model experience is seen as a moderator. In this study only the direct effect of experience on the intention to use a lose weight website is tested. Results from the study of Thompson, Higgins and Howell (1994) suggested that experience had a direct influence on utilization. They implicate that prior experience with an information technology (IT) is an important factor when testing a model of IT adoption and use. Kijsanayotin, Pannarunothai & Speedie (2009) concluded in Thailand that health IT use is predicted by previous IT experiences. Other prior research by Hackbarth & Grover (2003) indicated that users with prior related experience are more comfortable in accepting the technology. The user experience in this study refers to the using habit of the individual in the past. The expectation is that if an individual had a positive experience with the use of internet for losing weight, he/she might use it more and again.

H10: An online weight loss experience has a positive influence on the intention to use the internet to lose weight

2.5 Moderators

In the original UTAUT model of Venkatesh three moderators are proposed: age, gender and education. In the current study we added the BMI of the respondent, because with the variables shame and self-reported health the BMI of the respondents is important. It is also added to see how many respondents are overweight or have obesity. The moderators can influence the relationship between the independent variables; performance expectancy, effort expectancy, social influence and facilitating conditions, digital skills, personal traits and experience and the dependent variable (intention to use the internet to lose weight). The expected relations are discussed below.

<u>Performance Expectancy</u>

This study expects that the effect of performance expectancy on the behavioral intention to use a lose weight website will be moderated by age, gender and education. In terms of gender, the expectation is that males are more likely to rely on performance expectancy when they determine to accept a technology, because they are highly task oriented (Park, Yang & Lehto, 2007). Men's decisions about technology usage are strongly influenced by their perceptions of usefulness concluded Venkatesh & Morris (2000). In the context of age previous researchers found that older users tend to find new technologies difficult to use, this may lead to a lower performance expectancy among older individual (Burton-Jones & Hubona, 2005).

Expected is that people with a lower education are more influenced by the performance expectancy to decide whether to use or to not use a new technology. This because people with a lower education might find it more difficult to use a new technology than people with a higher education.

H11a: a*ge, gender, education will moderate the effect of performance expectancy on behavioral intention, such that the effect will be stronger among older people, men and people with a lower education*

Effort Expectancy

This study expects that the effect of effort expectancy will be moderated by gender, age and education. Looking at gender female's technology acceptance might mainly be determined by effort expectancy (Park, Yang & Lehto, 2007), in other words women are more strongly influenced by perceptions of ease of use (Venkatesh & Morris, 2000). Looking at age effort expectancy was found as a stronger predictor of the intention to use mobile-learning for older than for younger users (Wang, Wu & Wang, 2009). People with lower education are also more sensitive for the effort expectancy, because a new technology, what the internet was in 1996, presents a sort of barrier to them (Szajna, 1996).

H11b: age, gender, education will moderate the effect of effort expectancy on behavioral intention, such that the effect will be stronger among older people, women and people with a lower education

Social Influence

This study expects that the effect of social influence on the intention to use a lose weight website will be moderated by gender, age and education. Venkatesh and Morris (2000) concluded that women are more influenced by the subjective norm/social influence than man. Looking at age social influence was a stronger predictor for older users than for younger (Wang, Wu & Wang, 2009). Expected is that people with a lower education might be influenced more by their social network, than people with a higher education. This because people with lower education might adapt more to the believes of others than people with a higher education.

H11c: age, gender, education will moderate the effect of social influence on behavioral intention, such that the effect will be stronger among older people, women and people with a lower education

Facilitating conditions:

This study expects that the effect of facilitating conditions on the behavioral intention will be moderated by age, gender and education. Earlier studies found out that men rely less to facilitating conditions when it comes to new technologies, than women. Looking to age earlier studies concluded that for older individuals the availability of adequate support is more important than younger individuals. (Henning & Jardim, 1977; Venkatesh & Morris 2000; Hall & Mansfield, 1975). Also is expected that users of the internet with lower education will depend more on the facilitation conditions, than users with a higher education.

H11d: age, gender, education will moderate the effect of facilitating conditions on behavioral intention, such that the effect will be stronger among older people, women and people with a lower education

Digital Skills indicators

This study expects that the effect of the digital skills on the behavioral intention will be moderated by age and education. Van Deursen & Van Dijk concluded in 2008 that seniors above 55 have a backlog when looking at the development of their digital skills. Also people with a lower education have more problems with the digital skills, than the individuals with higher education. The access gap between men and women

may have almost been closed in the Netherlands, but this does not apply the usage gap gap (Van Dijk, 2006). The result is that men have a better use of the internet than women (Goulding, 2003).

H11e: age, education will moderate the effect of facilitating conditions on behavioral intention, such that the effect will be stronger among older people, women and people with a lower education

Personal traits

This study expects that some of the personal traits will be moderated by age, gender education and BMI. For the motivation the expectation is that woman below the age of 55 years (younger people) are more associated with the motivation to lose weight (Westenhoefer, 2005). Expected is that women with a higher BMI are more influenced to be ashamed of their body. In terms of social loneliness the expectation is that people with an older age are more associated with social loneliness, same as people with a lower education (Prince, Harwood, Blizard, Thomas & Mann, 1997). For the perceived health of the individuals it is concluded that patients with a lower level literacy were consistently more likely to report poor health than patients with adequate reading skills (Baker, Parker, Williams, Clark & Nurss, 1997). The expectation is that lower education people have a lower literacy, so also a lower perceived health. Vingilis, Wade & Seeley (2002) concluded that also age and female status were associated with a lower self-rated health. Thommasen, Self, Grigg, Zang & Birmingham (2005) concluded in their research that a higher weight was associated with poorer self-rated health.

H11f: age and education will moderate the effect of the personal trait 'social loneliness' on behavioral intention, such that the effect will be stronger among older people and people with lower education

H11g: age and gender will moderate the effect of the personal trait 'motivation to lose weight' on behavioral intention, such that the effect will be stronger among younger people and women

H11h: gender and BMI will moderate the effect of the personal trait 'shame' on behavioral intention, such that the effect will be stronger among women and people with a higher BMI

H11i: age, gender, education and BMI will moderate the effect of the personal trait 'self-reported health' on behavioral intention, such that the effect will be stronger among younger people, women, people with lower education and people with a higher BMI.

Experience

In the UTAUT experience is normally a moderator, but is in this study able to be moderated. Prior research showed that male individuals had more computer experience and had more encouragement from parents and friends (Busch, 1995). Also the expectation of this study is that older people, with lower education have less (positive) experience with computers.

H11j: age, gender and education will moderate the effect of experience on behavioral intention such that the effect will be stronger among younger people, men and people with a higher education

2.6 Research model

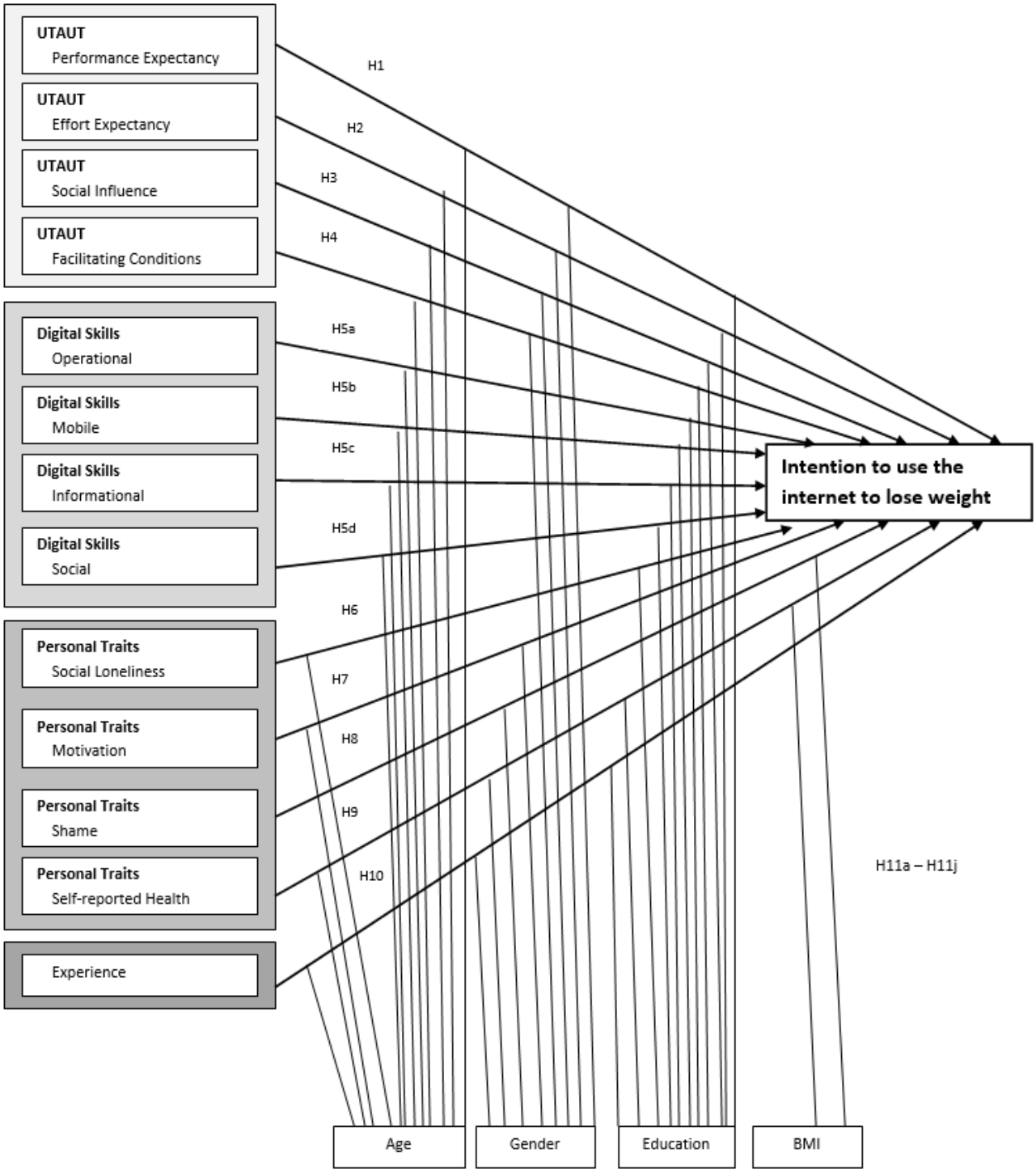

Figure 2. Research Model

3 Method

3.1 Sample

This study draws upon a sample collected in the Netherlands over 2 weeks in September 2015 using an online survey built with the website Qualtrics. After placing the survey online the link was shared on social media (Twitter and Facebook). Within two weeks 305 respondents completed the survey. Every inhabitant of the Netherlands who could read and had access to the internet could participate in this survey. This because CBS (2015)[6] showed results that overweight in the Netherlands occurs in every age-group, in every gender and in every education-level. So every inhabitant that is able to use the internet could participate in this survey.

3.2 Instrument

The online survey started with a welcoming text with information about the study, about their voluntary participation and that it was an anonymous participation. Then the respondents were asked about their age, education, gender, length and weight. After the demographic questions they were led to the questions for each scale. To help that all of the respondents could understand the questions the survey is offered in Dutch, the native language of the participants. A pre-test was held among 15 respondents to see if the correlation of the items was high enough to gauge reliability. After the pre-test some items were removed or altered. In Appendix A the items (in English) used for the pretest can be found and Appendix B includes the definite Dutch items for the online survey. The definite survey contained 78 items. To measure the constructs several measurement scales from existing literature and researches have been used. Those scales have proven their reliability in prior online studies. The phrasing of the scales has been adapted to fit in this article. Most items of the online survey in this research were assessed using a 5-point Likert scale. Possible options were: (1) strongly disagree, (2) disagree, (3) do not disagree/do not agree, (4) agree, (5)strongly agree.

3.3 Respondents

305 respondents filled in the complete survey. A total of 555 started with the survey, but didn't complete it. Only the respondents that missed a question about the determinants were left out of this research. If a respondent didn't fill in his/her age, but completed the 78 items, his or her answers are still taken into the results.

To measure *gender* the respondents were asked to choose for male (108 =35.4%) or female (197 = 64.6%).

To measure *age* the respondents were asked for their age on that moment. The age of the respondents was between 15 and 72 years old. There were 5 respondents that didn't answer this question. There a five categories.

Data on *education* was collected by degree. These data were divided in three overall groups of low(19.7%), medium (37.7%) and high education (39.3%). Those groups are based on the classification of the Nationaal Kompas[7]. 305 respondents filled in this question, but 10 (3.3%) respondents were left out because their highest education was a course.

To measure the *BMI* (Body Mass Index) the respondents were asked to fill in their weight (in KG) and their

[6] http://statline.cbs.nl/Statweb/publication/?VW=T&DM=SLNL&PA=83021NED&D1=17-23&D2=0-13,37-42&D3=0&D4=l&HD=150430-1349&HDR=T&STB=G1,G2,G3

[7] http://www.nationaalkompas.nl/bevolking/scholing-en-opleiding/indeling-opleidingsniveau/

length (in M). 249 completed both questions, 56 (18,3%) respondents did not answer one or both. A reason that the respondents didn't fill in one of them (or both) might be that they think their weight or length is private. Some answered in centimetres, so those were recoded into meters. Then SPSS calculated the formula to measure BMI (Length /(Weight^2)). After that the outcomes were put into categories according to the World Health Organization[8]. This means above 25 is overweight, under 18,5 underweight and above 30 obese. More than half of the respondents had overweight, 39% even had obesity. The descriptive statistics can be found in table 1.

The demographic profile of the respondents of this study are compared with the total Dutch population to see if it shows any similarities. In the Netherlands the total of inhabitants is 16.9 million people, 8.37 are men and 8.52 million are women, which means that in the Netherlands the divide between men and women is almost even. In this study there is a clear difference between men and women. The age groups are almost similar, in the Netherlands the biggest population is between 40-60 years old, followed by the group between 20-40 years, in this study that is almost the same[9]. In this study more high educated people participate, while in the Netherlands 'medium education' is still the most common[10] . Similarities between this study and the total population can also been seen when looking at the BMI, more than 40% of the inhabitants are overweight or have obesity in the Netherlands (CBS, 2016).

Table 1 Demographic profile of respondents (N=305)

	N(=305)	%
Gender		
Male	108	35.4
Female	197	64.6
Age		
15-21 years	38	12.7
22-30 years	97	32.3
31-45 years	57	19
45-60 years	103	34.3
60+	5	1.7
Education		
Low	60	19.7
Medium	115	37.7
High	120	39.3
Course	10	3.3
BMI		
Underweight	21	6.9
Normal	60	19.7
Overweight	49	16.1
Obesity	119	39.0

Low educated: primary education until a low degree of high school (basisonderwijs – HAVO)
Medium educated: high degree of high school and an average diploma of higher education (VWO-MBO)
High educated: high education or university degree (HBO – WO)

[8] http://apps.who.int/bmi/index.jsp?introPage=intro_3.html

[9] http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=37296ned&D1=a&D2=0,10,20,30,40,50,60,(l-1),l&HD=130605-0924&HDR=G1&STB=T

[10] http://statline.cbs.nl/Statweb/publication/?VW=T&DM=SLNL&PA=82208NED&D1=0&D2=0,11-13&D3=0-4,101-503&D4=9-11&HD=150703-1536&HDR=T,G1,G3&STB=G2

3.4 Measures

The reliability, means and standard deviation of the several items are shown in this paragraph. Cronbach's alpha (Cronbach, 1951) was used to determine the internal consistency or average correlation of items in a survey instrument to gauge its reliability. Nunnally & Bernstein (1994) have indicated that an acceptable reliability coefficient is ranging from 0.7 to 0.95. Only the construct "self-reported health" is somewhat lower than the acceptable level of consistency. A low value of alpha could be due to a low number of items, what in the case of self-reported health can be an option. All the other constructs in this research show good internal consistency.

3.4.1 Measures UTAUT Model

The original UTAUT Model (performance expectancy, effort expectancy, social influence, facilitating conditions and behavioral intention) scales were already tested and were the result of large-scale analysis by Venkatesh et al. (2003). Schoneville (2007) developed a questionnaire scale for UTAUT items in the context of online newspapers, for this research most of those items were used.

The *behavioral intention*, as dependent variable, was measured by two questions in a 5-point Likert scale*:* 'I will soon try to use the internet to lose weight' and 'I have the intention to use the internet to lose weight'. The Alpha for this construct was 0.81[11].

Looking at the *performance expectancy* 6 items were used. After pretesting those items the Cronbach's Alpha was 0.83 so the reliability for the items was high enough. And in the final test the Alpha was increased to 0.86.

To measure the *effort expectancy* first 8 items were used in the pretest, with as a result an Alpha of 0.69. After the pretest one item (I think the internet to lose weight has a clear structure) was left out and the alpha increased to 0.77.

Social influence was pretested with six items with as result a Cronbach's Alpha of 0.73. In the real test one item (I regularly see classmates or colleagues use the internet to lose weight) was left out, the Alpha increased to 0.82.

The *facilitating conditions* of this research are the amount of devices. This was a asked as a multiple choice question: *'*On how many devices do you use the internet?*',* more answers were possible. The results can be found on the next page in table 2.

[11] The behavioral intention was also measured in a second way (see Appendix C), but no different results came out of this test.

Table 2 Descriptives and reliabilities of the UTAUT items

Variables	M	SD	α
Behavioral Intention (2 items)			**0.81**
I have the intention to use the internet to lose weight	2.32	1.07	
I will soon try to use the internet to lose weight	1.94	0.93	
Performance Expectancy (6 items)			**0.86**
I think using the internet to lose weight is interesting	3.16	1.03	
It is useful to use the internet to lose weight.	3.18	0.93	
It is easy to use the internet to lose weight.	2.77	0.90	
I would find the internet to lose weight useful in my goal to lose weight	3.18	1.01	
Using the internet to lose weight enables me to reach my weight-goal more quickly	2.66	0.93	
Using the internet to lose weight increases my weight loss	2.70	0.88	
Effort Expectancy (7 items)			**0.77**
It is not easy to use the internet to lose weight	3.21	0.88	
Using the internet to lose weight is not difficult to learn.	3.41	0.80	
It is easy to navigate on the internet for losing weight	3.16	0.89	
It is simple to become good at using the internet to lose weight	3.12	0.96	
Learning to operate the internet to lose weight is easy for me	2.79	1.12	
It would be easy for me to become skillful at using the internet to lose weight	3.22	1.02	
Using the internet to lose weight is easy for me	3.07	0.99	
Social Influence (6 items)			**0.82**
I regularly see people around me using the internet to lose weight	2.64	0.94	
I regularly see classmates or colleagues use the internet to lose weights	2.56	0.95	
People whom I respect, think I should use the internet to lose weight	2.12	0.95	
Other people think I should use the internet to lose weight	2.00	0.92	
I use the internet to lose weight because a large portion of the people around me are using it.	2.05	0.82	
People who are important to me think that I should use the internet to lose weight	2.03	0.90	

3.4.2 Measures Digital skills

For the digital skills items Van Deursen, Helsper & Eynon (2014) developed a measurement scale of which all the items will be used in this article. The alphas for the scales in the study of Van Deursen, et al. (2014) were 0.92 for operational skills, 0.94 for mobile skills, 0.92 for information skills and 0.88 for social skills.
In this study the *digital skills operational* had no items left out after pretesting and in the final measurement the alpha was 0.93.
Then the *digital skills mobile.* This study added two items (I know how to navigate on my mobile phone and I know how to download apps to my mobile device) to the three original items of the measurement scale. In the final test one item (I know how to navigate on my mobile phone)was left out, what led to an Alpha of 0.74.
The digital skills informational were pretested with 8 items (α=0.71). After that in the final test one was left out (I find it hard to find a website I visited before) and that resulted in an Alpha of 0.80.
The last one, the *digital social skills* were measured in the pretest with 9 items (α=0.79), after that one item was left out (I know which information I should and shouldn't share online) and the Cronbach's Alpha increased to 0.87. The results can be found on the next page in table 3.

Table 3 **Descriptives and reliabilities of the digital skills items**

Variables	M	SD	α
Digital Skills Operational (10 items)			**0.93**
I know how to open downloaded files	4.45	0.72	
I know how to download/save a photo I found online	4.55	0.67	
I know how to use shortcut keys (e.g. CTRL	3.99	1.10	
I know how to open a new tab in my browser	4.44	0.79	
I know how to bookmark a website	4.26	0.97	
I know how to complete online forms	4.39	0.72	
I know how to upload files	4.42	0.82	
I know how to adjust privacy settings	4.19	0.85	
I know how to connect to a WIFI network	4.58	0.61	
I know how to refresh a page	4.34	0.87	
Digital Skills Mobile (4 items)			**0.74**
I know how to download apps to my mobile device	4.54	0.77	
I know how to keep track of the costs of mobile app use	3.73	1.21	
I know how to stop the push-messages on my mobile device	3.48	1.31	
I know how to install apps on a mobile device	4.48	0.74	
Digital Skills Informational (7 items)			**0.80**
I find it hard to decide what the best keywords are to use for online searches	2.33	1.05	
I get tired when looking for information online	2.06	0.88	
Sometimes I end up on websites without knowing how I got there	2.13	1.01	
I find the way in which many websites are designed confusing	2.54	1.01	
All the different website layouts make working with the Internet difficult for me	2.44	1.15	
I should take a course on finding information online	1.82	0.96	
Sometimes I find it hard to verify information I have retrieved	2.89	1.11	
Digital Skills Social (8 items)			**0.87**
I know when I should and shouldn't share information online	4.43	0.75	
I am careful to make my comments and behaviors appropriate to the situation I find myself in online	4.14	0.81	
I know how to change who I share content with (e.g. friends, friends of friends or public)	4.21	0.81	
I know how to remove friends from my contact lists	4.55	0.63	
I feel comfortable deciding who to follow online (e.g. on services like Twitter or Tumblr)	4.31	0.77	
I am confident about writing a comment on a blog, website or forum	3.70	1.10	
I would feel confident writing and commenting online	3.72	1.03	
I know how to use emoticons (e.g. smileys, emojis or text speak)	4.56	0.67	

3.4.3 Measures Personal Traits

De Jong Gierveld & Kamphuis (1985) developed a 11-items measurement scale for *social loneliness* which is used in this online survey. The alpha for the scale was 0.84. After pretesting 7 items were left over, four were left out (there is always someone I can talk to about my day-to-day problems, there are plenty of people I can lean on when I have problems, there are many people I can trust completely and there are enough people I feel close to).The alpha for those seven items was 0.79.

The measurement scale and items for the *motivation* construct were found in the researches of Jay, Gillespie, Schlair, Sherman & Kalet (2010) and the CMR (Circumstances, Motivation and Readiness) factor scale for substance abuse treatment (De Leon, Melnick, Kressel & Jainchill, 1994).The CMR had an alpha of 0.84 on the motivation scale. Out of the Jay et al., (2010) scale the four motivation items were used. The CMR scale has five items to measure the motivation of which all items are used in this online survey. After the pretest (α=0.83) one was left out (Lately, I feel if I don't change, my weight will keep getting worse). Eight items made it into the online survey after pretesting to get an Cronbach's Alpha of 0.89.

The *shame* construct was in the pretest measured by the Experience of Shame Scale of Andrews, Qian &

Valentine (2002). The ESS measured three areas, one of them was body shame and had an alpha of 0.86. Four items were used, only the reliability of the items was in this study not high enough with an alpha of 0.40. After the pretest the items of the Experience of Shame Scale were left out and five new items out of the Body Shape Questionnaire were used in the online survey (Cooper, Taylor, Cooper & Fairburn, 1986). The Body Shape Questionnaire of Cooper et al., (1986) with 34-items had an internal consistency of 0.97. In this study the alpha for those five items was 0.84.

The *self-reported health* items were found in the third survey of the National Health and Nutrition Examination Survey (NHANES III, 1996). From the six original items three were used in the definitive online survey, three (I think I have overweight, the last month I was more active than the months before and in the last six months I have had worries about my health) were left out. This because in the pretest the reliability was negative (-.36), in the final test the Alpha was 0.64.

Table 4 Descriptives and reliabilities of the personal traits items

Variables	M	SD	α
Social Loneliness (7 items)			**0.79**
I miss having a really close friend	1.82	0.93	
I experience a general sense of emptiness	1.76	0.84	
I miss the pleasure of the company of others	1.76	0.84	
I find my circle of friends and acquaintances too limited	1.85	0.88	
I often feel rejected	1.70	0.80	
I miss having people around me	1.74	0.81	
I can call on my friends whenever I need them	4.17	0.92	
Motivation (8 items)			**0.89**
I am motivated to make changes in my current weight	3.03	1.12	
I am considering to reach my dream weight in the coming six months	2.66	1.19	
In the next six months I would like to lose weight	3.20	1.28	
In the last few months I tried to lose weight	2.64	1.27	
Basically, I feel that my weight is a very serious problem in my life.	2.21	1.04	
Often I don't like myself because of my weight	1.98	1.00	
I really feel bad that my weight makes me unhappy	2.02	0.96	
It is more important to me than anything else that I lose weight	1.80	0.86	
Shame (5 items)			**0.79**
Have you not gone out to social occasions (e.g. parties) because you have felt bad about your shape?	1.62	0.73	
Have you felt ashamed of your body?	2.05	0.98	
Have you avoided wearing clothes which make you particularly aware of the shape of your body?	2.40	1.15	
Has worry about your shape made you diet?	2.33	1.15	
Have you avoided situations where people could see your body (e.g. communal changing rooms or swimming baths)?	1.90	0.98	
Self-reported Health (3 items)			**0.64**
My health status is good	3.71	0.81	
I am taking good care of my health	3.68	0.71	
I think, compared to men/women my age, I am more active	3.20	1.08	

3.4.4 Measures Experience

The *experience* items were found in the research of Nederend (2009), five of them were used with an Alpha of 0.71. See table 5. The experience was also as a direct question: 'Did you use the internet to lose weight before?' If the respondents answered '*yes*' they had to answer how often they tried it. If '*no*' they continued to the next question. 34 respondents (11%) answered yes to this question, almost 80% of those 34 respondents only tried it 1-3 times.

Table 5 Descriptives and reliabilities of the experience items

Variables	M	SD	α
Experience (5 items)			**0.71**
It doesn't takes me lots of time to use the internet to lose weight	2.82	0.99	
It is an advantage that using the internet to lose weight is free/not expensive	3.52	1.03	
I like that I can use the internet to lose weight at home	3.67	0.97	
I like losing weight on the internet because it is anonymous	3.36	1.06	
I think losing weight on the internet fits me	2.78	0.97	

3.5 Data analysis

To analyze the data the program SPSS is used. First to do a *bivariate correlation analysis*, this to measure the relationship between two constructs. It can also indicate if the two constructs really have a relationship. The relationship can be positive or negative. In a positive relationship it means that as one value increases, the other increases with it. A negative relationship means that if one value increases, the other one decreases.
After that a *linear regression analysis* was done, this was used to predict the value of a variable based on the value of another variable. The predicted variable is the dependent variable, in this study the intention to use the internet to lose weight. The other variables are called the independent variables. In this study a multiple regression analysis was done, because this study had more than two independent variables.
In the end a *moderator analysis* was done, to measure if the cohesion between a dependent and an independent variable is influenced by a moderator. In this study for example, if age has influence on the relationship between performance expectancy and the intention to use the internet to lose weight. The moderator analysis consists out of three steps. The first step is centralization of the independent and moderator variable. This can be done by transforming new variables with the means of the variables, so for example the mean of age (AgeCentre) and the mean of the performance expectancy (PEcentre). The next step is to make the new variable AgePe = AgeCentre x PEcentre. The last step is to make a regression with the intention to use the internet as dependent variable and AgePe, AgeCentre and PEcentre as independent variables.

4 Results

The results of this research are separated in the correlation analysis, the regression analysis with the behavioral intention as dependent variable and the moderator analysis[12].

4.1 Correlation analysis

Table 6 shows the results of the correlation analysis. The performance expectancy correlates with the original UTAUT items; effort expectancy and social influence same as with the experience. A high correlation was found between performance expectancy, experience and performance expectancy. Effort expectancy also correlates with social influence, same as with motivation. Social influence almost correlates with all of the other constructs, only not with the facilitating conditions and the self-reported health. There are low positive correlations between the facilitating conditions and the operational, mobile and social skills.

For the digital skills constructs the factors were significantly correlated indicating that those who are good in one skill area are also good in another area or those who are bad in one skill area are also bad in another area (see table 6). The operational, social and mobile skills seem to have a strong correlation in this study. The negative correlation happens for all correlations with the informational skills. This is in line with earlier research by Hesper & Eynon (2013) and Van Deursen, Helsper & Eynon (2014), who concluded that informational skills can be identified as a separate concept. The informational skills on the other hand have a positive correlation with social loneliness, motivation and shame.

Looking at social loneliness there is a negative correlation with self-reported health and a positive relationship with shame and motivation. Motivation and shame show a strong correlation. Experience only correlates with the original UTAUT constructs.

Table 6 Correlation Analysis

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. PE	-												
2. EE	.79**	-											
3. SI	.42**	.35**	-										
4. FC	-.00	.05	-.06	-									
5. DSO	.00	.03	-.22**	.28**	-								
6. DSM	.07	.05	-.16**	.33**	.78**	-							
7. DSI	.04	-.03	.31*	-.20**	-.40**	-.44**	-						
8. DSS	.03	.06	-.20**	.26**	.88**	.77**	-.44 **	-					
9. SL	.03	.04	.19**	-.19**	-.23**	-.23**	.29**	-.25**	-				
10. MO	.11	.16**	.24**	-.10	-.12	-0.10	.13*	-.10	.18**	-			
11. SH	.02	.11	.15**	-.07	-.17**	-.16**	.17**	-.13*	.31**	.69**	-		
12. SRH	-.06	-.03	-.11	.03	.12*	.09	-.07	.11	-.12*	-.31**	-.36**	-	
13. EXP	.70**	.67**	.32**	.00	.06	.08	-.01	.08	.03	.07	.06	-.04	-

Note 1. *p < 0.05 (2tailed); **p < 0.01 (2-tailed).;
Note 2. PE = Performance Expectancy; EE = Effort Expectancy; SI = Social Influence; FC = Facilitating Conditions; DSO = Digital Skills Operational; DSI = Digital Skills Informational; DSS = Digital Skills Social; DSM= Digital Skills Mobile; SL = Social Loneliness; MO = Motivation; SH = Shame; SRH= Self-reported Health; EXP = Experience.

[12] The behavioral intention was also measured in a second way (see Appendix C), but no different results came out of this test.

4.2 Determinants of the behavioral intention to use the internet to lose weight

No significant effects were found between performance expectancy (β =0.15), effort expectancy (β =0.06), facilitating conditions (β =0.05) and the intention to use the internet to lose weight. So the performance expectancy and effort expectancy have no influence on the intention. Same as the amount of devices. However, when looking at social influence, an significant effect was found (β =0.23***). The results show that social influence has a positive influence on the intention to use the internet to lose weight. If the respondents will be social influenced then the intention for the to use the internet to lose weight will be bigger. Looking at the results of the digital skills no significant effects were found at all. Digital skills social (β =-0.12), digital skills operational (β =0.04), digital skills informational (β =0.04) and digital skills mobile (β =0.03) show no effects on the intention to use weight with help of the internet. So the intention to use the internet to lose weight is not higher if the respondents know how to use the internet in a social, operational, informational and mobile way. No evidence was found that Social Loneliness (β =-0.12), Shame (β =-0.06), Self-reported Health (β =-0.07) influence the intention to lose weight with help of the internet. However, there was evidence to support a positive relationship between motivation and intention *(*β = 0.33***). In other words, the more motivated someone is to use the internet to lose weight, the bigger the intention to use the internet to lose weight. The results show a positive influence between experience (β =0.24) and intention to use the internet to lose weight.

Table 7 Extensive overview results linear regression

F = 19,733*** R^2 = .469	***Behavioral Intention***
Variables	**β**
Performance Expectancy	**0.15**
Effort Expectancy	**0.06**
Social Influence	**0.23*** **
Facilitating Conditions (Amount of devices)	**0.05**
Digital Skills Operational	**0.04**
Digital Skills Mobile	**0.03**
Digital Skills Informational	**0.04**
Digital Skills Social	**-0.12**
Social Loneliness	**-0.12**
Motivation	**0.33*** **
Shame	**-0.06**
Self-reported Health	**-0.07**
Experience	**0.24*** **

*p < 0.05; ** p < 0.01 ; *** p <0.001

Figure 3 displays the effects of the independent variables on the dependent variable.

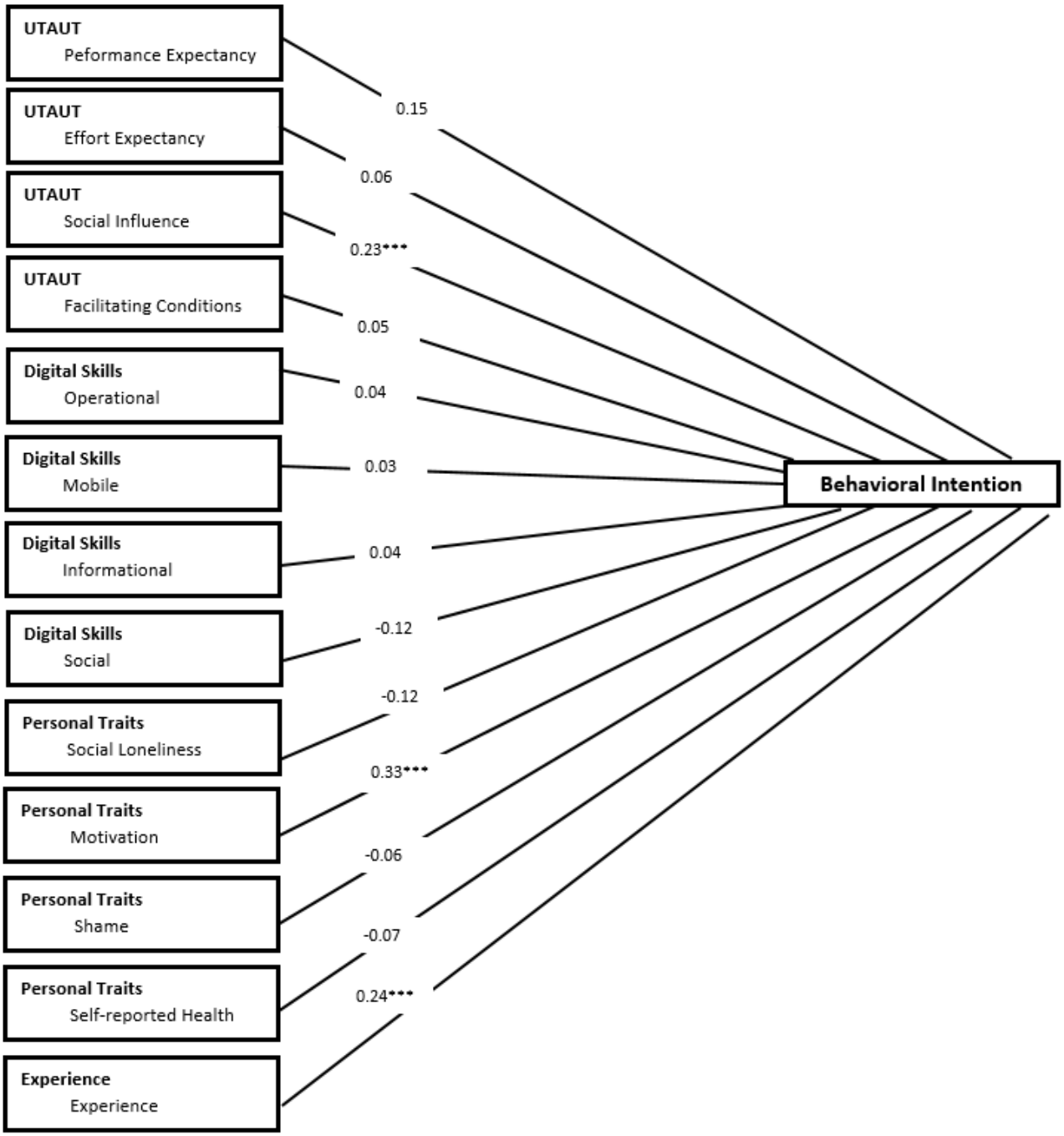

Figure 3. Results linear Regression 1

4.3 Overview of Hypothesis

Table 8 Overview of hypothesis

Hypothesis	Result
H1: Performance expectancy has a positive influence on the intention to use the internet to lose weight	Not supported
H2: Effort expectancy has a positive influence on the intention to use the internet to lose weight	Not supported
H3: Social influence has a positive influence on the intention to use the internet to lose weight	Supported
H4: The amount of devices (with internet access) has a positive influence on the intention to use the internet to lose weight	Not supported
H5a: The operational skills have a positive influence on the intention to use internet to lose weight	Not supported
H5b: The mobile skills have a positive influence to the intention to use internet to lose weight	Not supported
H5c: The information skills have a positive influence to the intention to use internet to lose weight	Not supported
H5d: The social skills have a positive influence on the intention to use internet to lose weight	Not supported
H6: Social loneliness has a positive influence on the intention to use the internet to lose weight	Not supported
H7: The motivation to lose weight has a positive influence on the intention to use the internet to lose weight	Supported
H8: Shame for body/figure/weight has a positive influence on the intention to use the internet to lose weight	Not supported
H9: A negative self-reported health has a positive influence on the intention to use the internet to lose weight	Not supported
H10: A online weight loss experience has a positive influence on the intention to use the internet to lose weight	Supported

4.4 Moderator Analysis

The results of the moderator analysis will show if the cohesion between, for example social influence and the intention to use the internet to lose weight Is influenced by age, gender, education or BMI. The *performance expectancy* was measured by the moderators age, gender (β=0.02) and education (β=-0.04). Only age showed a significant effect (β =0.10*).This means that older people are more influenced by the performance expectancy to use the internet to lose weight. The same for *effort expectancy*. Age showed a significant effect (β=0.10*), while gender (β=0.05) and education (β=-0.08) did not, which means that here also older people are more influenced by effort expectancy to use the internet to lose weight. The results show that only gender(β=0.12*) influences *social influence* and the intention to use, for age (β=-0.01) and education (β=0.04) no evidence was found. In other words the social influence will influence woman more to use the internet to lose weight. Looking at the results for facilitating conditions, digital skills, social loneliness, motivation, shame, self-reported health and experience no significant effects were found.

Table 9 Overview of Hypothesis

	β	Result
H11a: Performance Expectancy		
Age	0.10*	Supported
Gender	0.02	Not supported
Education	-0.04	Not supported
H11b: Effort Expectancy		
Age	0.10*	Supported
Gender	0.05	Not supported
Education	-0.08	Not supported
H11c: Social Influence		
Age	-0.01	Not supported
Gender	0.12*	Supported
Education	0.04	Not supported
H11d: Facilitating Conditions		
Age	0.06	Not supported
Gender	0.02	Not supported
Education	0.07	Not supported
H11e: Digital Skills		
Age	0.07	Not supported
Education	0.01	Not supported
H11f: Social Loneliness		
Age	0.00	Not supported
Education	0.04	Not supported
H11g: Motivation		
Age	-0.03	Not supported
Gender	-0.03	Not supported
H11h: Shame		
Gender	0.10	Not supported
BMI	-0.13	Not supported
H11i: Self-reported Health		
Age	0.02	Not supported
Gender	-0.07	Not supported
Education	0.10	Not supported
BMI	-0.01	Not supported
H11j: Experience		
Age	0.09	Not supported
Gender	0.07	Not supported
Education	-0.05	Not supported

*p < 0.05; ** p < 0.01 ; *** p <0.001

5 Discussion

This study tried to get an insight in the determinants of the intention to lose weight on the internet and in which way gender, age, education or BMI could influence those determinants. A total of 10 hypotheses were proposed and tested. The results of this revealed a positive relationship between social influence, motivation and experience. However, it appears that there is not always an influence, as only three hypotheses were supported. The next section will discuss these findings and will propose alternative explanations. Because it is important to keep conducting future research in this topic, also a several recommendations will be discussed.

5.1 Main Findings

The first main finding of this study is that s*ocial influence* increases the intention to use internet to lose weight. This conclusion is in line with some literature, because Wang & Wang (2010); Alaiad, Zhou and Koru (2013); Wang, Wu & Wang (2009) also concluded that social influence has an influence on the intention to use the internet (for varying reasons). This study showed that the social influence is an important determinant for people to have the intention to lose weight on the internet, what means that the respondents care about the opinion of others. The social influence determinant also showed differences in gender. Women are more influenced by a norm or opinion to use the internet than men, which is in line with the research of Morris & Venkatesh (2000).
One of the newly added constructs, *motivation,* also has a positive influence on the intention to use the internet to lose weight. If the respondents have motivation to lose weight, there is a positive effect on the intention to use the internet. Motivation can be seen as the first step to actual use of the internet. Individuals need to have access and interest in the internet, in other words they need to have the motivation to use the internet. That seems logical, because if individuals don't have motivation to lose weight why would they look for information to lose weight in the first place. The results of the motivation construct are in line with prior researches about motivation and weight loss (Teixeira, et al., (2004); Elfhag & Rössner, 2005).
This study found out that a positive *experience* can lead to another experience. If an individual used the online program to lose weight and it worked for them, maybe the next time, because he/she gained weight for example due to a pregnancy, their intention to use an online program (again) increased. In the original UTAUT-model experience was a moderator, this study showed that experience also has a direct effect on the intention to use. This is consistent with prior research who also suggested a positive relationship between experience with the internet and internet use (Fishbein & Azjen, 1975; Harrison & Rainer, 1992).

The individuals of this study do not believe that using the internet will help to attain gains in losing weight. This might be a problem of expectation or interests. Individuals may think that an (offline) dietician can still help them to lose more weight than the internet. The conclusion that *performancy expectancy* has no influence is in line with the research of AlAwadhi & Morris (2008), in their study the performance expectancy only had an significant effect when it was moderated by experience. It can be that if the effect of performance expectancy in this study was also moderated by the experience, the effect of the intention to use the internet to lose weight increased. On the other hand, the influence of performance expectancy on the intention to use is stronger for older than for younger people, this is similar to some researches (Shah, McLeod & Yoon, 2001; Zulman, Kirch, Zheng & An, 2011). A reason can be that younger people got to know the internet in their younger yours and are more skillful than seniors. Seniors never had the chance to develop themselves with the internet at school and lag behind in their digital skills (De Haan &

Huysmans, 2002). The last reason can be that the internet is still not showing the individuals a surplus value for using the internet to lose weight.

The majority of the respondents is not concerned about the time and effort to learn to use the internet to lose weight. This means that no matter how easy it is to use the internet to lose weight, it does not affect the intention to use or adopt it. This is in line with the research of Maniam, Dillon & Baghaei (2015), who concluded that the ease of use did not influence the adoption of a self-management diabetes application. Age also turned out to moderate *effort expectancy* and the intention. The influence of performance expectancy on the intention to use is stronger for older people. This equals to the research of Morris & Venkatesh (2000) who concluded that the effort expectancy is a stronger predictor of IT usage intention for older people than for younger people. This suggests that younger people tend to have a self-efficacy and thus effort expectancy does not influence their intention to use the internet (Wang, Wu & Wang, 2009). Similarly, many older individuals have limited experience using computers and the internet, it is likely that their self-efficacy concerns are related to the intention to use the internet to lose weight (Porter & Donthu, 2006). The same principle holds for performance expectancy, younger people are grown up with the internet and are schooled with it, while older people didn't which can lead to more concerns and considerations related to the intention to use the internet.

Same as for the effort expectancy, it was expected that the *facilitating conditions* would lead to a stronger intention to use the internet to lose weight, but the results were not equal to that. However Willoughby (2008) concluded that a predictor of internet use was the number of devices with internet access at home, this study concluded different. Beside Willoughby another prior research concluded technology access as one of the strongest predictors of technology use(Norris, Sullivan, Poirot & Soloway (2003). But unfortunately this study cannot conclude that the amount of devices has a positive influence on the intention to use the internet to lose weight. Willoughby (2008) suggested that the ease of access and amount of devices likely will be less of an issue when internet and computers will be more affordable. That can be the reason that no significant effects showed up, because right now in the Netherlands over 90% of the population[13] has access to the internet and it is almost normal to have more than one device with internet access.

In this study none of the digital skills showed influence on the intention to use the internet to lose weight. This can be explained by the fact that the level of digital skills is probably high in this country. As concluded before in the Netherlands almost every inhabitant has access to a computer. This may have led to a high level of *operational and mobile skills* to the respondents, while most basic digital skills are learned at home behind a computer, individuals are learning digital skills by trying and explaining things to themselves (Aesaert en Van Braak, 2014. In 2013 in the Netherlands there were 9 million registered Facebook-accounts and still 5 million twitter-accounts and[14], which may have led to an increase of the *social skills* of the inhabitants of the Netherlands. The increase and high level of the digital skills of the respondents may have affected the outcomes of this study. More explanations can be found in the limitations. Expected was that the digital skills showed some differences in age, gender or education, because one of the most important predictors of digital skills is someone's educational level (Van Deursen & Van Dijk, 2009). Unfortunately also none of them turned out to moderate the relationship between digital skills and the intention to use. That

[13] http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Information_society_statistics/nl

[14] http://www.marketingfacts.nl/cookies/?s=%2Fberichten%2Fsocialmediagebruik-in-nederland-update-maart-2014

gender showed no difference is in accordance with the literature, females are usually as skilled as males in online activities (Gui & Argentin, 2011; Hargittai & Shafer, 2006; Van Deursen, Van Dijk & Peters, 2011)).

The argument that individuals who are social lonely are more likely to have the intention to use the internet then socially healthier people was not concluded. That is in contrast with prior researches, because several other studies concluded a strong relationship between *social loneliness* and internet use (Davis, Flett & Besser (2002); Caplan (2003)). Lots of this researches have taken place outside the Netherlands. It is questionable if those results also can be transplanted into the Dutch society. The Raad voor Maatschappelijke Ontwikkeling (1997) concluded that the individualizing of the society is not leading to an increase of desolation in the Netherlands, which could mean that the Dutch population is not lonely, which in turn may have affected the outcomes.

Expected was that *shame* has a positive influence on the intention, but it turned out that there was no effect. This conclusion is not supported with the literature of Rodgers et al., (2013) who suggested that body image avoidance is an important factor of internet use or even addiction and is also not supporting the conclusion that the internet is typically comforting individuals who are struggling with for example shame (Wittlock, Powers & Eckenrode, 2006). Regrettably this study could not show a significant result between shame and internet use to lose weight. An explanation can be that people are less ashamed these days, because there are a lot more people who are overweight. Individuals can have the feeling they don't need to be ashamed for their body anymore, as a result of the fact that other individuals are still fatter than they are.

The result of the last personal trait, *self-reported health,* is not in line with the research of Houston & Allison (2002), who concluded that those with a poor health were tended to use the internet more frequently and were more likely to use online chats. An explanation can be that the individuals didn't report themselves with a poor self-reported health, what may have affected the outcomes. The respondents that had a negative self-reported health should use the internet for information, because individuals that use the internet for health information are better informed about diseases and have greater social support (Miilunpalo, Vuori, Oja, Pasanen & Urponen, 1997). Added, it is likely that persons who seek information on the internet are more aware of the disadvantages and danger of being overweight or obese, but unfortunately this study could not conclude that individuals with a lower self-reported health would intent to use the internet more than people with a high self-reported health.

5.2 Limitation & Future Research

A limitation following on one of the conclusions stated above is that the survey only took place on the internet, so all the respondents needed a good level of digital skills to fill in the survey. This study only focuses on the respondents that do have access to the internet and have a certain level of digital skills. As individuals that might not have the digital skills to enroll with this survey, might not have the ability to sign up for a program to lose weight online either. Alaiad, Zhou & Koru (2013) concluded that effort expectancy showed no significant effects because the respondents knew how to use, in their study, healthcare robots. The same is happening here, the participants know how to use the internet, otherwise they didn't participate in an online survey. There might be individuals in the Netherlands that still have problems with the internet, but this research didn't reach them because the survey took place on the internet. In further research it might be a solution to try to reach to them. Van Dijk en Van Deursen (2009) suggested in their research that the only way to obtain a valid and complete measurement of digital skills is to charge people

with performance tests. A limitation of the way of measuring in this study is that the skills are based on the internet self-efficacy of the respondents, which can lead to a wrong interpretation of results. The mean scores of the respondents show that the respondents assess their own level of digital skills high. The items of the operational skills almost all have a mean of at least 4. The informational item: 'I should take a course on finding information online' has a mean of 1.82. Therefore, a reason why the digital skills show no effects in this study can be that the respondents were asked to assess their own level of digital skills and not to actually do and complete tasks. It is possible that the respondents' believe in their own capabilities to organize and complete all the skill-items is too high. Maybe their internet self-efficacy is not in line with their real digital skills, in this study they might have overestimated themselves which may have affected the outcomes. Another explanation can be that the digital divide refers to the gap between those do an those who do not have access to internet (Van Dijk, 2006). And much of the existing literature also focuses on the classification of internet use, whether someone is or is not an user (Hargittai, 2001). In this study only the respondents who have access to the internet are used, because the survey could only be filled in online, so the respondents needed to have access and a certain level of digital skills. Future research can try to reach to the inhabitants of the Netherlands with less digital skills, for example with doing tasks on a computer, interview them in real life or let them fill in a hard copy survey.

Another limitation is the number of respondents participated in the study, because this study included a 305 respondents. If this study contained more respondents, it might have been possible to discover more significant effects. Also the conclusions are based on 305 respondents and are generalized for all the inhabitants of the Netherlands. To have a more valid study more respondents might be needed. Also there are more females in this survey then males, this could influence the results because there are differences in they way men and women use the internet (Ono & Zavodny, 2002). The total of responses to the 7, social loneliness, items was used to determine loneliness, but the mean scores were not showing that the respondents were social lonely. For example I miss have a close friend (n=305, mean 1.76), I miss the pleasure of the company of others (n=305, mean 1.76) and I can call on my friends whenever I need them (n=305, mean 4.17). Looking at those responses of the items in this study the mean for most items was too low to conclude that someone was social lonely. If there are no social loneliness respondents in this study, then it seems logical that social loneliness showed no influence on the intention to use the internet. In further research the focus can be more on the social loneliness people, like Morahan-Martin & Schumacher (2003) did. The same happened with the construct 'shame' none of the respondents was ashamed enough to be categorized as 'shame for body'. Further research can make sure that the respondents are ashamed or social lonely, because this may have affected the outcomes of the results. For example by letting only social lonely or ashamed respondents participate in the study, to first examine the lonely people from the social healthy people occur or to do a pretest to make sure that the sample contains social lonely respondents.

A big limitation is also that the behavioral intention is only measured with two item-questions, this may have affected the outcomes. This problem was solved before with the addition of an open question in the end (Appendix C). But it turned out that the respondents didn't answer this question with serious and logical answers or didn't complete the question at all, that's why it is left out of the study. For future research it might be important to measure the behavioral intention to use the internet in a more extensive way.

The last limitation of this study is that the real use is not measured. The intention to use the internet was measured and therefore, as said, only two items were used. To measure the use and if the internet is really

helping people to lose weight, the respondents need to be followed a few months to see if they lose weight or why the internet isn't helping them to. Future research might focus on results in other countries, to see if there are differences between the inhabitants. Or try to reach more respondents and try to measure the real use of the internet to lose weight.

5.3 Practical and theoretical implications

Although the results of this study are of relevance for the scientific domain of health and obesity and can form a basis for further research, several conclusions can also be of importance for governments or managers of lose weight websites. First, it can be said that managers of lose-weight-websites or governments need to realize how important the first experience with the use of their website or program is. Because this study showed that a positive prior experience can lead to another sign-up to the program or to another use of the website, it is essential for the government and the managers to make sure that the users have a positive (first) experience while using their website or program to lose weight. For example with a good user-experience, the right information and the desired result. Another advantage is that a positive experience might socially influence their friends and colleagues. A positive experience will be a positive word of mouth, which can lead to a positive social influence.

Social influence also turned out to have a *direct* influence on the intention to use the internet to lose weight. Once individuals are using the internet more and more to lose weight and become familiar with it, they might start to tell their friends, family and colleagues about it and try to convince them to also 'adopt' it. Managers need to focus on the early adopters, who are proven to have a higher technology acceptance then other individuals (Rogers, 1995; Agarwal & Prasad, 1998). When the number of early and majority adopters grows, the rest of the inhabitants of the Netherlands or any other country will follow. The results show that women are more likely to be influenced by a subjective norm, so if the managers and government focus on the men first, the women may follow their lead. To get the internet to lose weight accepted by the public, it would be necessary to demonstrate advantages and benefits they likely give to users to lose weight. This will help the individuals to increase the motivation to lose weight and so the intention to use the internet. Also the results show that most of the respondents like to lose weight in the next months, so there is a chance because they are motivated. Now they need to get motivated to use the internet to lose weight. Individuals could be motivated with demonstrations about the advantages and benefits, but also making fat/unhealthy food more expensive can help to reduce the amount of inhabitants with obesity in a country. Or the other way around, to make exercising more fun or maybe even schedule one hour of exercising in someone's workday for people who have the excuse that they don't have time to exercise.

For years now one international set of the BMI scale is token. The levels are universal and can be used for every ethnical group (WHO, 1995). This can be a reason why in the Netherlands and also in this study the amount of obese and overweight people is (to) high. It can be that the levels or the scale need to be changed to the standards of life in this century. An implication can be to change or reconsider the levels of the BMI standard.

6 Conclusion

In this study ten main hypotheses were tested to see if determinants might influence the intention to use the internet to lose weight. Four UTAUT-original determinants, four digital skills constructs, four personal traits and experience were used to test the research questions. Only the three constructs: social influence, motivation and experience showed significant effects. Also moderating effects are measured, with four moderators: age, gender, education and BMI. Three hypothesis were partly supported. Performance expectancy and age, effort expectancy and age and social influence and gender showed significant effects.

The research question *„What are the determinants of the intention to use the internet to lose weight?"* can be answered with the determinants social influence, motivation and experience. Those three determinants tend to have influence on the intention to use the internet to lose weight.

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APPENDIX A. Original Items Online Survey

Performance expectancy
I think using the internet to lose weight is interesting
I remember more from what I read on the internet about losing weight
It is useful to use the internet to lose weight.
I would find the internet to lose weight useful in my goal to lose weight
Using the internet to lose weight enables me to reach my weight-goal more quickly
Using the internet to lose weight increases my weight loss

Effort Expectancy
It is not easy to use the internet to lose weight
Using the internet to lose weight is not difficult to learn.
It is easy to navigate on the internet for losing weight
It is simple to become good at using the internet to lose weight
I think the internet to lose weight has a clear structure.
It would be easy for me to become skillful at using the internet to lose weight
Using the internet to lose weight is easy for me
Learning to operate the internet to lose weight is easy for me

Social Influence
I regularly see people around me using the internet to lose weight
I regularly see classmates or colleagues use the internet to lose weights
People whom I respect, think I should use the internet to lose weight
Other people think I should use the internet to lose weight
I use the internet to lose weight because a large portion of the people around me are using it.
People who influence my behavior think that I should use the internet to lose weight
People who are important to me think that I should use the internet to lose weight

Facilitating Conditions
Which devices: PC, Laptop, Tablet, Mobile Phone..
How many devices do you actually use for surfing on the internet?

Digital Skills Operational
I know how to open downloaded files
I know how to download/save a photo I found online
I know how to use shortcut keys (e.g. CTRL
I know how to open a new tab in my browser
I know how to bookmark a website
I know how to complete online forms
I know how to upload files
I know how to adjust privacy settings
I know how to connect to a WIFI network
I know how to refresh a page

Digital Skills Mobile
I know how to install apps on a mobile device
I know how to download apps to my mobile device
I know how to keep track of the costs of mobile app use
I know how to navigate on my mobile phone
I know how to stop the push-messages on my mobile device

Digital Skills Informational
I find it hard to decide what the best keywords are to use for online searches
I find it hard to find a website I visited before
I get tired when looking for information online
Sometimes I end up on websites without knowing how I got there
I find the way in which many websites are designed confusing
All the different website layouts make working with the Internet difficult for me
I should take a course on finding information online
Sometimes I find it hard to verify information I have retrieved

Digital Skills Social
I know which information I should and shouldn't share online
I know when I should and shouldn't share information online
I am careful to make my comments and behaviors appropriate to the situation I find myself in online
I know how to change who I share content with (e.g. friends, friends of friends or public)
I know how to remove friends from my contact lists
I feel comfortable deciding who to follow online (e.g. on services like Twitter or Tumblr)
I am confident about writing a comment on a blog, website or forum
I would feel confident writing and commenting online
I know how to use emoticons (e.g. smileys, emoji's or text speak)

Motivation
I am motivated to make changes in my current weight
I am considering to reach my dream weight in the coming six months
In the next six months I would like to lose weight
In the last few months I tried to lose weight
Basically, I feel that my weight is a very serious problem in my life.
Often I don't like myself because of my weight
Lately, I feel if I don't change, my weight will keep getting worse.
I really feel bad that my weight makes me unhappy
It is more important to me than anything else that I lose weight.
Shame
Have you not gone out to social occasions (e.g. parties) because you have felt bad about your shape?
Have you felt ashamed of your body?
Have you avoided wearing clothes which make you particularly aware of the shape of your body?
Has worry about your shape made you diet?
Have you avoided situations where people could see your body (e.g. communal changing rooms or swimming baths)?

Social Loneliness
There is always someone I can talk to about my day-to-day problems
I miss having a really close friend
I experience a general sense of emptiness
There are plenty of people I can lean on when I have problems
I miss the pleasure of the company of others
I find my circle of friends and acquaintances too limited
There are many people I can trust completely
There are enough people I feel close to
I miss having people around me
I often feel rejected
I can call on my friends whenever I need them

Self-reported health
My health status is good
I am taking good care of my health
I think I have overweight
I think, compared to men/women my age, I am more active
The last month I was more active than the months before
In the last six months I have had worries about my health

Experience
I've tried to lose weight on the internet before
It doesn't takes me lots of time to use the internet to lose weight
It is an advantage that using the internet to lose weight is free/not expensive
I like that I can use the internet to lose weight at home
I like losing weight on the internet because it is anonymous
I think losing weight on the internet fits me

APPENDIX B. Online Survey after pretest in Dutch

Performance Expectancy items
Ik denk dat afvallen via het internet interessant is
Ik denk dat afvallen via internet handig is
Het is makkelijk om via internet af te vallen
Ik zou het internet bruikbaar vinden om mijn doel om af te vallen te bereiken
Gebruik maken van het internet om af te vallen, zorgt ervoor dat ik sneller op mijn streefgewicht kom
Gebruik maken van het internet om af te vallen versnelt mijn proces om af te vallen

Effort Expectancy items
Het is niet makkelijk om het internet te gebruik om af te vallen
Gebruik maken van het internet om af te vallen is niet moeilijk om te leren
Het is makkelijk om te navigeren op het internet om af te vallen
Het is simpel om goed te worden in het gebruiken van het internet om af te vallen
Het zou makkelijk voor mij zijn om handig te worden in het gebruiken van het internet om af te vallen
Ik zou het internet simpel vinden om te gebruiken om af te vallen
Het gebruik van het internet om af te vallen is makkelijk voor mij

Social Influence items
Mensen om me heen maken gebruik van het internet om af te vallen
Klasgenoten/collega's maken gebruik van het internet om af te vallen
Mensen die ik respecteer denken dat ik gebruik moet maken van het internet om af te vallen
Andere mensen denken dat ik gebruik moet maken van het internet om af te vallen
Ik gebruik het internet om af te vallen, omdat veel mensen om me heen het gebruiken
Mensen die belangrijk voor mij zijn denken dat ik het internet moet gebruiken om af te vallen

Facilitating Conditions items
Op hoeveel apparaten gebruikt u het internet? (Meerdere antwoorden mogelijk)
PC, Laptop, Tablet, Mobiele Telefoon, Spelcomputer (Xbox/Playstation)

Digital Skills Operational items
Ik weet hoe ik bestanden kan downloaden
Ik weet hoe ik een foto van het internet kan opslaan
Ik weet hoe ik sneltoetsen kan gebruiken (bv CTRL-c voor kopie)
Ik weet hoe ik een nieuw venster open in mijn internet browser
Ik weet hoe ik een website kan bookmarken (toevoegen aan de favorieten)
Ik weet hoe ik online formulieren kan invullen
Ik weet hoe ik bestanden kan uploaden
Ik weet hoe ik privacy instellingen kan aanpassen
Ik weet hoe ik verbinding kan maken met een WIFI-netwerk
Ik weet hoe ik een pagina kan verversen

Digital Skills Mobile items
Ik weet hoe ik een app moet installeren op een mobiel apparaat
k weet hoe ik apps kan downloaden op een mobile apparaat
Ik weet hoe ik de kosten van mobiele apps kan bijhouden
Ik weet hoe ik push-berichten op mijn mobile device stop kan zetten

Digital Skills Informational items
Ik vind het moeilijk om te besluiten wat de beste zoekwoorden zijn
Ik vind informatie zoeken op internet vermoeiend
Soms zit ik op een website zonder dat ik weet hoe ik er kwam
Ik vind de manier waarop veel websites zijn ontworpen verwarrend

Al de verschillende website-ontwerpen maakt internetten lastig
Ik zou een cursus over het zoeken van informatie moeten volgen
Ik vind het soms moeilijk om gevonden informatie te controleren

Digital Skills Social items
Ik weet wanneer ik informatie wel of niet kan delen op internet
Ik zorg dat mijn commentaar en gedrag passen bij de situatie waarin ik mij op internet bevind
Ik weet hoe ik kan aanpassen met wie ik informatie deel (bv. vrienden, vrienden van vrienden, of iedereen)
Ik weet hoe ik vrienden uit mijn contactlijst kan verwijderen
Ik voel me zelfverzekerd genoeg om te beslissen wie ik volg op plaatsen waar informatie wordt gedeeld (bv. Twitter)
Ik weet hoe ik emoticons kan gebruiken (bv. smileys)
Ik voel me zelfverzekerd bij het plaatsen van berichten op een weblog, website of forum
Ik zou me zelfverzekerd voelen bij schrijven of commentaar geven op het internet

Social Loneliness items
Ik mis een echt goede vriend of vriendin
Ik ervaar een leegte om me heen
Ik mis gezelligheid om me heen
Ik vind mijn kring van kennissen te beperkt
Ik mis mensen om me heen
Vaak voel ik me in de steek gelaten
Wanneer ik daar behoefte aan heb kan ik altijd bij mijn vrienden terecht

Motivation items
Ik heb het gevoel dat mijn gewicht een serieus probleem is in mijn leven
Mijn gewicht zorgt ervoor dat ik mezelf niet leuk vind
Mijn gewicht zorgt ervoor dat ik me vaak ongelukkig voel
Mijn gewicht is op dit moment het belangrijkste in mijn leven
Ik ben gemotiveerd om veranderingen in mijn gewicht aan te brengen
Ik overweeg om in het komende half jaar mijn droomgewicht te bereiken
In het komende half jaar wil ik graag minder wegen
In het afgelopen half jaar heb ik geprobeerd om af te vallen

Shame
Ik ben wel eens een dieet begonnen omdat ik me schaamde voor mijn gewicht
Ik vermijd plekken waar mensen mijn lichaam kunnen zien (zwembaden, gemeenschappelijke kleedkamers)
Ik schaam me voor mijn lichaam
Ik ga soms niet naar sociale gelegenheden omdat ik me schaam voor mijn figuur
Ik draag geen kleding waarbij de nadruk komt te liggen op mijn figuur

Self-reported Health items
Ik vind mijn gezondheid goed
Ik vind dat ik goed omga met mijn gezondheid
Vergeleken met mannen en vrouwen van mijn leeftijd beweeg ik meer

Experience
Ik denk dat afvallen via het internet mij weinig tijd kost
Ik denk dat het een voordeel is dat afvallen via het internet gratis/niet duur is
Ik denk dat het fijn is dat afvallen via het internet vanuit huis kan
Ik denk dat het fijn is om af te vallen via het internet, omdat het anoniem is
Ik denk dat afvallen via het internet mij goed bevalt

Appendix C. Second way of measuring Behavioral Intention

The behavioral intention was also measured in a second way. At the end of the survey there was an open question, with items discussed in the theoretical part of this article. The respondents need to fill in the boxes how often they expect to go on the internet to, for example, find out if they are too fat in a month. The same for all the other items. To make it more clear the ´intentions´ are categorized into the communication patrons of Bordewijk & Van Kaam (1982): transmission, consultation, registration and conversation. Transmission is a patron with one-way communication whereby the consumer only is a receiver of information (passive role) and is not looking for information his self. In this study transmission is left out, because this study focuses on the intention of the individual/customer in an active role.

To sum up: *in the next week/month/ 6 months I have the intention to turn to the internet to…*

		Week	Month	Half Year
Look for a healthy recipe on the internet to lose weight/live healthier	Consultation			
Search for a sports exercise that makes me lose my weight	Consultation			
Find out if I am to fat and need to lose weight	Consultation			
Search for information about losing weight	Consultation			
Applying for Weight Watchers/ Personal Body Plan and so on	Registration			
Store my weight and length online to see if I'm making progress in my weight loss	Registration			
Download an app with information and tips about losing weight	Registration			
Go to an internet forum to discuss my progress	Conversation			
Go to an internet forum to find motivation to lose weight	Conversation			

Figure 4. Items Behavioral Intention 2

(After pretesting go to an internet forum to discuss my progress was left out)

The results of this way of measuring only showed an significant effect for social influence (β= 0.13*) and motivation (β =0.29***). And in the moderator analysis only a significant effect was found between social influence and gender(β =0.12*). The results were almost the same for both ways of measuring.

Table 10 Results linear regression

F = 4.100*** R^2 = .165 **Variables**	***Behavioral Intention*** **β**
Performance Expectancy	**0.12**
Effort Expectancy	**-0.00**
Social Influence	**0.13***
Facilitating Conditions (Amount of devices)	**0.04**
Digital Skills Operational	**-0.02**
Digital Skills Mobile	**-0.06**
Digital Skills Informational	**0.04**
Digital Skills Social	**0.05**
Social Loneliness	**0.05**
Motivation	**0.29 *** **
Shame	**0.04**
Self-reported Health	**0.05**
Experience	**0.00**

*p < 0.05; ** p < 0.01 ; *** p <0.001

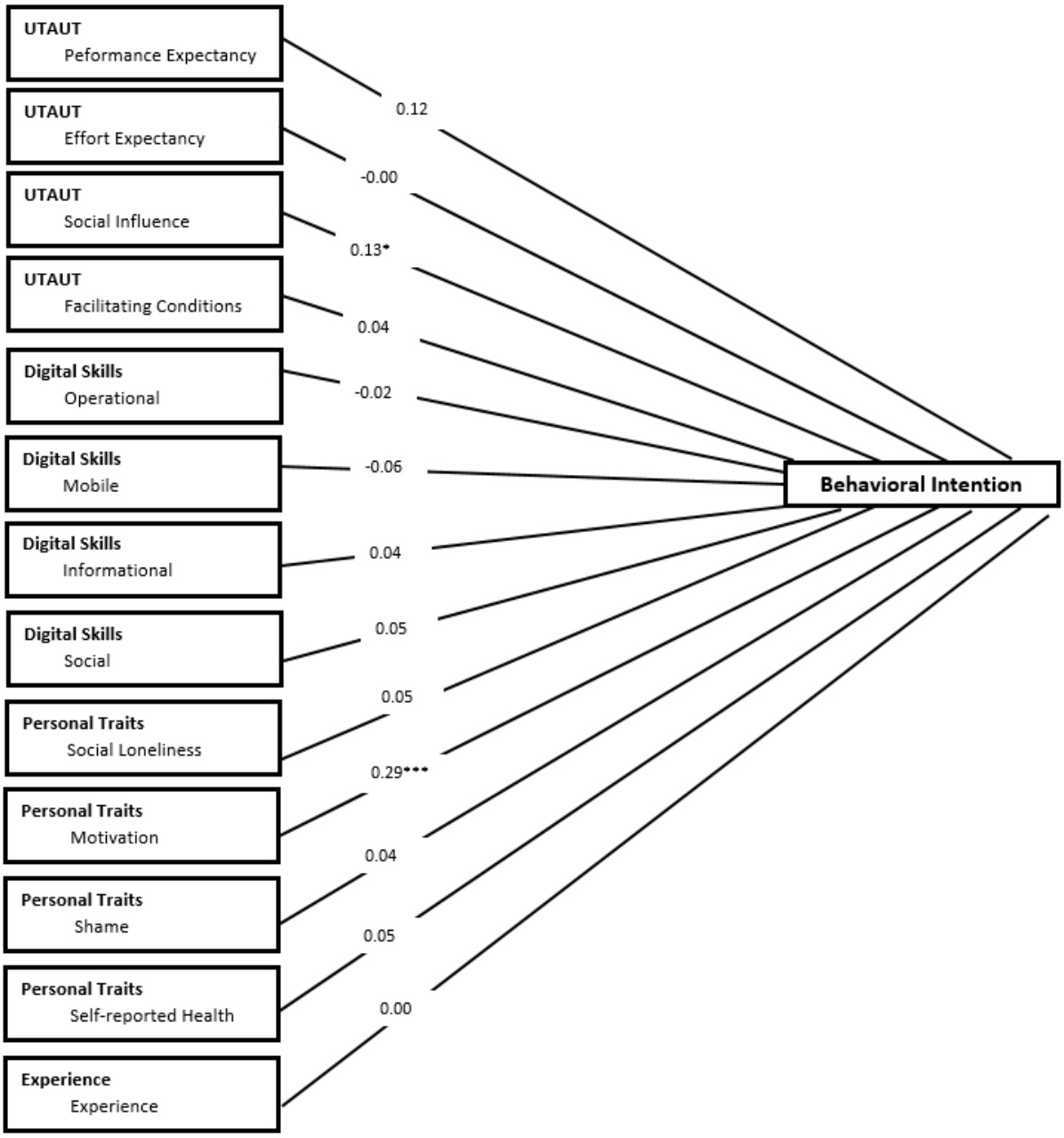

Figure 5. Results regression linear 2