Older People
New Media Choice

Why (Not) Use The Internet?

Master Thesis Communication Studies
Alexander van Brakel

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Master Thesis Communication Studies
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Graduation Committee

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UNIVERSITY OF TWENTE.

Preface

Before you lies my master thesis. The sum-total of a quest consisting of countless re-writes, days in search of motivation, and pristine moments of endless inspiration. It has been a long, very long, road. One I did not, and could not, travel alone. But now that it is finished, I can honestly say I am proud of this thesis that lies before your eyes.

Had it not been for the support of several people this thesis might well not have existed at all. My greatest gratitude is reserved for my main supervisor, Thea. There so many things I must thank her for. For being understanding when I needed it, for giving me a firm kick when that was needed even more, and for all the insightful feedback. Much appreciated was also the feedback from my other supervisor, Alexander. His always cheerful attitude and perspicacious remarks, especially towards the end, have contributed greatly to this thesis. Thanks are also owed to those with me in the thesis group, all fellow travelers towards Master-hood. The sharing of personal experience as well as the hours spent digging through my ever-growing thesis makes me considerably indebted to them. Last, but not least, I also wish to thank my friends and family. Their support was also truly invaluable throughout. That only leaves the one thing I must thank everybody for, and that is for their patience. Thank you all. Now onwards, to the future. A new quest awaits!

Alexander van Brakel

Augustus 2011

Summary

In this study the influence of the constructs Perceived Internet Skills, Expected Outcomes, and Habit Strength on Internet Use for older people was researched. Instruments used were a questionnaire and personal interviews. The construct Perceived Internet Skills was found to be the greatest predictor of Internet Use. Of the Expected Outcomes categories only Monetary Outcomes reached the level of significance. The findings suggest Perceived Internet Skills are the most important predictor for Internet Use. Though expected to play a large role, Habit Strength for Internet Use was found to be low in the questionnaire but greater in the interviews. The low score on the questionnaire could be the result of the method. Suggestions for further research are made, and practical recommendations to promote Internet Use amongst older people are given.

Contents

1 Introduction

During the '90s a new medium entered our houses: The Internet. Slowly, at first. But as time passed more and more households got connected to the Internet. During the uptake of the Internet the medium itself continued to evolve, offering increasing possibilities. Nowadays the vast majority of the households have fast Internet access. For this reason ever more companies and public offices are moving their services onto the Internet, or offering them online only. In spite of the prevalence of Internet access, there are still those who are far from using the Internet for the multitude of purposes it offers. Amongst them are older people. Their use of the Internet has been found to be absent or limit itself to a few specific activities, whereas there are other uses of the Internet that would be of great value to them. An example would be to get to know other people through shared interests. Especially those people who experience reduced mobility would benefit from this use of the Internet. However, the reality remains that older people use the Internet for a narrow range of activities. But why? Perhaps older people have an innate adversity towards media use. However, plenty of older people enjoy reading the newspaper, watching TV, or listening to the radio. Maybe older people are unaware of a wider range of online activities, making it a matter of getting them informed. Or perhaps older people do not use the Internet for more purposes because other media are already supplying them in their needs. Or maybe the Internet is too difficult to use. At this point it is unclear why older people use the Internet the way they do.

This observed difference in Internet Use is often linked to what is known as the digital divide. This is the notion that society is divided into two groups of "haves" and "have-nots" concerning ICTs. As extensively described in Van Dijk(2006), the term Digital Divide in itself can be misleading. The use of the word Divide suggests that the two groups it creates are entirely separate from each other and far apart. Even if this were true, the term in its entirety is still too broad. What is it exactly that one of the suggested two groups has that the other group does not have? Is it just one thing, or many? Can these "things" really only be framed dichotomously as either having or not having? The word Digital is non-specific in this context. As such, what

the Digital Divide is has been defined in many different ways. For an extensive explanation of what the term Digital Divide could and has encompassed in research, see Van Dijk(2006).

Concerning the Digital Divide, within this study the main focus is on what is referred to as the Knowledge/Skill gap. Physical access to the Internet is also addressed. But physical access is deemed much less likely of great importance as the vast majority of the Dutch households have access in some shape or form to the Internet. What is looked into in this study, amongst other things, is whether there are differences in skills thought to be relevant towards Internet Use. What will also be addressed is that there is no such sharp division as the term Digital Divide suggests. Knowledge, or skill, facilitating easy Internet Use is likely to consist of different levels of competency. Also, such skill can be divided into categories that related to each other.

So the question this study endeavors to answer is why older people choose to not, or to lesser extent than other age-groups, use the Internet, but do use other media. It is not likely that Internet access is the problem, nor is it probable that older people are completely unaware of the multitude of activities the Internet can offer them. This reasoning suggests that Internet use is a matter of choice. What determines choice has long been of interest to scholars and several theories have been constructed and tested in this domain. The main goal of all these choice theories has been to uncover the underlying motivations that drive our choices. This study will look at the most prominent theories regarding choice, both in general and aimed specifically at media choice. Then, theories regarding the adoption and use of computers and Internet specifically will be explored. Next, how older people are different from the rest of the population will be discussed, and which of these differences may be of influence on media choice will be identified. Finally, based on the theories discussed a theoretical model will be constructed and tested.

2 Theory Of Choice

2.1. Models Of Choice

Choice. Everybody is faced with choices each day. What to eat, what to wear, how to spend our money, where to get the information we desire. Choices shape our life, preferably for the best, but sometimes also for the worst. It is no surprise then that so much attention has been given to how people choose. A brief overview of choice theory shows that the main point of discussion is the role of rationality in choice. According to Hollis & Hahn(Hollis & Hahn, 1979) rational choice is:

> *"Given the set of available actions, the agent chooses rationally if there is no other action available to him the consequence of which he prefers to that of the chosen action"*
>
> (Hollis & Hahn, 1979, p. 4)

Clearly, this theory is based on the maximizing principle, which posits that people are primarily self-interested and that their choices are driven by a desire to maximize returns. However, Hahn & Hollis' definition has hidden assumptions. Firstly, it assumes the actor is always aware of all the available options. To make the optimal choice all available options must be known, or otherwise a sub-optimal choice could be made. It is also questionable how strong the desire to maximize really is. In stark contrast with the maximizing principle is the minimizing principle, also known as Zipf's Law(Zipf, 1949), which states that a human being will:

> *"…strive to minimize the probable average rate of his work expenditure (over time). And in doing so he will be minimizing his effort by our definition of effort. Least effort, therefore, is a variant of least work."*
>
> (Zipf, 1949, p. 1).

So where the maximizing principle places the emphasis on returns/results, the minimizing principle identifies effort as the primary factor driving choice. Between these two extremes another theory can be found, which introduces the satisficing strategy(Simon, 1979). This theory posits that human beings are not always capable of identifying and/or weighing all available options due to limits on time and cognitive resources. Thus, a human being will choose the most acceptable option known to him and then cease the search for further alternatives, as a satisfactory option has been found. In his work on channel choice, Pieterson (2009) created a diagram clearly showing how the three strategies maximizing, minimizing, and satisficing are all related to accuracy and effort:

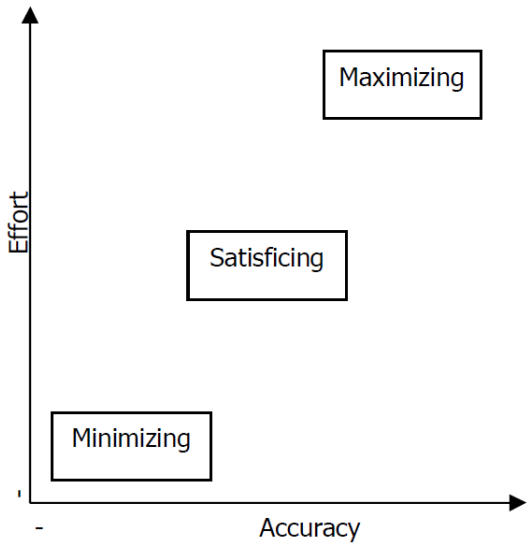


Figure 1(Pieterson, 2009)

As figure 1 shows, the smaller the amount of effort invested the smaller the amount of accuracy. So, the smaller the amount of options weighed the greater the chance of a sub-optimal choice being made. However, it depends on the goals of the actor whether maximized results are paramount or the least effort is preferred. This brings us to the synthesis of these choice theories into the Adaptive Decision Maker hypothesis.

The Adaptive Decision Maker hypothesis posits that the same person will employ different choice strategies for different choices. The main drive of the Adaptive Decision Maker is the desired level of accuracy. When faced with the choice of what to drink during breakfast the actor will relatively effortlessly choose the same coffee as every morning, whereas having to choose which car to buy will drive him/her to expend a much larger amount of effort as all perceived factors are weighed. So, according to the Adaptive Decision Maker hypothesis the minimizing, maximizing, and satisficing strategies are all true, but which one is employed depends on situational factors as well as personal dispositions and attitudes. But as figure 1 shows, though there are more factors involved in making choices, the primary determinants of choice are the level of desired accuracy and the lowest amount of effort (Payne, Bettman, & Johnson, 1988).

In short, the Adaptive Decision Maker hypothesis integrates the different views of and placed emphasis on rationality by arguing that an actor weighs accuracy against effort. This weighing then determines which choice strategy will/can be used, and then makes the choice in accordance with the chosen strategy.

Though the Adaptive Decision Maker hypothesis gives an integrated perspective on what drives choice, it leaves out factors that have also been shown to have a major impact on behavior. Pieterson (2009) identifies the broad collection of these factors as being situational and emotional constraints. It is posited that emotions play a big role in choice behavior, as well as environmental constraints. The problem then with the Adaptive Decision Maker hypothesis is that it does not take emotional and situational constraints into account. Instead, it assumes that the actor is always aware of a choice and is always capable of rationality. In short, choosing is always a conscious evaluative process.

Building on the work of Damasio (2003), Pieterson (2009) questions those assumptions and takes emotions into account. This work argues that a situation that presents a choice will trigger several processes that the actor may not always be aware of. As demonstrated by Damasio's model (2003), two pathways can be triggered by a situation.

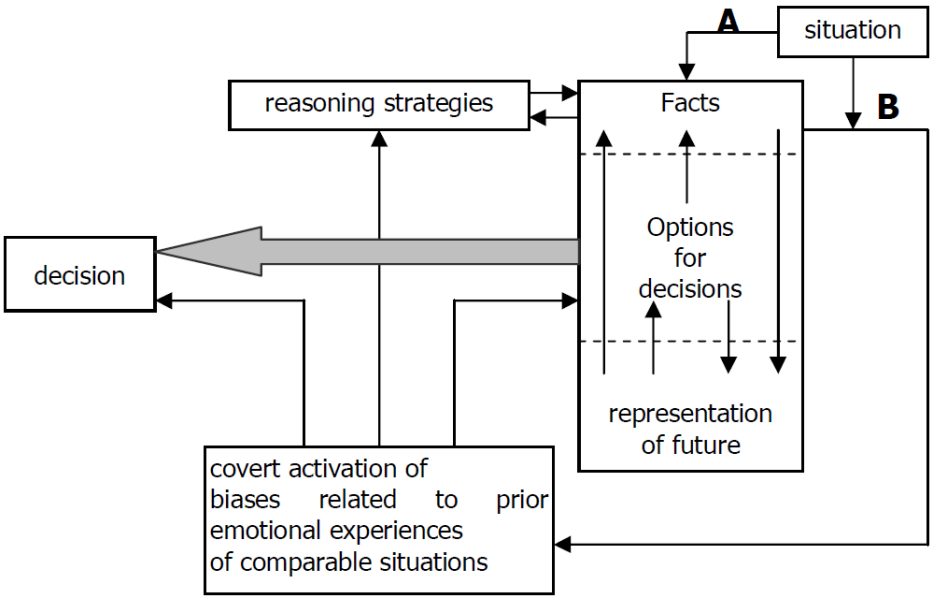


Figure 2(Damasio, 2003)

Pathway A strongly resembles the Adaptive Decision Maker hypothesis. An actor is aware of the need to make a choice and recalls facts related to the given choice, reciprocally influenced by reasoning strategies, then sees a certain (potentially limited)amount of options and then makes a choice. Pathway B introduces unconscious processes that are guided by emotions in the form of biases formed by previous situations that are considered to be comparable to the current situation. These biases then influence the reasoning strategies, which in turn affects the options for decisions available. Thus, decision making is a process influenced by conscious rational weighing of the options as well as unconscious biases. Pieterson simplifies Damasio's model by taking the Adaptive Decision Maker Hypothesis and adding Pathway B from Damasio's model as auxiliary input into the decision making process. Therefore he argues that emotional and situational constraints do not drive us to use an entirely different process of decision making. Instead, these constraints provide input into our selection of choice strategy. This model is shown below in figure 3.

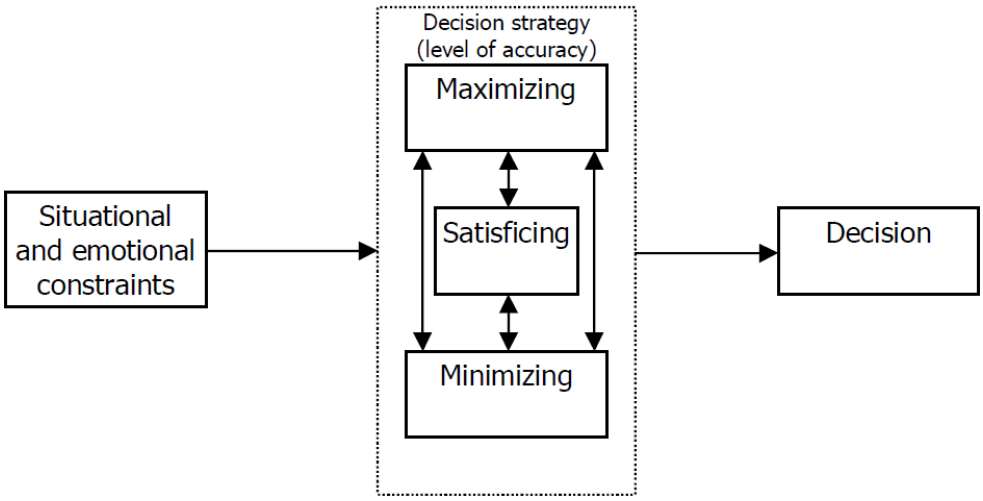


Figure 3(Pieterson, 2009)

In conclusion, choice is a process of both conscious evaluation of the situation, under influence of unconscious biases as well as situational factors. This then drives us to select one of 3 general choice strategies, and the decision is formed accordingly (Pieterson, 2009). This leaves the question how this process is related to media choice specifically. The next section will deal with models aimed at media choice behavior, and how the previously discussed principles can also be found there, under different names.

2.2. Specific Models Of Media Choice

This section will introduce models aimed at media choice behavior specifically. Several long-standing theories will be reviewed and elements relevant to this study will be identified.

2.2.1 Uses & Gratifications Theory

As previously discussed, choice is a process of conscious evaluation, influenced by unconscious (emotional) biases and situational constraints. How this process more specifically influences media choice behavior will be discussed in this section. Firstly, the major theories concerning media choice will be introduced. Secondly, theories regarding computers and Internet adoption and use will be discussed.

When discussing media choice an often cited theory is that of Uses & Gratifications(Katz, Blumler, & Gurevitch, 1973). Uses & Gratifications Theory operates on three assumptions. Firstly, using media is an active process, not passive. An individual actively chooses media based on his/her own goals. So, media consumption is goal-driven. Secondly, media consumption is a choice made after an individual has identified a corresponding need. For instance, someone wants to be well-informed in order to vote for the right party in the upcoming elections. To meet this need, this individual chooses to use the internet to find information about political parties. The point being that the act of searching for information through the medium Internet is completely voluntary. Media use does not restrict free will. Thirdly, media is just one way to satisfy a need. This means that an individual has options aside from media consumption to meet a need. To relax someone can choose to go for a walk, or watch TV. So, media consumption is one of several options to meet a need.

In this short review of Uses & Gratifications theory the similarities with general choice theories is apparent. Uses & Gratifications takes a rational approach to media consumption, by stating that it is an active, goal-driven process. An individual has a choice to make, based on a need. He/she then consciously identifies the available options and makes a decision. This decision should then result in the need being met. However, within Uses & Gratifications theory the

impact of unconscious processes on the final decision is left out. As discussed in the previous section, emotions can play a large role in the decision process and as such also when it comes to media choice. In certain cases emotional biases can overcome rational considerations, and therefore emotions cannot me left out of any model aimed at explaining choice behavior.

Though a long-standing theory, Uses & Gratifications has a short-coming in its omission of the role of emotional biases. Though it does show that media-consumption is a process where conscious evaluations take place, it places too much emphasis on the evaluative part of the process. In doing so it seems to be excluding unconscious evaluations and the influence of emotions, which do exist according to the general choice theories covered in the previous part. What this study will take from UGT is that media consumption is the result of an individual's choice, and that this process of choice can be strongly guided by active considerations.

2.2.2 Models Of Technology Adoption and Use

An even more specific set of theories is that of Technology Adoption and Use. The most widely accepted theory in this field is the Technology Acceptance Model(Davis, 1985). In his model rational evaluations can be found in the shape of Perceived Usefulness and Perceived Ease Of Use. Perceived Usefulness reflects a user's considerations about how useful the use a particular technology will be in relation to a certain goal. So, a user might ask him/herself whether the use of this particular technology will allow him/her to reach goals more efficiently. Aside from considering usefulness, according to TAM a user will also reflect on how easy a particular technology can be used. It could be easy to use, or require quite a bit of time to master. These are all conscious, active evaluations. So Perceived Usefulness and Perceived Ease of Use reflect the rational line of the choice process. With the inclusion of Attitude Toward Using a hint of a role for emotional biases can be found(see figure 4). Davis categorizes Attitude Toward Using as an Affective Response, which places it in the realm of emotions.

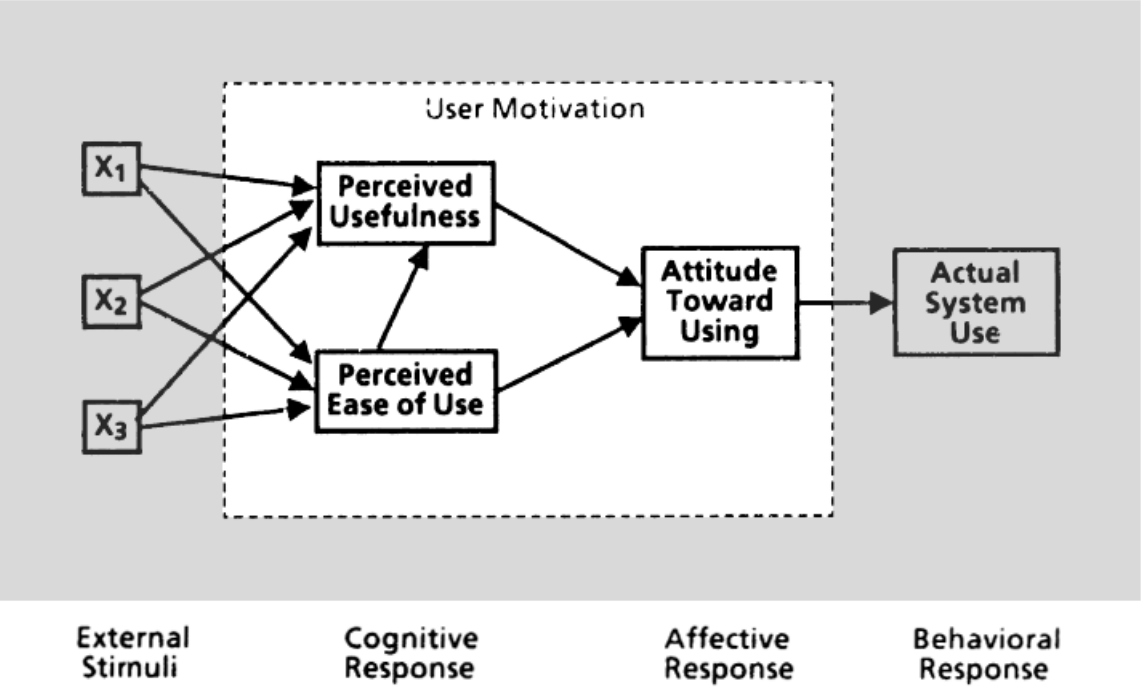


Figure 4 (Davis, 1985)

It is however unclear what the origin of this attitude is. It is influenced by rational considerations, and mediates those toward actual use. However, it is unlikely that only these 2 rational considerations make up a user's Attitude Towards Using. It is also interesting to see that in TAM rational considerations determine emotional biases in the form of Attitude Towards Using, and not the reverse.

TAM has been around for a quite a while, and is still used today. It is a simple theory with good predictive value, but it is not without limitations. Several other theories have been developed and TAM itself has also been adapted several times(Phang, et al., 2006; V. Venkatesh & Davis, 2000). In an effort to settle debates and integrate several other theories a unified theory was developed by Venkatesh & Davis in 2003. This unified theory will be discussed next. For this study TAM shows the importance of perceptions on actual use. So the mere thinking of taking a certain action has considerable impact on the choice to actually use or not use a system, or a medium.

2.2.3 Unified Theory of Acceptance and Use of Technology

The Unified Theory of Acceptance and Use of Technology was developed by Venkatesh & Davis in 2003. The aim of this theory was to compare several theories on their overlap with each other and their distinctiveness from each other. This comparison identified where these theories concerned the same constructs, as well as finding unique constructs of value per theory. By combining the constructs of value and collapsing similar constructs from several theories into one the Unified Theory of Acceptance and Use of Technology was created, and found to have high explanatory value(Viswanath Venkatesh, Morris, Davis, & Davis, 2003). However, in this model too there is little mention of emotional biases. The model depicts the choice to use as predominantly an active evaluative process, influenced by situational constraints. But to dismiss UTUAT because of the lack of constructs accounting for unconscious biases seems unjust in light of its high explanatory value. What needs to be considered here is the context for which this model was created. This context was inherited from TAM, and it was to study the adoption and use of new technology within organizations. The goal of TAM was to provide a model of Technology Acceptance that an organization could use to guide considerations when implementing new technology. This basic premise has remained in UTAUT, and as such both TAM and UTAUT are geared towards performance towards organizational goals. This context is different from the context of this study. Whereas UTAUT provides a good model for explaining the process of acceptance and use of technology in an organizational setting, it is posited here that personal media choice is significantly different from that context. Though personal media choice and UTAUT may share similar constructs, UTAUT is geared towards organizational goals whereas personal media choice is geared towards personal goals, which need not be the same as organizational goals. What UTAUT does show is that age influences the adoption & use process. As the present study is concerned with older people, it should not be overlooked that UTAUT implies that age matters.

In conclusion, though TAM and UTAUT have proven their worth, it is primarily within their own respective domain. It is clear that TAM & UTAUT lack constructs that have been

proven to be of importance in the decision process, being the role of unconscious biases, fueled by emotion.

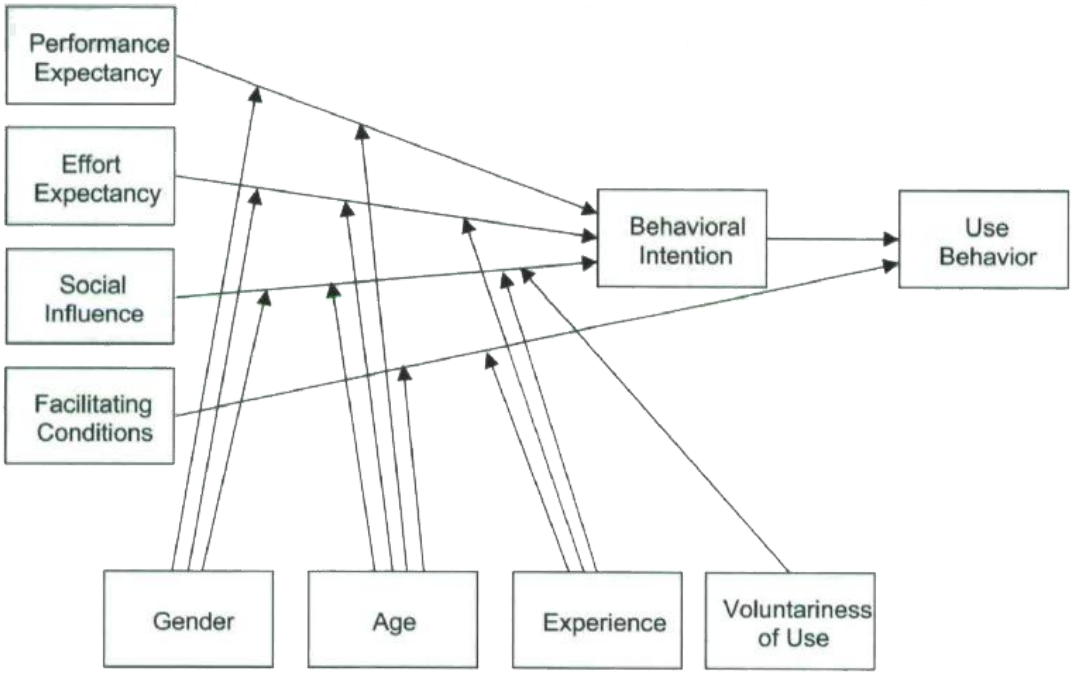


Figure 5(Viswanath Venkatesh, et al., 2003)

So for theoretical considerations TAM & UTAUT could serve well as input for the rational part of the decision making process, but the unconscious biases are still lacking in this case. The final theory to be discussed will be LaRose & Eastin's Model of Media Attendance(LaRose & Eastin, 2004). This model has endeavored to add the role of unconscious biases in the form of automatic processing to a framework explaining media choice behavior.

2.2.4 Model of Media Attendance

The previous paragraphs have provided a review of research into choice behavior. For decades this area of research was dominated by theories viewing choice as either a completely active and rational process, or at the very least primarily so. General choice theory has proven

that choice is under heavy influence of factors that cannot be called rational, or conscious. Though these influences have now been acknowledged in general choice theory, they have been mostly lacking in the field of media choice. A theory that has included these unconscious biases is that of LaRose & Eastin(2004). The Model Of Media Attendance incorporates unconscious biases in the form of Habit, and Deficient Self- Regulation. It also contains important active evaluations in the form of Expected Outcomes, Experience, and Self-Efficacy. As can be seen in the model(figure 6) Experience influences the forming of Habit directly, as well as Self-Efficacy perceptions. Self-efficacy is the degree to which we see ourselves as being capable of successfully executing a particular course of action. As was shown in Damasio's model earlier, the influence under which these perceptions are created from experience are at least partially unconscious and emotional. A good example of how emotions influence self-efficacy perceptions is the study done by Phang et al.(2006). This study found Computer Anxiety(emotional bias) to be of great influence on Perceived Ease Of Use.

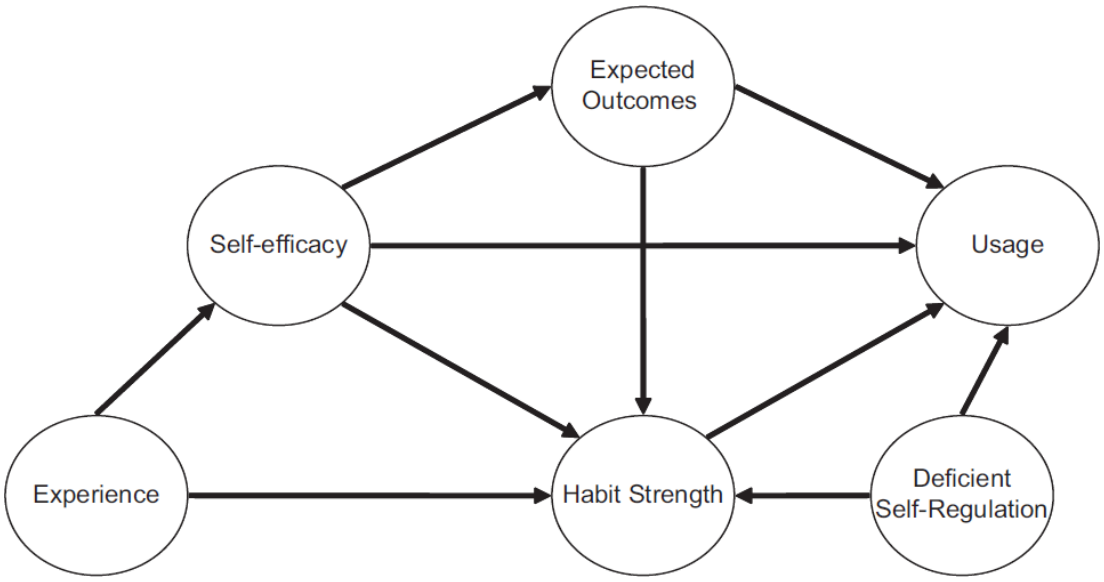


Figure 6 (LaRose & Eastin, 2004)

Of course the Model of Media Attendance did not just spring into existence. MMA has its roots in Uses & Gratifications theory, and is complemented by social cognitive theory. Simi-

lar to UGT, MMA posits that media choice is an active evaluative process. Unlike UGT however, MMA also states that this active evaluative process is under influence of factors that the actor is unaware of, thus resembling Damasio's Model. The most notable addition MMA does to Media Choice Theory is the inclusion of Habit Strength. Long known as a good predictor of future behavior, it has simultaneously been ignored for decades because of its supposed low intrinsic value when it comes to explanatory value. More recent studies have paid attention to the role of habit when it comes to predicting behavior(Ouellette & Wood, 1998), and have reaffirmed its predictive value. Because habit on its own is not a satisfying explanatory variable should not mean it needs to be ignored when building a model predicting or explaining human behavior, especially given its high predictive value. Placed in relation to other constructs habit can become very meaningful to include as it will show what behaviors are under the influence of habit, and, more importantly, draws attention to what creates habit. As such, the inclusion of habit strength in MMA sheds light onto the magnitude of its influence on media choice behavior as well as provide insight into what creates habit.

2.3. Older People & Choice

The overview of specific theories has provided insight into what leads people to choose to use media. Active considerations guided by perceptions play a major role. Though underemphasized in theories on media choice, it is also acknowledged that unconscious processes are at work when media are chosen to be used or not. Briefly put, these models have provided valuable insights into what should be considered when studying media use. As this study is about why older people choose (not) to use the Internet, a hidden assumption appears to be that older people might be different where media choice is concerned. In UTAUT Age can be found of influence on technology/media use, suggesting that the process of choice changes with age. This paragraph will provide an overview of how aging may affect the process of choice. It will show that older people do indeed choose differently, and will consider various explanations for this.

The process of aging is frequently associated with declining cognitive capacity(Mata, 2007). This suggests that it would be more difficult for older people to engage in cognitively demanding activities. In their study Hanoch, Wood, & Rice (Hanoch, Wood, & Rice, 2007) tested how older people solved a problem of choice compared to younger counterparts. Their results show that older people take more time to take in provided information, and also spend less time on finding more information, suggesting that older do indeed experience more cognitive limitations. Older people limit the amount of information to process and also take more time to process it. However, though older people may have been more cognitively constrained, this did not lead to a great drop in capability to identify a good, or even the best, choice. However, older people did rely more on cognitively less demanding strategies. This suggests that good choices can still be made most of the time, even when cognitive capacity has declined. Another study supports this notion and suggests older people are able to make choices by relying more on less cognitively demanding choice strategies, which are mostly based on past experience, or heuristics(Mata, Schooler, & Rieskamp, 2007). Where specific factors are concerned, these studies point to heuristics and habit as major determinants for older people when it comes to choice strategies.

These studies together seem to posit that the unconscious processes might play a bigger role for older people than for younger adults. Therefore a choice theory for older people must take these unconscious processes into account. So, though active considerations do occur when older people make choices, they are relying more on heuristics and habits built up over time. Therefore the less conscious processes may play a bigger role for older people.

2.3.1 Habit & Choice

In the previous paragraphs it was concluded that unconscious processes guide choice behavior in general and also media choice. Furthermore, these unconscious processes seem to play a larger role when older people make choices. The construct representing these unconscious processes, in part, is habit. Given its expected large role in media choice behavior of older people, habit deserves a closer look.

It was previously mentioned that habit has long been known as a potent predictor of future behavior, but that habit has always been considered an essentially empty construct. Habit as a cause of behavior has low intrinsic explanatory value(Ajzen, 1987), and it has been assumed that habit was nothing more than a proxy for the 'real' but unknown processes at work. However, the last decade has offered interesting research on habit by looking at what causes habit to be created. Habit is considered to be a form of automaticity, and it is this consideration that has renewed interest in habit as a construct. (Verplanken & Aarts, 1999) define habit as: "Habits are learned sequences of acts that have become automatic responses to specific cues, and are functional in obtaining certain goals or end-states.". Furthermore, a distinction is made between general and specific habits:" In the case of specific habits, the instigation cues that elicit the habitual response are confined to a well-defined and particular situation, whereas general habits are under the control of cues that appear in many different situations. For media choice a cue could be the experience of boredom while at home, or the realization of a lack of knowledge about something considered relevant, the automatic (habitual) behavioral response then being watching TV, or reading a book considered to be relevant, respectively.

2.3.2 Models And Factors For Older People Concluded

By looking at general choice theories, theories regarding media (or technology) choice, and how older people may choose differently than others, several things have been established that are of importance to this study:

Choice involves active (rational) evaluative considerations

Choice is influenced by unconscious (emotional) processes

Older people tend to employ less cognitive demanding strategies

Older people are more prone to habitual behavior

When considering these points and looking at models explaining media choice, MMA seems to provide the best basis. It includes active evaluative considerations (Expected Outcomes) as well as constructs eliciting the unconscious processes (self-efficacy, habit, deficient self-regulation). However, MMA will be used only as a basis for the research model. There are alterations conceivable that could lead to a better research model for older people specifically. The alteration proposed is a more concrete construct than self-efficacy, as well as the exclusion of the constructs "Experience" and "Deficient Self-Regulation". The following paragraph will be about replacing "Self-efficacy" with another construct, "Internet Skills". Then, the exclusion of "Experience" and "Deficient Self-Regulation" will be explained.

2.3.3 Self-efficacy and Perceived Internet Skills

Self-efficacy perceptions are beliefs an individual holds about his/her likelihood of successfully execute a particular action. In other terms, self-efficacy perceptions are a reflection of someone's self-confidence concerning a certain task or skill. Though Internet Self-efficacy has

been employed in the past to measure self-efficacy perceptions concerning the use of the Internet, it has remained conceptually vague as a construct(van Deursen & van Dijk, 2009). Several other, but similar, constructs have been created in order to capture the level of competency an individual has when it comes to using the Internet. The first study to offer a clearly defined method to measure Internet Skills is that of van Deursen & van Dijk (van Deursen & van Dijk, 2009).

In their research van Deursen and van Dijk (2009) looked thoroughly at the various definitions of Internet Skills available, as well as the operationalisation of the European Computer Driving License. These definitions were scrutinised and combined to create four specific and succesive categories of Internet Skills. These four categories are: Operational Skills, Information Skills, Formal Skills, and Strategic Skills. Table 1 presents an overview of these categories and which specific skills are meant per category. Operational Skills concern the so-called "button-knowledge" of the user, the degree to which someone can use the most basic functionality of a computer and an internet browser. Formal skills are needed to successfully use the Internet after sufficient Operational Skills are present. Even when Operational Skills are sufficiently present the use of The Internet can still cause problems for the user. Due to the Internet's interactive nature, the user can have a greater control over the flow of information than is possible with most other linear media. However, this added control over the flow of information leads to users often feeling "lost" on the internet. Lost can mean having no sense of one's current location, how to get back to the previous location or how to move forward to the desired location. The disorientation that results from this sense of being lost can be framed in terms of webdesign, site structure, and web-links, separate from the topics of information being looked for(Danielson, 2002). Table 1 gives concrete descriptions of what Formal Skills are understood to be.

The category Information Skills was constructed by examining the work done by Mossberger et al.,(2003)and Bawden(2001), whose definitions were based on the widely accepted definition of a information literate person by the American Library Association: "an information literate person is able to recognize when information is needed and has the ability to locate, eva-

luate and use the needed information effectively". Using these sources the category of Information Skills was created, as is shown in table 1.

Operational Skills	**Formal Skills**
• Operating an Internet browser: o opening websites by entering the URL in the browser's location bar; o navigating forward and backward between pages using the browser buttons; o saving files on the Hard Disk; o opening various common file formats (e.g., PDF); o bookmarking websites; o changing the browser's preferences. • Operating Internet-based search engines: o entering keywords in the proper field; o executing the search operation; o opening search results in the search result lists. • Operating Internet-based forms: o using the different types of fields and buttons and o submitting a form.	• Navigating on the Internet, by: o being able to recognise and click links that are embedded in different formats such as text, images, menus and website lay-outs. • Maintaining a sense of location while navigating on the Internet, meaning: o not becoming disoriented when navigating within a website; o not becoming disoriented when navigating between websites; o not becoming disoriented when browsing through, and opening search results.
Information Skills	**Strategic Skills**
• Being able to locate required information, by: o choosing a website or a search system to seek information; o defining search options or queries; o selecting information (on websites or in search results); o evaluating information sources.	• Taking advantage of the Internet, by: o an orientation towards a particular goal; o taking the right action to reach this goal; o making the right decision to reach this goal; o gaining the benefits belonging to this goal.

Table 1: Overview of Internet Skills categories(van Deursen & van Dijk, 2009).

The last category of Internet Skills is Strategic Skills. These skills concern how capable a user is in using the Internet to reach strategic life-goals, such as improving one's position in

society. Van Dijk(van Dijk, 2005) defines strategic skills as the capacity to use computer and network sources as the means for particular goals and for the general goal of improving one's position in society. Due to the high level of abstraction of Strategic Skills this category has previously only been measured a few times. The most concrete formulation of Strategic Skills can be found in Table 1, as defined by van Deursen & van Dijk (2005).

In the present study only the first and second category of the collection of successive Internet Skills will be used. The reasoning is that these 2 categories contain the most basic of Internet Skills and are therefore needed, whereas the remaining 2 categories concern more advanced goals of Internet Use. The goals of Internet Use are already present in the research model as Expected Outcomes. Therefore to avoid potentially double measures only the first 2 categories of Internet Skills will be used.

2.3.4 Experience & Deficient Self-Regulation

The proposed research model of this study is largely based on MMA. The present study will exclude Experience and Deficient Self-Regulation from the research model. The reasoning for this is that this study places a strong emphasis on unconscious processes guiding choice behavior, which is included in the research model as "habit strength". Deficient Self-Regulation as a construct posits that automatic behavior is the result of a lapse in our ability to actively control ourselves. It is therefore seen as intrinsic to human behavior, placing it in the domain of psychology. Though interesting, the psychological causes of habit are not of prime interest to this study, which then allows us to exclude Deficient Self-Regulation. Partially the same reasoning applies to Experience, though this construct will also be excluded for the sake of feasibility. As can be seen from figure 6, Experience is mediated by Self-Efficacy and Habit Strength. As such, the influence of Experience is still in the proposed research model, but merely does not exist as a separate construct. Even when Self-Efficacy is replaced by Internet Skills, the influence of Experience will still be present because perceptions of Internet Skills are just as much a result from past experience as would be the case with Self-Efficacy.

2.3.5 Diversity Of Use

An area where older people seem to be different when it comes to the (non-) use of the Internet is the diversity of use. The "Centraal Bureau Statistiek"(Translation: Central Bureau Statistics) has measured the diversity of Internet use and has found that it has an inverse correlation with age. The older the person the fewer activities he/she uses Internet for(CBS, 2009). In their study the CBS questioned people from ages 12 to 74 about which of 10 types of activities they had used the Internet for in the last 3 months. The 10 types of activities were:

1. Communication, such as using e-mail, Instant Messages, and making calls;
2. Specific searching for information about products, and making use of services related to the travel industry;
3. Reading about current affairs, and the news, including listening to radio, watching TV, reading newspapers or downloading them;
4. Searching for entertainment, including playing games, listening to music or downloading other software; uploading files or sharing photo's and films through a website;
5. Finding jobs, or applying for jobs;
6. Performing financial transactions, such as e-banking;
7. Buying or selling online;
8. Making use of government services, including looking for information on government websites, downloading and sending of official documents;
9. Educational use, including activities pertaining to a course, such as finding information about the course, the attending of an online course or the learning online autonomously;
10. Searching for health information.

A brief overview of these 10 types shows that several of them overlap. It can be argued that there is strong overlap between searching for product information and buying products. The same can also be true for finding information about products and looking for information about a course, which could also be seen as a product in the guise of a service. Nevertheless, these 10 types are made distinctly different from each other by the extended descriptions. As can be seen in figure 7, the average age of Internet users that perform all 10 activities is 34 years old, whereas Internet users that perform only one activity have an average age of 49. It could be expected that the average age for the group that does all 10 types of activities would be quite a bit lower, bearing in mind the study was done questioning people ages 12 to 74. However, certain activities are only reasonably expected to be done regularly from a certain age and other activi-

ties are illegal below a certain age. For instance, it is illegal to sell products online as a 12 year-old. Nor is it likely that someone of that age would regularly use e-banking or look for information about courses. It is possible that this can, at least partially, account for the relatively high age of the group of users that perform all 10 types of activities.

Diversiteit van internetactiviteiten, 2006–2009 [1)]

Aantal internetactiviteiten	Aantal internetgebruikers				Aandeel internetgebruikers				Gemiddelde leeftijd internetgebruikers
	2006	2007	2008	2009	2006	2007	2008	2009	2009
	absoluut (mln)				*% cumulatief*				*jaren*
1	0,3	0,2	0,2	0,2	3	2	2	1	49
2	0,5	0,5	0,4	0,3	7	6	5	4	45
3	0,7	0,7	0,8	0,7	14	13	13	10	39
4	1,1	1,1	1,1	0,9	24	23	22	18	38
5	1,7	1,5	1,4	1,3	41	36	35	29	40
6	1,7	1,8	1,8	1,6	57	53	51	43	41
7	1,8	1,8	2,0	2,0	75	70	69	61	40
8	1,5	1,6	1,8	2,4	90	85	85	81	39
9	0,8	1,2	1,3	1,6	97	96	96	95	37
10	0,3	0,4	0,4	0,6	100	100	100	100	34
Totaal	10,4	10,9	11,2	11,5					39

Bron: CBS, ICT–gebruik huishoudens en personen, 2006–2009.

[1)] Personen van 12-74 jaar met internetgebruik die in de 3 maanden voorafgaand aan het CBS-onderzoek internetactiviteiten hebben uitgevoerd.

Table 2: Diversity of Internet Use, 2006-2009(CBS, 2009).

The question the data from this study give rise to is which type of activities aren't engaged in as a person's age is higher. The study doesn't reveal this, but more recent data of the CBS shows which activities are engaged in by which age groups. In table 3 too it can be seen that in general the amount people using the Internet for a certain activity is smaller as the age group is older. Only making calls, and financial transactions remain stable over all age groups. However, these activities are also engaged in by a quarter or less of the people in general. The top 3 activities older people are engaged in most are: E-mailing, searching for information about goods and services, and banking online. But even here a downward trend can be seen. Accord-

ing to table 3, the strongest downward trends appear to be with chatting, work, downloading software, buying/selling, and games/music. Data from a recent academic study also shows this decline in the number of different activities engaged as age increases(Van Deursen & Van Dijk, 2010). What this study also adds is showing that not only the diversity of Internet Use declines as age increases, also the frequency of use declines for the activities engaged in.

On the whole it can be concluded that as people are older the fewer activities they engage in online. More interesting would be to know why certain activities aren't being engaged in by older people, and why they do use the Internet for other activities. For instance, it is not clear why older people do use the Internet for making calls but seem to have very little interest in using it for text-chatting, but do make use of e-mail.

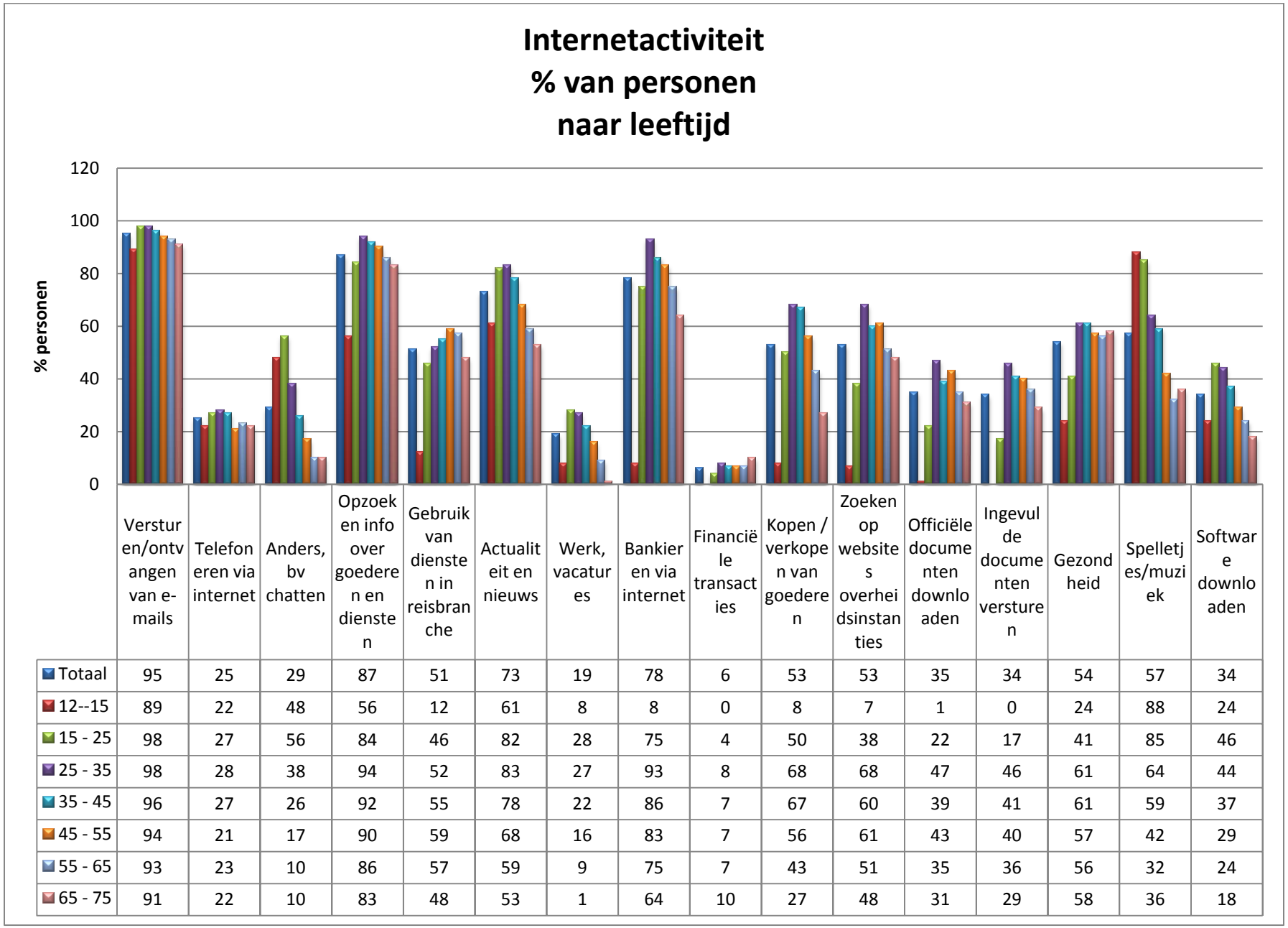
2.3.6 Use Of Other Media

It is possible older people consider the use of Internet unnecessary because to them their needs are being met through the use of other media. Their argumentation could be:"Why would I go online for news when the newspaper is delivered to my doorstep every day?", or:"I've already got a phone to make calls". However, it could also be true that the thought of using Internet creates anxiety, driving a person to prefer to choose from alternatives for the same purposes the Internet could be used for. Previous research shows that computer anxiety does indeed play a large role for older people where the choice to use Internet is concerned(Phang, et al., 2006). It is also known that older people report the non-use of Internet as caused by deeming the use of it as unnecessary. It is unknown whether these two things are connected, though it is not unimaginable they are. This study will look into this possible connection by asking respondents whether they use other media than the Internet for certain purposes as well. This will reveal whether older people use the Internet and other media for the same purposes or only the Internet or only other media for particular purposes. While this comparison in itself will not give a definitive answer to whether there is a connection between computer anxiety and reports of regarding Internet Use as unnecessary, it can offer valuable clues whether there could be. It may

also show that older people don't use any media for certain purposes. This, too, can offer valuable clues regarding how older people view the use of media as a tool to add value to their lives.

2.3.7 The Choice to Use

Previous sections have discussed theories concerning "Choice", as well as theories about "Use". An important issue to address is what this study will concern itself with specifically, "Choice" or "Use". To this end it is important clear definitions are given of what "Choice" and "Use" should be understood to be within this study. It is very difficult to give an exact definition of what Choice itself is. However, Choice behavior can be defined as follows. Within this study Choice behavior is any case where an actor behaves in compliance with any option whilst alternatives exist. This means that within this study "Choice" does not require awareness, though this does play an important role. The existence of alternatives is always required; otherwise there is literally nothing to choose from. Media Use is defined as an actor actively employing a medium. Measuring choice itself is difficult to do, but its resulting behavior can be observed. Given the scope of this study, the resulting observable behavior is "Use". So, through observed use of media, "Choice" is inferred. Since in this study alternatives are present throughout any observed use, "Choice" and "Use" can be understood to mean the same. How aware the actor was of the alternatives does remain a possible point of contention throughout the study. However, within this study choices made whilst hardly aware of the alternatives are expected to be mostly be accounted for by Habit Strength.



	Versturen/ontvangen van e-mails	Telefoneren via internet	Anders, bv chatten	Opzoeken info over goederen en diensten	Gebruik van diensten in reisbranche	Actualiteit en nieuws	Werk, vacatures	Bankieren via internet	Financiële transacties	Kopen / verkopen van goederen	Zoeken op websites overheidsinstanties	Officiële documenten downloaden	Ingevulde documenten versturen	Gezondheid	Spelletjes/muziek	Software downloaden
Totaal	95	25	29	87	51	73	19	78	6	53	53	35	34	54	57	34
12--15	89	22	48	56	12	61	8	8	0	8	7	1	0	24	88	24
15 - 25	98	27	56	84	46	82	28	75	4	50	38	22	17	41	85	46
25 - 35	98	28	38	94	52	83	27	93	8	68	68	47	46	61	64	44
35 - 45	96	27	26	92	55	78	22	86	7	67	60	39	41	61	59	37
45 - 55	94	21	17	90	59	68	16	83	7	56	61	43	40	57	42	29
55 - 65	93	23	10	86	57	59	9	75	7	43	51	35	36	56	32	24
65 - 75	91	22	10	83	48	53	1	64	10	27	48	31	29	58	36	18

Table 3: Diversity of Internet Use ages 12 through 75, 2010(CBS,Den Haag/Heerlen requested on 16-07-2010).

2.4. Research Question

The previous sections have provided insight into the process of choice. From choices in general to the specific choice to (not) use media. Attention has been given to factors that are expected to be of importance to older people in particular. These considerations put together give rise to the following research question:

Do the proposed factors drive the Internet use choice behavior for older people?

Next to the main research question, the following sub-questions will also be addressed.

Does Internet Use change in duration with age?

Does Internet Use change in diversity with age?

Do the proposed factors play a role in other media-choice behavior?

The answers to these questions should provide insight into the Internet Use choice behavior of older people, and how it may be different from other age groups. This will provide a basis for practical recommendations to promote Internet Use amongst older people.

3 Research Design

In this chapter the theories, and their specific constructs, will be combined into a new research model. First, hypotheses will be presented that will build a new research model. Next, the research instrument will be introduced, discussing the instrument itself as well as which respondents will be used.

3.1. Hypotheses

The question at hand is aimed at finding out why older people choose to (not) use the internet. In accordance with the proposed model the following hypotheses are put forward:

1. The degree of Perceived Internet Skills has a relation with Expected Outcomes
2. The degree of Perceived Internet Skills has a relation with the Habit Strength for using the medium
3. The degree of Perceived Internet Skills has a relation with Usage of the Internet
4. The kind and strength of Expected Outcomes has a relation with Internet Use
5. The kind and strength of Expected Outcomes has a relation with the Habit Strength for using the medium
6. Habit Strength has a relation with Internet Use

These hypotheses together form the research model, which can be found in figure 7.

3.2. Method

This chapter will describe the method used in this study. First, the inclusion criteria for the participants will be covered, followed by the instruments used to gather the data. Then the usage of the research instruments will be described.

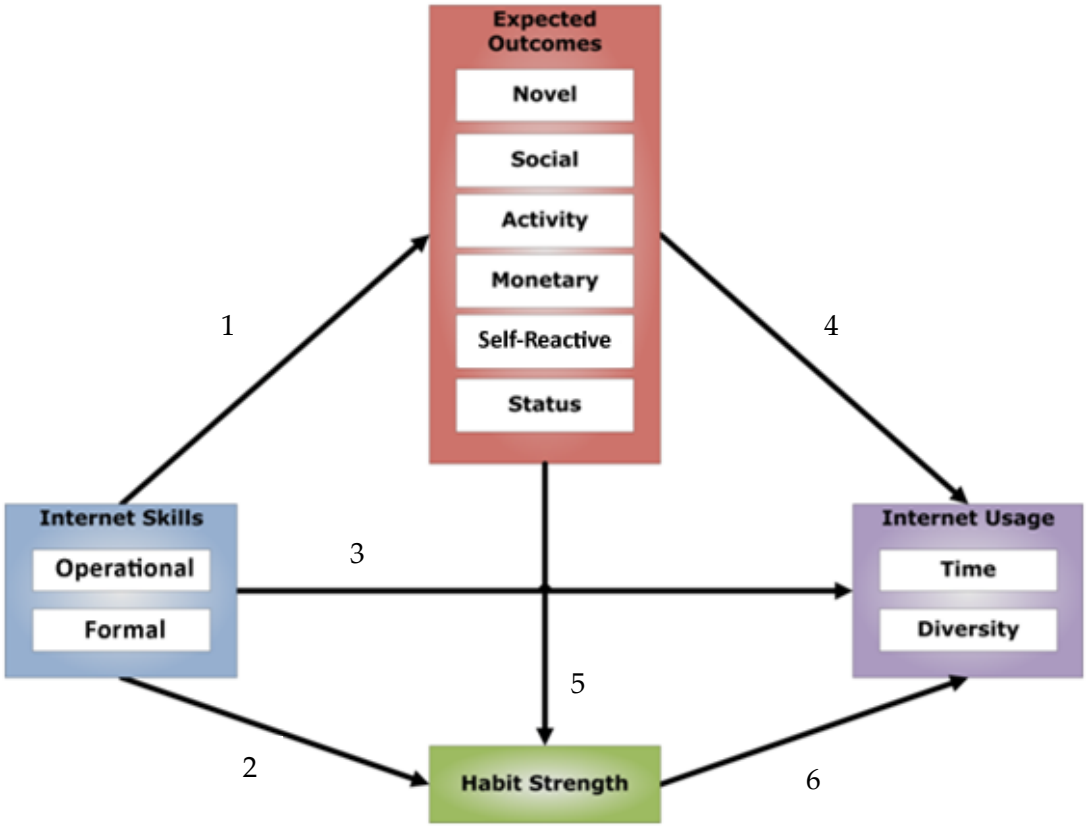


Figure 7

3.3. Respondents: Inclusion criteria

This study used two inclusion criteria. A respondent had to be:

1. 45 years of age, or older
2. A Dutch citizen

What defines an older person is age, but it is debatable from which age a person can be considered older. This study is aimed at the Internet Use of older people in particular, and so a cut-off point had to be decided on. As the inclusion criteria show, the age that was chosen was 45 years. The choice for the age of 45 as cut-off point was based on data from the Dutch Census(CBS). According to this data starting from the age of 45 Internet Use decreases in diversity and duration at a relatively high rate.

3.4. Instruments

This study used two instruments to gather data: A questionnaire, and personal interviews. These two instruments are discussed below.

3.1.1 Questionnaire

The questionnaire contained questions that, based on theory, should reliably measure the user's attitude towards Internet Use. Questions pertaining to the constructs Expected Outcomes, Habit Strength, and partially Internet Use(Time) were taken from previous research based on the Model of Media Attendance (MMA). The construct Perceived Internet Skills was measured by shaping the list of actions in the skill category into statements related to held perceptions. An example of an action belonging to Operational Skills is being able to save a file to the hard disk. Shaped into a statement about held perceptions it became:"Saving a file to the hard disk is simple". A respondent would then indicate to which degree he/she agreed with the statement on a 7-point Likert scale, ranging from "Strongly disagree" to "Strongly agree". This 7-point scale was not only used for measuring Perceived Internet Skills but also for Habit Strength.

A similar 7-point Likert scale was used to measure Expected Outcomes, but it ranged from "Never" to "Always". An example of a statement used to measure Expected Outcomes was "I use the Internet to find topics to talk about with others". The questionnaire also measured the use of other media, by asking respondents to indicate which other media they (also) used for the statement presented. So with the aforementioned statement in mind, the respondents could tick boxes indicating they (also) used the newspaper, and/or the radio for finding topics to talk about with others. Multiple options were allowed, so respondents could indicate their use of multiple other media for the presented statement. The options offered for other media were: TV, Radio, Newspaper, Magazine, Phone, Book, and Letter. Not all these media were offered with each statement. Certain media were removed if they were deemed impossible or exceptional as a correct answer. For instance, with the statement:"I use the Internet to listen to music" all media but TV and Radio were removed. The excluded media were considered im-

possible (Newspaper, Magazine, Book, and Letter) or, by conventional standards, unlikely (Phone) to be used for listening to music.

Internet Use was measured using two items asking how much time respondents spent online. One item asked how many days a week a respondent used Internet, the other item asked how many hours a respondent was online on such a day. A third item was generated by multiplying the reported hours online with the reported days online, resulting in hours online per week. Diversity of Use was measured by asking respondents how frequently they engaged in 31 activities online, if at all. One such activity was "E-mail", and the options offered for answering were: Daily, Weekly, Monthly, A few times a year, and Never.

Lastly, respondents were asked for demographic information, such as their age, gender, and highest completed education. To gather respondents for the interviews, the questionnaire also asked respondents whether they would be willing to participate in a follow-up. If so, respondents were asked for contact-information. A complete questionnaire can be found in Appendix A.

3.1.2 Interviews

Interviews were done to provide further insight into the reasons for or against Internet use. Respondents were asked why they use the Internet for certain activities but not for others. And why their frequency of use was higher for certain activities and lower for others. Which activities the respondents did and did not engage in was indicated beforehand, as respondents for the interview were gathered through the questionnaire. Respondents did not object to this usage of information from the questionnaire during the interview, as long as their data could no longer be used to personally identify them after the interview. A general interview script was created, containing all the constructs measured in the questionnaire. All items from the questionnaire were included as a reminder with each construct, except for Internet Use. The scores for the measured constructs presented as bar graphs were used as input for the interview, allowing optimal questioning.

3.1.3 Pre-Test

According to Phang et al.(2006) it is important to consider questionnaire length when it comes to older people. In their study it was found that older people are more likely to experience cognitive limitations when responding to a questionnaire. The practical implications for a study of this group using questionnaires concerns questionnaire length, as well as the wording of the items. In their study Phang et al. (2006) found that older people had trouble differentiating between negatively and positively phrased items and found similarly phrased items to be superfluous and tedious to respond to. To test both the wording of the items as well as questionnaire length a pre-test was done amongst 5 respondents. The pre-test indeed revealed problems with differentiating between negatively and positively worded items, as well as the use of Internet jargon. Questionnaire length was not an issue. The questionnaire was altered accordingly, wording all items positively and keeping the use of Internet terminology to a minimum(terminology was still used when the alternatives were considered more complex than the terminology itself).

3.1.4 Sampling and procedures

The questionnaire was made available to fill in online. The link to the questionnaire was distributed to prospective respondents by inclusion in the newsletter of Seniorweb.nl, as well as through personal e-mail to relatives, friends and colleagues of the researcher. A paper version of the questionnaire was also distributed amongst relatives, friends and colleagues of the researcher. As such the questionnaire was offered to a little over 10.000 people.

Respondents were able to fill in either questionnaire over a period of 6 weeks. This resulted in 215 returned questionnaires, establishing a low response rate of slightly under 2.15%. 197 questionnaires were filled in online, the remaining 18 were filled in on paper. Of the 215 returned questionnaires 145 were complete. The remaining 70 were only partially complete (69 incomplete online questionnaires, 1 incomplete paper questionnaire). All these incomplete cases were excluded from analysis. Though the amount of missing data was small in some cases, the data that was missing always contained the respondent's age. As this study focuses on age, us-

ing aforementioned cases would raise concerns. Various statistical methods exist to try to "guess" the age of these respondents, by comparing each case with missing data to the complete cases. The assumption here is the more similar a case is to those where a certain age was reported, the more likely it is the respondent is of that reported age as well. This assumption is reasonable at best, but potentially false. Cases with missing data could contain unusual ones, where the reported behavior is different from that of most others of the same reported age. Since data analysis as a discipline prescribes a conservative approach to the data, and there simply is no obtainable certainty to which reported age the cases with missing data belong, such cases have been dropped. Only complete cases have been used, allowing for maximum validity and reliability.

Because many respondents were obtained through the inclusion of the questionnaire in a newsletter of an organization promoting, and helping with, Internet Use it is likely that the respondents in the sample will have more Internet Skill than the population in general. The fact that the vast majority of the respondents filled in the online version of the questionnaire also makes higher Internet Skills scores more likely. Aside from that, it is also reasonable to expect that the respondents may be more positive about Internet Use in general. These considerations will have to be taken into account throughout the rest of the study.

4 Questionnaire Results

4.1. Sample

The sample consisted of people between the age of 46 and 94 years old. Mean age was 67.73 years (*SD* = 9.088). Mean days when Internet was used was 6.28 (*SD* = 1.332), mean hours spent online on those days was 3.18 (*SD* = 2.358).

In order to see differences with respect to age, three age groups were created. The cut-off points for each group were based on the age distribution of all respondents. The number of cases within each group was considered more important than the age span of each group. If the groups had been made equal in age span, group one and three would have contained too few cases for meaningful comparisons. Thus a division based on number of cases within groups, while respecting the overall age distribution, was created (figure 9). Group one contains 38 cases with reported age from 46 to 63, group two contains 67 cases with reported age from 64 to 72, and the third group contains the 38 cases with reported age from 73 to 94.

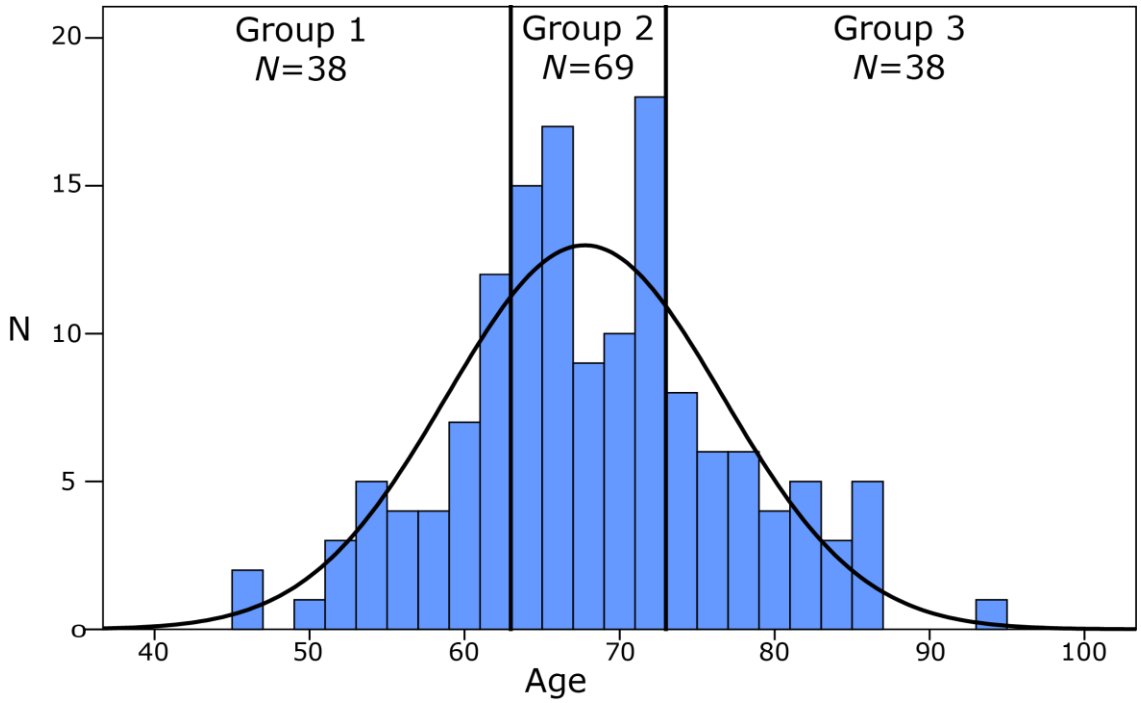


Figure 8

Though a representative sample would be optimal, the sampling method used made this unlikely. A T-test was performed comparing the distribution of age within the age groups of the sample to the distribution of age within the Dutch population, and its results can be found in table 4.

Representativeness per Age group	N	M	SD	T	*p*
Age Group 1 (46-63)					
Population	3947405	53.70	4.95		
Sample	38	57.13	4.43		
				-4.77	<0.001
Age Group 2 (64-72)					
Population	1570102	67	2.9		
Sample	69	67.38	3.13		
				-1.01	0.32
Age Group 3 (73-94)					
Population	1355789	79.87	5.2		
Sample	38	79.05	4.76		
				1.06	0.29

Table 4: T-test per Age group within the sample and the Dutch population

The T-test reveals that Age Groups 2 & 3 can be considered representative, but Age Group 1 differs significantly from the Dutch population. A further test of representativeness was carried out, comparing Education level of the Sample to the Population: $\chi^2(5, N = 144) = 25.16$, $p < 0.001$. This shows that the Sample differs significantly from the population where Education level is concerned. Based on these demographics the sample is not considered to be representative. In spite of the lack of representativeness, the sample does not differ from the population to an extreme extent. Though caution is most certainly warranted where generalization is concerned, the results should offer valuable suggestions about the population this sample was drawn from.

Sample Demographics	Age Group								
	1			2			3		
	M	SD	N	M	SD	N	M	SD	N
Age	57.13	4.43	38	67.38	3.13	69	79.05	4.76	38
Internet Experience (years)	11.11	5.40	38	11.78	6.11	69	10.97	6.10	38
Highest Education:									
No Education			0			1			0
Primary School			1			7			1
Lower Secondary School			13			21			10
MBO			7			10			7
Higher Secondary School			2			5			3
BA			9			16			14
MA & PhD			6			9			3

Table 5: Age, Internet Experience, and Highest Education per Age group within the sample.

It was tested whether there were differences in education level between the Age Groups using the Chi Square Test. First four categories were created: No- ,Low-, Medium-, and High Education. No Education remained as is, Low Education contained Primary- and Lower Secondary School, Medium Education contained MBO and Higher Secondary School, High Education contained BA and MA & PhD. No significant differences for Education Level was found across the Age Groups: $\chi^2(6, N = 144) = 2.681$, $p = 0.916$.

4.2. Scores: Perceived Internet Skills

The first construct of the research model to be examined is Perceived Internet Skills. Possession of these skills are considered vital for the use of the Internet, as it measures how confident people say they are about using a webbrowser(operational skills) and navigating between websites, as well as websites themselves(formal skills). Both were measured on a 7-point Likert scale, ranging from "Strongly disagree" to "Strongly agree". The questions asked the respondents whether they agreed that they could perform a certain task related to Internet Use, like going to a website by typing the address in the address bar in the webbrowser. The operational

skills scale consisted of 11 items and showed high internal consistency (α=.95). The same high internal consistency was found in formal skills (α=.97), consisting of 5 items.

Perceived Internet Skills scores	Age Group					
	1		2		3	
	M	SD	M	SD	M	SD
Operational	5.52	1.22	5.41	1.18	5.18	1.61
Formal	5.34	1.35	5.20	1.20	4.89	1.78

Note: 7-point scale

Table 6: Perceived Internet Skills scores per Age group

The mean per age group is different, but the difference does not appear to be large enough to be significant. A one-way ANOVA was carried out to confirm. Operational Skills: F (2, 142) = .683, p = .51, confirming there are no significant differences between the Age groups when it comes to Operational Skill. The same result was found for Formal Skills: F (2, 142) = .990, p = .37. As can be seen in table 6, the respondents consider themselves competent Internet users, regardless of Age Group. The mean score for Operational Skills is slightly higher than for Formal Skills.

It is posited that the categories of Perceived Internet Skills are hierarchical, meaning the first set of Perceived Internet Skills have to be mastered to a sufficient degree before the next set of Skills can be learned. The found difference is in line with the proposed hierarchical order. The mean score for Operational Skills reveals that the respondents are somewhere in the middle between "Somewhat agree" and "Agree", showing they believe themselves to be sufficiently competent, but no more. They believe themselves to be slightly less competent when it comes to Formal Skills, which is expected. When a prerequisite skill is mastered just a little more than sufficiently it is logical to expect the successive skill to be mastered no more than sufficiently. The mean score for Formal Skills reflects this. Pearson's r confirms these skills are positively related: Group 1: $r(36) = .809$, $p < .001$, Group 2: $r(67) = .828$, $p < .001$, Group 3: $r(36) = .934$, $p < .001$.

It could be possible that Operational Skills and Formal Skills measure the same construct, as such high correlations reveal little independence. Operational Skills should measure something different from Formal Skills, but as the correlations are high in each age group and Operational Skills and Formal Skills both measure Perceived Internet Skills, the items measuring Operational Skills and Formal Skills have been combined to create a single scale. Though Perceived Internet Skills comprises 4 categories of which 2 have been used in this study, the original 4 categories were also divided into 2 groups: Medium Skills and Content Skills. Content Skills contains Information Skills and Strategic Skills, whereas Medium Skills contains Operational Skills and Formal Skills. Therefore same nomenclature was used for the new single scale, Medium Skills. As a construct it shows high internal consistency (α=.97), even greater than Operational Skills and Formal Skills did separately.

As an added measure, the respondents were tested in "actual" skill by being asked to demonstrate where certain buttons and fields are in the web-browser. This was measured using 4 items (Search bar, Address bar, Back button, and Forward button), scored as either correct or incorrect. For an answer to be correct a respondent would have to click within 10 pixels of the asked button or field on an image of a webbrowser. Where the respondent clicked an arrow would appear, confirming the chosen location. Respondents were not shown in any way whether they clicked correct or incorrect. In the paper version of the questionnaire respondents were asked to draw an arrow pointing at the requested button or field. The score for each of the four items was added up, to create the 5 point Demonstrated Skills scale, ranging from "None Correct" to "All Correct". Table 7 shows an overview of Medium Skills and Demonstrated Skills.

Perceived Medium- & Demonstrated Skills scores	Age Group					
	1		2		3	
	M	SD	M	SD	M	SD
Perceived Medium Skills*	5.46	1.20	5.34	1.14	5.09	1.64
Demonstrated Skills**	3.84	1.22	3.84	1.32	3.74	1.41

*Note: * 7-point scale, ** 5-point scale*

Table 7: Medium- & Demonstrated Skills per Age group

The question arises whether Medium Skills and Demonstrated Skills change significantly across age. A one-way ANOVA was used to test for differences among the three age groups. Medium Skills did not differ significantly across the age groups, F (2, 142) = .827, p = .44, nor did Demonstrated Skills, F (2, 142) = .087, p = .916. This is unexpected, as Perceived Medium Skills were expected to be reported increasingly lower starting from group 1 through group 3. The means are in line with this expectancy, but the one-way ANOVA reveals that the difference between these means is far too small to be significant.

The Demonstrated Skills scale was included in the questionnaire to allow checking whether the reported perceptions of Medium Skills reflected real skills, thus uncovering whether respondents over- or underestimate themselves, if at all. Correlation between Perceived Medium Skills and Demonstrated Skills was computed to see if these two measures are significantly related, if at all. Pearson's r reveals a significant positive correlation in all Age Groups: Group 1: r(36) = .358, p = .027, Group 2: r(67) = .270, p = .025, and Group 3: r(36) = .546, p < .001. Table 8 gives an overview of the reported correlations.

Correlation tests for Medium- & Demonstrated Skills	N	r	*p*
Age Group 1	38	,358	0.03
Age Group 2	69	,270	0.02
Age Group 3	38	,546	<.001
Entire Sample	145	,385	<.001

Table 8: Pearson Correlations for Perceived Medium- & Demonstrated Skills per Age group

The correlations indicate the respondents perceptions of their Perceived Medium Skills is linked to their Demonstrated Skills. However, over- or underestimation of the respondent's Perceived Medium Skills cannot be excluded as the coefficients are still far from 1. This means that though Perceived Medium Skills and Demonstrated Skills are related, they are not identical. This result could be explained by respondents' over- or underestimation of their Perceived Medium Skills. However, the differing composition of the two scales may also have played a role. The scale of Medium Skills was constructed by averaging 16 separate 7-point items, whe-

reas the scale Demonstrated Skills was constructed by adding up 4 separate dichotomous items. This implies that Medium Skills as a scale should be considered more likely to be valid than Demonstrated Skills. Therefore these results should be considered far from iron-clad evidence.

The construct Perceived Medium Skills concerns competency with a particular technology. In previous research (Shoemaker, 2003) it has been suggested there are differences in scores between gender. It is posited that men are more likely to overestimate themselves than women, resulting in higher scores for men on scales measuring perceptions. It could also be possible that age has a significant effect depending on gender. To test whether the effect of age varies with gender a one-way ANOVA was used. No significant differences were found for Medium Skills, F (5, 139) = 1.670, p = .146, nor for Demonstrated Skills, F (5, 139) = .226, p = .951. Whether men are more likely to overestimate themselves was tested by comparing Medium- to Demonstrated Skills with respect to gender. No significant differences were found using a Paired-samples T-test, Men: t(68) = .042, p = .967, Women: t(75) = .244, p = .808. Lastly, it was tested whether men scored higher on Medium- and Demonstrated Skills. This was not the case with either Skill as the Independent samples T-test shows, Medium Skills: t(143) = 1.43, p = .295, Demonstrated Skills: t(143) = .613, p = .541.

4.3. Scores: Expected Outcomes

The second construct of the research model to be examined is Expected Outcomes. As the name suggests, this construct measures how often Internet use is intended to obtain a specific outcome. It was measured on a 7-point Likert scale ranging from "Never" to "Always". These Outcome Expectations have been divided into 6 sub-factors: (1)Social Outcomes, (2)Novel Outcomes, (3)Status Outcomes, (4)Monetary Outcomes, (5)Activity Outcomes, and(6)Self-Reactive Outcomes. Good internal consistency(α>.70) was found over all sub-factors. The table below lists all found Cronbach's alphas.

Though half of the scales making up Expected Outcomes would have a greater internal consistency through the removal of an item, it was chosen to not do so. The scales were already comprised of at best 5 items, and the increase in internal consistency is not substantial. The re-

moval of an item in each of the three scales would slightly increase the reliability of these scales at the potential cost of validity.

Internal Consistency of Expected Outcomes	items	α	α if item deleted*
Social Outcomes	5	0.78	-
Novel Outcomes	4	0.86	-
Status Outcomes	5	0.84	0.87
Monetary Outcomes	4	0.76	-
Activity Outcomes	4	0.72	0.76
Self-Reactive Outcomes	5	0.82	0.84
Expect Outcomes	6	0.86	-

*Note: *Only reported if deletion of an item increased alpha*

Table 9: Cronbach alpha's for Expected Outcomes and its sub-factors

An overview of the scores on each of the Expected Outcomes categories can be found in table 10. Regardless of Age Group the highest and lowest scoring Expected Outcomes categories remain Novel- and Self-Reactive Outcomes, respectively. The scoring pattern of the 4 other Expected Outcomes categories is almost identical per Age Group, though Social Outcomes scores marginally higher than Activity Outcomes in Age Group 2, whereas Status Outcomes score higher than Monetary Outcomes in Age Group 3.

An analysis of the Expected Outcomes scores per Age Group shows there are differences between the categories of Expected Outcomes as well as the Age Groups. The overall pattern suggests that the respondents most often use the Internet for Novel Outcomes, such as finding information and news. Quite a bit less for Activity Outcomes, such as listening to music or playing games. To a similar extent the Internet seems to be used for Social Outcomes, such as finding themes to talk about with others. Somewhat less often the Internet is used for resource saving, as measured by Monetary Outcomes. The goals the Internet is used least often for are those related to Status Outcomes and Self-Reactive Outcomes.

A comparison between Age Groups seems to suggest that goals related to Activity- and Social Outcomes become more sought after as age increases, whilst resource saving as measured by Monetary Outcomes suggests the reverse.

Expected Outcomes Scores	Age Group					
	1		2		3	
	M	SD	M	SD	M	SD
Novel Outcomes	4.46	1.31	4.88	1.26	4.71	1.53
Activity Outcomes	3.14	1.22	3.34	1.06	3.44	1.41
Social Outcomes	3.11	1.12	3.36	1.08	3.42	1.21
Monetary Outcomes	3.07	1.24	2.99	1.26	2.65	1.12
Status Outcomes	2.51	1.36	2.81	1.19	2.77	1.42
Self-Reactive Outcomes	2.26	1.07	2.36	0.96	2.53	1.10

Note: 7-point scale

Table 10: Scores for each Expected Outcomes category per Age group

Also, with the exception of Monetary Outcomes, all Expected Outcomes seem to be sought after more often as age increases. This leads to the question whether any of these differences are significant. A One-Way ANOVA was carried out to test for significant differences between Age Groups. Table 11 shows the results of the test.

Expected Outcomes & Age	df1	df2	*F*	*p*
Novel Outcomes	2	142	1.19	0.31
Activity Outcomes	2	142	0.60	0.55
Social Outcomes	2	142	0.87	0.42
Monetary Outcomes	2	142	1.32	0.27
Status Outcomes	2	142	0.72	0.49
Self-Reactive Outcomes	2	142	0.67	0.51

Table 11: ANOVA test for Expected Outcomes categories and Age groups

The One-Way ANOVA revealed no significant differences between Age Groups, for each Expected Outcomes category. In spite of the observed trend in the means, the differences within each Expected Outcome category are not significant between Age Groups. What remains

is to look at whether certain outcomes are sought more often than others. To this end each Expected Outcomes category has been tested for significant differences against each other Expected Outcome category, using a One Sample T-test.

For age group 1 it suggest Internet is used most often for Novel Outcomes. To a significantly lesser extent Age group 1 uses the Internet for Activity-, Social-, and Monetary Outcomes. Even less often it is used by Age group 1 for Status Outcomes and Self-Reactive Age group 2 shows a different picture. Novel Outcomes are still sought most often, followed in equal measure by Activity- and Social Outcomes. Slightly, but still significantly, less Monetary- and Status Outcomes are sought when Age group 2 uses the Internet. The least sought Outcome for Age group 2 is a Self-Reactive Outcome. Lastly, Age group 3 shows a similar picture as Age group 2. Novel Outcomes are sought most, followed in equal measure by Activity- and Social Outcomes. The remaining Expected Outcomes categories are sought less often, but in equal measure. These differences allow Expected Outcomes to be divided into categories reflecting significantly different frequencies in Outcomes sought within each Age group. This division is shown in Table 12.

Expected Outcomes by significance per Age group

	Age Group		
	1	2	3
Novel Outcomes	4.46	4.88	4.71
Activity Outcomes	3.14	3.34	3.44
Social Outcomes	3.11	3.36	3.42
Monetary Outcomes	3.07	2.99	2.65
Status Outcomes	2.51	2.81	2.77
Self-Reactive Outcomes	2.26	2.36	2.53

Note: 7-point scale

Table 12: Scores for each Expected Outcomes category per Age group

In spite of what the different categories of frequency of use within each Age group might suggest, at this moment it is important to be reminded that no significant differences were found between the Age groups within each Outcome category, as reported earlier. Perhaps sig-

nificant differences do exist in the population between Age groups, but none could be found in the sample used for this study. Though these different categories for frequency of Outcomes sought could be found, overall scores show that Internet is not used with high frequency for any of the measured Expected Outcomes. The overall picture the data paints shows the respondents use the Internet for the full range of Expected Outcomes, certain Outcomes being sought after more often than others.

4.4. Are Perceived Medium Skills & Expected Outcomes related?

Now that Perceived Medium Skills and Expected Outcomes have been examined in their own right, it is possible to test whether the hypothesized link between these two constructs exists. To test for the existence of a link linear regression was computed, with a different Expected Outcomes category as the dependent variable each time. Table 13 shows the result of this analysis.

The analysis revealed that Perceived Medium Skills was a significant predictor for all Expected Outcome categories, with Self-Reactive Outcomes in Age Group 2 and 3 being the only exception. Almost all other beta's reveal moderate to strong effect sizes, meaning that Perceived Medium Skills can serve as moderate to strong predictor of the Expected Outcome category concerned. These results strongly suggest that perceptions concerning the possession of Medium Skills are important for obtaining almost any of the outcomes measured in this study. Especially for the oldest people the case seems to be that if they believe they have little to no Medium Skills, they will also believe that obtaining a certain outcome is highly unlikely.

The beta's in general seem to differ between Age groups. Age Group 1 shows mostly good effect sizes, and a few strong effect sizes. Age Group 2 differs, revealing moderate effect sizes and one strong effect size. When looking at Age Group 3 it shows almost only strong effect sizes. This suggests that perceptions of one's own Medium Skills are of greatest importance to the oldest people in the study. In practice this could mean that as a person is older held beliefs about Medium Skills have stronger impact on one's beliefs to obtain certain outcomes. This

would be true the most for Status Outcomes for the oldest people, as the results for Age Group 3 show.

Influence of Perceived Medium Skills on Expected Outcomes	Age Groups							
	1		2		3		Sample	
	β	*p*	β	*p*	β	*p*	β	*p*
Novel Outcomes	0.64	<.01	0.68	<.01	0.65	<.01	0.69	<.01
Activity Outcomes	0.49	<.01	0.38	<.01	0.62	<.01	0.48	<.01
Social Outcomes	0.52	<.01	0.28	0.02	0.54	<.01	0.42	<.01
Monetary Outcomes	0.40	0.01	0.24	0.05	0.46	<.01	0.41	<.01
Status Outcomes	0.52	<.01	0.27	0.03	0.77	<.01	0.39	<.01
Self-Reactive Outcomes	0.38	0.02	0.08	0.49	0.19	0.26	0.18	0.03

Table 13: Linear regression tests Perceived Medium Skills → Expected Outcomes categories

4.5. Scores: Habit Strength

The third construct of the research model to be examined is Habit Strength. The name of this construct is self-explanatory: It measures how habitualized the use of Internet is. The construct contained 4 items and was measured on a 7-point Likert scale, ranging from "Strongly disagree" to "Strongly agree". The construct was found to be internally consistent(α=.85). The mean score for Habit Strength across the entire sample is 5 (*SD* = 1.36), indicating the respondents "Somewhat agree" with their use of Internet being habitual. If the scores had been much higher, the respondents would have considered their use of the Internet as strongly habitual, perhaps even an addiction. Conversely, a much lower score would indicate the respondent's Internet use as not habitual at all, suggesting avoidance. However, the scores show there is no grounds for considering the respondents as avoiding Internet use, nor that said use is an addiction. Instead, the results show a slightly above "Neutral" score. It suggests the respondents have reported their use of Internet as hardly habitual.

Habit Strength per Age group

	Age Groups					
	1		2		3	
	M	SD	M	SD	M	SD
Habit Strength	4.98	1.25	4.93	1.26	5.14	1.64

Note: 7-point scale

Table 14: Habit Strength scores per Age group

A comparison of Habit Strength scores per age group can be found in Table 14. A quick look suggests Age group 1 and 2 score about the same on Habit Strength, whereas Age group 3 scores higher than both other Age groups. A One-Way ANOVA was performed to test whether there is any significant difference between Age groups: F (2, 142) = .295, p = .745. As the test shows, no significant difference was found. So Habit Strength remains the same as a respondent was older.

4.6. Are Perceived Medium Skills, And Expected Outcomes, Related to Habit Strength?

It has been hypothesized in this study that Perceived Medium Skills and Expected Outcomes influence Habit Strength. The reasoning is that as perceptions of Internet competency become more positive the use of the Internet is deemed less troublesome, making it more likely that Internet Use will occur more frequently(regardless of Outcomes sought), which in turn allows Habit to form. The same reasoning applies to Expected Outcomes. As certain Outcomes are sought more often, it is more likely that this activity is habitual or in the process of becoming habitual. To test if Perceived Medium Skills and Expected Outcomes are significantly linked to Habit Strength linear regression was computed. As can be seen in Table 15, not in all Age groups Perceived Medium Skills or many Expected Outcomes categories are significantly related to Habit Strength. The strength of the links and the size of the effects vary within and between Age groups.

For Age group 1 and 2 only Perceived Medium Skills is a significant predictor for Habit Strength. None of the Expected Outcomes categories were found to be significant as a predictor.

Within Age group 3 there were three predictors found to be significant: Novel-, Self-Reactive-, and Activity Outcomes. Across the entire sample two of these three Expected Outcomes categories were found to be significant predictors, and so was Perceived Medium Skills. Given that most p values remain below significance, it seems only a few constructs are significant predictors for Habit Strength. In order to find out which combination of constructs best predict Habit Strength stepwise regression was carried out. Simply put this type of regression rotates all proposed predictors until an optimal combination of predictors has been found for the dependent variable(Habit Strength in this case). In order to be included as a predictor each independent variable should have p-value indicating significance. Table 16 shows the results of the stepwise regression.

Influence of Expected Outcomes & Perceived Medium Skills on Habit Strength

	Age Groups							
	1		2		3		Sample	
	β	*p*	β	*p*	β	*p*	β	*p*
Novel Outcomes	0.31	0.12	0.12	0.51	**0.87**	**<.01**	**0.42**	**<.01**
Medium Skills	**0.47**	**<.01**	**0.33**	**0.02**	0.19	0.13	**0.30**	**<.01**
Self-Reactive Outcomes	0.22	0.10	-0.10	0.40	**0.39**	**<.01**	**0.15**	**0.05**
Social Outcomes	0.31	0.17	0.07	0.62	0.08	0.47	0.12	0.17
Status Outcomes	-0.39	0.08	0.13	0.39	-0.13	0.16	-0.11	0.23
Monetary Outcomes	0.10	0.45	0.24	0.08	-0.05	0.53	0.06	0.37
Activity Outcomes	0.01	0.94	0.05	0.68	**-0.39**	**<.01**	-0.01	0.92

Table 15: Linear regression tests Perceived Medium Skills & Expected Outcomes →Habit Strength

Across Age groups which is the greater predictor changes. In Age group 1 Perceived Medium Skills is the stronger predictor. In Age group 2 Novel Outcomes is the stronger predictor. In Age group 3 Novel Outcomes is the only predictor. The link between Habit Strength and Perceived Medium Skills is not significant in this Age group. This seems to suggest that as people are older different categories of Expected Outcomes increase their influence on the forming of Habit, whereas Perceived Medium Skills diminishes in influence. An explanation could be that as people are older the effect of Perceived Medium Skills becomes more mediated

through the Expected Outcomes categories, most notably Novel Outcomes. Table 13 shows that in Age group 3 the influence of the link between Perceived Medium Skills and Expected Outcomes is greatest of all Age groups. So Perceived Medium Skills as a predictor does not diminish as Age is higher, the reverse appears to be more likely. But its direct influence on Habit strength does seem to diminish, whereas the effect between Expected Outcomes and Perceived Medium Skills rises. This combination of data makes it likely that the effect of Perceived Internet Skills on Habit Strength becomes more mediated as a person is older.

Significant influence of Expected Outcomes & Perceived Medium Skills on Habit Strength

		β	R^2	*Adjusted* R^2	*p*
Sample			0.58	0.58	<.01
	Perceived Medium Skills	0.30			<.01
	Novel Outcomes	0.46			<.01
	Self-Reactive Outcomes	0.16			0.01
Age Group 1			0.63	0.60	<.01
	Perceived Medium Skills	0.61			<.01
	Social Outcomes	0.32			0.01
Age Group 2			0.43	0.41	<.01
	Perceived Medium Skills	0.28			0.05
	Novel Outcomes	0.45			<.01
Age Group 3			0.82	0.81	<.01
	Perceived Medium Skills	-			-
	Novel Outcomes	0.90			<.01

Table 16: Stepwise regression tests Perceived Medium Skills & Expected Outcomes →Habit Strength

Perhaps the most interesting result here is the absence of other Expected Outcome categories. Within each Age group only one Expected Outcome category was found to be of significant influence. In Age group one this is Social Outcomes, whereas it is Novel Outcomes in both Age group 2 and 3. Across the entire sample Novel Outcomes is also a significant predictor. However, so is Self-Reactive Outcomes. These results posit that Status-, Monetary-, and Activity Outcomes are not significant predictors for Habit Strength, regardless of Age group.

4.7. Exploring Internet Use

The last construct of the research model to be examined is Internet Use. This construct measures how much time is spent using the Internet, as well as how diverse said usage is.

4.7.1 Scores: Time Online

Time was measured by two items, (1)amount of days a week where Internet use occurred, and (2)how many hours were spent using the Internet on a typical day. A third item was computed by multiplying the reported days with the reported hours, resulting in hours spent using Internet a week. Across all Age groups it was reported that, on average, respondents are online 6.08 days a week (SD = 1.66), spend 3.3 hours online on those days(SD = 2.35), which means they spend 19.66 hours online per week(SD = 16.47). Table 17 below gives an overview of these three items per Age group.

Time Spent Online

	Age Groups					
	1		2		3	
	M	SD	M	SD	M	SD
Days A Week	6.00	1.49	6.19	1.54	5.95	2.08
Hours per Day of Use	3.05	2.87	3.07	2.10	2.95	2.25
Hours per Week	19.66	19.55	19.74	15.03	19.50	16.08

Note: 7-point scale

Table 17: Time Online scores per Age group

As is shown in the table above, the respondents go online almost every day and spend around 3 hours online on those days on average. Hours per week shows that on average the respondents spend close to half a standard workweek online, though the standard deviation reveals that great differences exist between respondents. The lowest score on hours per week was 0, which was expected as it was part of this study to include non-users in the sample. The highest score on hours per week was 84, indicating certain respondents spend half of all their time online. Though there are differences between the Age groups, according to the numbers in Table 17, none of these differences seem large enough to be significant. A One-Way ANOVA

was used to test this impression. The One-Way ANOVA reveals the impression was correct. There are no significant differences between the Age groups for Days Online per Week: F (2, 42) = .303, p = .739, nor for Hours Online per Day of Use: F (2, 42) = .036, p = .965, nor for Hours Online per Week: F (2, 42) = .003, p = .997.

4.7.2 Scores: Diversity Online

Diversity was measured using 31 items on a 5-point scale measuring frequency ranging from "Daily" to "Never". These items were taken from (van Deursen & van Dijk, 2010)and asked respondents how often they engaged in certain online activities, such as using e-mail, playing games, or applying for a job. A full list of these 31 items can be found on the next page. The measured frequencies within Diversity as a whole was found to be internally consistent (α=.87). Across all Age groups the average amount of different activities engaged in by the respondents was 15.62 (SD = 5.25).

Number of Different Online Uses

	Age Groups					
	1		2		3	
	M	SD	M	SD	M	SD
Diversity	16.66	5.50	15.68	4.75	14.47	5.76

Note: 31-point scale

Table 18: Diversity Online scores per Age group

As Table 18 shows, the number of different activities shows a decline across Age groups. Using a One-Way ANOVA it was found that none of the observed differences is significant: F (2, 142) = 1.668, p = .192. Still, the Diversity scores per Age group suggests most respondents engage in around half of all the activities asked about in the questionnaire. This is remarkable as the data from CBS revealed a strong decline in the Diversity of use as a person is older. Though the mean scores do show some decline across the Age groups, it is far from significant. Given that the means suggest most respondents engage in about 15 different activities on the Internet, a top 15 was constructed per age group. These top 15's can be found in Table 19, 20, and 21. The

ranking was based on a dichotomous scale, and so reflects how many respondents indicated engaging in said activity on the Internet, not the frequency of the activity.

Most notable in Table 19 is the high ranking of searching for government-related information. Using the Internet for finding information was already known to be the most popular activity category across all Age groups, as Novel Outcomes scored highest for each Age group. However, it was expected that other "Searching for…" activities would have ranked above searching for government-related information, such as "News Services". The most likely explanation for this result is the fact that there were 2 government elections during the time the questionnaire was available.

Top 15 of most popular Online Activities for Age group 1

		N	Percent
1	Search engines such as Google	37	97.4%
2	Searching for government-related information	37	97.4%
3	Using e-mail	36	94.7%
4	Searching for hobby-related information	35	92.1%
5	News services	34	89.5%
6	Searching products and comparing prices	34	89.5%
7	Internet banking	33	86.8%
8	Online broadcasting associations, newspapers, or magazines	32	84.2%
9	Searching for health-related information	32	84.2%
10	Shopping or ordering	31	81.6%
11	Marketplaces (Marktplaats.nl, eBay)	30	78.9%
12	Free browsing	28	73.7%
13	Travel or booking of holidays	26	68.4%
14	Searching for information about education or courses	24	63.2%
15	Transactions with government	22	57.9%

Table 19: The 15 Online Activities engaged in by most respondents in Age group 1

Searching for information about political parties was likely to have occurred at a much higher rate because of this. Another interesting result is the slow decline in the number of respondents indicating engaging in a certain activity online as one looks further down the list. Going down from the top each activity was reported as being engaged in by around 5% less respondents, showing no major drop-off anywhere.

Age Group 2 shows a similar pattern as Age group 1. Searching for government-related information scored high in this Age group as well, probably also due to the elections going at the time of the questionnaire. Within this group we also see confirmation that using the Internet for Novel Outcomes is done by a vast majority of respondents. The slow decline in the number of respondents indicating engaging in a certain activity online as one looks further down the list also shows the same pattern as in Age group 1, but there is one drop-off point.

Top 15 of most popular Online Activities for Age group 2

		N	Percent
1	Search engines such as Google	68	98.6%
2	Using e-mail	67	97.1%
3	Searching for government-related information	64	92.8%
4	Online broadcasting associations, newspapers, or magazines	61	88.4%
5	Searching products and comparing prices	61	88.4%
6	Searching for health-related information	61	88.4%
7	Searching for hobby-related information	60	87.0%
8	News services	58	84.1%
9	Marketplaces (Marktplaats.nl, eBay)	55	79.7%
10	Internet banking	54	78.3%
11	Free browsing	53	76.8%
12	Shopping or ordering	50	72.5%
13	Travel or booking of holidays	39	56.5%
14	Searching for information about education or courses	37	53.6%
15	Transactions with government	34	49.3%

Table 20: The 15 Online Activities engaged in by most respondents in Age group 2

In Age group 2 there were 50 respondents reporting engaging in shopping online, putting it in place 12 in the ranking. The activity at place 13 in the ranking is travel-related use, and 39 respondents indicated engaging in this activity, which is a major drop.

An interesting result in Age group 3 is the number of respondents reporting shopping online. It is the third most reported activity, more popular than looking for information related to anything. This is very interesting indeed as previous studies(Loges & Jung, 2001) have hinted at trust being an important reason for older people to not use the Internet. Shopping online requires the disclosure of personal data, and thus asks the respondent to trust the online vendor.

In Age group 3 the vast majority of respondents indicated shopping online, suggesting they aren't lacking in trust. It could also be true that shopping online is done by most respondents in Age group 3 because it is more advantageous to them than offline shopping.

Top 15 of most popular Online Activities for Age group 3

		N	Percent
1	Search engines such as Google	35	92.1%
2	Using e-mail	35	92.1%
3	Shopping or ordering	33	86.8%
4	News services	32	84.2%
5	Internet banking	32	84.2%
6	Searching for government-related information	31	81.6%
7	Searching for health-related information	31	81.6%
8	Searching products and comparing prices	30	78.9%
9	Online broadcasting associations, newspapers, or magazines	29	76.3%
10	Searching for hobby-related information	29	76.3%
11	Free browsing	25	65.8%
12	Marketplaces (Marktplaats.nl, eBay)	22	57.9%
13	Transactions with government	22	57.9%
14	Searching for information about education or courses	18	47.4%
15	Uploading video, music, or photographs	16	42.1%

Table 21: The 15 Online Activities engaged in by most respondents in Age group 3

The respondents in Age group 3 are the oldest of the sample, and therefore more likely to experience limitations on mobility. So it could be that such a limitation negates any trust-concerns these respondents might have.

The question that remains to be answered is whether there are differences between Age Groups where using the Internet for a particular activity is concerned. To this end Fisher's Exact Test was used, and significant differences in popularity between Age Groups was found for the following Activities: Applying for jobs, Travel or booking of holidays, Taking online courses, and Marketplaces.

A trend can be observed from the percentages. Three of these activities seem to become less popular as a respondent is older, whereas with the activity of "Taking online courses"

shows the reverse. This trend can be explained for "Applying for jobs", as almost all respondents in Age Group 2, and all respondents in Age Group 3 have reached the retirement age, and therefore no longer need a job.

Online Activities Differing Across Age Groups

	Age Groups			
	1	2	3	*p*
Applying for jobs	21%	4%	0%	0.002
Travel or booking of holidays	68%	57%	34%	0.009
Taking online courses	11%	25%	34%	0.045
Marketplaces	79%	80%	58%	0.047

Table 22: Fisher's Exact test for popularity of online activities

The decrease observed for "Travel or booking of holidays" cannot be explained the same way; retirement would mean there is more time for travel, yet a decrease of using the Internet for this activity is found. Perhaps it can partially be explained by reduced mobility, but also by not feeling comfortable with financial transactions online. Though not specifically tested in this study, previous research has hinted at "Computer Anxiety" as an important construct. A similar decrease can be seen for "Marketplaces", and it seems to show more clearly that as a respondent is older they are less inclined to use the Internet for buying goods and/or services. The reverse trend observed for "Taking Online Courses" could also be explained by respondents having reached the retirement age. No longer at work, they have more time to spend on their hobbies or intellectual interests.

Respondents also indicated how often they engaged in a certain activity online, if at all. This allows for a ranking of the activities by frequency. This ranking paints a different picture, as can be seen in Table 23, 24, and 25. What was striking in the tables on online activities engaged in has changed: Searching for government-related information has gone down the list. The difference in ranking of this activity supports the notion that it only previously ranked so high because of 2 on-going elections during the time at which the questionnaire was available.

As can be seen, for searching for government-related information most people indicated they do it a few times a year.

It is expected that the most often reported activities are also most likely to be engaged in with the highest frequency and the less often reported activities being more likely to be engaged in with the lowest frequency. Looking at Age group 1 this proposed pattern can be seen. However, certain activities do not conform to the proposed pattern. As was explained before, the high ranking of searching for government-related information is most likely due to the on-going elections at the time of the questionnaire. The frequency of use supports this, as most respondents indicated searching for government-related information only a few times a year.

Searching for hobby-related information is also an activity that does not quite fit within the proposed pattern. Only a few respondents report engaging in this activity daily. The remaining respondents who search for hobby-related information are roughly equally distributed over the remaining frequency categories.

Age group 2 follows the proposed pattern as well. Using search engines was most often reported as being done, and was also most often reported as being engaged in daily. The opposite is true for using the Internet for transactions with the government. It was reported the fewest times as being done, and was most often reported as being engaged in a few times a year.

Looking at Age group 3 the proposed pattern can be seen again, though the dispersion seems to be greater. The only high-ranking activity that is also being reported by almost all respondents as being engaged in daily is using e-mail. Shopping is ranked third, but the frequency of use shows that it's only being engaged in a few times per year by most respondents.

4.7.3 Are Time & Diversity Related?

It has been shown in the previous paragraphs that the respondents spend a considerable amount of time per week using Internet, and for a wide range of activities. It seems logical that as a respondent chooses to engage in more activities time spent online should also increase.

Frequency of the top 15 of most popular Online Activities for Age group 1

		N	D	W	M	Y
1	Search engines such as Google	37	57%	43%	0%	0%
2	Searching for government-related information	37	5%	14%	22%	59%
3	Using e-mail	36	92%	6%	3%	0%
4	Searching for hobby-related information	35	3%	31%	29%	37%
5	News services	34	56%	24%	9%	12%
6	Searching products and comparing prices	34	9%	35%	24%	32%
7	Internet banking	33	18%	67%	15%	0%
8	Online broadcasting associations, newspapers, or magazines	32	28%	25%	16%	31%
9	Searching for health-related information	32	6%	19%	34%	41%
10	Shopping or ordering	31	0%	13%	29%	58%
11	Marketplaces (Marktplaats.nl, eBay)	30	3%	20%	27%	50%
12	Free browsing	28	36%	32%	7%	25%
13	Travel or booking of holidays	26	0%	0%	8%	92%
14	Searching for information about education or courses	24	0%	4%	21%	75%
15	Transactions with government	22	0%	9%	18%	73%

Note: D = Daily, W = Weekly, M = Monthly, Y = A Few Times a Year.

Table 23: Frequency of the 15 Online Activities engaged in by most respondents in Age group 1

Frequency of the top 15 of most popular Online Activities for Age group 2

		N	D	W	M	Y
1	Search engines such as Google	68	63%	26%	7%	3%
2	Using e-mail	67	91%	9%	0%	0%
3	Searching for government-related information	64	5%	9%	27%	59%
4	Online broadcasting associations, newspapers, or magazines	61	41%	28%	15%	16%
5	Searching products and comparing prices	61	2%	36%	18%	44%
6	Searching for health-related information	61	0%	8%	28%	64%
7	Searching for hobby-related information	60	7%	30%	22%	42%
8	News services	58	62%	22%	3%	12%
9	Marketplaces (Marktplaats.nl, eBay)	55	5%	11%	20%	64%
10	Internet banking	54	28%	57%	11%	4%
11	Free browsing	53	43%	38%	8%	11%
12	Shopping or ordering	50	2%	6%	30%	62%
13	Travel or booking of holidays	39	0%	0%	3%	97%
14	Searching for information about education or courses	37	3%	0%	5%	92%
15	Transactions with government	34	0%	0%	6%	94%

Note: D = Daily, W = Weekly, M = Monthly, Y = A Few Times a Year.

Table 24: Frequency of the 15 Online Activities engaged in by most respondents in Age group 2

Pearson's r confirms this link between hours spent online per week and amount of different Internet uses across the entire sample: $r(143) = .406$, $p < .001$. Within each of the three Age groups the same correlation was found: Group 1: $r(36) = .534$, $p < .001$, Group 2: $r(67) = .305$, $p = .011$, Group 3: $r(36) = .421$, $p = .008$.

Frequency of the top 15 of most popular Online Activities for Age group 3

		N	D	W	M	Y
1	Search engines such as Google	35	51%	31%	9%	9%
2	Using e-mail	35	83%	17%	0%	0%
3	Shopping or ordering	33	0%	3%	30%	67%
4	Internet banking	32	25%	47%	22%	6%
5	News services	32	59%	16%	9%	16%
6	Searching for government-related information	31	0%	3%	35%	61%
7	Searching for health-related information	31	0%	10%	45%	45%
8	Searching products and comparing prices	30	7%	23%	30%	40%
9	Online broadcasting associations, newspapers, or magazines	29	48%	28%	17%	7%
10	Searching for hobby-related information	29	3%	31%	38%	28%
11	Free browsing	25	32%	44%	16%	8%
12	Marketplaces (Marktplaats.nl, eBay)	22	5%	5%	14%	77%
13	Transactions with government	22	0%	0%	0%	100%
14	Searching for information about education or courses	18	0%	0%	28%	72%
15	Uploading video, music, or photographs	16	13%	13%	13%	63%

Note: D = Daily, W = Weekly, M = Monthly, Y = A Few Times a Year.

Table 25: Frequency of the 15 Online Activities engaged in by most respondents in Age group 3

4.8. Are Perceived Internet Skills, Expected Outcomes, And Habit Strength Related To Internet Use?

According to the research-model all constructs are related to Internet Use. To test this Pearson's r correlation was computed for each Age Group for all constructs and sub-factors. Correlation matrices can be found in Table 30, 31, and 32. In all Age groups the constructs Perceived Medium Skills, Expected Outcomes, Habit Strength, and Internet Use are correlated. To test the influence of the constructs on Internet Use linear regression was computed. For Internet Use Time Spent Online and Diversity were computed separately.

The results for Time Spent Online can be found in table 26. What is apparent is the few constructs found to be a significant predictor for time spent online. Only in Age group 2 and 3 single significant predictors were found. For Age group 2 this is Monetary Outcomes, for Age group 3 it is Social Outcomes. In Age group 1 as well as across the entire sample no significant predictors were found.

The results for Diversity of use show something else. Within each Age group Perceived Medium Skills was found to be a significant predictor. Across the entire sample the same is true, but also Monetary Outcomes were found to be a significant predictor of Diversity of use. To test the influence of the constructs on Internet Use stepwise linear regression was computed. For Internet Use Time Spent Online and Diversity were computed separately. The results can be found in Table 26(Time) and 27(Diversity).

The results for time spent online show that there are differences between the Age groups. In Age group 1 only Perceived Medium Skills was found to be a significant predictor for Time Spent Online. None of the Expected Outcome categories or Habit Strength were found to be significant predictors. Age group 2 shows a very different result. Perceived Medium Skills is still a significant predictor, but Monetary Outcomes is a stronger predictor. Habit Strength was again not found to be a significant predictor. In Age group 3 Perceived Medium Skills is no longer a significant predictor. Only Social Outcomes was found to be a significant predictor. Habit strength was only found to be a significant predictor across the entire sample, yet still surpassed in strength by Novel Outcomes.

The effect sizes of the greatest significant predictor within Age Group 2 and Age Group 3 is strong, whereas the significant predictors within the entire sample are moderate. This reveals that aside from Monetary Outcomes in Age Group 2 and Social Outcomes in Age Group 3, none of the Expected Outcome categories are significantly related to hours spent online each week within each Age Group. This is most interesting, as it suggests that to Age Group 2 Monetary Outcomes are worth spending time on the most. This indicates that resource saving is of importance to those in Age Group 2. For Age Group 3 Social Outcomes seem to be worth

spending time on. Apparently to the people in Age Group 3 staying in touch with others is important. The found R^2's reveal that the used research model as a whole contains mostly constructs that are not significant predictors of Time Spent Online. Even the highest R^2 found is a model that contains only two out of eight constructs : Social Outcomes and Time Spent Online.

For Diversity a much different picture is painted by the results. The results reveal a high R^2, across the entire sample as well as within each Age group. The lowest R^2 found is .55, meaning that the constructs found to be significant predictors account for at least 55% of the variance in Diversity of use, regardless of Age group.

Looking at the beta's, the predictive power of Perceived Medium Skills for Internet Use remains strong. However, it seems to diminish slightly for the oldest people in the sample. Habit strength seems to play no significant role when it comes to Diversity of use, but differing Expected Outcome categories do. Across the entire sample Monetary-, Activity-, and Status Outcomes are significant predictors of Diversity of use. Within Age group 1 it is only Status Outcomes that reveals itself to be a significant predictor. In Age group 2 Activity-, and Monetary Outcomes are significant predictors for Diversity of use. Within Age group 3 only Social Outcomes is a significant predictor for Diversity of use.

Influence of Expected Outcomes & Perceived Medium Skills & Habit Strength on Time Online

	β	R^2	*Adj.* R^2	*p*
Sample		0.29	0.25	**<.01**
Perceived Medium Skills	0.18			0.09
Habit Strength	0.16			0.17
Monetary Outcomes	0.12			0.22
Activity Outcomes	0.10			0.37
Self-Reactive Outcomes	0.05			0.64
Social Outcomes	0.05			0.68
Novel Outcomes	0.04			0.76
Status Outcomes	0.00			0.98
Age Group 1		0.31	0.12	0.15
Social Outcomes	-0.43			0.23
Activity Outcomes	0.31			0.24
Perceived Medium Skills	0.17			0.53
Novel Outcomes	0.19			0.54
Monetary Outcomes	-0.12			0.56
Status Outcomes	0.20			0.58
Self-Reactive Outcomes	0.11			0.60
Habit Strength	0.13			0.65
Age Group 2		0.40	0.32	**<.01**
Monetary Outcomes	0.53			**<.01**
Perceived Medium Skills	0.20			0.17
Status Outcomes	-0.14			0.38
Habit Strength	0.11			0.41
Social Outcomes	0.08			0.58
Novel Outcomes	-0.09			0.66
Activity Outcomes	0.06			0.67
Self-Reactive Outcomes	-0.02			0.90
Age Group 3		0.53	0.40	**<.01**
Social Outcomes	0.62			**0.01**
Habit Strength	0.13			0.72
Monetary Outcomes	-0.04			0.79
Activity Outcomes	0.04			0.89
Status Outcomes	-0.01			0.95
Novel Outcomes	0.03			0.95
Self-Reactive Outcomes	0.00			0.99
Perceived Medium Skills	0.00			1.00

Table 26: Linear regression tests Perceived Medium Skills & Expected Outcomes & Habit Strength → Time Online

Influence of Expected Outcomes & Perceived Medium Skills & Habit Strength on Diversity Online

	β	R^2	*Adj.* R^2	*p*
Sample		0.62	0.60	**<.01**
Perceived Medium Skills	0.50			**<.01**
Monetary Outcomes	0.21			**<.01**
Activity Outcomes	0.13			0.11
Status Outcomes	0.12			0.17
Habit Strength	0.09			0.29
Novel Outcomes	-0.08			0.44
Social Outcomes	0.05			0.58
Self-Reactive Outcomes	-0.01			0.86
Age Group 1		0.79	0.73	**<.01**
Perceived Medium Skills	0.66			**<.01**
Status Outcomes	0.28			0.17
Monetary Outcomes	0.13			0.27
Self-Reactive Outcomes	-0.09			0.42
Social Outcomes	0.15			0.46
Novel Outcomes	-0.11			0.54
Activity Outcomes	-0.05			0.73
Habit Strength	0.04			0.82
Age Group 2		0.56	0.50	**<.01**
Perceived Medium Skills	0.42			**<.01**
Activity Outcomes	0.22			*0.08*
Monetary Outcomes	0.22			0.10
Habit Strength	0.12			0.30
Novel Outcomes	-0.04			0.84
Status Outcomes	0.02			0.88
Social Outcomes	0.02			0.90
Self-Reactive Outcomes	0.01			0.91
Age Group 3		0.65	0.55	**<.01**
Perceived Medium Skills	0.46			**0.04**
Social Outcomes	0.22			0.27
Novel Outcomes	-0.38			0.30
Monetary Outcomes	0.14			0.33
Habit Strength	0.30			0.36
Activity Outcomes	0.20			0.43
Status Outcomes	0.08			0.65
Self-Reactive Outcomes	-0.01			0.98

Table 27: Linear regression tests Perceived Medium Skills & Expected Outcomes & Habit Strength → Diversity Online

This reflects the same trend as was observed with the influence of both Medium Skills and Expected Outcomes on Habit Strength. The same explanation offered there could also apply here: The effect of Perceived Medium Skills on Internet Use becomes more mediated by Expected Outcomes as a person is older. The notion that Medium Skills would truly become less important as a predictor of Internet use as a person is older seems unlikely. So increased mediation through Expected Outcomes is considered more likely. Results reported in paragraph 5.4 supports this, as Table 13 reveals that in Age group 3 the influence of Perceived Medium Skills on Expected Outcomes is greatest of all Age groups.

Significant influence of Expected Outcomes & Perceived Medium Skills & Habit Strength on Time Online

		β	R^2	*Adjusted* R^2	*p*
Sample			0.25	0.24	<.01
	Perceived Medium Skills	-			-
	Novel Outcomes	0.28			0.01
	Habit Strength	0.26			0.01
Age Group 1			0.21	0.19	<.01
	Perceived Medium Skills	0.46			<.01
	Expected Outcomes	-			-
	Habit Strength	-			-
Age Group 2			0.38	0.36	<.01
	Perceived Medium Skills	0.21			<,05
	Monetary Outcomes	0.51			<.01
	Habit Strength	-			-
Age Group 3			0.51	0.50	<.01
	Perceived Medium Skills	-			-
	Social Outcomes	0.72			<.01
	Habit Strength	-			-

Table 28: Stepwise linear regression tests Perceived Medium Skills & Expected Outcomes & Habit Strength → Time Online

Another trend can also be observed in Table 29: The R^2 of the model decreases from Age group 1 to Age group 3, going from accounting for 75% of the variance in Diversity of Use to accounting for 58% of the variance in Diversity of use.

Significant influence of Expected Outcomes & Perceived Medium Skills & Habit Strength on Diversity Online

		β	R^2	*Adjusted* R^2	*p*
Sample			0.61	0.60	<.01
	Perceived Medium Skills	0.51			<.01
	Monetary Outcomes	0.20			<.01
	Activity Outcomes	0.14			0.03
	Status Outcomes	0.13			0.05
	Habit Strength	-			-
Age Group 1			0.76	0.75	<.01
	Perceived Medium Skills	0.65			<.01
	Status Outcomes	0.34			<.01
	Habit Strength	-			-
Age Group 2			0.55	0.53	<.01
	Perceived Medium Skills	0.46			<.01
	Activity Outcomes	0.25			0.01
	Monetary Outcomes	0.25			0.01
	Habit Strength	-			-
Age Group 3			0.60	0.58	<.01
	Perceived Medium Skills	0.53			<.01
	Social Outcomes	0.32			0.03
	Habit Strength	-			-

Table 29: Stepwise linear regression tests Perceived Medium Skills & Expected Outcomes & Habit Strength → Diversity Online

What is most notable in the results is the role of Habit Strength. Its relation to Internet Use is not significant for Diversity of use, across all or within Age groups. These results suggest that Habit Strength is of no importance to Diversity of use. Even for Time Spent Online Habit strength is a predictor of moderate strength, and only found to be so across the entire sample.

Within each Age group Habit strength was not found to be a significant predictor. One explanation could be that Habit strength simply plays no role in predicting Internet use.

An alternative explanation could be that the respondents have not developed a habit towards Internet Use. The findings in paragraph 5.5 have revealed that the respondents are slightly affirmative about the notion of their Internet Use being habitual, scoring just above the neutral point in the scale. When Habit Strength is found to be so low, one can say there is no habit to speak of, simultaneously explaining why its role in the model is of marginal importance.

Correlations for all proposed factors, Age group 1

Age Group 1	1	2	3	4	5	6	7	8	9	10	11
Perceived Medium Skills	-										
Social Outcomes	,404*	-									
Novel Outcomes	,638**	,707**	-								
Status Outcomes	,517**	,835**	,803**	-							
Monetary Outcomes	,489**	,546**	,598**	,521**	-						
Activity Outcomes	,515**	,670**	,466**	,547**	,393*	-					
Self-Reactive Outcomes	,380*	,451**	,344*	,415**	,329*	,628**	-				
Expected Outcomes	,625**	,888**	,838**	,879**	,718**	,771**	,648**	-			
Habit Strength	,737**	,562**	,664**	,518**	,563**	,575**	,528**	,717**	-		
Time	,459**	*,204*	,352*	*,300*	*,177*	,403*	,352*	,376*	,412*	-	
Diversity	,824**	,585**	,687**	,676**	,582**	,503**	,332*	,716**	,672**	,534**	-

*p< 0.05. **p< 0.01.

Table 30: Pearson Correlations for Age group 1 of all proposed factors of the research model

Correlations for all proposed factors, Age group 2

Age Group 2	1	2	3	4	5	6	7	8	9	10	11
Perceived Medium Skills	-										
Social Outcomes	*,236*	-									
Novel Outcomes	,678**	,523**	-								
Status Outcomes	,282*	,705**	,585**	-							
Monetary Outcomes	,383**	,372**	,698**	,507**	-						
Activity Outcomes	,268*	,486**	,537**	,529**	,502**	-					
Self-Reactive Outcomes	*,085*	,347**	,291*	,438**	,370**	,586**	-				
Expected Outcomes	,439**	,746**	,813**	,825**	,772**	,782**	,634**	-			
Habit Strength	,562**	,382**	,626**	,448**	,536**	,373**	*,165*	,567**	-		
Time	,404**	,246*	,476**	,263*	,586**	,329**	*,191*	,469**	,443**	-	
Diversity	,621**	,351**	,623**	,418**	,553**	,497**	,284*	,604**	,555**	,305*	-

*p< 0.05. **p< 0.01.

Table 31: Pearson Correlations for Age group 2 of all proposed factors of the research model

Correlations for all proposed factors, Age group 3

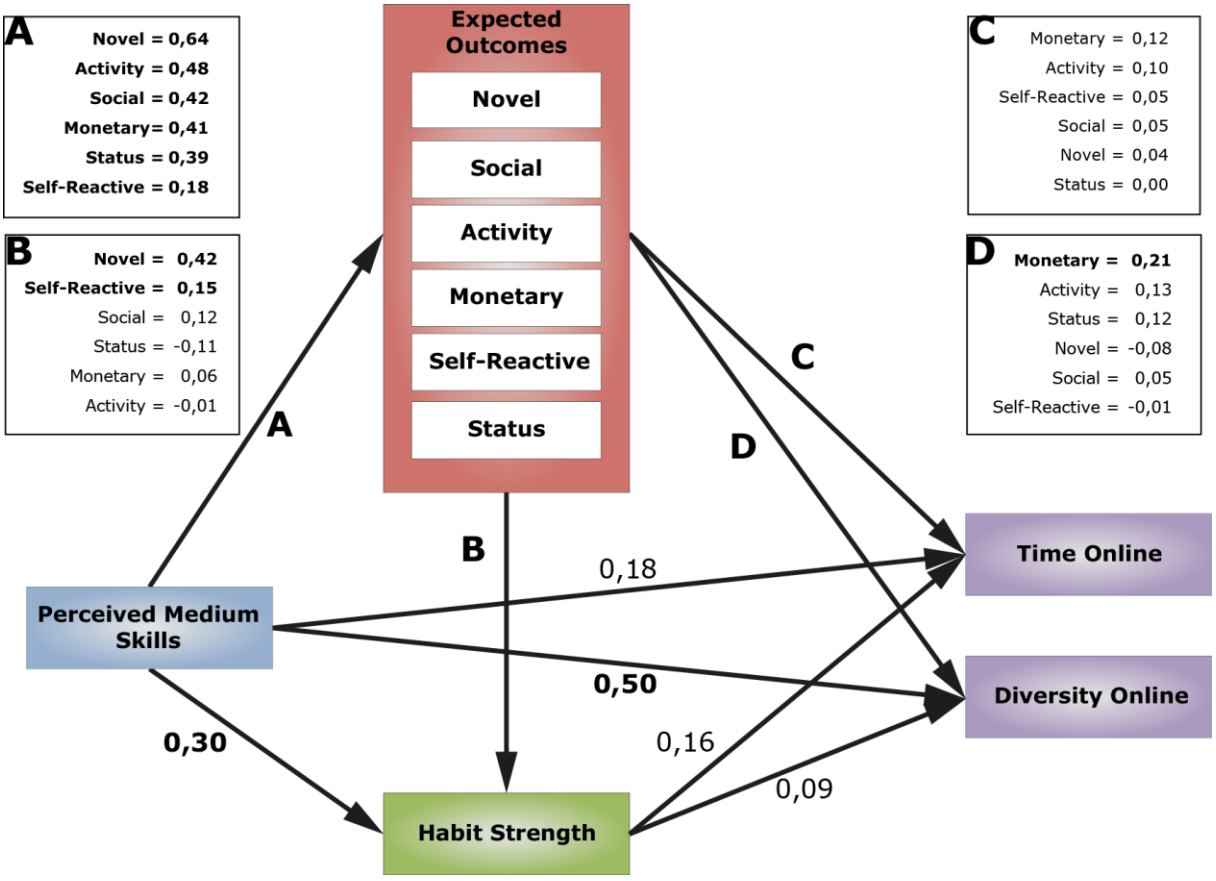
Age Group 3	1	2	3	4	5	6	7	8	9	10	11
Perceived Medium Skills	-										
Social Outcomes	,650**	-									
Novel Outcomes	,773**	,725**	-								
Status Outcomes	,542**	,717**	,585**	-							
Monetary Outcomes	,622**	,458**	,592**	,393*	-						
Activity Outcomes	,458**	,547**	,661**	,403*	,423**	-					
Self-Reactive Outcomes	*,189*	*,379**	,503**	*,249*	*,280*	,789**	-				
Expected Outcomes	,707**	,831**	,888**	,736**	,667**	,824**	,677**	-			
Habit Strength	,702**	,649**	,903**	,455**	,508**	,545**	,537**	,782**	-		
Time	,499**	,716**	,588**	,505**	,334*	,446**	,338*	,636**	,552**	-	
Diversity	,738**	,663**	,662**	,531**	,569**	,529**	,350*	,715**	,632**	,421**	-

*p< 0.05. **p< 0.01.

Table 32: Pearson Correlations for Age group 3 of all proposed factors of the research model

4.9. Overview results: Final Model

In the previous sections all constructs have been examined in their own right, and the proposed links between them have been explored. As age was considered a major factor, all tests have been done for each age group separately. Aside from looking at each age group individually, all tests were also done across the entire sample. Opposed to what was thought, age did not appear to be a major factor in this study. Almost no significant differences were found between age groups. Add to this the size of the entire sample being somewhat small, let alone each of the Age groups drawn from it. For these reasons it deemed meaningful only to provide a through overview for the entire sample.



Note: Bold = p< 0.05; Model for Time online: $R^2 = 0.29$ (Adjusted $R^2 = 0.25$); Model for Diversity online: $R^2 = 0.62$ (Adjusted $R^2 = 0.60$)

Figure 9

As the R^2 values show, the research model is better suited to explaining diversity online than time online. For time online the model explains 29% of the variance. However, for diversity online more than double the variance is explained by the model: 62%. The single greatest factor in the model is Perceived Medium Skills. It was found to be a significant predictor for all Expected Outcome Categories, Habit Strength, and Online Diversity. Conversely, a factor expected to be of significant importance was found to be of less than significant importance: Habit Strength. Though two of the Expected Outcome Categories and Perceived Internet Skill can account for Habit Strength to some extent, Habit Strength itself does not significantly influence Time- or Diversity online. Given the results for Habit Strength, its influence being non-significant on Time- and Diversity online is most likely due to Internet Use in general having not become a habit. The same reasoning applies to most Expected Outcomes categories. Similarly, the scores on these categories were found to be just above neutral, at its highest.

4.10. Exploring Other Media Use

Next to what factors are of importance for Internet Use choice behavior this study attempted to find out whether these factors are different for other media. In order to shed light on this issue the questionnaire contained questions inquiring about the respondents other media use. However, these questions were simpler in order to keep the questionnaire less cognitive demanding. With every question pertaining to the constructs Expected Outcomes and Habit Strength another question was paired to it, asking which other media the respondent (also) used for the aforementioned purpose. Figure X shows an example of such a pair. As can be seen, the question related to Internet Use is measured on a 7-point scale whereas the Other Media question is dichotomous. Each construct was measured using multiple items. To allow a correct comparison, the 7-point scale should be made dichotomous as well. This was done by recoding "always" through "almost never" as 1, and "never" as 0. For both questions in each pair the scores were added up and averaged, creating a binomial scale for each construct and the all other media available as a choice.

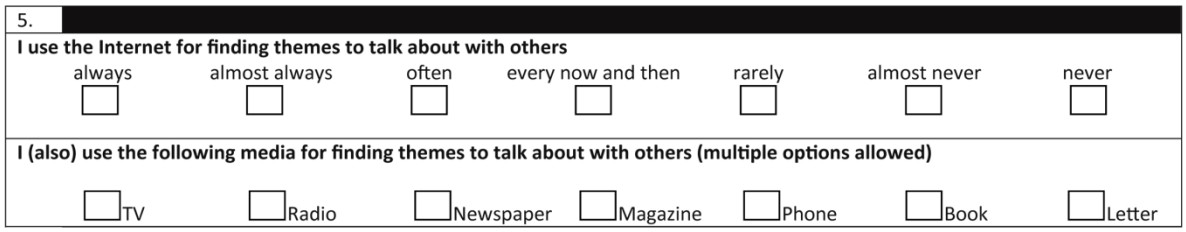


Figure 10

It should be noted that for each item it was always possible to opt for using Internet, but not all other media were always offered. As a consequence, some scales are the result of 5 items being averaged, whereas others were only measured by one item, calling for extra caution when interpreting any comparison. Tables 33 through to 39 provide overviews of the scores per construct and medium for each Age group. The tables are displayed in order of highest Internet Use mean.

What stands out across all media use and Age groups is that Internet always ranks highest. This could suggest Internet is the preferred medium of use for all Expected Outcomes as well as Habit Strength. The fact that most respondents made use of the online questionnaire makes it likely there is a (positive) bias in the sample towards Internet Use. However, it is also likely Internet partially scores higher because in the questionnaire the respondents were asked to consider their use of Internet more extensively than their use of other media. Per question respondents were asked to evaluate whether they always use the Internet, or almost always, or often, and so on, through to never. For all other media they were simply asked to choose yes or no. It seems probable this expected difference in consideration leads to Internet Use being overstated, or conversely, other media use being understated. The implication is that it will be difficult to make any fair comparison between Internet Use and Other Media Use, because it is likely the theorized overstatement of Internet Use applies, yet it is unknown how strong this overstatement is.

Habit Strength of media use

	Age Groups							
	1		2		3		Sample	
	M	SD	M	SD	M	SD	M	SD
Internet	0.94	0.18	0.94	0.19	0.90	0.29	0.93	0.22
TV	0.77	0.27	0.66	0.39	0.71	0.40	0.70	0.37
Newspaper	0.55	0.40	0.66	0.39	0.64	0.42	0.63	0.40
Radio	0.56	0.40	0.42	0.42	0.45	0.42	0.46	0.42
Phone	0.48	0.28	0.35	0.29	0.34	0.28	0.38	0.29
Book	0.30	0.33	0.28	0.35	0.34	0.35	0.30	0.34
Magazine	0.24	0.30	0.28	0.33	0.29	0.30	0.27	0.31
Letter	0.10	0.24	0.10	0.25	0.07	0.23	0.09	0.24

Table 33: Habit Strength of media use per Age group

In spite of its low predictive value in the model, Habit Strength shows the high scores across all Age groups and Media. This suggests Habit is an important construct when it comes to Media Use. Higher scores reflect higher likelihood that the use of that particular medium is habitualized. Amongst the other media TV has the highest scores and Letter the lowest, both across all Age groups. This suggests that watching TV is most often done under the strong influence of habit, so with a high degree of automaticity.

Novel Outcomes Scores for media use

	Age Groups							
	1		2		3		Sample	
	M	SD	M	SD	M	SD	M	SD
Internet	0.88	0.23	0.94	0.17	0.88	0.28	0.91	0.22
Newspaper	0.48	0.28	0.56	0.37	0.51	0.35	0.53	0.34
TV	0.45	0.25	0.49	0.28	0.53	0.28	0.49	0.27
Magazine	0.33	0.36	0.32	0.37	0.42	0.40	0.35	0.37
Radio	0.29	0.25	0.26	0.28	0.27	0.29	0.27	0.27
Book	0.20	0.28	0.20	0.28	0.27	0.32	0.22	0.29
Phone	0.14	0.23	0.23	0.30	0.18	0.25	0.19	0.27
Letter	0.03	0.12	0.01	0.07	0.03	0.10	0.02	0.09

Table 34: Novel Outcomes scores for media use per Age group

Writing a letter has the least strong habitual component, indicating it almost never occurs out of habit. The other media have a stronger habitual component, and the pattern seems to suggest that the degree in which a medium can offer new content, as well as the degree in which the medium can be used passively influences the likelihood of habitualization.

For Novel Outcomes the Newspaper is most often used amongst the other media. This is not surprising, as Novel Outcomes are about getting (up-to-date) information, such as news in general. A newspaper is a medium devoted to those particular uses. Here a pattern can be discerned as well. The degree in which a medium is likely to report the latest updates concerning a chosen subject determines the degree in which a medium is chosen for Novel Outcomes. Media with lower scores still are still media that offer information, but by their nature are more likely to offer specific and/or in-depth information rather than the very latest updates. It is somewhat striking that Phone has such a low score, as it can be used to obtain the latest information concerning one's own social circle. It is likely that the respondents did not consider this as wanting the latest information, and therefore Phone use scored low on Novel Outcomes. It is expected the score for Phone use will be higher on Social Outcomes, as there the emphasis is placed on the social aspect rather than the novel(news) aspect.

Activity Outcomes measure to which degree the use of a medium is preferred for being pleasantly engaged, entertained. TV and then Radio seem to be the most preferred media amongst the other media. Surprising, again, is the low score of Phone. Talking to a friend on the phone can be considered a pleasant activity, but the respondents scores here do not reflect it. Very likely it is the difference in emphasis, which here is on (pleasant) activity rather than social.

As expected, for Social Outcomes Phone use is ranked highest amongst the other media. Newspaper use is also popular for Social Outcomes. It is likely the latest news is a frequent subject of discussion in social circles, thus explaining the place Newspaper use in the ranking. The ranking seems to be determined by a combination of a medium's Novelty score and the degree to which a medium can be considered personal. This explains

the ranking of Letter Use, though Radio use is not in line with the proposed pattern. Radio is public medium and has a high Novelty score. It seems something else influences Radio use's lack of popularity.

Activity Outcomes Scores for media use

	Age Groups							
	1		2		3		Sample	
	M	SD	M	SD	M	SD	M	SD
Internet	0.74	0.29	0.78	0.28	0.74	0.34	0.76	0.30
TV	0.49	0.26	0.45	0.28	0.48	0.30	0.47	0.28
Radio	0.50	0.28	0.40	0.28	0.38	0.28	0.42	0.29
Magazine	0.41	0.33	0,34	0.35	0.28	0.32	0.34	0.34
Newspaper	0.30	0.29	0.37	0.36	0,28	0.30	0.33	0.33
Boek	0.43	0.30	0.26	0.29	0.26	0.29	0.31	0.30
Phone	0.22	0,30	0.13	0.23	0.11	0.22	0.14	0.25
Letter	0.08	0.25	0,02	0.10	0.09	0.28	0.06	0,21

Table 35: Activity Outcomes scores for media use per Age group

For resource saving and/or information about resource saving Newspaper seems to be most often used amongst the other media, as the scores for Monetary Outcomes shows. The ranking does not seem to contain any surprises for Monetary Outcomes.

Social Outcomes Scores for media use

	Age Groups							
	1		2		3		Sample	
	M	SD	M	SD	M	SD	M	SD
Internet	0.68	0.27	0.76	0.25	0.73	0.30	0.73	0.27
Phone	0.36	0.24	0.42	0.31	0.35	0.26	0.39	0.28
Newspaper	0.26	0.19	0.28	0.27	0.33	0.31	0.29	0.26
TV	0,27	0.23	0.26	0.26	0.28	0.23	0.27	0.24
Magazine	0.19	0.24	0.14	0.21	0.19	0.25	0.17	0.23
Book	0.17	0.24	0.13	0.22	0.21	0.28	0.16	0.24
Radio	0,19	0.19	0.15	0.25	0.13	0.22	0.16	0.23
Letter	0.12	0.22	0.11	0.21	0.14	0.25	0.12	0.22

Table 36: Social Outcomes scores for media use per Age group

Monetary Scores for media use

	Age Groups							
	1		2		3		Sample	
	M	SD	M	SD	M	SD	M	SD
Internet	0.73	0.33	0.66	0.31	0.61	0.31	0.67	0.31
Newspaper	0.32	0.37	0.42	0.37	0.30	0.33	0.36	0.36
Magazine	0.12	0.22	0.14	0.26	0.14	0.24	0.13	0.24
Book	0.08	0.27	0.07	0.26	0.03	0.16	0.06	0.24
TV	0.05	0.11	0.07	0.19	0.06	0.18	0.06	0.17
Phone	0.05	0.14	0.03	0.10	0.05	0.15	0.04	0.13
Radio	0.03	0.10	0.04	0.15	0.01	0.06	0.03	0.12
Letter	0.01	0.05	0.02	0.13	0.02	0.11	0.02	0.11

Table 37: Monetary Outcomes scores for media use per Age group

The scores for Status Outcomes reveals a strong link to Social Outcomes. This was expected as amount of status is the result of an evaluation by a social circle. Thus, a social circle grants status, implying social interaction is required for status evaluations. This explains the ranking fairly well. Media that allow direct social interaction are more likely to score higher as well as media granting access to valuable information, the ownership of which can then be used to affirm or attract more status.

Status Outcomes Scores for media use

	Age Groups							
	1		2		3		Sample	
	M	SD	M	SD	M	SD	M	SD
Internet	0.52	0.36	0.61	0.34	0.61	0.39	0.58	0.36
Phone	0.22	0.35	0.32	0.40	0.32	0.42	0.29	0.39
TV	0.24	0.30	0.29	0.31	0.20	0.30	0.25	0.31
Book	0.26	0.45	0.17	0.38	0.26	0.45	0.22	0.42
Newspaper	0.13	0.22	0.23	0.26	0.21	0.27	0.20	0.26
Magazine	0.16	0.24	0.17	0.22	0.22	0.25	0.18	0.23
Radio	0.11	0.26	0.12	0.23	0.12	0.27	0.11	0.25
Letter	0.06	0.17	0.07	0.15	0.13	0.28	0.08	0.20

Table 38: Status Outcomes scores for media use per Age group

The media ranking for Self-Reactive Outcomes shows something interesting. Considering the probable overstatement of Internet Use in this study, it is likely that for

Self-Reactive Outcomes TV matches the Internet in preference. Self-Reactive Outcomes can be defined as media use activity facilitating distraction from an undesired negative state of the self. Plainly put, media use engaged in to forget one's worries. It is also striking that there is such a large difference between TV use and the remaining other media. Book use may be ranked second amongst other media, but it scores much lower than TV use. TV is obviously the most popular amongst the other media for Self-Reactive Outcomes.

Self-Reactive Outcomes Scores for media use

	Age Groups							
	1		2		3		Sample	
	M	SD	M	SD	M	SD	M	SD
Internet	0.54	0.34	0.54	0.35	0.55	0.33	0.54	0.34
TV	0.46	0.35	0.41	0.35	0.41	0.32	0.42	0.34
Book	0.33	0.35	0.23	0.29	0.28	0.33	0.27	0.32
Magazine	0.31	0.32	0.25	0.30	0.25	0.31	0.26	0.31
Radio	0.27	0.33	0.21	0.27	0.18	0.24	0.22	0.28
Newspaper	0.16	0.25	0.24	0.29	0.12	0.20	0.19	0.26
Phone	0.13	0.26	0.08	0.16	0.10	0.24	0.10	0.21
Letter	0.06	0.23	0.01	0.05	0.03	0.12	0.03	0.14

Table 39: Self-Reactive Outcomes scores for media use per Age group

Pattern wise, other media seem to follow the same pattern as Internet use. The Expected Outcomes that score high for Internet Use also score high for other media use. Across all constructs other media follows the same ranking as for Internet use, except for the two lowest scoring Expected Outcomes. Status Outcomes rank lower for other media than Self-Reactive Outcomes, due to TV use's popularity for Self-Reactive Outcomes.

4.11. Questionnaire Results Concluded

The data from all the tables suggests that the Internet is used for all proposed outcomes, but primarily for obtaining information. In order to reach these outcomes, Medium Skills are required. Most respondents have sufficient Medium Skills to be considered no more than competent users. In spite of this, Internet use is still remarkably diverse as on average the respondents engage in close to half of all 31 activities asked. The

frequency of these activities did vary to a great extent. Activities related to obtaining information proved to be most frequently (daily/weekly)engaged in, whereas the frequency of other activities varied greatly from respondent to respondent. The comparison with other media shows Internet use to be most popular, but this might be caused by the method used to obtain respondents. The pattern of other media use did not reveal any surprises, showing that respondents preferred media that had proven themselves to be (uniquely) suited to the desired outcome. The most interesting finding is the weak role of habit. It was expected to play a major role in explaining Internet use choice behavior, but proved better to leave out of the conceptual model. Another factor thought to be of major importance in this study was age. However, no significant differences were found between the used Age Groups. Considering the sample size was quite small it is possible that a repeated measure with a larger sample could reveal observed non-significant differences to be significant differences. No confident claims can be made about the role of age related to Internet use based on this study, more research is needed.

5 Interviews

The questionnaire provided a lot of data about the respondents' Internet Use. The scores have been used to uncover patterns, and attempts were made to explain the patterns encountered. To discover why the respondents' gave the answers they did on the questionnaire interviews were carried out. In the interviews the respondent would be asked if indeed he/she used the Internet mostly for Novel Outcomes, but also why Novel Outcomes were sought so often. And why other particular outcomes seemed much less popular.

5.1. Sampling and Procedure

Respondents were gathered through the questionnaire. In the questionnaire respondents were asked whether they would be willing to participate in a follow-up study. Of the 215 respondents who filled in the questionnaire at least partially, 28 indicated being willing to participate in the follow-up study. These 28 respondents were contacted and asked when they would be available for an interview. For planning reasons 9 respondents were selected for the interviews. Due to time constraints on the researcher as well as the respondents the interviews were carried out over the telephone. All interviews were recorded with permission of the respondents.

The respondents were classified and selected based on their reported time online each week, in order to uncover why certain respondents choose to spend more time online than others. A respondent was labeled as followed based on time spent online: Non-user(0 hours a week), Light user (0< hours to 7 hours a week), Medium user(7< hours to 14 hours a week), and Heavy user(14< hours week). The results will be presented in the same order as in the chapter concerning the questionnaire.

The scores from the questionnaire were taken into account during the interviews, both verifying the scores as well as asking why the respondents use the Internet as reported. As such the interviews were semi-structured and the responses were examined to establish to which construct that particular response refers to. After deciding to which construct a response belonged, the interviewer reported it in a response table that was

modeled on the constructs. The response table also contained all the questions from the questionnaire as a reminder. An example of such a response table is included in appendix B.

5.2. Respondents' Questionnaire Results

As all the respondents had also completed the questionnaire, their scores for each construct will be reported. This will allow for a comparison between their behavior as reported in the questionnaire and their behavior as reported in the interviews. Table 34 shows an overview of these scores. For one respondent the scores are missing. This respondent partially filled in the paper version of the questionnaire, and the answers classified this respondent as a Non-user. However, during the interview it became apparent this respondent did use the Internet. During the interview the time spent online on average each day was asked, allowing re-classification as a Medium user. Other questions from the questionnaire were not asked again systematically due to time constraints and the purpose of the interview, so other scores remain missing.

Questionnaire data of the interviewed respondents

	Age	Time	Div.	Nov.*	Act.*	Soc.*	Sta.*	SeRe.*	Mon.*	Hab.*	Ski.*
Heavy	63	35	19	5	3	2.6	2.4	1.8	1.75	5.75	6.69
	61	28	15	5.75	3.25	3.6	2.8	1.4	2.5	5.5	5.69
	52	28	16	3.5	5.5	2.2	1.4	4	2.5	5.75	5.13
Medium	64	10	-	-	-	-	-	-	-	-	-
	80	7	16	3.75	2.75	3.6	3.6	1.6	1.5	3.5	3.81
	66	7	11	3.5	1.5	3	2.8	1	2.75	5.25	5.69
Light	61	5	9	4	3.5	3.2	1.4	3.4	1.5	4.25	3.75
	65	4	13	4.5	3	4	1.8	2.2	1.75	4.5	4.63
Non	76	0	0	0	0	0	0	0	0	0	0

Note: 7-point scale*

Table 40: Scores on the questionnaire for the interviewed respondents by Use Category

5.3. Exploring Perceived Medium Skills

Respondents were asked about how confident they were using the Internet. This allowed verification of their scores in the questionnaire, as well as inquiry whether they

had always had the same confidence towards Internet use. Naturally, it was asked why their confidence had remained to same or had changed, if it had.

5.3.1 Light Users

Table 40 shows that the two Light Users scored 3.75(between "Somewhat disagree" and "Neutral") and 4.63(between "Neutral" and "Somewhat agree"). This suggests neither Light User was confident about their Perceived Internet Skills. During the interview no clear-cut reason was given. However, both respondents reported the same experience where Perceived Medium Skills were concerned: They would run into problems they felt they were unable to solve by themselves. An example of a situation where problems had been experienced was uploading photos. The light user that encountered this problem had given up quickly, by her own account. She could not say exactly why she would give up so quickly. In spite of encountering problems, both Light Users were eager to learn more, and become more competent. One explanation both respondents offered for their relative low confidence in their Perceived Medium Skills was not having had any instruction through work. Internet Use was introduced in their respective fields after they had left their working life. One respondent felt it was a shame that computers and Internet were introduced only shortly after she left, missing out on the chance to learn then and there. When the Light Users started using computers and Internet, they felt uneasy at first. But that anxiety lessened over time. One of the two Light Users reported that learning new things didn't go fast, but that was an "age thing". If she kept on trying it would stick with her. The general picture these responses paint is that of two people eager to learn, but held back by remaining anxiety related to the use of the Internet.

5.3.2 Medium Users

During the interviews the three respondents indicated they have no major problems operating a computer and an internet browser. The available scores on the questionnaire were nevertheless not reflecting that confidence consistently: 3.81(between "Somewhat disagree" and "Neutral") and 5.69(between "Somewhat agree" and "Agree"). These two Medium Users both reported that using the Internet caused no

great difficulties for them, in spite their difference in score on the questionnaire. The Medium User whose scores were unavailable also seemed confident in her Internet Skills. Though all reporting high confidence in the interviews now, this had not always been the case. In the past the thought of using a computer and the Internet caused some anxiety, but all respondents still decided to learn how to use a computer and the Internet. Sometimes they would encounter a problem, but nothing on a regular basis. One such problem was reported to be changing account settings in an e-mail program, and in such cases they would know someone to call for help. A trend could be spotted in the responses of the Medium Users: They had no problems with day to day use of the Internet. However, Internet-related activities whose occurrence was inherently low caused worry. An example was given by one of the respondents, as he described what he thought when he tried to do something he had last done a while back:"How did I do that 3 months ago…?"

There was a difference in attitude towards these problems with infrequent Internet-related activities. One Medium User considered the low frequency of these tasks as reason enough to not try to learn how these tasks are carried out. This Medium User was comfortable with letting someone else assist when these Internet-related tasks were required. Another Medium User was very interested in technology in general and would keep on trying himself until he got the job done. This in spite of sometimes having to wonder how he had done the same thing in the past. The last of the three respondents was a woman seemingly driven by curiosity. If she wanted to do something online and encountered problems she would keep trying until she had learned how. She also reported not really having anyone to assist her, so she had to keep trying on her own. An interesting thing the same Medium User reported was that so much things online were in English, not Dutch. That scared her off a little.

5.3.3 Heavy Users

All respondents indicated having faith in their own Perceived Medium Skills, and also scored highest on the questionnaire: 6.69(between "Agree" and "Agree entirely"), 5.69, and 5.13(both between "Somewhat agree" and "Agree"). There still is some difference between the highest and lowest scores of the Heavy Users, and this was also

found during the interviews. The highest scoring Heavy User was very confident and used several digital media devices. He also did volunteer work teaching other people how to use computers and Internet. Not surprising this user also reported the highest amount of hours spent online each week. The second highest scoring Heavy User was quite confident as well, though limited her use of the Internet to the computer at home. She was self-taught where her Internet Skills were concerned, and started using the Internet out of a fascination with technology. This fascination had taken hold of her ever since she was told in the '70s that the huge computers she saw then would become increasingly smaller. At first this Heavy User experienced anxiety when starting to use the Internet, which translated itself into a cautious approach:"I was always afraid of ruining entire systems until I realized:"No, I can just use 'delete' here"". Over time she became more confident, and kept up with general developments in Internet technology. The third highest scoring Heavy User reflected the Medium Users when it came to her own Internet Skills. Day to day use was not a problem, but less frequent or more complicated tasks required her to call on assistance of others. Requiring assistance for these tasks did not bother her. She first learned through her work, while having no prior experience.

5.3.4 Summary

All respondents had faith in their own Internet Skills, whilst simultaneously indicating that using a computer and the Internet had caused some anxiety before they actually started using a computer and the Internet. The amount of confidence did differ, as well as the eagerness to learn more. Overall, most respondents felt confident enough for their day to day Internet use. Advancing in Internet Skills was not desired by all, though most did want to learn at least a few more things. As expected, the desire to learn more was greatest with the Light Users. These users also seemed to experience the most anxiety when it came to using the Internet. Conversely, the Heavy Users expressed the least desire to learn more. They were comfortable with their current level of Internet Skills, and mostly confident about being able to do new things if they wanted to.

What must not be forgotten is that both the questionnaire as well as the interviews recorded perceptions of Internet Skills, not actual Internet Skills. It is possible respondents perceptions were off, under- or overestimating their Internet Skills. The interview-

er thinks it is likely perceptions could have differed greatly from reality in some cases. Overestimation is not suspected, but underestimation seems likely. Though their confidence in their Internet Skills differed from the Light- through to the Heavy Users, all were confident enough to succeed in their day to day use of the Internet. Interestingly, for almost all users day to day Internet use was largely comprised of the same activities: finding in depth-information and reading up on subjects of interest, reading/writing e-mail, and news and weather. These activities do not require an especially high level of Internet Skills, but some competency is required. Nevertheless, the Light users rated themselves lower than the required level of competency in both the questionnaire and the interview.

5.4. Exploring Expected Outcomes

Next, respondents were asked for what purposes they use the Internet. Also, why certain purposes were more prevalent than others. This again allowed verification of their scores in the questionnaire. But more importantly, gave insight into why some Outcomes are sought more often than others.

5.4.1 Light Users

Novel Outcomes seem to be the most important reason for both respondents to use the Internet. One respondent primarily uses the Internet most of the time for general information seeking:"You do look up things on a regular basis". The other respondent would look for daily news, much like reading a newspaper, and get information about the stock market. The score the Light Users had on Novel Outcomes was 4.5(between "Often" and "Almost always"), and 4("Often"), so their responses in the interviews matched up with the questionnaire. The reason for this frequent use of the Internet seemed to be the easy and fast access to information.

The social possibilities of the Internet were known to both respondents, but only one of them was interested. The other reported not feeling comfortable with using social network sites, such as Facebook or Hyves, in spite of feeling competent enough to use such sites. The respondent that reported interest felt that he was not yet competent

enough to use social network sites:"That's all good and well, but I'm not doing that yet". However, now that he had more free time he would certainly give it a try. Though this respondent did not feel "ready" to use the social side of the Internet, he was already using it. He reported playing checkers over the Internet, against other people. This also means he uses the Internet for entertainment purposes. When it comes to resource saving(Monetary Outcomes), the respondents indicated it as having only a small overlap with Novel Outcomes. Both respondents would go online to inform themselves about products and services, but never purchases them on the Internet. On Self-Reactive Outcomes the Light Users scored high amongst the User categories. Though still negative in general, the Light Users did use the Internet to relieve themselves of negative state of being. They linked this to a specific activity, playing games. It is unclear to which extent playing games is done for obtaining Self-Reactive Outcomes. Playing games can also be done for obtaining Activity Outcomes. These two outcome categories are conceptually related, but the emphasis is placed on different aspects. Playing games can be done for entertainment, and the Light Users did seem to do so. Such use falls under Activity Outcomes. However, playing games can also distract from the weight of personal problems. This use falls under Self-Reactive outcomes.

5.4.2 Medium Users

Both interviewees reported that the Internet was primarily seen as an information tool. Something to be consulted when looking for specific information. One interviewee likened the use computers and the Internet to a toolbox:"when you need it, you open it, and when you're done, you close it".

The other Expected Outcomes categories were less popular. When asked about the social side of the Internet (Social Outcomes), one respondent showed complete disinterest, aside from using e-mail to stay in touch. The other respondent was similarly disinterested:"I don't want to hang up my dirty laundry outside". When asked whether Internet was used for entertainment purposes (Activity Outcomes), both respondents, again, reported little interest, one literally saying:"I don't have time for that". They either had other things they wanted or needed to do, or simply did not see the Internet as a

medium for entertainment. Almost identical reasons were given for using the Internet to cheer oneself up(Self-Reactive Outcomes).

The respondents differed on using the Internet for resource saving and/or purchasing of goods(Monetary Outcomes). One respondent reported a preference for offline shopping, with the added human interaction. This respondent also did not want to use the Internet to get information on goods before buying them in a shop. In such a case this respondent would consult a store-clerk. The other respondent did buy goods online, and looked up information about goods before buying them offline. The goods that were bought online were e-tickets for traveling. For major purchases this respondent would go online and explore the various options available, but would attribute no worth to a user review, as it was unknown what kind of person had written the review.

5.4.3 Heavy Users

For the heavy users activities related to Novel Outcomes were reported as most popular, though one of the three spent most time online playing games and listening to music(Activity Outcomes). The other two were very positive about the extent to which Internet can be used for Novel Outcomes. One respondent put this aptly:"It(the Internet) widens your horizon, the access to information is enormous.". The three respondents were not involved with the social dimension of the Internet. Two respondents did not feel any need to use social network sites, or become member of a forum. They either had other things to do or used other media for social ends:"That's what I have a phone for". The remaining respondent had strong negative views about these social sites. He had privacy concerns, but also feels people are extremely unfriendly towards each other on forums because of the perceived anonymity, and therefore does not want to take part:"I sometimes go there(forums), and then I see all kinds of incredibly rude remarks". Playing games or using the Internet for other entertainment purposes was only popular with one of the three respondents. This respondent enjoyed playing online games to enjoy herself and relieve boredom(Activity & Self-Reactive Outcomes). The remaining two respondents had no interest in using the Internet for entertainment. They preferred other media use, such as reading books. Using the Internet to save resources was popular for two of the three respondents. Though only one respondent used the Internet for regular

purchases. The other respondent used the Internet to save time and get informed about products and services. The remaining respondent did not use the Internet for resource saving, because no need for it was felt.

5.4.4 Summary

The respondents all primarily use the Internet to obtain information. The reasons for other uses of the Internet varied. Social outcomes, like using online social networks was something one respondent was curious about. Excluding using e-mail, no other respondent seemed interested in the social side of the Internet. Using the Internet for entertainment was popular amongst 2 respondents, playing games in particular. For one of these 2 respondents Internet radio seemed to have taken the place of regular radio. Resource saving was not a frequent use of Internet for the respondents. Only 2 reported buying goods online. Other respondents would use the Internet for finding information about products, but this overlaps with the already popular use of finding information in general. The reported differences of the popularity of certain Expected Outcomes did not seem to be caused by the amount of time a respondent spent online.

5.5. Exploring Habit Strength

During the interviews it was asked how commonplace the use of Internet was to them, and also whether they would miss the Internet if it were somehow no longer available. These questions provided insight into how habitual the Internet use of the respondents is, as well as verifying the answers in the questionnaire. If the respondents made other references to habit outside of these questions, these references were also recorded in the response table.

5.5.1 Light Users

Both respondents indicated their use of the Internet was habitual in both the interview and questionnaire. Their scores on the questionnaire were 4.5 and 4.25 respectively(between “Neutral” and “Somewhat agree”). These scores suggest their use of the Internet is slightly habitual. However, during the interview both Light Users expressed a stronger habit towards Internet use. One respondent would really miss the Internet if it

was suddenly unavailable:"I'm completely used to it. The things I do (online) I want to do daily". This respondent also indicated he would miss his checker games in particular. The other Light User noted that she looked up things quite often, and would really miss that possibility should the Internet suddenly be unavailable. Another interesting point was made by this Light User. She used other media specifically because the use of those media felt familiar, comfortable. Because of this she did not go online to read the latest news because she reads the newspaper for that. It was the opposite with the other Light User: he had stopped reading the newspaper because he now used the Internet for the latest news.

5.5.2 Medium Users

Where habit was concerned, all three respondents agreed that their use of the Internet had become "normal", habitual. Most notably e-mail, which the three respondents checked every day. The e-mails they receive would sometimes contain interesting links that they would then explore. One respondent mentioned specifically she found herself spending more time online than she had expected. The scores available for two of the three Medium Users for Habit Strength showed a strong difference. One score was 5. 25(between "Somewhat agree" and "Agree") and the other Medium User scored 3.5(between "Somewhat disagree" and "Neutral"). The lowest scoring Medium User also reported the weakest habit in the interviews. He would always check his e-mail, but doing more than that was not frequent. The highest scoring Medium User also checked her e-mail every day. Often her received e-mails would contain interesting links, which she would then open. In doing so she found herself spending more time online than she would have expected. There was no score available for Habit Strength for the remaining Medium User, but she also revealed a strong habitual use of the Internet. She would set a timer in order to prevent herself from playing an online game for too long.

5.5.3 Heavy Users

As could be expected for heavy users, all indicated that using the Internet had become habitual to them. Their scores on the questionnaire also reflected this: 5.5, 5.75, and 5.75(at least halfway between "Somewhat agree" and "Agree"). All said they would

most definitely miss the Internet should it somehow become unavailable to them. One respondent painted a picture revealing how essential the Internet is to him:"There's a nice episode of South Park about the Internet not working, the entire world stands still". Though they on average spent at least three hours a day online, this amount of use was not a problem to them.

5.5.4 Summary

All the respondents indicated their use of the Internet was indeed under the influence of Habit. All respondents had certain daily online activities they were used to doing. It is no surprise then that the respondents also thought they would miss the Internet, should it not be available anymore. As habit strength grows, and the time spent online increases the possibility of addiction draws nearer. However, the heavy users did not seem concerned with addiction. They were fully aware of how much time they spent online and did not consider it a problem. Users in other categories revealed they sometimes spent more time online than they would have expected. One even had to restrict her own time online by setting a timer. What is most interesting to note is that in spite of strongly varying scores and attitudes towards habitual Internet use, all users had developed some habit towards using the Internet. This suggests that habit is present quickly with Internet use, but grows in strength at differing speeds.

5.6. Remaining Findings Of Interest

Aside from responses clearly belonging to one of the constructs from the questionnaire, respondents also reported other interesting things. For these responses there was an "other" category in the response table. Often these responses were still related to at least one of the constructs from the questionnaire. However, such responses never fitted clearly into one of the categories in the response table and were therefore reported under the heading "other".

5.6.1 Light Users

For light users the technology itself is reported or implied as a barrier. Both respondents reported enjoying using the Internet and desiring to learn to get more out of

Internet. One respondent also reported that using the Internet was important, because she did not want to look like a "daft grandmother" next to her grandchildren. Safety was also a concern for one of two respondents:"You hear these stories sometimes…".

5.6.2 Medium Users

When asking why the respondents use the Internet primarily for Novel Outcomes and much less for other Expected Outcomes the explanation offered seemed to contain two components. Either they were disinterested in using the Internet this way because no need for it was considered to be present, or it was implied that computer and Internet use itself was considered beyond their own skills. Both respondents gave off the impression that when the use experience was not smooth, they would be likely to give up. Language was also reported as a barrier:"I don't know English, that scares me off a bit"

5.6.3 Heavy Users

Amongst the heavy users there were also strong opinions about using computers and the Internet in general, aside from their own personal use. One respondent disliked that society was forcing people to use the Internet, but was simultaneously more negative about people's refusal to learn how to use computers and the Internet. In general this respondent reported that it seemed to be a problem within her generation, an attitude of giving up, appearing helpless:"they have an attitude, put that on paper for me and slide it through the letterbox, preferably a person included with it". The other respondent believed that computer and Internet use are very valuable for society, but thinks that too much money is squandered by the government on failing IT projects. The remaining respondent also disliked that businesses and institutions assume people have and can use the Internet. People may have access, but skills are needed for successful use.

5.6.4 Summary

The "other" part of the Interview results was included to present interesting findings that were not included in the questionnaire. It seems computer- and Internet use

still has some fear and anxiety connected to it, even when they regarded themselves as competent Internet users. One respondent specifically mentioned skills related to Internet use as important, saying that it was too often assumed that having access was sufficient reason for moving services and goods online. Interestingly, language could also be a problem. Though there most certainly is Dutch content on the Internet, far more content is available in English. The same goes for software. This respondent would probably like more content, and perhaps also software, in her own language. To all respondents using the Internet was important, it was important to keep up with this new technology. Either to feel like still keeping up with society at large, or within the social circle of family.

5.7. Non-user

One respondent was classified as a non-user. She did not use the Internet at all. Because of this the interview had a different form. Instead of running through the questionnaire this respondent was asked about her media use in general and why it did not include the Internet.

This respondent did not use the Internet because she had other things taking up her time, but also felt she should not have to (learn how to) use the Internet. For news and information she used other media, such as TV and radio. The same was true for social purposes; the preferred medium was the telephone. She did have a mobile phone because her son wanted her to have one. But she almost never used the mobile phone. She did report feeling some regret not learning how to use computers and the Internet, but at the same time reported she did not feel like she was missing out. Though there are a few things she needs to do online, such as her taxes, she would let her son do it for her. Also when she would want some very specific information that is readily available on the Internet her son would be the one to look it up for her.

5.8. Interview Results Concluded

The interviews were carried out with the goal of obtaining more insight into why the respondents use Internet the way they do. The results suggest the main reason is to

get easy access to a wealth of information. Respondents find themselves going online most often to look something up. Which information is most desired can vary strongly, but it is the possibility of having access to a wide range of information under one's fingertips that seems to drive Internet use. All respondents used e-mail, but aside from this they generally had no interest in social networks or other social uses of the Internet. Media that have been around longer were still more preferred for social ends, most notably the phone.

Quite a few respondents did not have to work with computers or Internet during their working-life, and reported having computer anxiety in some form when first starting out with using computers and then the Internet. After a certain level of skill and comfort was reached, it seemed to depend on the respondents own personality whether Internet use became more diverse or remained relatively narrow. Some respondents were still somewhat digitally illiterate, but wished to learn more. The non-user seemed entirely digitally illiterate, but did not consider this to be a problem at all. Within the heavy users one respondent was extremely digitally literate, and seemed to have become so on his own without great amounts of effort. This variation of digital literacy seems to suggest some people are more technology-prone than others, and not being able to use certain technology does therefore not have to be experienced as a problem.

Almost all respondents did report finding it important to keep up with technology, but to which extent it was important to do so did vary greatly. These results seem to match the questionnaire: the Internet is used because it gives easy access to a wealth of information on a wide range of topics. Other uses also seem to be dependent on how easy this use is perceived to be. Using the Internet for resource saving might be so unpopular because of safety concerns, and unfamiliarity.

6 Final Results: Comparing The Questionnaire & The Interviews

The results of the questionnaire revealed that the chosen variables were related to Internet Use, and to which extent. The interviews offered insight into the personal reasons of 9 respondents for the extent of their use the Internet. It is now interesting to compare the results of these two instruments. The comparison will attempt to discover the reasons underlying the scores found through the questionnaire, and provide a more comprehensive explanation of the Internet use of older people.

6.1. Procedure

A systematic approach will be taken similar to chapter 4(questionnaire). First, the scores for Internet Skills will be briefly reviewed. Then the scores for Medium Skills will be explained using the responses from the interviews. The next factor to be discussed the same way will be Expected Outcomes, broken down into its 6 separate categories. After explanations for Medium Skills and Expected Outcomes have been offered separately, it will be discussed how and why these are related. These steps will then be repeated for all factors investigated in the present study.

6.2. Internet Skills

The results from the questionnaire have shown that the respondents believe themselves to have sufficient Internet Skill to be considered competent Internet users. This belief was also found in the interviews where the respondents indicated having no problems with their day to day Internet Use. However, the results from the questionnaire posit that the respondents consider themselves merely competent. Taking the results from the interviews into account, it could be most respondents indeed do not consider themselves expert Internet users. They may not have problems with activities such as reading/writing e-mail, or searching for information. But activities requiring more active participation from the users, may task their confidence in their Internet Skills. Another

explanation for most respondents not scoring beyond competent might be the activities they use the Internet for. Reading/writing e-mail and searching for information does not require users to have Internet skills beyond the basics. This is a tricky explanation, as it remains hard to tell whether the Medium Skills limit the online activities or that the online activities limit the desire to obtain more advanced Internet Skills. The results found in this study suggest the first explanation is correct. But the second explanation has not been ruled out definitively. It is also quite possible that the scores for Perceived Medium Skills differ significantly from demonstrable Internet skills. The Light Users in the interviews considered themselves less competent than their reported activities likely required them to be. Therefore there are no grounds to dismiss the possibility of self-underestimation.

Most users in the interviews admitted having experienced anxiety when taking the first online steps. For a few users this anxiety may entirely disappear after the first successful steps, but for most users some anxiety towards more advanced Internet use may never disappear. Of many respondents in this study it can be expected that they have never worked with a computer or the Internet whilst still employed. It is possible this has made the first step towards using the Internet harder for many. Without outside pressure and support in a professional environment, it seems it is then up to the respondents' own goals and desires whether they start using the Internet extensively, if even at all. Some outside pressures may still exist, however. One such pressure takes the form of not wanting to seem daft or old-fashioned in the eyes of close relatives, such as children and grand-children. There are probably also some older people who find the perceived challenge of Internet use exciting rather than anxiety-provoking. These older people may well simply be more interested in new technology in general. Or perhaps be more confident in general. Learning to use the Internet then becomes more fun, rather than an arduous seemingly obligatory task.

6.3. Expected Outcomes

As repeatedly discussed in this thesis, Expected Outcomes consists out of 6 different categories. In spite of their different emphases on Expected Outcomes, the categories

do overlap in varying degrees. Because of this the categories will not forcibly be discussed separately. A more holistic approach will be taken, given how interwoven the 6 categories seem to be.

The most often sought Outcomes are those related to Novel Outcomes. These are outcomes related to finding news, as well as other information. According to the results from the questionnaire most respondents reported seeking these outcomes a little more often than every now and then. Though scoring highest, this frequency is relatively low. The interviews painted a different picture. The answers given therein suggest most Internet use has a Novel Outcome component to it. Novel Outcomes was reported as one of the most important reasons to use the Internet, as it offers easy access to a wealth of information on diverse topics. This leaves the discrepancy between the questionnaire and the interviews to be explained. The explanation suggested in this study is that all Expected Outcome categories overlap with Novel Outcomes. Searching for things to talk about primarily belongs to Social Outcomes in this study, but it is not far-fetched to consider this related to Novel Outcomes as well. Similarly, finding information on goods and services primarily belongs to Monetary Outcomes, but could also fall under Novel Outcomes. Reading up on the latest news about a subject of great personal interest can simultaneously be entertaining, informative, as well as distracting. Thus this particular activity can be seen as belonging to Activity- and Novel Outcomes, as well as Self-Reactive Outcomes. The discrepancy found between the questionnaire and the interviews would then be caused by the questions in the questionnaire as being scored for only one of Expected Outcome categories at a time. Given this explanation it is no wonder most of the respondents in the interviews seemed to view the Internet as an information tool, rather than anything else. It is suspected most respondents in this study hold the Internet in the same regard. It gives such easy access to desired information that using other media for Novel Outcomes becomes less desired. The only exception seems to be daily news, for this the respondents also value TV and Newspapers. But for a quick query, or getting extensive information fast the respondents prefer the Internet.

Though the second highest scoring Expected Outcomes category in the questionnaire, Social Outcomes were rather obtained through other media by the respondents in

the interviews. Most notably the phone was the preferred medium of choice. The scores from the questionnaire and the responses in the interview suggest that using the Internet for Social Outcomes occurs as long as it remains relatively passive. So, reading things online to talk about with others may happen frequently. But also talking online to others about these things appears much less desired. Then most respondents seemingly prefer the phone, or face-to-face contact. One online Activity that would belong to Social Outcomes is participating in an online forum. But in light of the responses during the interviews it is quite possible the respondents prefer to stay away from forums. Given the perceived anonymity of the Internet users on forums express themselves less than graciously more often than they would via other media. This rude behavior is suspected to cause reservations in the respondents. Less anonymous are online social networks. But the respondents are likely not much more enthusiastic about these than about forums. However, a different cause seems to be in play. One Light User indicated a desire to use these social networks, but expected his Internet Skills to be inadequate for successful use. It is not unlikely other respondents in the sample share this opinion. Much of the trends and accompanying explanations for Social Outcomes seems to apply the remaining 3 Expected Outcome categories. As far as the activities belonging to the Expected Outcome categories can be considered relatively passive, the Internet is used for Monetary-, Status-, and Self-Reactive Outcomes. According to the interviews, the Internet is indeed used to find information about products and services. But less frequent for the purchase of goods and services directly. The same appears true for Status Outcomes. Using the Internet in order to keep up with the technology itself and its increasingly widespread use in society has been mentioned in the interviews. But using the Internet to demonstrate one's competency and/or knowledge to others was not mentioned at all, likely because this particular use requires more active online participation. Again, perhaps because other media are preferred. It is also possible the respondents perceive their Internet Skills to be inadequate for this use. Self-Reactive Outcomes scored lowest of all Expected Outcome categories. Other media seem preferred for this category as well. Most likely the TV is used when there is a need to distract the self from current worries. The low score may also reflect that the respondents have a low need for Self-Reactive Outcomes. The responses during the interview did not hint at great worries existing in

the lives of the respondents, suggesting they had little need for distraction. In fact, using the Internet for idle entertainment seemed unpopular because the respondents had plenty of other things to spend their time on. It is quite likely the responses during the interviews concerning Self-Reactive Outcomes reflect most of the other respondents as well. The low score in the questionnaire as well as the general denial of using the Internet for Self-Reactive Outcomes could also be explained another way. The questions pertaining to Self-Reactive Outcomes are confronting, and therefore it is possible that the respondents hid such use during the interviews. Even given the guaranteed anonymity, the questions could have been too confronting for some respondents to answer truthfully.

As mentioned before, there is a strong link between Perceived Medium Skills and Expected Outcomes. It is likely perceptions of one's own Internet Skills strongly influences which outcomes are sought through Internet use. Regardless of the particular Expected Outcome category, those activities that seemingly require low to medium Internet Skills appear most popular. These activities can be described as using search engines, reading web-pages and using e-mail. However, it is still possible respondents do not desire to be more than competent Internet users as the activities they wish to engage in online do not require them to be. Plain disinterest in using the Internet in particular ways was expressed during the interviews, even by those considering themselves to be expert users. It cannot be ruled out most respondents are simply disinterested, rather than considering such activities as being beyond their perceived competency. Other media may well be strongly preferred instead of the Internet for these activities.

6.4. Habit Strength

Before discussing the number of hours and the diversity of online activities Habit Strength has to be addressed. The scores from the questionnaire show that respondents somewhat agree with their Internet Use being out of habit. The answers during the interviews add to this by providing a more detailed picture. It appears that the fast and easy access to a variety of information is the driving force behind the use of the Internet becoming habitual. In the interviews all users said that this particular use was the greatest advantage of the Internet. It is quite possible this particular use is strongly habitual,

but this does not mean other uses are habitual or likely to become so. It seems to depend on the presence of anxiety, a general interest in technology and other time-consuming activities whether more different uses of the Internet become habitual. Some people may believe they do not have the skills for other uses of the Internet, and may opt for alternative media. As such the confidence one has in one's own Internet Skills influences the habit forming for Internet use in general, but also for particular uses. Others are interested in using the Internet just to be using this technology, and could discover more different uses becoming more frequent. It is also likely quite a few respondents are too busy with other things to spend more time online, regardless of type of use. Several users in the interviews reported not having the time for particular uses. They only seemed interested in using the Internet to the extent it could save them time.

According to the questionnaire habit strength is greatest for activities related to obtaining information. As explained, this is probably caused by the relative low Internet Skills required for many of these uses in combination with the frequency one wants to "just look it up, really quick". However, another use was found to be particularly habitual amongst respondents in the interviews: online games. Three users reported spending considerable amounts of time playing games online. One user even felt the need to set a timer in advance, so she would not play too long. The games these respondents played were relatively simple games, such as checkers. As such not requiring advanced Internet Skills. It seems Internet Skills has a large role to play in the forming of habit, as the held perception of Internet Skills seems to deter many respondents from uses beyond those related to finding information. It is however clear that activities related to seeking/finding information are the most popular. It is then not surprising that this use has the greatest habit strength.

6.5. Internet Use

Internet use was measured by looking at two things: (1)Time spent online and (2)Number of different online activities. The number of different online activities was higher than expected. One average most respondents engage in 10 to 20 activities online. It is likely this number is so high because the differences between the activities did not

always vary greatly. It is also not surprising to see that activities involving seeking/finding information proved most popular. The amount of time spent online is more difficult to explain. Most respondents in both the questionnaire as well as in the interviews reported using the Internet daily. However, the amount of time spent online differs greatly. According to the results from the questionnaire most people spend between 10 minutes to a little under 6 hours online on such a typical day of use. There are several explanations for these numbers. The question itself could not have meant the same thing to every respondent. There are scenarios where one is online, but there is no Internet use. Consider being available on an Internet phone service (e.g. Skype), waiting for calls. Someone could call in the next few minutes, or perhaps the call won't come until later in the day. Technically, all that time data is exchanged at intervals between the computer and the Internet. Yet the person waiting for calls could be in another room. Is this Internet use? More importantly, what would the respondents have thought of such scenarios? Those using a more technical definition of "time online" are likely to have overestimated their time online. This study was interested in time online the sense of the user being at least semi-involved in an online activity. It is difficult to tell to which extent such overestimation has taken place, but it should be taken into account. Another explanation is that Internet use has not matured yet amongst the respondents. There is no solid block of average time spent online, which suggests many may still be 'playing' with the medium. Perhaps in a few years this will be different, and a clearer picture can emerge. For now it remains inconclusive.

7 Discussion and Conclusions

At this point we shortly return to the research questions, starting with: Do the proposed factors drive the Internet use choice behavior for older people? From theory and previous research several factors were identified and subsequently tested in this study.

The three proposed major determinants of Internet Use can all be considered to play a role in predicting Internet Use. But only a few factors were found to be of significant direct influence. Internet Skills seems to play the greatest role in predicting Internet use. It was found to be a strong predictor in analysis, but was also apparent as important in the interviews. Also, all Expected Outcome Categories are predicted by Internet Skills, further affirming Internet Skills' importance.

As for Expected Outcomes, its role as a predictor is much less prominent. Ultimately only Monetary Outcomes proved a significant predictor for Internet Use in terms of Time- and Diversity online. And then still only for Diversity Online. However, the interviews it seemed Novel Outcomes were what the Internet is used for. Thus it remains unclear what the role of Expected Outcomes is when it comes to older people's Internet Use. Considering previous research repeatedly found Expected Outcomes to be of considerable importance for media use, more research is needed to determine its role towards the Internet use of older people.

Whether these factors are the same for other media use is difficult to say. In this study other media were looked at in terms of Habit Strength and Expected Outcomes, allowing us to see whether other media were (also) used for the same proposed Expected Outcomes and whether other media use was (also) habitual. The comparison revealed that other media were indeed also used for all proposed Expected Outcomes, though the Internet as a medium proved to be the most popular by far.

Even in terms of Habit Strength Internet use was reported as having the strongest habitualisation. Only TV proved to be close to the Internet in terms of Habit Strength.

These results posit that Internet is not used to a lesser extent because older people are in the habit of using other media for their needs. Habit was expected to play a large role for older people. This study cannot confirm nor deny the importance of habit towards older people's media use. Based on the findings it can be concluded that habit hardly plays any role where Internet use is concerned. Though the findings from the interviews dispute this, as even the Light Users report wanting to do their things online every single day. However, in light of the low scores on the Expected Outcomes categories as well as respondents ranking themselves just competent Internet users in the questionnaire, it is quite likely that most respondents have not reached the point where habit can start to take shape. For greater insight into the role of habit towards Internet Use more research is needed. Groups extensively tested on Internet Skills could provide more information, by comparing a group of just competent users to groups of greater competency. It would then be interesting to see if habit strength does indeed increase as competency does. And if so, whether habit strength's influence becomes prominent.

The interviews suggest that the Internet is the most diverse medium, as the respondents used other media for a narrow range of activities that particular medium seemed especially suited to. Whether Internet use choice behavior changes with age is hard to say based on the present study. It was found that the proposed factors explain more variance as age is higher, and trends were observed suggesting age does play a role. But none of the trends were observed as being statistically significant. Given the increasing explained variance as age is higher it can be concluded that Internet Use does change with age, but what specifically changes remains in the dark. More research is needed to provide clarity on the precise role of age on Internet use.

Aside from the research questions this study has lead to other interesting findings. It seems older people view the Internet as an "information machine", clearly favoring the Internet for obtaining information than for any other kind of activity. The Internet does indeed lend itself well to this use, but offers far more uses. Why older people are less interested in these uses might be related to the safety concerns mentioned in the interviews, and perhaps also to some remnant of computer anxiety. The latter making it more daunting to try other uses(more often), while the first creates a preference to keep doing

safety-sensitive activities some other way. As van Deursen already indicated in his research it is too simple to say that(lack of) Internet use is a generational problem. His studies have shown Internet Skills to be very important as well, and these skills may be more complex than some might think. This does suggest these skills are harder to acquire for older people, as age makes it increasingly likely that cognitive limits are experienced. So what remains is how great a need is felt to acquire Internet Skills in light of available alternatives to using the Internet. Such reasoning is supported by this study, however a greater role for habit would be expected. In the questionnaire the strength of Habit was found to be relatively low and its predictive value non-significant and weak. However, in the interviews all Internet using respondents indicated their Internet use to be quite strongly habitual. The non-user seemed to not use computers and Internet in favor of other media for which she seemed to have developed a habit. Perhaps these conflicting results are caused by using instruments requiring respondents to consciously report about their unconscious behavior. Habit is a form of automaticity requiring little to no conscious involvement, making it questionable how aware respondents can be expected to be about their habitual behavior.

8 Recommendations

Given the findings of this study, recommendations can be given towards future research as well as promoting Internet Use amongst older people. Future research aimed at the Internet use of older people should take a closer look at Internet Skills. Perceived- and observable Internet Skills could be compared to see whether older people truly systematically underestimate their own Internet Skills. Following up, it could be investigated whether certain Expected Outcome categories require more Internet Skills, or are thought to require more skills. The role of Habit within media use is another area deserving interest. This study was unable to establish if Internet use was avoided in favor of habits towards other media. Some responses during the interviews suggest established habits towards other media use influence the choice to use the Internet. But no pertinent evidence could be found for this notion during this study. Future research could contribute to the understanding of the totality of older people's media use.

Aside from avenues for future research, practical recommendations can be given towards promoting (more) Internet use amongst older people. The key is education and training. Internet Skills seem to be the biggest factor for Internet Use. The results also suggest older people consider themselves not skilled enough to make more use of the Internet. A way to change these perceptions is to get older people to simply try other uses. This should lead to them finding out that other uses are not beyond their reach. But it is hard to think of an easy way that would have this result.

Formal training would be best, but then older people would have to search out such formal training. Considering the results, it is safe to presume most older people would like to learn more. However, having to go to training would likely lead them to having to confront their negative perceptions about Internet use. These perceptions could then be too much of a barrier to actually seek out training. Therefore an informal type of training would be preferred. It could be helpful to identify those older people who already make extensive use of the Internet. These experienced older users could then per-

suade other users to try out more uses of the Internet. An account of successful use by a person considered similar should provide extra motivation to try more. But how to motivate these experienced older users towards sharing their experiences?

Another solution could be in the form of what is known as “serious gaming”. Some older users are motivated by not being perceived as old-fashioned within their social circles. This motivation could be used to invite older users to challenge their perceptions of their Internet Skills through a game experience. Uses that are deemed too complex could be offered as a challenge in a game. The game itself could be considered a safe environment for failure as it essentially remains a simulation. But the game element should motivate towards performance, which will promote learning. Then, the in-game challenges may be virtual, but the resulting confidence will be real.

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