Master Thesis

Audience segregation a solution to protect online privacy

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Abstract

With the growing popularity of social network sites (SNS), like Facebook, Hyves and Twitter, where people interact and disclose a lot of personal information with others, also serious privacy issues arise; people get fired, students are expelled from universities, and people lose their health benefits, because the wrong people have access to certain information. Berg and Leenes (2010) present in their article (the current study builds on the work of Berg & Leenes (2010)) the ideas of Donath and Boyd (2004), who suggest that a mechanism, like audience segregation, is not only important in real life, but could also be a vital mechanism for the protection of one's self-images and privacy in social network sites. The current study examined among 1163 Dutch respondents whether a mechanism like audience segregation is needed and which factors predict audience segregation usage. A research model was developed with external factors (age, gender, personality) influencing audience segregation usage both directly and indirectly via privacy, need and audience awareness. Also, hypotheses were formulated to investigate differences in privacy issues, social network site usage and use of audience segregation by age, gender and personality.

The results of this study suggest that the factors age, gender, personality, privacy (online privacy attitude) and audience awareness influence audience segregation significantly; especially, women, older people, introverts, people who do mind when their online privacy is violated and people who are aware of their audiences use audience segregation more often. Moreover, the majority of the respondents used audience segregation consciously in offline situations. Also, in online situations people were aware of their audiences (when they disclose personal information). However, the majority of the respondents did not behave accurately with regard to privacy settings and the number of people who had access to their personal information. In other words, they did not use audience segregation properly.

Furthermore, the results indicate that the respondents were not that concerned about their privacy, but they do mind when it was actually violated. Some other interesting findings were that women and adults care more about their privacy than men and teenagers; adults were more concerned about their online privacy than young adults; greater risk taking attitudes exist among men than women; and teenagers share more personal information than adults.

Acknowledgement

I am very glad that I had the opportunity to combine my interests for social network sites and privacy in a master thesis. Therefore, I would like to thank my supervisor Ronald Leenes for this opportunity, who helped me with questions and provided useful feedback. I would also like to thank Laura Klaming who introduced me in the world of statistics and helped me with some analyses of my data. Part of the research leading to these results has received funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement No. 216483.

1 Introduction

In 2009, a Canadian woman lost her health benefits, because her insurance company discovered 'happy' pictures on her Facebook profile of her on a party in Cancun (Mexico). For the insurance company the pictures proved that the woman was no longer depressed and was able to work again. This example illustrates one of the prominent issues of social networking, the difficulty of separating audiences online. Information disclosed to friends, can just as easily be seen by moms, teachers, and bosses, which is certainly not always what the author intended (Leenes, 2010). Based on this information, people are being judged, the consequences can be detrimental; people could lost their health benefits (see example above), or got fired[1], due to the information they or others disclosed on their online profile. Therefore, it is important that people can control who has access to their personal information. Nissenbaum (2004) argued in her study that most privacy issues arise, when the wrong people receive the wrong information.

The information that people disclose can be suitable in one context (for example, your friends or family), but unsuitable in the next (colleagues or teachers). To prevent many of the privacy issues regarding social network sites, a solution might be to stop using them. However, this goes at the expense of sociability; it may become lonely when not engaging with friends online. On the other hand, choosing for a rich social online life currently seems to introduce a set of serious privacy issues that most people would rather live without (Leenes, 2010). However, as Sheehan (2002), mentioned: online, context are created in multiple ways: i.e., self-presentation, modes of speech, and community identification. This increase in the complexity of communications suggests that privacy online may differ from privacy in the traditional sense, one could argue that people care less about their online privacy and therefore, use less often mechanism to separate audiences and context. A relevant question then becomes: " is the online world a new world where other privacy rules apply?".

Although, our perception with regard to online privacy might change, we could learn something of the offline world how to behave online and to protect our privacy. In the different phases of their life (child, teenager, young adult, adult), people develop their own identity. While interacting with human beings in everyday contexts, they learn which information they can share with whom and how to behave (impression they leave to others) in certain situations (context dependent). This concept is also known as audience segregation (Erving Goffman, 1965) (see for more detail next chapter). Audience segregation helps individuals in their everyday interactions to manage the impressions they leave to others and protect their privacy. Such "*mechanisms*" are not only important in real life, but could also be a vital mechanism for the protection of one's self-images and privacy online (Berg & Leenes, 2010). In the current study, we will examine whether audience segregation is desirable and what kind of people will make use of it (for example, older people or women). In the offline world, people use audience segregation either *consciously or unconsciously*, but whether they use it in the online world is unclear. Moreover, it is expected that factors as age, gender and personality both directly and indirectly (i.e. via their effects on privacy behavior, need and audience awareness) influence people's privacy behavior and use of audience segregation. As a result, the following questions will be investigated:

[1] http://www.theregister.co.uk/2009/02/26/facebook_comment/

Main research question:

To what extent does the concept of audience segregation in the off-line world meet the needs of users of online social network sites (SNS)?

1. To what extent does online and offline privacy behavior influence whether or not SNS users adopt audience segregation?
2. Do people need a concept like *"audience segregation"?*
3. Which (external) factors explain SNS users' adoption of audience segregation?
4. Are there differences between online and offline privacy perceptions?

This thesis is organized as follows. First, I will set the stage with some theoretical background regarding audience segregation. Next, a research model will be introduced where I introduce factors that may predict use of audience segregation. In the same chapter, hypotheses will be formulated. The next section describes the research method including the questions of the online survey. Then I will illustrate how and which analyses were performed. Finally, the results will be presented, followed by a discussion, limitations of the current study, suggestions for future research and a conclusion.

2 Audience segregation

This study will focus on a mechanism called "audience segregation". Audience segregation is based on the ideas of Erving Goffman (1956). Audience segregation was formulated as part of a perspective on the ways in which identities are constructed and expressed in interactions between human beings in everyday contexts. According to Goffman (1956), when users interact with others they perform roles, like a teacher is trying to teach something to his students or a parent is teaching his child some ethics. When individuals perform roles, they try to create a favorable image of themselves and leave an impression to others that is linked to the role they perform: *impression management* (Goffman, 1956). For example, most people will interact and behave differently at work than at a party with friends or when visiting their parents in-law. At work, most people will have a more professional attitude, in the hope to be respected and to create opportunities for a good career. In contrast, people are less restricted in their behavior while being with friends (a comfortable environment), as they are already accepted. Goffman (1956) holds that the role someone performs depends on the context and the presence of other people. The self-image that individuals try to project (by performing a role) must be consistent and coherent. To accomplish this, they engage in audience segregation so that the individuals who witness (them) in one of (their) roles will not be the individuals who witness (them) in another of (their) roles. With segregated audiences, people can maintain their different faces (roles they play) before each of these audiences (different contexts). For example, a person whose professional role is to display authority (police, political leader), may try to cover that he or she is not being in charge at home. Shielding these two different roles and contexts helps an individual to maintain his or her professional authority (Berg & Leenes, 2010). Advantages of keeping roles and the audience separated are: 1) the roles and audiences cannot influence each other; 2) people who are not allowed to receive the information, do not receive it. In this way, certain problematic situations will be prevented. 3) information will be less wide spread and 4) as Goffman (1956) and Rachels (1975) argued, by keeping the roles and audiences separated, people will develop themselves and can engage more meaningful relations.

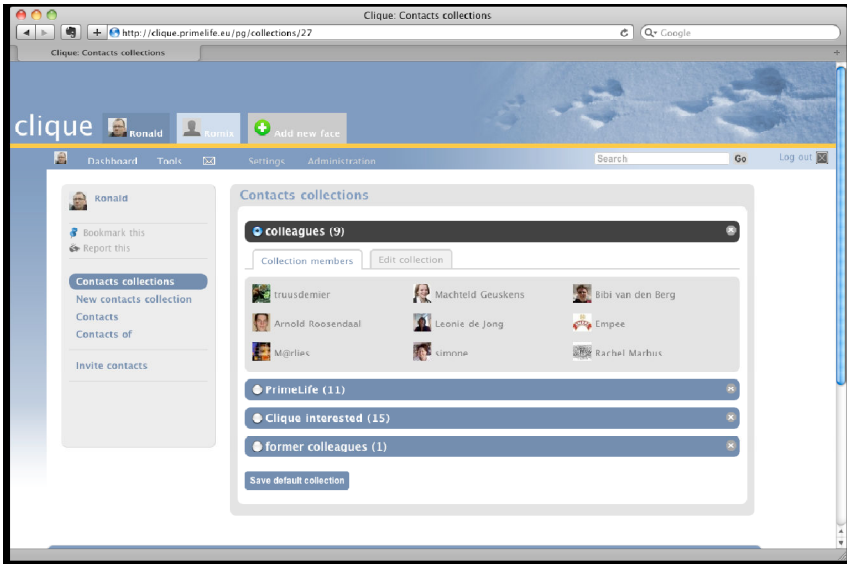
Nissenbaum's (2004) contextual integrity is closely related to audience segregation. Nissenbaum describes contextual integrity in terms of "Appropriateness" and "Distribution", whereby appropriateness can be described as: "is the information appropriate for the specific context?", and distribution as: "is the distribution of information within the contextual boundaries?". In the context of audience segregation: people play different roles, and depending on the audience they decide to disclose information or not, and consider whether the information is appropriate for the specific context. By knowing the contextual boundaries of the situation, people can decide for themselves what kind of information they share in each domain and how to keep different roles and audiences separated.

In the offline world, people know how to distinguish between the roles they play and the audience they want to reach. However, in the online world there are limited mechanisms available to engage into audience segregation. Besides, most of the social network sites including Hyves and Facebook, cluster all their contacts by default into one single group (called friends), while audience segregation is based on nuances in connections. This requires that users should be able to create their own social clusters (Berg & Leenes, 2010). People who do not interact with each other in the offline world, now interact in the online world.

This could be problematic, because most privacy issues arise when the wrong people receive the wrong information (Nissenbaum, 2004). Social network sites, like Facebook have limited built in mechanisms to separate audiences. Facebook offers their users the possibility to create lists of contacts. With these "lists of contacts" , Facebook users could manage their contacts by separating them in different lists (friends, acquaintances; family, sport, etc.) and subsequently, decide which list of contact has access to which part of their profile (for example, pictures, wall posts, blogs and status updates). However, the mechanism provided by Facebook is not appropriate to manage the different roles people play, because within Facebook users can only restrict access to certain parts of their profile (for example, pictures) for one or more specific lists of contacts (groups). In case a user distinguishes three groups (lists), for example, friends, colleagues and acquaintances and wants that besides friends, also acquaintances have access to his or her pictures, he or she has to combine these two lists into one new list or give access to both lists at the same time. As a consequence, friends and acquaintances now interfere(as both friends and acquaintances can see all pictures), which means that roles and contexts are no longer separated and there are no differences anymore between public and private information. For instance, a picture of you in a drunk state on a party with friends could be fun to show to your other friends, but it will be inappropriate if your (new) boss sees these picture. Although Facebook provides some mechanisms to separate audiences, a better solution would be audience segregation i.e. separating audiences and information dependent of the context and the role someone performs. With audience segregation a user could decide, depending on the role he performs or the context, who has access to which part of his profile. To realize this more advanced mechanisms are necessary. The Tilburg Institute for Law, Technology, and Society (TILT) has developed a privacy preserving social network site, named Clique, in which these more advanced mechanisms of audience segregation have been implemented. In Clique, users have the possibility to replicate their social sphere in any level of granularity that works for them. A description of Clique and how it works will be described below (this is based on the paper of Berg & Leenes, 2010).

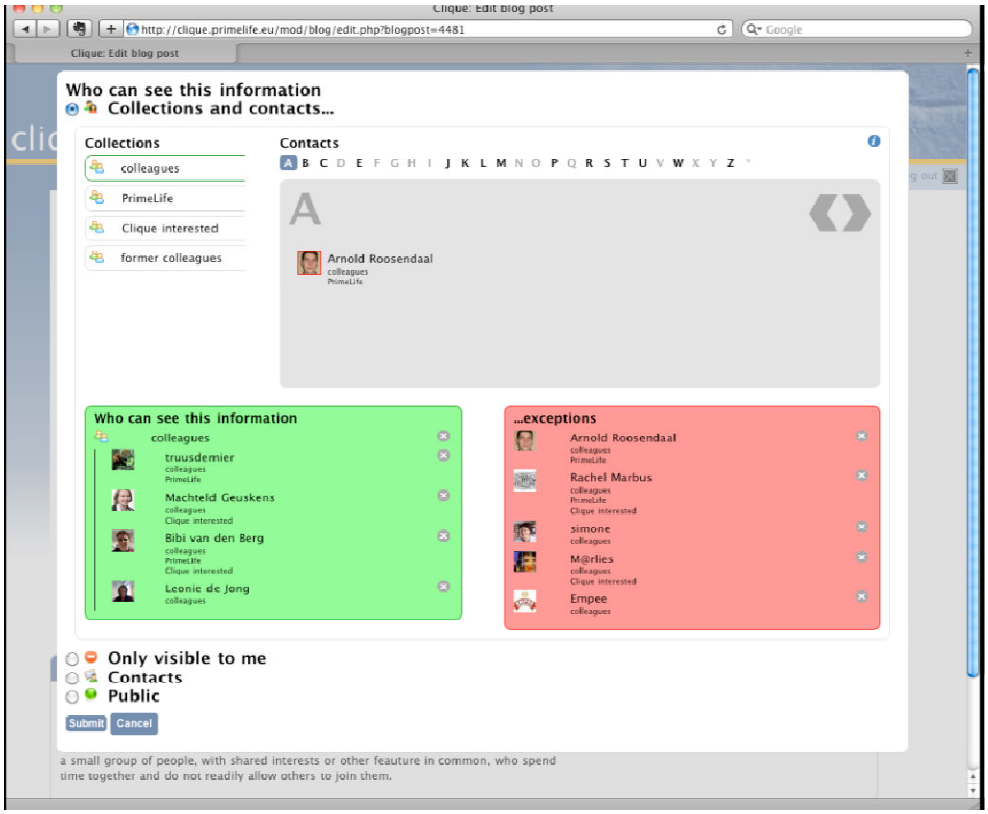
In Clique users can cluster contacts into self-assigned and self-labeled sets. After inviting contacts, they are asked to assign them to one or more 'collections', which can be changed at any time. Figure 2.1 shows collection management in Clique.

Figure 2.1 Contact management in Clique



Subsequently, Clique users can contextualize content and information by using access control policies which enable them to assign access rights to different collections and individuals. For example, a user may decide to make his holiday pictures invisible to his colleagues, but visible to his friends. Furthermore, when users publish information in Clique they are presented with an access control dialog as shown in figure 2.2. In this dialogue window user can drag collections and individual contacts to the red and green boxes to grow or shrink the audience. With this mechanism Clique "nudge" the user to act in a privacy savvy manner.

Figure 2.2 Extended access control dialogue in Clique



Next to that, within Clique a mechanism was build were their users can create different faces within the same platform (social network site) (see figure 2.3). This form of contextualization mimics the fact that individuals maintain different social spheres in the offline world (i.e. Clique user can separate the different roles they play offline, online). Most social network sites, like Facebook and Hyves implement a single "face" (profile) for each user. As a consequence, many people now maintain different profiles on different platforms (one for work, one for their friends, one for their class mates, etc.), while Clique provides their users the opportunity to create all these different profiles (faces) into one platform. Using the tab function in Clique, the user can create a single 'face' for each different role he or she plays in the offline world. Each of these faces contains its own network of contacts and access rights can be defined for each face separately, so contacts only get access to the information that is made visible for them. This means that a) contacts who only know the individual professionally, for instance, are prevented from acquainting themselves with the user's leisurely profile; and b) within each face, contacts can only access the information that is explicitly made available to them (Berg & Leenes, 2010).

Figure 2.3 Create different faces in Clique

As implemented in Clique, audience segregation, could help social network site users to make online the same considerations as offline. This would improve the quality of interactions and self-presentation (Berg & Leenes, 2010), interaction online would resemble interaction in everyday life to a larger extend, and with audience segregation and access control in social network sites some security and privacy risks will be reduced. Furthermore, as people can present themselves in different ways, a digital personality of an individual gets more depth and a more useful meaning, without negative experiences (for instance, if someone comes out about his or her sexuality). As boyd (2008) mentioned, audience segregation will prevent people from having a single face that is acceptable to people that belong to different audiences. A concept that is called "*social convergence*". Social convergence occurs when disparate social contexts are collapsed into one. This means that there are no differences anymore between public and private information. Social convergence requires people to handle disparate audiences simultaneously without a social script. While social convergence allows information to be spread more efficiently, this is not always what people desire. As with other forms of convergence, control is lost with social convergence.

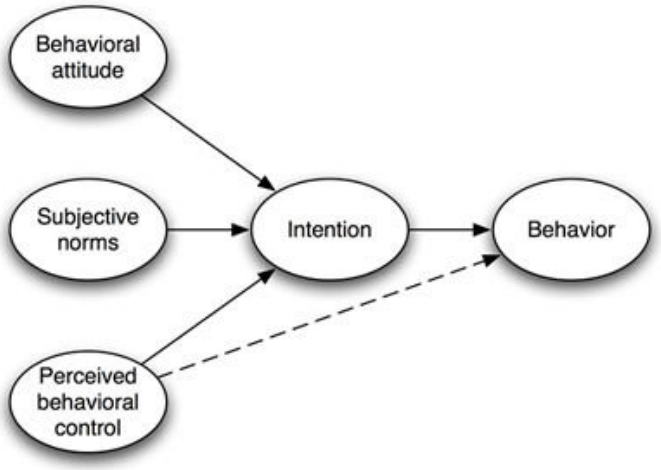
3 Research model and Hypotheses

In this chapter the research model and the hypotheses regarding this model will be introduced.

3.1 Theory of Planned Behavior

The Theory of Planned Behavior (TPB) is a well known theory that explains the link between attitudes and behavior. The Theory of Planned Behavior suggests that a person's behavior is determined by his/her intention to perform the behavior. The intention is an indication of an individual's readiness to perform a behavior and is determined by three things: 1) their attitude (an individual's positive or negative evaluation of self-performance of the particular behavior) towards the specific behavior; 2) their subjective norms (an individual's perception of social normative pressures, or relevant others' beliefs that he or she should or should not perform such behavior); and 3) their perceived behavior control (people's perceptions of their ability to perform a given behavior). Figure 3.1 shows the theory.

Figure 3.1 Model of theory of planned behavior

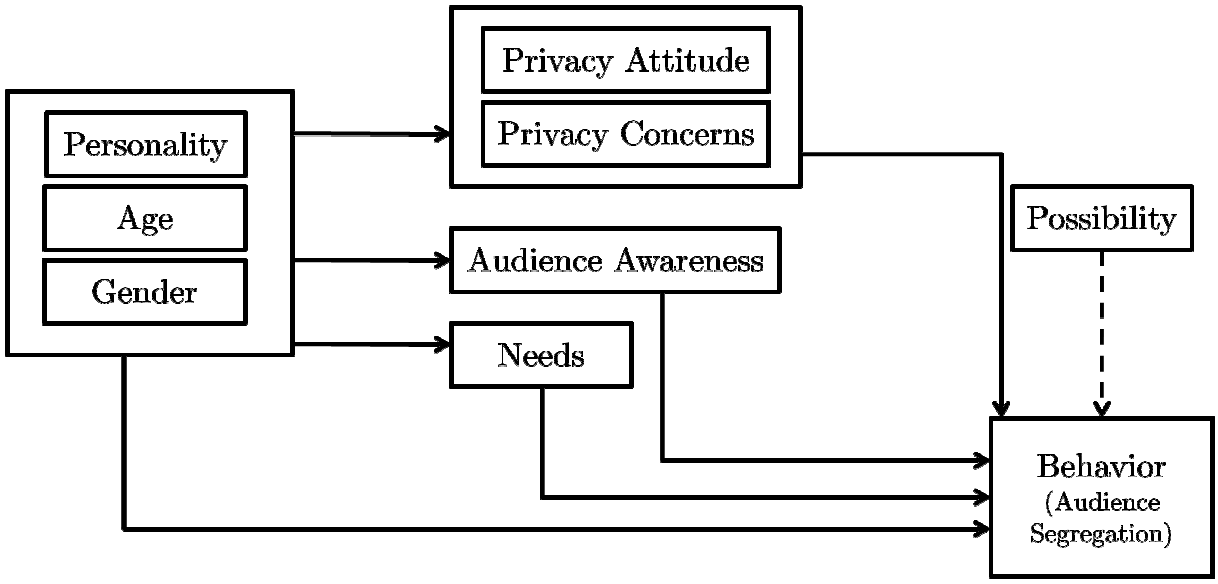


3.2 Research model

Ajzen's TPB model (1985) inspired the current research. I am particularly interested in whether certain factors (e.g. age, gender, attitude towards privacy, attitude towards audiences, etc.) predict a specific behavior (use of audience segregation). Therefore, I have used a modified version of the TPB model that honors the original idea and elaborates on relevant aspects of the theory. The resulting model has: 1) the individual's attitude (behavioral attitude) toward the behavior; 2) the specific behavior (behavior); and 3) the ability (perceived behavioral control) to perform a given behavior. The factor intention was not completely removed from the current study, but absorbed into the factor behavior. Measuring intention as a separate factor was deemed too complicated in this study as in the case of audience segregation one could argue that intention to keep audiences separated almost coincides with actually performing this behavior. I have opted to leave out the factor

subjective norm in this study, because I wanted to focus on privacy attitudes and concerns. Social norms are relevant in this domain as well, but they are not studied due to time and resource constraints. Figure 3.2 presents the research model used in the current study.

Figure 3.2 Research model



The research model was categorized into six main sections: external factors (age, gender and personality), privacy (concern and attitude), audience awareness, needs, possibility and behavior. Based on the theory of planned behavior, it was expected that "*behavior*" (use of audience segregation online) is influenced by peoples' attitude towards "*privacy* " (factors: attitude and concerns), people's attitude towards "*audiences*" (factor: audience awareness) and people "needs (do they want to make use of audience segregation? Do they need it?). However, to perform a behavior (using audience segregation online) a user should be aware of the technical possibilities with which he or she can actually perform the behavior (this will contribute to a person's perceived behavioral control). In case the user is not aware of the technical possibilities he or she will not be able to perform that behavior (separating of audiences online). Therefore, the factor "possibility" was introduced into the research model. In addition, it was hypothesized that behavior is both directly and indirectly influenced by "*external factors*",

3.3 Hypotheses

In this paragraph, hypotheses regarding the research model will be formulated.

3.3.1 Gender

Sheehan (1999) investigated how men and women use the internet, for what purposes they use it, and how they handle privacy information. She found that most internet users were men. She argued that computer usage has no inherent gender bias, but computer culture is socially constructed as male. For instance, men are more interested than women in experimenting with new technologies. Interestingly enough, Kehoe et al (1997) (cited in Sheehan,1999) found that girls from preschool through third grade spend more time online than boys do. Sheehan also argued that socioeconomics could be a reason why more men than women are on the internet. Since on average income of women are lower than those of men, they have less disposable income to buy personal computers or new software. In addition, women's responsibility in society demand that they juggle in many different areas of their lives so that they do not have the time to learn new technologies (DeBare,1996 cited in Sheehan,1999). In a recent study of Fogel & Nehmad (2008), however, no significant differences in internet use (frequency and duration) were found between women and men. It could be that the barriers mentioned by Sheehan have disappeared. On the other hand, other recent studies (Pujazon-zazik & Park, 2010; Fogel & Nehmad, 2009; Hoy & Milne,2010; Lawler & Mulluzzo, 2010; Jensen et al, 2005) still found differences in internet use (why and how) between men and women.

Pujazon-zazik & Park (2010), Fogel & Nehmad, (2009), Hoy & Milne,(2010) and Lawler & Mulluzzo (2010) mentioned a few reasons why men and women use the internet. For example, men use the internet primarily for entertainment and news gathering. In contrast, women use the internet primarily for engaging into relationships and sharing their thoughts and feelings with others. Communication tools, like e-mail and instant messenger, are also more likely to be used by men, while women more often use tools, like social network sites, blogs and chat applications (Pujazon-zazik & Park, 2010; Fogel & Nehmad, 2009; Hoy & Milne,2010). Moreover, in case of SNSs men join SNSs more often to find new friends, whereas women join SNSs to maintain existing (offline) contacts (Lawler & Mulluzzo, 2010).

Next to this, some of the above mentioned studies (e.g. Pujazon-zazik & Park, 2010; Fogel & Nehmad, 2009; Hoy & Milne,2010; Jensen et al, 2005) also show the differences between the type of information and the risks men and women take by publishing information online. For instance, men are more likely to publish their phone number and e-mail address, while women share more information about their interests, favorites, pictures or messages, like blogs and wall posts. By publishing their contact information, men take more risks than women. It could be that men do not care who has access to their personal information as long as they find new (interesting) contacts. Although men take more risk, women are more often victims of cybercrime. A reason might be that women are more active on SNSs and publish more personal information (like pictures, messages and interests)(Pujazon-zazik & Park, 2010; Fogel & Nehmad, 2009; Hoy & Milne,2010; Jensen et al, 2005). Sheehan (1999) argued that women are more concerned about their privacy and information that is collected by companies and websites. Several recent studies (e.g. Pujazon-

zazik & Park, 2010; Fogel & Nehmad, 2009; Hoy & Milne,2010; Jensen et al, 2005) confirm this. Therefore, it was hypothesized that:

H1: Men take more risks than women.

H2. Men are less concerned about their online privacy than women.

H3: Women are more active on SNSs than men.

H4: Women care more about their privacy than men.

Most SNS users know that their profile is public accessible (Tufekci,2008). Nevertheless, they do not attempt to restrict their profile with privacy settings, because they are afraid that they will be invisible for others. According to SNS users (Tufekci,2008), the use of privacy settings will restrict them to engage in new relationships. It seems that there are some gender differences, as women protect their SNS profiles more often with privacy settings and censuring of data. Additionally, women are more careful with accepting new friends and uploading and tagging of pictures (Jensen et al , 2005; Jones & Solteren, 2005; Fogel & Nehmad, 2009; Hoy & Miline,2010; Lawler & Mulluzzo, 2010). Based on the above mentioned, it was hypothesized that:

H5a: Women are more aware of their online audiences than men.

H5b: Women use audience segregation online more often than men.

3.3.2 Age

People of different ages make use of the internet. The reasons for using the internet are age dependent. For the purposes of this document, we use "teenagers" or "adolescents" to refer to young people ages 13-19 and "adults" to refer to people ages ≥20. For instance, teenagers are interested in writing blogs, creating SNS profiles and chatting, while adults use the internet more often for information gathering and study. Regarding the publication of private information, there are also differences by age. Teenagers, for instance, are more likely to publish personal information online than adults (Youn, 2009; Barnes, 2006; Marwick et al, 2010). Possible reasons why teenagers publish more personal information are: 1) Teenagers are in a phase of their lives in which constructing an identity plays an important role. Identity construction involves playing roles: theatrical performances (Goffman, 1956). In their performances, individuals consciously present themselves to others (information given), but also provide unconscious signals (information given off). Maintaining a profile on a social network site is part of this identity construction. The users "write themselves literally into being" with a lot of personal information. The users adapt their identity and their profiles on the basis of the reactions of their peers (Leenes, 2010). 2) Teenagers are not, concerned about sharing personal information on sites, like Facebook. Social networking sites are viewed as relatively "private" spaces, and the consequences are deemed insignificant (Jones et al. 2009 cited in Marwick et al, 2010). 3) Adolescents are more willing to provide their personal information to a Web site when they perceive benefits such as entertainment,

communication, information, and socializing in return for providing information (Youn, 2009). Based on this it was hypothesizes:

H6: Teenagers publish more personal information online than adults.

H7: Teenagers are less concerned about their online privacy than adults.

Next to that, Marwick et al. (2010) suggest that differences between adults and young people with regard to privacy may be due to lack of knowledge about privacy. However, this may also be due to differences in social context between children, teenagers, and adults, and how behavior that adults promote as privacy-protective is not necessarily congruent with children's social behavior and social roles (Steeves & Webster 2008, p.14 cited in Marwick et al.,2010). There is widespread consensus that children and teenagers show less concern than adults about privacy (Moscardelli & Liston-Heyes 2004, p.51; Edwards & Brown 2009; Palfrey & Gasser 2008 cited in Marwick et al.,2010 (p.16); Sheehan, 2002; Cho et al ,2009; Patil & Kobsa, 2005; Bellman et al,2004). However, privacy concerns by teenagers arise when companies or websites try to approach them or when they think that their parents or future employers could see their SNS profiles (Christofides et al, 2009. Cited in Marwick et al, 2010). As adults are more aware of potential privacy problems, this might explain why adults are more concerned about their privacy than adolescents (Milne and Gordon, 1994; Wang and Petrison, 1993 cited in Cho et al, 2010). As a result, it was hypothesized that:

H8: Adults care more about their privacy than teenagers.

Related to social network sites, there are also differences between adolescents and adults with regard to the number and variety of contacts. For instance, teenagers have a larger network of friends. As boyd (2008) noted, the number of friends is quite an important assessment of one's profile for teenagers. Thus, it is likely that having many friends is a sign for high status among one's peers for teenagers. Moreover, because teenagers prefer a larger network, it might be that teenagers do not care about who has access to their profile and content as long as their network grows. Furthermore, the majority of teenage users' friends are in their own age range (age $\pm$ 2 years), whilst older people's networks of friends tend to have a more diverse age distribution (Pfeil et al, 2009). It could be that adults participate in more different social contexts. Based on this, it was hypothesized that:

H9: Teenagers have a larger (social) network than adults.

H10a: Adults are more aware of their online audiences than teenagers.

H10b: Adults will use audience segregation online more often than teenagers.

3.3.3 Personality (Introvert / Extrovert)

Personal characteristics, like extroversion and introversion, influence the way people behave offline and online. Extroverts are individuals who are oriented primarily toward the outer world. They are open, sociable, impulsive and like to share information and interact with others. They tend to focus their energy on people and objects. In contrast, introverts are oriented toward the inner world, they are less sociable, more reserved, rather shy and less outgoing. They tend to withdraw into themselves and focus their energy on concepts, ideas, and internal experiences (Wilson et al, 2010; Goby, 2006; Freyd,1924; Weibel et al, 2010). Most studies related to introversion and extroversion investigated how individuals behave on the internet and why they use the internet (Wilson et al, 2010; Goby, 2006; Weibel et al, 2010; Amichai-Hamburger et al: 2002; Ross et al,2009; Acer & Polosnky,2007; Barki & Wallance,2007; Lu & Hsiao,2010; Zywica & Danowski,2008; Cozzens et al,2009). However, only one study was found investigating differences between introverts and extroverts regarding privacy. In this study (Cozzens et al.(2009), no differences were found between introverts and extroverts regarding the level of privacy settings. Based on this study, it could be argued that introverts and extroverts have the same privacy desires.

Landers (2004) mentioned in his study that among undergraduate students extroverts make less use of the internet than introverts do, suggesting that introverts had more spare time or were more attracted to the internet. Moreover, extroverts prefer face to face interaction over online interaction and locate their "real me" through traditional social interaction (Amiel & Sargent, 2004; Goby, 2006 cited in Wilson et al., 2010). They rather use the internet for instrumental purposes, like researching. In contrast, introverts can express themselves better online than offline and locate their "real me" through the internet (Amichai-Hamburger,2002); they use the internet for social purposes, because they feel protected and safe when using the internet to socially interact with others because it is essentially an anonymous, virtual environment (Amichai-Hamburger, 2002). However, technologies, like social network sites, may actually disadvantage an introvert by locating their "real me" because they rely on the types of offline relationships that an extrovert is more likely to develop.

Related to SNSs, the study of Wilson et al. (2010) showed that participants scoring higher on extroversion spent more time using SNSs, a finding inconsistent with the previous mentioned studies which have typically concluded that extroverts do not view the Internet as a suitable replacement for face-to-face interactions (Amichai-Hamburger et al, 2002; Goby, 2006). Wilson et al.(2010) suggest, however, that SNSs may offer to the wider Internet something unique that makes them more appealing to extroverts. For example, because extroverts tend to require a high level of stimulation and a large social network, the numerous functional abilities and unlimited contact with friends may be specifically attracting their attention. Surprisingly, levels of extraversion are not associated with number of ''Facebook Friends," or communicative functions of Facebook. These results suggest that although those high on the trait of extraversion may utilize SNSs as a social tool, they do not use SNSs as an alternative to social activities (Ross et al., 2009). Amichai-Hamburger & Vinitzky (2010), however, did find a positive effect of extroversion on the number of friends. He also mentioned that a highly extroverted personality may demonstrate lower use of personal information than less extroverted personalities. This may be explained by the fact

that extroverts rely on their social skills and so feel less need to promote themselves. Some results of previous studies are inconsistent or were not expected. Therefore, I want to reinvestigate some of these research questions (higher level of SNS use, number of contacts and amount of personal information). Related to audience segregation and personality, it could be hypothesized that:

H11: Extroverts have a larger social network than introverts.

H12: Extroverts publish more personal information on SNSs than Introverts.

H13a: Introverts are more aware of their online audiences than extroverts.

H13b: Introverts use audience segregation online more often than extroverts.

H14: Individuals who have a SNS profile are extrovert.

H15: Introverts are more concerned about their privacy than extroverts.

H16: Introverts care more about their privacy than extroverts.

H17: Extroverts use SNSs to maintain offline contacts.

H18: Introverts use SNSs to engage into new relationships.

3.3.4 Attitude towards Behavior

The research models indicates that besides external factors (age, gender and personality), the attitude towards privacy influences privacy behavior, and also a person's behavior in terms of audience segregation. This part of the research model is based on the theory of planned behavior (TPB) of Ajzen (1985), a theory developed to predict and explain human behavior in specific contexts (a link between attitudes and behavior). Based on the theory of Ajzen, it could be hypothesized that:

H19a: Individuals who care more about their privacy are more aware of their online audiences than individuals who care less.

H19b: Individuals who care more about their privacy will use audience segregation more often than individuals who care less.

H20a: Individuals who are more concerned about their privacy are more aware of their online audiences than individuals who are less concerned.

H20b: Individuals who are more concerned about their privacy will use audience segregation more often than individuals who are less concerned.

H21: Individuals who are concerned about their offline privacy are also concerned about their online privacy.

H22: Individuals who do mind when their offline privacy is violated do also mind when their online privacy is violated.

4 Method

4.1 Online survey

To make more accurate statements, a large sample size is preferred. Therefore, an online survey was used. With an online survey it is easier to reach a large audience and to collect more data than with, for example, focus groups or interviews. Moreover, with an online survey it was possible to control the question order, answer completeness and filtering ("go to"). Furthermore, interaction with respondents (interview) was not necessary and/or desirable.

4.2 Survey development

The online survey used in the current study was developed in LimeSurvey[2], a free and open source application, by the author and his supervisor in a stepwise manner based on the research model presented in figure 3.2. Questions about privacy and social network site characteristics were based partly on the surveys of Acquisti & Gross (2006) and Fogel & Nehmand (2009). The short revised version of the Eysenck Personality Questionnaire (EPQ-rss) was used for measuring introversion/extroversion personality characteristics. The survey contained 41 questions (such as Likert-style scale, dichotomous (yes or no), and open and closed questions), divided into four major sections: Demographics (external factors in the research model), Social network site characteristics, Privacy and Behavior.

When designing the survey, questions were ordered in a way that (answers on) previous questions would not bias the answers on subsequent questions. For example, (answers on) questions about privacy might influence the answers a respondent gives on questions about audience segregation. Therefore, questions about privacy were placed after questions about audience segregation. Subsequently, the survey was tested by 12 people different in age and gender. Test-participants were asked to give feedback about the survey with regard to ease of use, understandability and time to complete the survey. An average time of 15 minutes was needed to complete the survey. In the next paragraphs, I will describe the questions included in each section. It should be noted that the questions in the next paragraphs were translated into English. The original survey was in Dutch (see appendix II).

Demographics

The first section contained demographic items such as Age (birth year), Gender (male/female), Nationality (do you have the Dutch nationality yes/no) and twelve questions about Personality :

1. *Are you a talkative person?* *yes /no*
2. *Are you rather lively?* *yes /no*
3. *Do you enjoy meeting new people?* *yes/no*
4. *Can you usually let yourself go and enjoy yourself at a lively party?* *yes/no*
5. *Do you usually take the initiative in making new friends?* *yes/no*

[2] http://www.limesurvey.org/

6. *Can you easily get some life into a rather dull party?* *yes/no*
7. *Do you tend to keep in the background on social occasions?* *yes/no*
8. *Do you like mixing with people?* *yes/no*
9. *Do you like plenty of bustle and excitement around you?* *yes/no*
10. *Are you mostly quiet when you are with other people?* *yes/no*
11. *Do other people think of you as being very lively?* *yes/no*
12. *Can you get a party going?* *yes/no*

Social network site characteristics

The second section contained general information about social network site characteristics. This section was used to collect general information about social network site usage, such as how many years do people have a profile, how many hours per week do they spend on social network sites, how many contacts do people have, what type of personal information do they disclose and what are the reasons for joining social network sites and having more than one profile on a social network site. The following questions were added to measure these topics (question 1 to 8 in the online survey):

1. Have you ever created a profile on a social network site, like Hyves, Facebook or Linkedin? *yes/no*

2. Question 2:

	In which year have you created a profile on..	How many hours per week do you spend on viewing and editing your own profile?	How many hours per week do you spend on viewing and editing other profiles?	How many contacts (friends) do you have on..
Hyves				
Facebook				
Linkedin				
Twitter				
Other social network sites				

If respondents completed more than 1 row the following question was asked:

3. Why do you have more than one profile on different social network sites? Select all of the answers that apply.
    a. To separate my contacts (e.g. hobby friends, private and professional contacts).
    b. To protect my privacy: so that people can only see a part of me.
    c. To extend my visibility: I want to be visible on each social network site.
    d. To meet new people with the same interests and hobbies.
    e. To communicate with others under my real name and/or nickname.
    f. To stay in touch with acquaintances.
    g. I have Dutch speaking and non Dutch speaking contacts.

h. Because everyone is doing it.
i. Not everyone is on the same social network site.
j. Other……..

4. Do you have more than one profile on the same social network site (e.g. Hyves)?
y*es/no*

5. Why do you have more than one profile?
Select all of the answers that apply.
   - ❑ To separate my contacts (e.g. hobby friends, private and professional contacts).
   - ❑ To protect my privacy: so that people can only see a part of me.
   - ❑ To extend my visibility: I want to be visible on each social network site.
   - ❑ To meet new people with the same interests and hobbies.
   - ❑ To communicate with others under my real name and/or nickname.
   - ❑ To stay in touch with acquaintances.
   - ❑ I just enjoy to be on social network sites.
   - ❑ Because everyone is doing it.
   - ❑ Other……..

6. A couple of reasons why people join social network sites are summarized below
How important is each reason for you?

	Very unimportant	Unimportant	Neutral	Important	Very Important
To meet new people	❑	❑	❑	❑	❑
To stay in touch with old friends and acquaintances	❑	❑	❑	❑	❑
To share pictures with and view pictures of others	❑	❑	❑	❑	❑
Curiosity (what keeps other people busy)	❑	❑	❑	❑	❑
To let people know what keeps me busy	❑	❑	❑	❑	❑
To meet new people with the same interests	❑	❑	❑	❑	❑
Viewing profiles of people I do not know	❑	❑	❑	❑	❑
Viewing profiles of friends of friends.	❑	❑	❑	❑	❑
To organize parties	❑	❑	❑	❑	❑
To enjoy myself (to share music, games, become a member of different groups)	❑	❑	❑	❑	❑
To disclose information	❑	❑	❑	❑	❑

7. On which social network site are you most active?
   - ❑ Hyves
   - ❑ Facebook
   - ❑ Twitter
   - ❑ LinkedIn
   - ❑ Other……..

8. What kind of information do you disclose on your social network site profile?

❑ First name	❑ Email / IM	❑ Interests / favorites
❑ Last name	❑ Address (city, address)	❑ Wall posts
❑ Gender	❑ Religion	❑ Favorite branches
❑ Birthday	❑ Sexuality	❑ Blog
❑ Phone number	❑ Relationship	

Privacy

The third part of the survey contained questions about privacy, i.e., attitude to, and concerns about privacy, both in online and offline situations. Furthermore, the amount of risks respondents take regarding privacy information was measured in this part of the online survey. In the current study, the focus is on information privacy, defined by Westin (1967) as the amount of control that individuals can exert over the type of information, and the extent of that information, revealed to others.

To measure risk taking, the following questions were added to the online survey:

1. Question 8 in the online survey (see question 8 in section social network site characteristics).
2. If the answer on question 6 was Hyves, then Question 10 was shown: Who has access to your….on Hyves?

	Everyone	Hyvers	Friends	Friends of friends	Nobody	Specific groups /contacts	No idea	Not applicable
Whole profile	❑	❑	❑	❑	❑	❑	❑	❑
Pictures	❑	❑	❑	❑	❑	❑	❑	❑
Contact List	❑	❑	❑	❑	❑	❑	❑	❑
Contact information (email, phone number, IM, etc.)	❑	❑	❑	❑	❑	❑	❑	❑
Wall posts	❑	❑	❑	❑	❑	❑	❑	❑
Status updates (WhoWhatWhere)	❑	❑	❑	❑	❑	❑	❑	❑
Blog	❑	❑	❑	❑	❑	❑	❑	❑
Favorites and Interests	❑	❑	❑	❑	❑	❑	❑	❑
Personal information (relationship, city, address, day of birth, etc.)	❑	❑	❑	❑	❑	❑	❑	❑

3. If the answer on question 6 was Facebook, then Question 11 was shown: Who has access to your….on Facebook?

	Everyone	Friends	Friends of friends	Only me	Specific groups /contacts	No idea	Not applicable
Whole profile	❑	❑	❑	❑	❑	❑	❑
Pictures	❑	❑	❑	❑	❑	❑	❑
Contact List	❑	❑	❑	❑	❑	❑	❑
Contact information (email, phone number, IM, etc.)	❑	❑	❑	❑	❑	❑	❑
Wall posts	❑	❑	❑	❑	❑	❑	❑
Status updates	❑	❑	❑	❑	❑	❑	❑
Favorites and Interests	❑	❑	❑	❑	❑	❑	❑
Personal information (relationship, city, address, day of birth, etc.)	❑	❑	❑	❑	❑	❑	❑

In the current study, privacy concern was defined as the level of concern people have about violation of their privacy (i.e. how concerned are people when other people can find information about them or other people can read their mail or text messages). To measure privacy concern, questions were formulated in which likeliness of being a victim of privacy violation were combined with recognizable situations, like how concerned are you that other people can steal your identity, or how concerned are you that information that you publish online could be misused. These questions were partly based on the questions of Fogel & Nehmad (2009) and Acquisti & Gross (2006). For each question, the respondent had to answer how concerned he or she was regarding violation of his or her privacy from 1 *very unconcerned* to 5 *very concerned*; a higher score indicated that people were more concerned about (violation of) their privacy.

To measure privacy concerns, both online and offline, two questions were added to the online survey:

1. Question 22 privacy concerns online: How concerned are you that…

	Very unconcerned	Unconcerned	Normal	Concerned	Very concerned
Other people put information about you online	❑	❑	❑	❑	❑
Information that you publish online could be misused	❑	❑	❑	❑	❑
Companies gather information about you online	❑	❑	❑	❑	❑
A future employer could find information about you online	❑	❑	❑	❑	❑
Other people can steal your identity online	❑	❑	❑	❑	❑
Your family can find out what keeps you busy via your online profile.	❑	❑	❑	❑	❑

2. Question 23 privacy concerns offline: How concerned are you that…

	Very unconcerned	Unconcerned	Normal	Concerned	Very concerned
Information you disclose is used in a way you did not foresee	❑	❑	❑	❑	❑
Information you share in confidence is disclosed to others	❑	❑	❑	❑	❑
Your phone calls are taped.	❑	❑	❑	❑	❑
Information you disclose in the train is misused	❑	❑	❑	❑	❑
People are watching your PIN code while entering.	❑	❑	❑	❑	❑
Your parents or friends read your diary, email or text messages.	❑	❑	❑	❑	❑

In this study, privacy attitude was defined as an individual's view regarding his or her privacy (personal information), i.e. does someone mind when his or her privacy is violated, or when he or she has to disclose personal information. To measure privacy attitude, questions were formulated concerning situations in which personal information was disclosed without permission, or was requested without permission. These questions were partly based on the privacy attitude scale used by Fogel & Nehmad (2009). In their study, they used the privacy attitude scale of Buchanan et al., (2007), which was specially developed to measure people's attitude towards online privacy and was validated in different studies (see Buchanan et al., (2007)). However, Fogel & Nehmad used sixteen items to measure privacy attitude, while in this study only six items (online) or five items (offline) were used to measure privacy attitude, because some of the questions in the original privacy attitude scale were not that relevant or common for Dutch respondents, like questions about master card payments, or access to medical records electronically. For each question, respondents had to answer whether they do or do not mind when their privacy is violated from 1 *do not mind at all* to 5 *do very much mind*; a higher score indicated that people care more about their privacy.

To measure attitude, both online and offline, the following two questions were added to the online survey:

1. Question 24 privacy attitude online: Do you mind that…

	Do not mind at all	Do not mind	Normal	Do mind	Do very much mind
You have to disclose personal information while registering at a website	❑	❑	❑	❑	❑
Your Hyves or Facebook profile is visible for everyone.	❑	❑	❑	❑	❑
Someone is pretending to be you on the internet.	❑	❑	❑	❑	❑
People or companies are sending you messages or emails about advertisements, sex, viagra, job employments or vacations.	❑	❑	❑	❑	❑
People can intercept your messages or emails.	❑	❑	❑	❑	❑
People find personal information about you online (day of birth, sexual or political preferences, pictures, etc.)	❑	❑	❑	❑	❑

2. Question 25 privacy attitude offline: Do you mind that …

	Do not mind at all	Do not mind	Normal	Do mind	Do very much mind
People can hear your conversations	❑	❑	❑	❑	❑
Someone is pretending to be you	❑	❑	❑	❑	❑
You have to disclose personal information during an interview on the street	❑	❑	❑	❑	❑
People publish information or pictures of you, without your permission.	❑	❑	❑	❑	❑
People read your email, text messages or mail.	❑	❑	❑	❑	❑

Behavior

The fourth and last section contained questions about possibility, need, audience awareness and behavior (audience segregation and disclosing of information). With regard to "possibility", I measured if people have knowhow of the mechanisms to separate audiences and if they are satisfied with the available options on social network sites. See the following questions:

1. Question 15: The following questions are related to Hyves or Facebook:
    a. Does *Hyves or Facebook* provide you options to control access to your personal information, like wall posts, pictures and status updates, for certain groups or contacts? *yes/no/uncertain*
    b. Does *Hyves or Facebook* provide you an option to create your own groups of contacts? *yes/no/uncertain*
    c. Does *Hyves or Facebook* warn you how many people have access to your status updates, messages or pictures on your profile? *yes/no/uncertain*
    d. Does *Hyves or Facebook* warn you who has access to which part of your online profile? *yes/no/uncertain*
    e. Does Hyves or Facebook warn you what the consequences are when you change your privacy settings? *yes/no/uncertain*

2. Question 16: Do you make use of the options to separate your contacts in different groups (e.g. friends, family, colleagues) ? *yes/no*

3. Question 17: Why do you not use the option to create groups?
    - ❑ It takes me too much time
    - ❑ I do not know how it works
    - ❑ I have never looked at it
    - ❑ No idea
    - ❑ Other……..

4. Question 19: Are you satisfied with the current possibilities to separate personal information and contacts? *yes/no*

5. Question 20: What kind of functionality are you missing? ……..

In addition to questions about "possibilities", a question was added in this section about which communication channel the respondent prefers most.

6. Question 21: Range from 1 (most important) to 7 (least important) which communication channel you prefer the most?
    a. Phone
    b. Text messages
    c. Email
    d. Blogs
    e. Social network sites
    f. Face to Face
    g. IM

To measure "need" (do people want or need a mechanism like audience segregation?), the following question was added to the online survey. See question 18.

Question 18:

1. Would you like to control access to your online personal information so that some people can or cannot see (certain parts of) your profile? *yes/no*

To measure audience awareness and behavior, the online survey consisted questions related to the use of audience segregation (both online and offline), whether they were aware of their online audiences and the reasons for disclosing information online. See questions 9-14.

1. Question 9: In the next question several reasons are summarized why people share information. How important is each reason for you? I disclose information because…..

	Very Unimportant	Unimportant	Neutral	Important	Very important
I like to share my experiences with others	❑	❑	❑	❑	❑
I want to improve my social skills (interacting on forums or groups on Hyves, etc.)	❑	❑	❑	❑	❑
I can win holidays, cars or other prizes	❑	❑	❑	❑	❑
I hope to become more popular (e.g. more followers on twitter or my blog)	❑	❑	❑	❑	❑
I love to share news items or new gadgets	❑	❑	❑	❑	❑
I want to find a new job (e.g. using your LinkedIn profile, publishing your resume online)	❑	❑	❑	❑	❑
I want to meet new people (via Hyves, Facebook, LinkedIn, etc.)	❑	❑	❑	❑	❑
I want to keep in touch with old contacts and friends	❑	❑	❑	❑	❑

The online survey contained five questions to measure audience segregation (four questions: 10-12 and 14) and online audience awareness (one question: 13). To measure audience segregation in an online survey, it was important to formulate questions about situations in which people had to disclose "confidential" personal information in front of different audiences (are they aware of their audiences). In case of offline audience segregation, questions were formulated regarding situations in which confidential information was disclosed within a public area, such as a train or a bar. For each question, the respondents had to answer if they would disclose personal information (within a specific context) on a scale of 1 *never* to 5 *always*. Online audience segregation was measured by investigating which privacy settings respondents used for the different parts of their online profile. This was done by asking respondents who has access to the different parts of their online profile. Answer options were, for example, friends, everyone, and specific contacts. As respondents allow more people to have access to their online profile, they make less use of audience segregation.

Regarding audience awareness, I was interested in whether people ask themselves who their audience is when disclosing personal information. To measure audience awareness, respondents were asked if they know their audiences in different situations. These questions could be answered with 1 *never* to 5 *always*.

Questions used to measure audience segregation and awareness:

1. Question 10 and 11, see above, section privacy (measuring risk taking).
2. Question 12 audience segregation offline: Select for each question the answer that applies to you.

	Never	Hardly ever	Sometimes	Most of the time	Always
Do you hide your bank card PIN number when using cash machines/making purchases?	❑	❑	❑	❑	❑
Would you discuss a conflict over the phone in a busy train?	❑	❑	❑	❑	❑
When you have a confidential conversation with a friend/ acquaintance, would you have this conversation in a busy bar?	❑	❑	❑	❑	❑
When you are giving a birthday party with all your friends, and at a certain moment your parents and grandparents come in, would you change from subject?	❑	❑	❑	❑	❑
Would you leave a confidential letter unattended at a school /university or office?	❑	❑	❑	❑	❑

3. Question 13 online audience awareness: Do you ask yourself who your audience is

	Never	Hardly ever	Sometimes	Most of the time	Always
When you are disclosing messages online?	❑	❑	❑	❑	❑
When you are disclosing pictures online?	❑	❑	❑	❑	❑
When you disclose your phone number or email online?	❑	❑	❑	❑	❑
When you disclose personal information online (date of birth, first name, last name, sexual or political preferences, or interests, etc.)	❑	❑	❑	❑	❑

4. Question 14: Select the people with whom you would share the information mentioned below.

	Friends	Parents	Family	Brother/ Sister	(ex) Partner	Colleagues	Acquaintances	Internet friends	No one
I would definitely share my sexual history with my	❑	❑	❑	❑	❑	❑	❑	❑	❑
I would definitely share my drugs history with my	❑	❑	❑	❑	❑	❑	❑	❑	❑
When I have feelings for someone, I would definitely share this with my	❑	❑	❑	❑	❑	❑	❑	❑	❑
When I have gay feelings, I would definitely share this with my	❑	❑	❑	❑	❑	❑	❑	❑	❑
When I have HIV, I would definitely share this with my	❑	❑	❑	❑	❑	❑	❑	❑	❑

4.3 Participants and procedures

Participants for the survey were recruited in three ways: 1) through an advertisement on Hyves[3]; with this advertisement it was possible for us to announce the survey among Hyves users; 2) through a request that was sent to 44 different Dutch universities and colleges of higher education (appendix I). In this request, we asked the board of directors to forward an email invitation with a link of our survey to all their students; and 3) by disclosing the survey through Hyves, Facebook, Twitter and LinkedIn contacts and groups. To increase the number of participants and to appreciate the respondents willingness for contribution we offered 2 Ipod nano's in a lottery among all participants. For this study, participation was limited to Dutch speaking subjects (the questionnaire was in Dutch). Participants were asked to complete questions about privacy and audience segregation topics anonymously. Data were collected from December 2010 till 14 February 2011.

[3] Hyves donated 'virtual money' for an advertisement on their social network. With that money we created an advertisement that was presented (100.000 times) to the users of Hyves.

5 Statistical Analyses & Scale constructions

This chapter explains the statistical analyses that were used in the current study (paragraph 5.1). Furthermore, for some analyses it was necessary to create new variables; these processes are described in paragraph 5.2.

5.1 Statistical Analyses

SPSS version 17 was used to analyze the survey results. The study was performed on dichotomous, categorical, and continuous variables. The following statistics tests were used:

1. Independent t-test: The independent t-test was used to test for a (significant) difference(s) between two independent groups (like males and females) on the means of a continuous variable.
2. Analysis of variance (ANOVA): One-way between-groups ANOVA was used in case of one independent (grouping) variable with three or more levels (groups) and one dependent continuous variable. The (one-way) ANOVA tells you whether there are significant differences in the mean scores on the dependent variable across the groups (three or more groups) (e.g. Age: Teenagers (<20), Young Adults (20-30), Adults (>30) or Privacy concern: Not concerned, Neutral, Concerned). However, ANOVA does not tell which groups differ significantly. To test which groups differ significantly, the post hoc test Tukey and Games-Howell were performed.
3. Factor analyses: Factor analyses were performed to identify groups of related variables. It does this by looking for 'clumps' or groups among intercorrelations of a set of variables. Clumps of variables can be found by identifying the variables with the highest loading (either positive or negative value) in each component, a so called pattern matrix. In this way, it was possible to reduce a larger set of variables to a smaller set of variables, and consequently to create new variables (e.g. high and low risk personal information). The Kaiser-Meyer-Olkin (KMO) index was used to assess the appropriateness of using factor analysis on data. To perform factor analyses a KMO value of 0.6 or higher was required.
4. Regression analyses: With regression analysis it is possible to test the relationship between a dependent variable and one or more independent variables. More specifically, regression analysis helps one understand how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held fixed. In this study, regression analyses were performed to test the research model.
5. Correlation: Correlation describes the relationship between two continuous variables, in terms of both the strength of the relationship and the direction. For the current study, the Pearson correlation coefficient was used (r.). The output is the size of the value of the correlation coefficient. This can be from -1.00 to 1.00. This value will indicate the strength of the relationship between the two variables. A correlation of 0 indicates no relationship at all, a correlation of 1.0 indicates a perfect positive correlation, and a value of -1.0 indicates a perfect negative correlation. Cohen (1988) suggests the following guidelines: r=. 10 to .29 small correlation ; r=.30 to .40

medium correlation; r=.50 to 1.0 large correlation. In this study, correlation tests were used to find relationships between offline and online privacy concern and between offline and online privacy awareness.

6. Reliability: A reliability test was conducted to test the internal consistency or reliability of the scales (e.g. privacy concern, privacy awareness). The output of a reliability test is a Cronbach alpha value. A Cronbach alpha value of $\alpha \geq 0.70$ was required to use a "scale" for analyses.

For all tests, a p-value < 0.05 was considered statistically significant.

5.2 Scale construction

To test the hypotheses, it was necessary to recode some of the questions (8, 10, 11, 12, 13, 22, 23, 24 and 25) into new variables. The following paragraphs will explain in more detail the variables that were created and which values were assigned to these variables.

5.2.1 Privacy

Regarding privacy, the topics *Risk, Concern and Attitude* were assessed. First, the analyses concerning "risk" will be described. To measure risk, the questions 8, 10 and 11 were used.

Privacy risk (personal information)

Question 8: What kind of information do you disclose on your social network site profile?

Table 5.2.1. Pattern matrix.

	Component				
	1	2	3	4	5
iFirstname	.068	**.806**	-.009	.016	.053
iLastname	-.038	**.800**	.086	.032	.029
iSex	-.030	-.030	-.011	**-.812**	.050
iYearofBirth	.016	.012	.121	**-.764**	-.048
iPhone	.004	-.051	**.802**	.004	-.034
iIM	-.026	.044	**.746**	-.190	.072
iAddress	.041	.067	**.497**	.071	-.091
iReligion	-.011	-.091	.141	.123	**-.720**
iSexuality	-.030	.046	-.008	-.011	**-.804**
iRelationship	.181	-.062	-.085	-.269	**-.514**
iFav_Intr	**.573**	.130	-.038	-.062	-.207
iKrab_Wall	**.556**	.059	-.016	-.287	-.029
iBranches	**.735**	.101	-.011	.048	-.052
iBlog	**.672**	-.236	.117	.147	.153

To investigate how many risks people take when publishing personal information online, question 8 of the online survey was used. The variables of this question were subjected to factor analyses. With factor analyses it was possible to discern high and low risk variables, and consequently combine these variables into a smaller number of variables. Based on the literature (e.g. Fogel & Nehmad, 2009), it was expected that the variables *iPhone*, *iIM* and *iAddress* (phone number, email and address) would cluster into one group, because these variables (personal information) were considered as high risk variables. Fourteen variables of question 8 (see table 5.2.1.) were used to perform a principal component analyses (PCA)[4], which is part of a factor analysis. The Kaiser-Meyer-Olkin value was .72, hereby exceeding the recommended value of .6. Therefore, factor analyses was appropriate. Principal components analysis revealed the presence of five components (see table 5.2.1) with eigenvalues exceeding 1, 19,6%, 11%, 9,7%, 7,9%, 7,2% of the variance respectively. An inspection of the Pattern Matrix revealed patterns between the following variables: 1) The first component contained the variables iFav_Intr, iKrab_Wall, iBranches and iBlog (favorites/interests, wall posts, branches and blogs); 2) The second component contained the variables iFirstname and iLastname (first name and last name); 3) The third component contained the variables iPhone, iIM and iAddress (phone number, email and address); 4) The fourth component contained the variables iSex and IYearofBirth (gender and year of birth);

[4] **Principal component analysis (PCA)** is a mathematical procedure that uses an orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of uncorrelated variables called **principal components**

and 5) The last component contained the variables iRelationship, iReligion and iSexuality (relationship, religion and sexuality).

As expected, the variables that were considered as high risk variables (based on Fogel & Nehmad, 2009) were clustered into one component (third component). Based on the results of the factor analyses and hypothesis H1, two new variables were created: the variable *high_risk_personal_information* (value range 0-3), containing the variables of component three and the variable *low_risk_personal_information* (value range 0-7), containing the variables of the second, fourth and fifth components. These two variables were used to test if there were differences between men and women with regard to risk taking when they disclose personal information.

The variables of component one were not used for analyses, because the variables of this component contained less personal and direct identifiable information than the variables of other components. In addition, a third variable "*total_risk_personal_information*" (value range 0-10) was created with regard to risk taking to test if there were differences between men and women and the amount of personal information they disclose (variables of components 2,3,4 and 5 were used in variable "*total_risk_personal_information*"). For each information item that was disclosed a score of 1 was assigned. This resulted in a scoring range of 0-3 (*high_risk_personal_information*), 0-7 (*low_risk_personal_information*) or 0-10(*total_risk_personal_information*) depending of the variable, with 0 meaning no risks were taken, and 3 or 7 or 10, was classified as a very high risk was taken.

For example, if a respondent disclosed his phone number, email and address on his online profile, he will score 3 regarding the variable "high_risk_personal information". This suggests that a respondent takes a lot of risk when disclosing (high risk) personal information.

Privacy risk (privacy settings)

Question 10: Who has access to your…Hyves?
Question 11: Who has access to your…Facebook?

To assess risks regarding the use of privacy settings, questions 10 and 11 of the online survey were used. With respect to privacy settings, it was argued that people take more (everyone has access) or less (only close friends have access) risks than others. For each question the respondent had to answer which group of contacts had access to his or her profile. To analyze these questions, a distinction was made between *high risk* and *low risk* group of contacts. For questions 10 and 11 the group of contacts that were defined as high or low risk are presented in tables 5.2.2 and 5.2.3, respectively.

Table 5.2.2 Classification Hyves

Low Risk (Hyves)	High Risk (Hyves)
Friends (<=101 contacts)	Friends(>101 contacts)
Nobody	Everyone
Specific groups / contacts	Hyvers
Not applicable	Friends of Friends
	No Idea

Table 5.2.3 Classification Facebook

Low Risk (Facebook)	High Risk (Facebook)
Friends (<=130 contacts)	Friends (>130 contacts)
Only me	Everyone
Specific groups / contacts	Friends of Friends
Not applicable	No Idea

The groups Everyone, Friends (for *Hyves*: number of contacts > 101 and *Facebook*: number of contacts > 130), Hyvers (only applicable for Hyves users), Friends of Friends and No Idea were classified as high risk, because when people choose one of these groups, 1) a large number of people has access to their personal information and 2) it is arguable that by choosing one of these options people are less interested in their privacy. With regard to the above mentioned contact groups, the category *friends* deserves special attention. Although it seems right that people choose the category *friends* as privacy setting, most people have more than 150 friends in their contact list. Most of these contacts are weak ties, and these weak ties are not the persons with whom you want to share your whole personal life. Therefore, the category *friends* was classified as high risk (>101 or 130 contacts) and low risk (<= 101 or 130 contacts). The cut off points for Hyves and Facebook were based on the statistics of Hyves and Facebook, because it was assumed that these numbers were more representative for the whole population than the results of this study (a part of the population). In case of Hyves, the average number of friends was 101. The average number of friends in the current study was 243. In case of Facebook, the average number of friends was 130. In the current study, the average number of friends on Facebook was 143.

After the contact groups were divided in a low or high risk category, the nine subquestions related to Hyves (question 10) and the eight subquestions related to Facebook (question 11) were recoded into new variables (H_privacyrisk_1 to H_privacyrisk_9 and F_privacyrisk_1 to F_privacyrisk_8) with a scoring range of 0-2. 0 means the respondent did not take any risk; 1 means the respondent did take a risk (by choosing a contact group of the high risk category as an answer), but the information that was accessible contained not (much) personal information ; and 2 means the respondent did take a risk (by choosing a contact group of the high risk category as an answer), and the information that was accessible contained (much) personal information. In table 5.2.4 the new variables H_privacyrisk_1 to H_privacyrisk_9 and F_privacyrisk_1 to F_privacyrisk_8 are presented. In tables 5.2.5 and 5.2.6 the scoring will be described for the Hyves variables and the Facebook variables, respectively.

Table 5.2.4 new variables Hyves and Facebook

Question survey*	Hyves (question 10)	Facebook (question 11)
Whole profile	**H_privacyrisk_1**	**F_privacyrisk_1**
Pictures	**H_privacyrisk_2**	**F_privacyrisk_2**
Contact List	H_privacyrisk_3	F_privacyrisk_3
Contact information	**H_privacyrisk_4**	**F_privacyrisk_4**
Wall posts	H_privacyrisk_5	F_privacyrisk_5
Status updates	H_privacyrisk_6	F_privacyrisk_6
Blog	H_privacyrisk_7	
Favorites and Interests	H_privacyrisk_8	F_privacyrisk_7
Personal information	**H_privacyrisk_9**	**F_privacyrisk_8**

In **bold are the categories that contain the most personal information.*

Table 5.2.5 scoring table question 10, Hyves

Answer Categories	***H_privacyrisk_ 1, 2,4,and 9***	**H_privacyrisk_3, 5, 6, 7 and 8**	***H_privacyrisk_ 1, 2,4,and 9***	**H_privacyrisk_3, 5, 6, 7 and 8**
	<= 101 contacts		*> 101 contacts*	
	Scoring	*Scoring*	*Scoring*	*Scoring*
1 = Everyone	2	1	2	1
2 = Hyvers	2	1	2	1
3 = Friends	**0**	**0**	**2**	**1**
4 = Friends of Friends	2	1	2	1
5 = Nobody	0	0	0	0
6 = Specific groups / contacts	0	0	0	0
7 = No idea	2	1	2	1
8 = Not applicable	0	0	0	0

Table 5.2.6 scoring table question 11, Facebook

Answer Categories	**F_privacyrisk_1, 2,4 and 8**	**F_privacyrisk_3, 5,6 and 7**	**F_privacyrisk_1,2, 4 and 8**	**F_privacyrisk_3,5, 6 and 7**
	<= 130 contacts		> 130 contacts	
	Scoring	*Scoring*	*Scoring*	*Scoring*
1 = Everyone	2	1	2	1
2 = Friends	**0**	**0**	**2**	**1**
3 = Friends of Friends	2	1	2	1
4 = Only me	0	0	0	0
5 = Specific groups / contacts	0	0	0	0
6= No idea	2	1	2	1
7 = Not applicable	0	0	0	0

For example, when a respondent answers that only friends have access to his or her whole profile (H_privacyrisk_ 1), and this respondent has more than 101 contacts (in case of Hyves), than the assigned score will be 2, meaning the respondent did take a risk by providing access to a lot of people concerning personal information. On the other hand, if a respondent answered nobody on the same question, a score of 0 was assigned, meaning he or she did not take any risk (did not provide access to a lot of people).

Subsequently, for each Hyves user the scores of H_privacyrisk_1 to H_privacyrisk_9 were summed. The score of H_privacyrisk_3 was not included, because it was not possible for Hyves users to control access to their contact list. For Facebook users, the scores of F_privacyrisk_1 to F_privacyrisk_8 were summed. The sum scores of both the Hyves and Facebook users were represented in a new variable "*total_privacy_risk_settings*" (value range 0-12). 0 means the respondent did not take any risk, and 12 means the respondent did take a very high risk.

Privacy concern

Question 22: How concerned are you that..(online)
Question 23: How concerned are you that..(offline)

The second topic related to privacy was concern. Question 22 in the online survey measured online privacy concerns and question 23 measured offline privacy concerns. Both questions consisted of six subquestions. The Cronbach's alpha (α) was calculated for the subset of questions for both online and offline privacy concerns. An alpha of .82 (offline) and .81 (online) indicated that the items (subquestions) were internal consistent. The respondent

had to indicate his or her concerns for each subquestion ranging from 1 *very unconcerned* to 5 *very concerned*. A mean score was calculated for online and offline concerns separately, by summing all scores of the subquestions (a subquestion had a score range of 1 *very unconcerned* to 5 *very concerned*) and by subsequently dividing by the number of questions (total points/number of questions = mean score). This resulted in the new variables *privacy_concern_online* and *privacy_concern_offline*; score range 1-5. Based on these variables also two new categorical variables were created, namely "*privacy_concern_offline_categorized*" and "*privacy_concern_online_categorized*". For these variables, the mean scores were subdivided into three categories: 1 Not Concerned (mean score 1-2,49); 2 Neutral (mean score 2,50-3,49); and 3 Concerned (mean score 3,50-5). These variables were used to investigate whether people who are concerned about their privacy use audience segregation more often than people who are not concerned.

Privacy attitude

Question 24: Do you mind that..(online)
Question 25: Do you mind that..(offline)

The third topic related to privacy was attitude. Question 24 in the online survey measured privacy attitude online and question 25 measured privacy attitude offline. Both questions consisted of subquestions (i.e. 6 for privacy attitude online and 5 for privacy attitude offline). The Cronbach's alpha (α) was calculated for the subset of questions for both online and offline privacy attitude. An alpha of .73 (offline) and .76 (online) indicated that the items (subquestions) were internal consistent. The respondent had to indicate his or her attitude regarding privacy for each subquestion ranging from 1 *do not mind at all* to 5 *do very much mind*. A mean score was calculated for privacy online and offline attitude separately, by summing all scores of the subquestions (a subquestion had a score range of 1 *do not mind at all* to 5 *do very much mind*) and by subsequently dividing by the number of questions (total points/number of questions = mean score). This resulted in the new variables *privacy_attitude_online* and *privacy_attitude_offline*; score range 1-5. Based on these variables also two new categorical variables were created, namely "*privacy_attitude_offline_categorized*" and "*privacy_attitude_online_categorized*". For these variables, the mean scores were subdivided into three categories: 1 Do not mind (mean score 1-2,49); 2 Neutral (mean score 2,50-3,49); and 3 Do mind (mean score 3,50-5). These variables were used to investigate whether people who *do mind* when their privacy was violated use audience segregation more often than people who *do not mind*.

5.2.2 Audience segregation

To assess audience segregation, three questions (10-12) were used during analyses. One questions (12) measured whether people were aware of their audience in offline situations. The other two questions (10-11) measured if people were aware of their audience by taking into account the privacy settings they use to protect their online profile.

Audience segregation offline (sharing of personal information)

Question 12: Select for each question the answer that applies to you (see table 5.2.7)

The Cronbach's alpha (α) was calculated for the subset of questions for offline audience segregation. The offline scale, had a Cronbach's alpha (α) of .25. This low α indicated an unreliable scale. Therefore, a mean score could not be calculated. Instead, a factor analysis was conducted to find clusters of variables that could be used. The Kaiser-Meyer-Olkin value was .61, exceeding the recommended value of .6. Two components with eigenvalues exceeding 1, 31,7%, 21,1% of the variance respectively were found. An inspection of the Pattern Matrix (see table 5.2.7) revealed a pattern between the variables (as = audience segregation) as_Phone, as_Bar and as_Letter in component one. In the second component, a pattern between the variables as_PIN and as_Birthday was found, although the value of variable as_PIN was almost two times higher than the value of variable as_Birthday.

Table 5.2.7 Pattern matrix.

Original questions	Recoded variables	Component	
		1	2
Do you hide your bank card PIN number when using cash machines/making purchases?	as_PIN	.187	**.847**
Would you discuss a conflict over the phone in a busy train?	as_Phone	**.685**	.000
When you have a confident conversation with a friend/acquaintance, would you have this conversation in a busy bar?	as_Bar	**.733**	-.132
When you are giving a birthday party with all your friends, and at a certain moment your parents and grandparents come in, would you change from subject?	as_Birthday	-.396	**.490**
Would you leave a confidential letter unattended at a school/university or office?	as_Letter	**.625**	.284

The variables as_PIN and as_Birthday were both excluded from analysis. Variable as_ Birthday scored in both components high, which could indicate that the question did not measure what is should measure and variable as_PIN was not of value for this study as it did not vary much for different groups (e.g. age, personality and level of privacy concern). Based on the output of the factor analyzes, it was decided to measure audience segregation offline by summing the variables of component one (as_Phone, as_Bar and as_Letter). The variables as_PIN and as_Birthday were assigned scores from 1 (never) to 5 (always), while the variables as_Phone, as_Bar and as_Letter were assigned scores from 5 (never) to 1 (always). A mean score was computed by summing the scores of as_Phone, as_Bar and as_Letter and by subsequently dividing this sum score by the number of questions (total points/3 = mean score). This resulted in the new variable "*factorized_audience_segregation_offline*", with a score range of 1, *never aware of audience segregation (offline)* to 5, *always aware of audience segregation (offline).*

Audience segregation online (privacy settings)

Question 10: Who has access to your…Hyves?

Question 11: Who has access to your…Facebook?

Additionally, audience segregation was assessed by analyzing the questions regarding privacy settings (questions 10 and 11 in the online survey). These questions were also used for measuring risk taking when sharing personal information (see paragraph 5.2.1). For the analyses concerning audience segregation, the classification of contact groups in low and high risk groups was the same as applied by "risk taking" (see tables 5.2.8 and 5.2.9). For example, if a respondent chose one of the low risk contact groups as an answer, it was argued that he or she was aware of his audience, and thus making use of audience segregation.

Table 5.2.8 classification Hyves

Low Risk (Hyves)	High Risk (Hyves)
Friends (<=101 contacts)	Friends(>101 contacts)
Nobody	Everyone
Specific groups / contacts	Hyvers
Not applicable	Friends of Friends
	No Idea

Table 5.2.9 Classification Facebook

Low Risk (Facebook)	High Risk (Facebook)
Friends (<=130 contacts)	Friends (>130 contacts)
Only me	Everyone
Specific groups / contacts	Friends of Friends
Not applicable	No Idea

The nine subquestions related to Hyves (question 10) and the eight subquestions related to Facebook (question 11) were recoded into new variables (H_as_1 to H_as_9 and F_as_1 to F_as_8; see table 5.2.10).

Table 5.2.10 new variables Hyves and Facebook

Questions survey*	Hyves (question 10)	Facebook (question 11)
Whole profile	**H_as_1**	**F_as_1**
Pictures	**H_as_2**	**F_as_2**
Contact List	H_as_3	F_as_3
Contact information	**H_as_4**	**F_as_4**
Wall posts	H_as_5	F_as_5
Status updates	H_as_6	F_as_6
Blog	H_as_7	
Favorites and Interests	H_as_8	F_as_7
Personal information	**H_as_9**	**F_as_8**

In **bold are the categories that contain the most personal information*

The scoring for the use of audience segregation is presented in tables 5.2.11, and 5.2.12. This scoring was the opposite of that used for risk taking (compare tables 5.2.5 and 5.2.6); a scoring of 0 to 2 was applied: 0 indicates little awareness/use of audience segregation; 1 indicates that a respondent was aware of his audience, but the information that was accessible contained not (much) personal information; and 2 indicates that a respondent was aware of his audience, and the information that was accessible contained (much) personal information.

For example, if a respondent answered that specific groups/contact have access to his whole profile (H_as_1, for Hyves users) a score of 2 was assigned, meaning he was aware of his audience and using proper privacy settings to protect his personal information. On the

other hand, if a respondent answered everyone on the same question, a score of 0 was assigned, meaning he was not aware of his audience.

For each Hyves user, the scores of H_as_1 to H_as_9 were summed. The score of H_as_3 was not included, because it was not possible for Hyves users to control access to their contact list. For Facebook users the scores of F_as_1 to F_as_8 were summed. The sum scores of both the Hyves and Facebook users were represented in a new variable "*total_audience_segregation"* with a value range of 0-12; 0 means the respondent did not use audience segregation and 12 means the respondent used audience segregation completely.

Table 5.2.11 recode table question 10, Hyves

Answer Categories	**H_as_1,2,4 and 9**	**H_as_5,6,7 and 8**	**H_as_1,2,4 and 9**	**H_as_5,6,7 and 8**
	<= 101 contacts		*> 101 contacts*	
	Scoring	*Scoring*	*Scoring*	*Scoring*
1 = Everyone	0	0	0	0
2 = Hyvers	0	0	0	0
3 = Friends	**2**	**1**	**0**	**0**
4 = Friends of Friends	0	0	0	0
5 = Nobody	2	1	2	1
6 = Specific groups / contacts	2	1	2	1
7 = No idea	0	0	0	0
8 = Not applicable	2	1	2	1

Table 5.2.12 recode table question 11, Facebook

Answer Categories	**F_as_1,2,4 and 8**	**F_as_3,5,6 and 7**	**F_as_1,2,4 and 8**	**F_as_3,5,6 and 7**
	<= 130 contacts		> 130 contacts	
	Scoring	*Scoring*	*Scoring*	*Scoring*
1 = Everyone	0	0	0	0
2 = Friends	**2**	**1**	**0**	**0**
3 = Friends of Friends	0	0	0	0
4 = Only me	2	1	2	1
5 = Specific groups / contacts	2	1	2	1
6= No idea	0	0	0	0
7 = Not applicable	2	1	2	1

5.2.3 Audience awareness

Question 13: Do you ask yourself who your audience is…

To assess whether people were aware of their online audiences, questions 13 was used during analyses.

The Cronbach's alpha (α) was calculated for the subset of questions for awareness of audiences. For the online subquestions, the Cronbach's alpha (α) was .89, which indicates that the items (subquestions) were internal consistent. The respondents had to answer for each subquestion if they were aware of their audience with answer possibilities ranging from 1 *never* to 5 *always*. A mean score was calculated for audience segregation awareness online by summing all scores of the subquestions (a subquestion had a score range of 1 *never* to 5 *always*) and by subsequently dividing by the number of questions (total points/number of questions = mean score). This resulted in the variable: *audience_awareness_online;* score rang 1-5.

5.2.4 Amount of personal information

Personal information

Question 8: What kind of information do you disclose on your social network site profile?

With regard to question 8, a variable was created "*total_personal_information_all*" to measure the amount of personal information people disclose. In this new variable, all information items that a respondent disclosed were summed (a maximum of 14 information items). For each information item that was disclosed a score of 1 was assigned. As a result, this variable had a value range of 0-14, with 0 meaning there was no information disclosed, and 14 meaning a lot of information was disclosed.

5.2.5 Introversion – Extroversion

Question 30:	*Are you a talkative person?*	*yes/no*
Question 31:	*Are you rather lively?*	*yes/no*
Question 32:	*Do you enjoy meeting new people?*	*yes/no*
Question 33:	*Can you usually let yourself go and enjoy yourself at a lively party?*	*yes/no*
Question 34:	*Do you usually take the initiative in making new friends?*	*yes/no*
Question 35:	*Can you easily get some life into a rather dull party?*	*yes/no*
Question 36:	*Do you tend to keep in the background on social occasions?*	*yes/no*
Question 37:	*Do you like mixing with people?*	*yes/no*
Question 38:	*Do you like plenty of bustle and excitement around you?*	*yes/no*
Question 39:	*Are you mostly quiet when you are with other people?*	*yes/no*
Question 40:	*Do other people think of you as being very lively?*	*yes/no*
Question 41:	*Can you get a party going?*	*yes/no*

To measure introversion/extroversion, questions 30 to 41 of the online survey were used. Respondents were asked to answer each question with either yes or no. For the questions 30-35, 37-38 and 40-41 the following scoring was applied: In case the respondent answered *yes* a score of 1 was assigned, in case the respondent answered *no* a score of 2 was assigned. For the questions 36 and 39 the scoring was different: when a respondent answered *yes* a score of 2 was assigned and when a respondent answered *no* a score of 1 was assigned. Subsequently, for each respondent questions 30 to 41 were summed into a new variable "*introvert_extrovert*", with a value range of 12 (extrovert) to 24 (introvert). To make a clear distinction between people who are introvert or extrovert, the variable "*introvert_extrovert*" was recoded: a value of 1 was assigned to persons with values 12-17 and a value of 2 was assigned to persons with values 18-24; 1 meant a person was extrovert and 2 meant a person was introvert. Eighteen was chosen as cut off point, because this was the center of the original value range.

5.2.6 Research model

To use dichotomous variables (yes/no, men/women or introversion/extroversion) in a regression analysis, it was necessary to create dummy variables (variables consisting of 0s and 1s). In the current study, dummy variables were created for "*gender*" (*1= women; 2 =men*), "*introvert_ extrovert*" (*1= extroversion; 2 =introversion*) and "*need_ to_ separate_ audiences*" (*1= yes; 2= no)*: "*dummy_ gender*" (*0= women; 1 =men*), "*dummy_ personality*" (*0= extroversion; 1 = introversion*) and "*dummy_ need*" (*0= yes; 1 = no*). In the research model, it was assumed that, to perform a behavior (audience segregation online), people should be aware of the technical possibilities to perform that behavior (mechanisms to separate audiences online). Hyves and Facebook both provide mechanisms to separate audiences. To investigate if people were aware of these possibilities, the survey contained two questions:

Question15:The following questions are related to Hyves or Facebook:

a. *Does Hyves or Facebook provide you options to control access to your personal information, like wall posts, pictures and status updates, for certain groups or contacts?* *yes/no/uncertain*

b. *Does Hyves or Facebook provide you an option to create your own groups of contacts?* *yes/no/uncertain*

To use the questions 15a and 15b in a regression analysis, a dummy variable was created: "*dummy_ possibility*" (*0= not_ aware; 1 = is_ aware*). The questions 15a and 15b were originally coded as 1= yes, 2= no, and 3= uncertain. In case the respondent answered on both questions *yes* the sumscore was 2, meaning the respondent was aware of the technical possibilities provided by the social network site (dummy value 1). In all other cases (a sumscore of 3 or higher) the respondent was not aware of the technical possibilities (dummy value 0).

6 Results

6.1 Descriptive statistics, demographics and social network site characteristics

Table 6.1.1 Demographic characteristics of the study population (N = 906)

Variable	% (Frequency)	Mean (*SD*)
Age		25,37 (9,82)
Teenagers (12-19)	22,2% (201)	
Young Adults (20-30)	60,7% (550)	
Adults (>30)	17,1% (155)	
Gender		
Men	34,9% (316)	
Women	65,1% (590)	
Dutch nationality		
Yes	97,8% (886)	
No	2,2% (20)	
Personality		
Introvert	24,9% (226)	
Extrovert	75,1% (680)	

A total of 1163 people participated in the survey. Of the 1163 surveys, 906 (77,9%) surveys were usable. Uncompleted surveys, surveys of people who did not create a profile on a social network site and surveys with unusable answers were excluded from the analyses. For example, some people answered that they spend more than 140 hours per week on social network sites or entered a year of birth that was not valid (too old or to young). There were also people who gave the same answer for each question regarding privacy or audience segregation (e.g. each question was answered with not concerned or do mind).
With regard to the number of participants, it is difficult to ascertain which recruiting method contributed the most.

Demographic characteristics

Table 6.1.1 shows the demographic characteristics of the study sample. The average age of the sample is 25 years (*SD=9,82*), with the majority of respondents (60,7%) being between 20 and 30 years of age. In addition, the sample consisted of more women (*N=590, 65,1%*), extroverts (*N=680, 75,1%*), and people with the Dutch nationality (*N=886, 97,8%*).

Social network site characteristics

Table 6.1.2 shows the descriptive characteristics regarding social network site use for all social network sites separately. Additionally, the statistics are presented for all social network sites combined. 92,9% of the respondents had created a profile on a social network site, and in total 8,96 hours (SD=12,71) was spend on viewing and editing profiles. Respondents had on average 2 profiles (range 1-5 profiles) on different social network sites, and on these profiles, the mean number of contacts was 349 (*SD=333,64*).

Table 6.1.2 Social network site characteristics

Variable	% (Frequency)	Mean (*SD*)
Have you ever created your own online profile on social network sites, like Hyves, Facebook or LinkedIn*		
Yes	92,9% (1081)	
No	6,4% (75)	
Hyves		
Average time spend viewing and editing of profiles in hours per week.		5,37 (9,1)
Average number of friends.		243 (207,28)
Facebook		
Average time spend viewing and editing of profiles in hours per week		5,4 (6,87)
Average number of friends.		144 (172,56)
Twitter		
Average time spend viewing and editing of profiles in hours per week		5,42 (7,91)
Average number of friends.		64 (131,06)
LinkedIn		
Average time spend viewing and editing of profiles in hours per week		1,97 (6,45)
Average number of friends.		81 (131,06)
Other social network sites		
Average time spend viewing and editing of profiles in hours per week		3,84(3,82)
Average number of friends.		193 (500,58)
Statistics of all SNSs combined		
Average time spend viewing and editing of profiles in hours per week		8,96 (12,71)
Average number of friends.		349 (333,64)
Average number of profiles		2 (1,02)

Note: SD, standard deviation

** This is for the whole sample and not just for those with a social network site profile.*

Table 6.1.3 shows what kind of information people disclosed on their online profile. The vast majority of the respondents disclosed privacy sensitive information, such as first name, last name, gender and day of birth. In contrast, most respondents did not provide "*high risk*" personal information, like phone number, email/IM and address.

Table 6.1.3 disclosing of personal information on SNSs.

Variable	% (Frequency)	% (Frequency)
	Yes	*No*
Do you include the following information on your online profile?		
First name	**95,9% (869)**	4,1% (37)
Last name	**85,9% (778)**	14,1% (128)
Gender	**89,6% (812)**	10,4% (94)
Date of birth	**78,6% (712)**	21,4% (194)
Phone number	9,9% (90)	**90,1 % (816)**
Email / IM	39,5% (358)	**60,5% (548)**
Address (City, address, etc.)	7,2% (65)	**92,8% (841)**
Religion	11,3% (102)	**88,7% (804)**
Sexuality	19,3% (175)	**80,7% (731)**
Relationship	**50% (453)**	50% (453)
Interests / Favorites	**56,6% (513)**	43,4% (393)
Wall posts	34,8% (315)	**65,2% (591)**
Favorite branches	23,3% (211)	**76,7% (695)**
Blog	15,2% (138)	**84,8% (768)**

Hyves still popular

Hyves seemed to be the most popular social network site, as 43,4% of respondents were most active on Hyves, followed by Facebook (41.1%), Twitter (7,4%) and LinkedIn (5,8%). The most important reasons why people make use of more than one social network site were: 1) To stay in touch with acquaintances (47,7%); 2) because they have Dutch speaking and non Dutch speaking contacts (35,1%); and 3) because not everyone is on the same social network site (32,1%). Interestingly, reasons, such as to protect my privacy (24,9%) and to distinguish between audiences, such as hobby friends, private or professional contacts (4,4%) were less important reasons to be active on different social network sites. Only 4,1% of the respondents had more than one profile on the same SNS. The most important reason for having more profiles on the same social network site was to distinguish between different groups of contacts, like hobby friends, private or professional contacts (45,9%, *N*=37) (data not shown in table).

Table 6.1.4 Privacy settings Hyves and Facebook regarding answer option ***friends.***[5]

Variable	% (Frequency) Hyves *N=393*	% (Frequency) Facebook *N=372*
Who has access to your….on Hyves or Facebook?		
Whole profile	58% (228)	72,3% (269)
Pictures	67,4% (265)	74,5% (277)
Contact List	-	61% (227)
Contact information (email, phone number, IM, etc.)	55,7% (219)	61,8% (230)
Wall posts	56,5% (222)	69,6% (259)
Status updates	54,5% (214)	68,8% (256)
Favorites and interests	51,4% (202)	64,2% (239)
Blog	41,7% (164)	-
Personal information (relationship, city, address, day of birth, etc.)	59% (232)	71% (264)

Friends have access to most parts of one's online profile

Table 6.1.4 presents the answers on the question "who has access to your…on Hyves/Facebook?" for the respondents that only allowed "friends" to the different parts of their profile, as "friends" was the privacy setting chosen most often. It seems that a majority of respondents allow their friends to have access to their whole profile (Hyves 58%; Facebook 72,3%) or a great part of their profile (Hyves: 41,7% blog to 67,4% pictures; Facebook: 61% contact list to 74,5% pictures).

Reasons to join SNSs

Table 6.1.5 presents the reasons why people join social network sites. Respondents were asked to specify for eleven different reasons how important each reason was for them on a five-point scale ranging from *very unimportant* to *very important*. The most important reason for people to join a social network site was to stay in touch with old friends as 56,8% of the respondents indicated that they found this reason important, and 30,9% found this even very important. Furthermore, sharing pictures (53%, important) and curiosity (48,8%, important) were also important reasons for joining social

[5] Facebook do not provide functionality to create a blog, and for Hyves users it is not possible to control access about their contact list

network sites, while reasons, such as "*to meet new people*", "*viewing profiles of people I do not know*" and "*to organize parties*" were not or less important.

Table 6.1.5 Reasons why people join SNS.

	% (Frequency)				
Variables	Very unimportant	Unimportant	Neutral	Important	Very Important
To meet new people	**29,9% (271)**	**31,9% (289)**	23,6% (214)	13,2% (120)	1,3% (12)
To stay in touch with old friends and acquaintances	1% (9)	0,9% (8)	10,4% (94)	**56,8% (515)**	**30,9% (280)**
To share pictures with and view pictures of others	3,5% (32)	8,4% (76)	26,4% (239)	**53% (480)**	8,7% (79)
Curiosity (what keeps other people busy)	3,2% (29)	7,3% (66)	**25,6% (232)**	**48,8% (442)**	15,1% (137)
To let people know what keeps me busy	8,1% (73)	22,4% (203)	**35,7% (323)**	**30,5% (276)**	3,4% (31)
To meet new people with the same interests	21,7%(197)	**34,9% (316)**	**24,8% (225)**	16,6% (150)	2% (18)
Viewing profiles of people I do not know	**30,4% (275)**	**35,7% (323)**	21,9% (198)	10,9% (99)	1,2% (11)
Viewing profiles of friends of friends.	15,5% (140)	**27,2% (246)**	**35,4% (321)**	19,9% (180)	2,1% (19)
To organize parties	**34,2% (310)**	**31,5% (285)**	22,7% (206)	9,9% (90)	1,7% (15)
To enjoy myself (to share music, games, become a member of different groups)	15,8% (143)	22,3% (202)	**28,1% (255)**	**28,9% (262)**	4,9% (44)
To disclose information	12%(109)	23,7%(215)	**32% (290)**	**27,5% (249)**	4,7% (43)

Knowledge of the technical possibilities of Hyves and Facebook

Results presented earlier showed that Hyves and Facebook were the two most popular social network sites. Both networks actually offer different solutions to protect respondents' privacy. Table 6.1.6 presents an overview of the results concerning awareness of these technical possibilities. 83,9% of the Hyves and Facebook users indicated that they were familiar with the options that Hyves and Facebook provide to protect their personal information. Moreover, 57% of the respondents indicated that they were familiar with the option to create groups of contacts on Hyves and Facebook. Hyves and Facebook do not warn users who has access to (the different parts of) their profiles. Interestingly, when the respondents were asked whether Hyves or Facebook warned them, more than 50% of respondents gave the wrong answer (either *yes* or *uncertain*). Therefore, it seems that the technical possibilities of Hyves and Facebook are not quite clear to respondents.

Table 6.1.6 Awareness of the technical possibilities to protect your privacy.

N=765		% (Frequency)	
Variables	Yes	Uncertain	No
Does *Hyves or Facebook* provide you options to control access to your personal information, like wall posts, pictures and stats updates for certain groups or contacts?	**83,9% (642)**	14,1% (108)	2%(15)
Does *Hyves or Facebook* provide you an option to create your own groups of contacts?	**57% (436)**	37% (283)	6% (46)
Does *Hyves or Facebook* warn you how many people have access to your status updates, messages or pictures on your profile?	**18,7%(143)**	**33,2%(254)**	48,1% (368)
Does *Hyves or Facebook* warn you who has access to which part of your online profile?	**37,1% (284)**	**26,7% (204)**	36,2%(277)
Does Hyves or Facebook warn you what the consequences are when you change your privacy settings?	**38,2% (293)**	**35,8% (274)**	25,9% (198)

Moreover, if people answered *yes* or *uncertain* on the question "*Does Hyves or Facebook provide you an option to create your own groups of contacts?"*, they were also asked if they made use of this functionality. Only 18,4% of respondents answered that they used this functionality. The remaining 81,6% of respondents was asked why they did not make use of this functionality; for 22,3% it took too much time, 18,7% did not know how it worked, and 57,2% had never looked at it. Respondents also had the possibility to give an open answer. A few remarkable answers were:

Dutch [De informatie die ik plaats is geschikt voor alle groepen]
English [The information I disclose is suitable for all groups]

Dutch [Geen behoefte om mensen in hokjes in te delen]
English [I do not want to separate people in different groups]

Dutch [Hyves is daarvoor voor mij niet belangrijk genoeg]
English [Hyves is not that important to me]

Dutch [Ik word niet bevriend met mensen die ik niet goed genoeg ken]
English [I do not engage into relationships with people I do not know very well]

The functionality to create groups of contacts is a proper mechanism to separate audiences (especially in case of Facebook). However, it seems that most respondents do not use this functionality. On the other hand, they do want to control access to their personal information, as 70,8% of respondents answered *yes* to the question: "*Would you like to control access to your online personal information so that some people can or cannot see (certain parts of) your profile?"*. Additionally, most respondents (92,3%) were content with the current technical possibilities (of Hyves and Facebook) to protect their online personal information. The people who were not satisfied had to answer what functionality they were missing. A few answers were:

Dutch [Compleet onzichtbaarheid, zelfs geen profielfoto]
English [complete invisibility, not even a profile picture]

Dutch [Duidelijke instructies voor het maken en afschermen van een profiel]
English [A clear manual to create and to protect a profile]

Dutch [Per bericht/foto die ik plaats kunnen bepalen wie dat mag zien]
English [For each message/picture I want to define who has access to it]

Dutch [Een overzicht van wat wel en wat niet afgeschermd is]
English [An overview of which parts of my profile are protected and which are not]

Face to face communication is still the most popular form of communication

As new technologies have been developed to communicate with others, like twitter, blogs and social network sites, it was interesting to investigate whether people prefer these new communication technologies over more traditional manners of communication, such as phone or face to face. The respondents had to rank from 1 to 7 which communication channel they prefer the most. *Face to face* communication (82,7) was still the most popular form of

communication, followed by *phone* (50,3%), *text messages* (36,6%), *email* (28.8%), *social network sites* (31,2%) and *instant messaging* (28,4%), respectively. 81% of the respondents had chosen *blogs* as the least popular communication channel.

6.2 Descriptive statistics privacy

People are not that concerned about privacy.

Table 6.2.1 and table 6.2.2 present descriptive information about peoples' level of privacy concern, both online and offline. It seems that, in general, most respondents were not that concerned about their online (*M=2,39*, *SD=.82*) and offline (*M=2,25*, *SD=.80*) privacy, especially about topics, such as taping of phone calls (53,5% *very unconcerned*), misuse of information in the train (51,7% *very unconcerned*), online identity theft (33,4% *very unconcerned*, and 24,4% *unconcerned*), reading of personal information by parents or friends (41,6% *very unconcerned*) and family finding out what keeps you busy via your online profile (62,4% *very unconcerned*).

*Table 6.2.1 offline privacy concern**

Variable: *Cronbach alpha value = .82*	% (Frequency)				
How concerned are you that….	Very unconcerned	Unconcerned	Normal	Concerned	Very concerned
Information you disclose is used in a way you did not foresee	18,7% (169)	**34,7% (3140**	**33,4% (303)**	11,5% (104)	1,8% (16)
Information you share in confidence is disclosed to others	19,6% (178)	**33,4% (303)**	**26,4% (239)**	16,7% (151)	3,9% (35)
Your phone calls are taped	**53,5% (485)**	18,5% (168)	16,1% (146)	7,3% (66)	4,5% (41)
Information you disclose in the train is Misused	**51,7% (468)**	23,2% (210)	17,7% (160)	5,6% (51)	1,9% (17)
People are watching your PIN code while Entering	16% (145)	**34% (308)**	**23,2% (210)**	18% (163)	8,8% (80)
Your parents or friends read your diary, email or text messages	**41,6% (377)**	**22,8% (207)**	21% (190)	11,3% (102)	3,3% (30)

** privacy_ concern_ offline M = 2,25; SD=.80*

*Table 6.2.2 online privacy concern**

Variable: *Cronbach alpha value = .81*	% (Frequency)				
How concerned are you that….	Very unconcerned	Unconcerned	Normal	Concerned	Very concerned
Other people put information about you Online	22,1% (200)	**33,7% (305)**	**29,6% (268)**	11,8% (107)	2,9%(26)
Information that you publish online could be misused	15,2% (138)	**33,2% (301)**	**29% (263)**	16,8% (152)	5,7% (52)
Companies gather information about you Online	16,7% (151)	**28,1% (255)**	**29,8% (270)**	17,3% (157)	8,1% (73)
A future employer could find information about you online	23,7% (215)	**25,4% (230)**	**33% (299)**	12,8% (116)	5,1% (46)
Other people can steal your identity online	**33,4% (303)**	**24,4% (221)**	19,5% (177)	12,8% (116)	9,8% (89)
Your family can find out what keeps you busy via your online profile.	**62,4% (565)**	13,2% (120)	19% (172)	3,9% (35)	1,5% (14)

**privacy_ concern_ online M = 2,39; SD=.82*

People do mind when their privacy is violated.

Table 6.2.3 and table 6.2.4 present the results regarding people's attitude towards privacy, both in offline and online situations. It seems that respondents do mind when their privacy (online, *M=3,41*, *SD=.75*; offline, *M=3,75*, *SD=.73*) is violated. For example, they do mind when other people can read their personal messages (41,8% *do mind* and 41,2% *do very much mind*) or intercept personal messages or emails (43,6% *do mind* and 35,7% *do very much mind*).

*Table 6.2.3 offline privacy attitude**

Variable *Cronbach alpha value = .73*			% (Frequency)		
Do you mind that…	Do not mind at all	Do not mind	Normal	Do mind	Do very much mind
People can hear your conversations	6,5% (59)	24,4% (221)	**24% (217)**	**31,9% (289)**	13,2% (120)
Someone is pretending to be you	2,3% (21)	7% (63)	4,5% (41)	**43,2% (391)**	**43% (390)**
You have to disclose personal information during an interview on the street	7,8% (71)	17,1% (155)	**26,2% (237)**	**34,9% (316)**	14 % (127)
People publish information or pictures of you without your permission.	1,9% (17)	11,3% (102)	11,7% (106)	**42,7% (387)**	**32,5% (294)**
People read your email, text messages or mail.	1,2% (11)	7,1% (64)	8,7% (79)	**41,8% (379)**	**41,2%(373)**

** privacy_ attitude_ offline M = 3,75; SD=.73*

*Table 6.2.4 online privacy attitude**

Variable *Cronbach alpha value = .76*			% (Frequency)		
Do you mind that…	Do not mind at all	Do not mind	Normal	Do mind	Do very much mind
You have to disclose personal information while registering at a website	8,2% (74)	**33,7%(305)**	**25,9% (235)**	27,9%(253)	4,3%(39)
Your Hyves or Facebook profile is visible for everyone	17,3% (157)	21% (190)	**28,8% (261)**	**23,8% (216)**	9,1% 82)
Someone is pretending to be you on the internet	3,5% (32)	13,5% (122)	8,5% (77)	**42,5% (385)**	**32% (290)**
People or companies are sending you messages or emails about advertisements, sex, viagra, job employments or vacations	4,9% (44)	10,5% (95)	11,3% (102)	**40,9% (371)**	**32,5% (294)**
People can intercept your messages or emails	2,2% (20)	9,7% (88)	8,8% (80)	**43,6% (395)**	**35,7% (323)**
People find personal information about you online (day of birth, sexual or political preferences, pictures, etc.)	13,1% (119)	19,2% (174)	**34,8% (315)**	**22% (199)**	10,9% (99)

** privacy_ attitude_ online M = 3,41; SD=.75*

6.3 Descriptive statistics behavior

To stay in touch with old contacts or friends is the most important reason to share information

Table 6.3.1 provides an overview of reasons why people share information. The main reasons why people share information is to stay in touch with old contacts and friends (56%, *important*) and to share their experiences with others (42,7%, *important).* Reasons, such as *I* can win holidays, cars or other prizes (54,4%, *very unimportant)* or I hope to become more

popular (for example, more followers on twitter or my blog) (49%, *very unimportant*) were less important reasons to share information.

Table 6.3.1 reasons to share information

Variable	% (Frequency)				
	Very Unimportant	Unimportant	Neutral	Important	Very important
I like to share my experiences with others	6,6% 60)	14,9% (135)	**32,6% (295)**	**42,7% (387)**	3,2% (29)
I want to improve my social skills (interacting on forums, or groups on Hyves, etc.)	18,8% (170)	**34,8% (315)**	**29,7% (269)**	15,5% (140)	1,3% (12)
I can win holidays, cars or other prizes.	**54,4% (493)**	35% (317)	8,1% (73)	2,3% (21)	0,2% (2)
I hope to become more popular (e.g. more followers on twitter or my blog)	**49% (444)**	**35,8% (324)**	11,5% (104)	3,4% (31)	0,3% (3)
I love to share news items or new gadgets	24,5% (310)	**34,2% (310)**	**25,2% (228)**	14,7% (133)	1,4% (13)
I want to find a new job (e.g. using your LinkedIn profile, publishing your resume online)	**33,4% (303)**	**29,2% (265)**	20,5% (186)	14,6% (132)	2,2% (20)
I want to meet new people (Hyves, Facebook, LinkedIn, etc.)	**30% (272)**	**32,1% (291)**	23,8% (216)	12,4% (112)	1,7% (15)
I want to keep in touch with old contacts and Friends	1,7% (15)	1,8% (16)	8,7% (79)	**56% (507)**	31,9% (289)

People use audience segregation in offline situations.

Table 6.3.2 presents a descriptive overview of the results concerning audience segregation usage. The results of table 6.3.2 suggest that respondents make use of audience segregation in offline situations most of the time (*M=4,23*, *SD=.56*) and are aware of their audiences when disclosing personal information; for example, most respondents *never* (40,2%) or *hardly ever* (42,1%) discuss a conflict over the phone in a busy train; in addition, 55,3 % of respondents hide their bank card PIN number *always* when using cash machines/making purchases, and 32,3% hide their PIN number *most of the time*. Also, 71,4% of respondents would *never* leave a confidential letter unattended at a school/university or office.

*Table 6.3.2 offline audience segregation**

Variable *Cronbach alpha value = .25*	% (Frequency)				
	Never	Hardly ever	Sometimes	Most of the time	Always
Do you hide your bank card PIN number when using cash machines/making purchases?	2,3% (21)	4,1% (37)	6,1% (55)	**32,3% (292)**	**55,3% (501)**
Would you discuss a conflict over the phone in a busy train?	**40,2% (364)**	**42,1% (381)**	13,8% (125)	3% (27)	1% (9)
When you have a confidential conversation with a friend/acquaintance, would you have this conversation in a busy bar?	27,4% (248)	**35,2% (319)**	**32,3% (293)**	4,4% (40)	0,7% (6)
When you are giving a birthday party with all your friends, and at a certain moment your parents and grandparents come in, would you change from subject?	14,6% (132)	**32,5% (294)**	**37,9% (343)**	13% (118)	2,1% (19)
Would you leave a confidential letter unattended at a school/university or office	**71,4% (647)**	24,3% (220)	3,5% (32)	0,6% (5)	0,2% (2)

** Factorized_ audience_ segregation_ offline M = 4,23; SD=.56*

People are aware of their online audiences.

Table 6.3.3 provides the results of audience awareness online. The results show that most respondents indeed are aware of their online audiences (*M=3,5*, *SD=1,05*), especially when they publish "*high risk*" personal information online, such as phone number or email (41,5% of the respondents answered that they always keep in mind who can have access to their phone number or email when disclosing this information online).

*Table 6.3.3 online audience awareness**

Variable *Cronbach alpha value = . 89*	% (Frequency)				
Do you ask yourself, who your audience is..	Never	Hardly ever	Sometimes	Most of the time	Always
When you are disclosing messages online?	8,7% (79)	14,3%(130)	**37,4% (339)**	**27,5% (249)**	12% (109)
When you are disclosing pictures online?	7,3% (66)	12,4% (112)	**29,8% (270)**	**30,1% (273)**	20,4% (185)
When you disclose your phone number or email online?	9,8% (89)	9,3% (84)	18,4% (167)	**21% (190)**	**41,5% (376)**
When you disclose personal information online (date of birth, first name, last name, sexual or political preferences, or interests, etc.)	7,9% (72)	11,8% (107)	23,5% (213)	**26,3% (238)**	**30,5% (276)**

**audience_ awareness_ online M= 3,5; SD=1,05*

People share most personal information with their friends

With regard to audience segregation, it was interesting to investigate which personal information people disclose to whom (friends, family, and colleagues). The respondents were asked to answer which information (such as their drugs history) they would share with people they know. The results are presented in table 6.3.4a and 6.3.4b. Obviously, most personal information is shared with friends or an (ex) boyfriend/girlfriend. The other groups of contacts seem less important to share personal information with. However, when people are HIV infected or have feelings for a person of the same gender, a large part of the respondents would also share this with their parents, brother or sister.

Table 6.3.4a audience segregation: (internet) friends, lovers, colleagues and acquaintances

Variable	% (Frequency)				
	Friends	(ex) boyfriend/girlfriend	Internet friends	Colleagues	acquaintances
Sexual history	53,5% (485)	46,8% (424)	2% (18)	4,7% (43)	1,5% (14)
Drugs history	61,7% (559)	40% (362)	3,2% (29)	5,3% (48)	4,3% (39)
Romantic feelings	70,8% (641)	27,2% (246)	2,6% (24)	5,4% (49)	2,2% (20)
Gay feelings	47,6% (431)	25,3% (229)	3,6% (33)	3,6% (33)	3,3% (30)
HIV infected	53,1% (481)	54,9% (497)	2% (18)	6,6% (60)	4% (36)

Table 6.3.4b audience segregation: family

Variable	% (Frequency)		
	Family	Parents	Brother/Sister
Sexual history	2,9%% (26)	7,0% (63)	15,9% (144)
Drugs history	13,8% (125)	35,5% (322)	35,1% (318)
Romantic feelings	6,4% (58)	20,9% (189)	26,8% (243)
Gay feelings	11,8% (107)	34,7% (314)	28,7% (260)
HIV infected	31,9% (289)	69,9% (633)	49,1% (445)

6.4 Hypotheses

In this study, twenty-seven hypotheses were formulated. In this paragraph, the results will be described for each hypothesis.

Gender differences

The following hypotheses were formulated regarding gender differences:

H1: Men take more risks than women.
H2. Men are less concerned about their online privacy than women.
H3: Women are more active on SNSs than men.
H4: Women care more about their privacy than men.
H5a: Women are more aware of their online audiences than men.
H5b: Women use audience segregation online more often than men.

Differences in risk taking, privacy (concerns and attitude), social network site usage and audience segregation between men and women were tested with independent t-tests. The results are presented in tables 6.4.1, 6.4.2, and 6.4.3.

Men take more risk than women

Table 6.4.1 presents the results of hypotheses H1 and H3. Risk taking (H1) was measured in two different ways. First, differences between men and women were investigated with regard to disclosing personal information, i.e. 1) high-risk personal information (variable *high_risk_personal_information*), 2) low-risk personal information (variable *low_risk_personal_information)*, and 3) the total amount of personal information that was disclosed (variable *total_risk_personal_information*). The scoring range of these variables were 0-3 (high risk), 0-7 (low risk) and 0-10 (total amount of personal information), respectively, with a higher score meaning that more personal information was disclosed (that could lead to misuse, etc.) and thus more risks were taken.

Second, risk taking was assessed by investigating differences between men and women with regard to privacy settings (variable *total_privacy_risk_settings)*. The scoring range of this variable was 0-12, with a higher score indicating that poorer privacy settings were used (resulting in more people having access to their personal data) and thus more risks were taken. See paragraph 5.2.1 for more details about the variables.

Significant differences were found between men and women concerning risk taking. It seems that men share significantly more high risk personal information (such as email, phone number and address) ($t(475)=-6{,}87$, $p<.001$) and also take significantly more risk by using poorer privacy settings ($t(481)=-3{,}5$, $p<.001$). With respect to the amount of personal information, low risk personal information and the time spent on social network sites, no significant differences were found between men and women. Based on these results, hypothesis H1 was partly supported and H3 was not supported.

Table 6.4.1 Differences in risk taking and social network site usage between men and women.

Men, N=316 Women, N=590					
			Mean (SD)	***t*(df)**	***p***
H1: *Men take more risks than women.*	Amount of personal information	Men	5,03 (1,9)		
		Women	4,79 (1,52)	t(533,79)= -1,94	.53
	Low risk personal information	Men	4,21 (1,39)		
		Women	4,36 (1,26)	t(904)= 1,68	.09
	High risk personal information	Men	.82 (.91)		
		Women	.43 (.62)	t(474,71)= -6,87	.000 ***
	Privacy settings	Men	8,61 (4,36)		
		Women	7,37 (4,78)	t(481,34)= -3,5	.000 ***
H3: *Women are more active on SNSs than men.*	Active on social network sites	Men	8,03 (11,68)		
		Women	9,45 (13,21)	t(904)=1,61	.11

*Note: *** < .001, ** <.01, *<.05, Privacy settings: Men N=231; Women, N=522*

Women care more about their privacy

Table 6.4.2 presents the results of hypotheses H2 and H4. To measure online privacy concern, the variable *privacy_concern_online* was created, with a score range of 1-5, with a higher score indicating a respondent was more concerned about his privacy. To measure privacy attitude, both in online and offline situations, the variables *privacy_attitude_online* and *privacy_attitude_offline* were created. These variables had a score range of 1-5, with a higher score indicating a respondent did care more about his privacy (i.e. he does mind when his privacy was violated). See paragraph 5.2.1 for more details about the variables.

No significant differences were found between men and women with regard to online privacy concerns. However, statistically significant differences were found between men and women with regard to online and offline privacy attitude. It seems that women in both offline (*t(904)=2,13, p<.05)* and online (*t(597)=4, p<.001)* situations did care more about their privacy than men. Based on these results, hypothesis H4 was supported, but H2 not.

Table 6.4.2 Differences in privacy concern and privacy awareness between men and women.

Men, N=316 Women N=590					
			Mean (SD)	***t*(df)**	***p***
H2: *Men are less concerned about their online privacy than women.*	Online privacy concern	Men	2,38 (.86)		
		Women	2,4 (.79)	t(596,35)= .51	.61
H4: *Women care more about their privacy than men.*	Online privacy attitude	Men	3,27 (.79)		
		Women	3,48 (.72)	t(597,23)=4	.000 ***
	Offline privacy attitude	Men	3,68 (.76)		
		Women	3,79 (.70)	t(904)= 2,13	.03 *

*Note: *** < .001, ** <.01, *<.05*

Women use audience segregation more often, because they use more (proper) privacy settings to control access to their online personal information.

Table 6.4.3 presents the results of hypotheses H5a and H5b.To measure online audience awareness, the variable *audience_awareness_online* was created. This variable had a score range of 1-5 with a higher score indicating that the respondent was more aware of his audiences (i.e. he is more often thinking about who his audience is). Additionally, online audience segregation was measured by the variable *total_audience_segregation*. This

variable measured use of proper privacy settings, and had a score range of 0-12, with a higher score indicating the respondent was using more proper privacy settings and thus using audience segregation more often. See paragraph 5.2.2. for more details about the variables.

There were significant differences found between men and women with respect to use of proper privacy settings (*t(481)=3,51, p<.001)* , with women using proper privacy settings more often. These results suggest that women use audience segregation more often. On the contrary, no significant differences were found between men and women for online audience awareness (awareness of their audience when sharing personal information). Based on these results, H5a was not supported, while H5b was supported.

Table 6.4.3 Differences audience segregation usage between men and women.

Men, N=316
Women, N=590

			Mean (SD)	***t*(df)**	***p***
H5a*: Women are more aware of their online audiences than men.*	Online audience awareness	Men Women	3,44 (1,17) 3,52 (.98)	t(522)= 1,07	.29
H5b: *Women use audience segregation online more often than men.*	Privacy settings	Men Women	3,39 (4,36) 4,63 (4,8)	t(481,34)= 3,51	.000 ***

*Note: *** < .001, ** <.01, *<.05, Privacy settings: Men, N=231; Women, N=522*

Age differences

The following hypotheses were formulated regarding age differences:

H6: Teenagers publish more personal information online than adults.
H7: Teenagers are less concerned about their online privacy than adults.
H8: Adults care more about their privacy than teenagers.
H9: Teenagers have a larger (social) network than adults.
H10a: Adults are more aware of their online audiences than teenagers.
H10b: Adults will use audience segregation online more often than teenagers.

Differences in privacy (concerns and attitude), social network site usage and audience segregation between teenagers (age 12-19), young adults (age 20-30) and adults (age >30) were tested with a one-way analysis of variance (ANOVA). Post-hoc comparisons were used to test statistically significant differences between groups. When the homogeneity of variance test was not violated (sig. >.05), the Tukey HSD post-hoc test was used. However, when the homogeneity of variance was violated (sig. < .05), the Games-Howell post-hoc test was used, and the *Welch F-ratio* was reported (this was presented with the symbol # in the tables). The results of the hypotheses are presented in tables 6.4.4, 6.4.5, and 6.4.6.

Teenagers share more personal information

Table 6.4.4 presents the results for the three age groups with respect to the amount of personal information they share and the sizes of their contact lists. To measure the amount of personal information that was disclosed, the variable *total_personal_information_all* was created. This variable had a score range of 0-14, with a higher scoring indicating more personal information was disclosed. See paragraph 5.2.3 for more details about this variable. With regard to the size of the contact list, the mean number of contacts for each age

category was calculated. It seemed that teenagers publish more personal information online than adults(*F(2,903)=4,02, p<.05)*, but also have a larger contact list on social network sites than adults (*F(2,299)=10,61, p<.001)* . Based on these results, hypotheses H6 and H9 were supported.

Table 6.4.4 Differences between age groups with respect to social network site usage.

			Mean (SD)	*f*	*p*	*Post-hoc*
H6˜	Amount of personal information	a, Teenagers, N=201	6,74 (2,32)			
		b, Young Adults, N=550	6,51 (.55)			
		c, Adults, N=155	6,03 (2,58)	f(2, 903)=4,02	.02 *	a, c *
H9˜˜	Size of contact list	a, Teenagers, N=201	448,17 (384,55)			
		b, Young Adults, N=550	337,28 (283,71)			a ,c ***
		c, Adults, N=155	265,1 (393,42)	f(2, 299,39)=10,61#	.000 ***	a, b **

*Note: *** < .001, ** <.01, *<.05; #Welch F-ratio*

˜H6: Teenagers publish more personal information online than adults.

˜˜H9: Teenagers have a larger (social) network than adults.

Adults are more concerned about their online privacy

Table 6.4.5 presents the results for the three age groups with respect to privacy concern and awareness. Online privacy concern was measured with the variable *privacy_concern_online* (score range of 1-5, with a higher score indicating a respondent was more concerned about his privacy; see also paragraph 5.2.1.).

There were significant differences between the three age groups with respect to online privacy concern. The results of the post-hoc test show that adults were more concerned about their online privacy than both teenagers and young adults. However, only the differences between adults and young adults were significant (*p<.05)*. Hence, H7 was not supported.

Table 6.4.5 Differences between age groups with respect to privacy concern and awareness.

			Mean (SD)	*f*	*p*	*Post-hoc*
H7˜	Online privacy concern	a, Teenagers, N=201	2,43 (.82)			
		b, Young Adults, N=550	2,33 (.77)			
		c, Adults, N=155	2,55 (.95)	f(2, 320,39)=3,99#	.02 *	c, b *
H8˜˜	Online privacy attitude	a, Teenagers, N=201	3,29 (.79)			
		b, Young Adults, N=550	3,41 (.72)			
		c, Adults, N=155	3,54 (.79)	f(2, 903)=4,65	.01 *	c, a **
	Offline privacy attitude	a, Teenagers, N=201	3,63 (.73)			
		b, Young Adults, N=550	3,73 (.70)			c, a ***
		c, Adults, N=155	4,00 (.73)	f(2, 903)=12,37	.000 ***	c, b ***

*Note: *** < .001, ** <.01, *<.05; #Welch F-ratio*

˜H7: Teenagers are less concerned about their online privacy than adults.

˜˜H8: Adults care more about their privacy than teenagers.

Adults care more about their privacy

To measure privacy attitude, both in online and offline situations, the variables *privacy_attitude_online* and *privacy_attitude_offline* were used (both variables had a score range of 1-5, with a higher score indicating a respondent did care more about his/her privacy; see paragraph 5.2.1.). In both online and offline situations, adults care more about their privacy than teenagers (*online: p <.01; offline: p<.001*). It seemed that the level of privacy attitude is increased with an older age. Hence, H8 was supported (see table 6.4.5).

Adults are more aware of their audiences

Table 6.4.6 presents the results of the three age groups with respect to audiences awareness and audience segregation. Audiences awareness was measured with the variables online_audience_segregation (are people aware of their audiences in online situations?) (see paragraph 5.2.3) and audiences segregation was measured with variable total_audience_segregation (do people use proper privacy settings?) (see paragraph 5.2.2.).

There were significant differences between the three age groups with respect to use of audience segregation and online audience awareness. With regard to online audience awareness (awareness of their audience when sharing personal information), young adults and adults were more aware of their audience than teenagers. However, only a significant difference between young adults and teenagers was found ($p<.001$). Furthermore, significant differences were found between groups with respect to use of proper privacy settings (use of audience segregation). The post-hoc test indicated that adults use audience segregation significantly more often than both teenagers ($p<.001$) and young adults($p<.05$), and that young adults use audience segregation significantly more often than teenagers ($p<.001$). The results suggest that awareness of audiences and use of audience segregation in general is increased with an older age. Therefore, H10a and H10b were supported.

Table 6.4.6 Differences between age groups with respect to awareness of audience.

			Mean (SD)	*f*	*p*	*Post-hoc*
H10a~	Online audience awareness	a, Teenagers, N=201	3,24 (.99)			
		b, Young Adults, N=550	3,63 (.98)			
		c, Adults, N=155	3,37 (1,26)	f(2, 322,96)=12,37#	.000 *	b, a ***
H10b~~	Privacy settings	a, Teenagers, N=173	2,75 (3,85)			c, a ***
		b, Young Adults, N=469	4,42 (4,78)			c, b *
		c, Adults, N=111	5,87 (4,94)	f(2, 263,86)=18,85#	.000 ***	b, a ***

*Note: *** < .001, ** <.01, *<.05; #Welch F-ratio*

~H10a: Adults are more aware of their online audiences than teenagers.

~~H10b: Adults will use audience segregation online more often than teenagers.

Personality differences

The following hypotheses were formulated regarding personality differences:

H11: Extroverts have a larger social network than introverts.

H12: Extroverts publish more personal information on SNSs than introverts.

H13a: Introverts are more aware of their online audiences than extroverts.

H13b: Introverts use audience segregation online more often than extroverts.

H14: Individuals who have a SNS profile are extrovert.

H15: Introverts are more concerned about their privacy than extroverts.

H16: Introverts care more about their privacy than extroverts.

H17: Extroverts use SNSs to maintain offline contacts.

H18: Introverts use SNSs to engage into new relationships.

Differences in privacy concern and attitude, social network site usage and audience segregation between introverts and extroverts were tested with independent t-tests. The results are presented in tables 6.4.7, 6.4.8, and 6.4.9.

Most people who have a profile on a social network site are extrovert

To investigate if extroverts use social network sites more often, the questions 1 (have you ever created a profile on a social network site, like Hyves, Facebook or LinkedIn?) and 30-41 (extroversion/introversion; variable introvert_extrovert, see paragraph 5.2.4.) were used. It seems that most people who have an online profile are extrovert (680 of the 708 extroverts had an online profile, while 226 of the 245 introverts had a online profile; X^2 = .08 *df*=1, p<.05). Therefore, H14 was supported.

Extroverts have more friends on social network sites than introverts

To investigate if extroverts have a larger social network than introverts, the mean number of contacts (questions 2: how many contacts (friends) do you have on...?) for introverts and extroverts (questions 30-41 (extroversion/introversion); variable introvert_extrovert, see paragraph 5.2.4.) were calculated. Furthermore, to investigate differences between introverts and extroverts with regard to the total amount of personal information they disclose, and the reasons why they use social network sites, the questions 8 (variable total_personal_information_all, see paragraph 5.2.3.) and 5a-5b (reasons for using social network sites: a) to meet new people; b) to stay in touch with old friends and acquaintances) were used.

The results shown in table 6.4.7 indicate that extroverts have more friends on social network sites than introverts (*t(542,55)=7,08, p <.001*). Consequently, H11 was supported. No differences were found between introverts and extroverts with regard to the amount of personal information they disclose and reasons for using social network sites. Hence, H12, H17 and H18 were not supported.

Table 6.4.7 Differences between introverts and extroverts with respect to social network site usage.

Introverts, N=226
Extroverts, N=680

			Mean (SD)	*t*(df)	*p*
H11: *Extroverts have a larger social network than introverts.*	Size of contact list	Introverts	236,57 (247,9)		
		Extroverts	387,08 (349,78)	t(542,55)=7,08	.000 ***
H12: *Extroverts publish more personal information on SNSs than Introverts*	Amount of personal information	Introverts	6,31 (2,29)		
		Extroverts	6,53 (2,39)	t(904)=1,19	.24
H17: *Extroverts use SNSs to maintain offline contacts*	Maintain offline contacts	Introverts	4,09 (.83)		
		Extroverts	4,18 (.68)	t(904)= 1,57	.12
H18: *Introverts use SNSs to engage into new relationships.*	Engage into new relationships	Introverts	2,23 (1.06)		
		Extroverts	2,25 (1.08)	t(904)= 1,57	.78

*Note: *** < .001, ** <.01, *<.05*

Introverts and extroverts did not differ significantly with respect to the level of privacy concern and attitude

Table 6.4.8 presents the results of hypotheses H15 and H16. To investigate differences between introverts and extroverts (variable introvert_extrovert) with regard to privacy concern and attitude, the variables privacy_concern_online, privacy_concern_offline, privacy_attitude_online and privacy_attitude_offline were used (see paragraph 5.2.1.).

No significant differences between introverts and extroverts with regard to online and offline privacy concerns and online and offline privacy awareness were found. Based on these results, H15 and H16 were not supported.

Table 6.4.8 Differences between introverts and extroverts with respect to privacy concern and awareness.

Introverts, N=226 Extroverts, N=680					
			Mean (SD)	***t(df)***	***P***
H15: *Introverts are more concerned about their privacy than extroverts*	Online privacy concern	Introverts	2,44 (.8)		
		Extroverts	2,38 (.82)	t(904)= -1,03	.31
	Offline privacy concern	Introverts	2,26 (.81)		
		Extroverts	2,25 .(78)	t(904)= -.18	.85
H16: *Introverts care more about their privacy than extroverts*	Online privacy attitude	Introverts	3,43 (.75)		
		Extroverts	3,39 (.75)	t(904)= -.76	.44
	Offline privacy attitude	Introverts	3,76 (.75)		
		Extroverts	3,75 (.72)	t(904)= -.26	.80

*Note: *** < .001, ** <.01, *<.05*

Introverts use more proper privacy settings

The results of the differences between introverts and extroverts with respect to online audience segregation and audience awareness are presented in table 6.4.9. To measure online audience awareness, the variable audience_awareness_online (awareness of audiences when disclosing personal information) (see paragraph 5.2.3) was used, and to measure online audience segregation the variable total_audience_segregation (use of proper privacy settings) was used (see paragraph 5.2.2.).

Significant differences were found between introverts and extroverts with regard to online audience segregation (use of proper privacy settings) (*t(310,77)= -4,86, p<.001*). It seems that introverts use more proper privacy settings than extroverts. However, introverts did not differ significantly from extroverts with respect to online audience awareness (awareness of audiences when sharing personal information online). Based on these results, H13a was not supported and H13b was supported.

Table 6.4.9Differences between introverts and extroverts with respect to online audience(s) (segregation)

Introverts, N=226 Extroverts, N=680					
			Mean (SD)	***t*(df)**	***p***
H13a: *Introverts are more aware of their online audiences than extroverts.*	Online audience segregation	Introverts	3,55 (1,06)		
		Extroverts	3,48 (1,05)	t(904)= -.93	.35
H13b: *Introverts use audience segregation online more often than extroverts*	Privacy settings	Introverts	5,7 (4,89)		
		Extroverts	3,75 (4,53)	t(310,77)= -4,86	.000 ***

*Note: *** < .001, ** <.01, *<.05, Privacy settings: Introvert, N=192; Extroverts, N=561*

Behavior differences

The following hypotheses were formulated regarding behavior differences:

H19a: Individuals who care more about their privacy are more aware of their online audiences than individuals who care less.

H19b: Individuals who care more about their privacy will use audience segregation more often than individuals who care less.

H20a: Individuals who are more concerned about their privacy are more aware of their online audiences than individuals who are less concerned.

H20b: Individuals who are more concerned about their privacy will use audience segregation more often than individuals who are less concerned.

H21: Individuals who are concerned about their offline privacy are also concerned about their online privacy.

H22: Individuals who do mind when their offline privacy is violated do also mind when their online privacy is violated.

Table 6.4.10 presents the results of hypotheses H20 and H21. To test these hypotheses, ANOVA tests were performed, with audience segregation and audience awareness as the dependent variable (audience_awareness_online, total_audience_segregation, and factorized_audience_segregation_offline, see paragraph 5.2.2, and 5.2.3), and privacy_attitude_offline_categorized, privacy_attitude_online_categorized, privacy_concern_offline_categorized and privacy_concern_online_categorized as the independent variables. Within the _categorized variables, three categories could be distinguished. For privacy attitude, the categories were *do mind*, *neutral* and *do not mind*. For privacy concern, the categories were *concerned*, *neutral* and *not concerned* (see for more details about these variables paragraph 5.2.1). In case the homogeneity of variance was not violated (sig. >.05), the Tukey HSD post-hoc test was used. In case the homogeneity of variance was violated (sig. < .05, Welch F-ratio was reported), the Games-Howell post-hoc test was used.

Privacy attitude affects attitude towards audiences

Offline audience segregation, online audience segregation and online audience awareness were significantly affected by the level of offline and online privacy attitude. In all tests, significant differences were found between people who do mind when their privacy is violated and people who do not mind($p<.001$) when their privacy is violated. The results suggest that awareness of audiences and use of audience segregation is increased with a higher level of privacy attitude. See table 6.4.10 for more detailed results. Based on these results, H19a and H19b were supported.

The same analyses as for H19a,b were conducted to explore whether the level of privacy concern affects people's level of awareness regarding audiences. In all cases, people who were more concerned about their privacy were also more aware of their audiences (make more use of audience segregation). However, only significant differences were found for offline audience segregation ($f(2, 272,46) = 5,1, p<.01$) and online audience awareness (sharing of online personal information) ($f(2, 272,46) = 5,1, p<.01$). The results in table 6.4.10 suggest that awareness of audiences is increased with a higher level of privacy concern. Based on these results, H20a was supported and H20b was partly supported.

Table 6.4.10 The effects of privacy awareness and concerns on awareness of audiences.

	Dependent variable (Independent variable)		**Mean (SD)**	***F***	***p***	***Post-hoc***
H19a~	Online audience awareness (*online privacy attitude*)	a, Do not mind, N=88	3,14 (1,16)			
		b, Neutral, N=331	3,34 (.95)			c, a ***
		c, Do mind, N=487	3,66 (1,06)	f(2, 235,23)=14,51#	.000 ***	c, b ***
H19b^	Offline audience segregation (*offline privacy attitude*)	a, Do not mind, N=53	4,13 (.63)			
		b, Neutral, N=230	4,10 (.60)			
		c, Do mind, N=623	4,28 (.53)	f(2, 903)=10,07	.000 ***	c, b ***
	Privacy settings(*online privacy attitude*)	a, Do not mind, N=64	2,91 (4,03)			
		b, Neutral, N=278	3,81 (4,48)			c, a **
		c, Do mind, N=411	4,76 (4,87)	f(2, 184,38)=6,99#	.001 **	c, b *
H20a`	Online audience awareness (*online privacy concern*)	a, Not concerned, N=479	3,39 (1,00)			
		b, Neutral, N=322	3,58 (1,04)			b, a *
		c, Concerned, N=105	3,70 (1,23)	f(2, 272,46)=5,1#	.007 **	c, a *
H20b``	Offline audience segregation(*offline privacy concern*)	a, Not concerned, N=479	2,71 (.80)			
		b, Neutral, N=322	2,87 (.83)			b, a *
		c, Concerned, N=105	2,96 (.98)	f(2, 272,46) = 5,1#	.007 **	c, a *
	Privacy settings(*online privacy concern*)	a, Not concerned, N=394	4,02 (4,62)			
		b, Neutral, N=269	4,51 (4,85)			
		c, Concerned, N=90	4,49 (4,59)	f (2, 750) = .99	.37	

*Note: *** < .001, ** <.01, *<.05; #Welch F-ratio*

~ H19a: Individuals who care more about their privacy are more aware of their online audiences than individuals who care less.

^H19b: Individuals who care more about their privacy will use audience segregation more often than individuals who care less.

`H20a: Individuals who are more concerned about their privacy are more aware of their online audiences than individuals who are less concerned.

``H20b: Individuals who are more concerned about their privacy will use audience segregation more often than individuals who are less concerned.

Offline attitude affects online attitude

H21: Individuals who are concerned about their offline privacy are also concerned about their online privacy.

H22: Individuals who do mind when their offline privacy is violated do also mind when their online privacy is violated.

To investigate whether offline privacy attitude affects online privacy attitude, the variables privacy_concern_online, privacy_concern_offline, privacy_attitude_online and privacy_attitude_offline were used (see paragraph 5.2.1).

The last two hypotheses (H22 and H23) assumed that a strong relationship exists between offline and online privacy attitude (concern and attitude) of people. A Pearson product moment correlation was used to test both hypotheses. With regard to hypothesis H21, a strong positive correlation was found between offline privacy awareness and online privacy awareness $r = .64$ $N = 906$, $p < .001$. This suggests that a higher level of offline attitude is associated with a higher level of online attitude. With respect to hypothesis H22, also a strong positive correlation was found between offline privacy concern and online privacy concern $r = .68$ $N = 906$, $p < .001$. This finding suggest that a higher level of offline concern is associated with a higher level of online concern. Based on these results, H21 and H22 were supported.

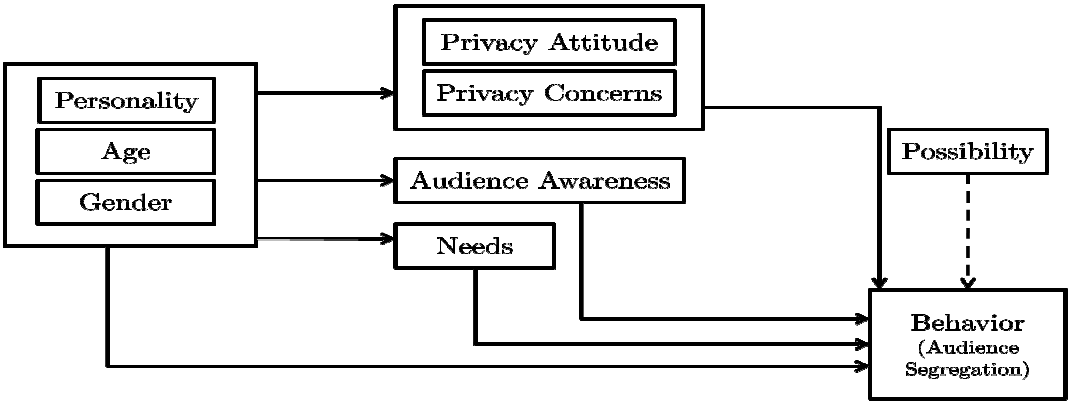
With regard to hypotheses H1 to H22, table 6.4.11 shows which hypotheses were supported and which were not.

Table 6.4.11 the results op hypotheses H1 to H22

Hypotheses	Not supported	Partly supported	Supported
Gender			
H1: Men take more risks than women.		X	
H2. Men are less concerned about their online privacy than women.	X		
H3: Women are more active on SNSs than men.	X		
H4: Women care more about their privacy than men.			X
H5a: Women are more aware of their online audiences than men.	X		
H5b: Women use audience segregation online more often than men.			X
Age			
H6: Teenagers publish more personal information online than adults.			X
H7: Teenagers are less concerned about their online privacy than adults.	X		
H8: Adults care more about their privacy than teenagers.			X
H9: Teenagers have a larger (social) network than adults.			X
H10a: Adults are more aware of their online audiences than teenagers.			X
H10b: Adults will use audience segregation online more often than teenagers.			X
Personality			
H11: Extroverts have a larger social network than introverts.			X
H12: Extroverts publish more personal information on SNSs than introverts.	X		
H13a: Introverts are more aware of their online audiences than extroverts.	X		
H13b: Introverts use audience segregation online more often than extroverts.			X
H14: Individuals who have a SNS profile are extrovert.			X
H15: Introverts are more concerned about their privacy than extroverts.	X		
H16: Introverts care more about their privacy than extroverts.	X		
H17: Extroverts use SNSs to maintain offline contacts.	X		
H18: Introverts use SNSs to engage into new relationships.	X		
Privacy concern and attitude			
H19a: Individuals who care more about their privacy are more aware of their online audiences than individuals who care less.			X
H19b: Individuals who care more about their privacy will use audience segregation more often than individuals who care less.			X
H20a: Individuals who are more concerned about their privacy are more aware of their online audiences than individuals who are less concerned.			X
H20b: Individuals who are more concerned about their privacy will use audience segregation more often than individuals who are less concerned.		X	
H21: Individuals who are concerned about their offline privacy are also concerned about their online privacy.			X
H22: Individuals who do mind when their offline privacy is violated do also mind when their online privacy is violated.			X

6.5 Research model

Figure 6.5.1 research model.



In paragraph 3.2, a research model was introduced (see figure 6.5.1) which assumed that external factors (age, gender and personality) predicted privacy behavior, need (to perform a behavior), audience awareness and behavior in terms of audience segregation, both directly and indirectly (via privacy**,** need and audience awareness). To test this model, multiple and logistic regression analyses were performed. Before testing the research model, the key assumptions for regression analysis were checked, such as linearity, normal distribution, constant variance and multicollinearity. No significant violations of these assumptions were found. The model included external factors (age, gender and personality), the factor privacy (offline privacy concern, online privacy concern, offline privacy attitude, and online privacy attitude), the factor need (Do people want to use audience segregation? Do they need it?), the factor possibility (Do social network sites provide mechanisms to perform audience segregation?), the factor audience awareness (are people aware of their online audiences) and the factor behavior (do people use audience segregation (privacy settings?). Seven multiple regression analyses were conducted to test the research model. The following variables were used to perform the regression analyses: For the external factors, the dummy variables dummy_gender (gender), dummy_personality (personality: introversion/extroversion), dummy_need (need), and dummy_possibility (possibility) were used (see paragraph 5.2.5.). For privacy concern and attitude, the variables privacy_concern_online, privacy_concern_offline, privacy_attitude_online, and privacy_attitude_offline were used (see paragraph 5.2.1.). For audience awareness, the variables audience_awareness_online (awareness of audiences when disclosing personal information) (see paragraph 5.2.3) was used and for audience segregation online, the variable total_audience_segregation (use of proper privacy settings) was used (see paragraph 5.2.2). Moreover, in case the independent regression analyses indicated that the external factors influenced audience segregation through privacy, need and audience awareness, the Sobel (1982) procedure was applied. With this procedure it was possible to statistically investigate the effect of the proposed mediators (i.e. privacy concern, privacy attitude, need and audience awareness) on the predictor (external factors) -outcome (audience segregation) relationship. Research indicates that this procedure is appropriate for investigating mediation in a multilevel modeling framework and displays suitable power and type 1 error rates to do so effectively (Pituch et al., 2005).

Influence of external factors on privacy attitude, privacy concern and need to perform a behavior

The first six multiple (and logistic) regression analyses were performed to assess if the external factors predict privacy behavior, in both offline and online situations, if the external factors predict online audience awareness, and if external factors predict whether people need or want a mechanism, like audience segregation. Tables 6.5.1, 6.5.2, 6.5.3, 6.5.4, 6.5.5 and 6.5.6 report the results of these six regression analyses.

Table 6.5.1: Multiple regression analysis with offline privacy attitude as the dependent variable

	b	***se b***	***β***
Constant	3,51	.07	
Age	.01	.002	**.15 *****
Personality (introvert, extrovert)	.002	.06	.001
Gender	-.13	.05	**-.08 ***

*Note: R^2 = .028 *** p<.001, ** p<.01, * p<.05*

Table 6.5.2: Multiple regression analysis with online privacy attitude as the dependent variable

	b	***se b***	***β***
Constant	3.28	.07	
Age	.01	.003	**.10 ****
Personality (introvert, extrovert)	.04	.06	.02
Gender	-.23	.05	**-.14 *****

*Note: R^2 = .029 *** p<.001, ** p<.01, * p<.05*

The results presented in table 6.5.1 show that age (*β=.15, p<.001)* and gender (*β= -.08, p<.05)* had a significant effect on offline privacy attitude*;* it seems that females and older individuals care more about their offline privacy. The same applies to online privacy attitude with age (*β=.10, p<.01)* and gender (*β= -.14, p<.001)* again reporting significant effects in the same directions. No significant effects were found of personality on privacy attitude (online and offline) (see table 6.5.2).

Table 6.5.3: Multiple regression analysis with online privacy concern as the dependent variable

	b	***se b***	***β***
Constant	2.21	.08	
Age	.01	.003	**.09 ***
Personality (introvert, extrovert)	.06	.06	.03
Gender	-.04	.06	-.02

*Note: R^2 = .009 *** p<.001, ** p<.01, * p<.05*

Table 6.5.4: Multiple regression analysis with offline privacy concern as the dependent variable

	b	***se b***	***β***
Constant	2.17	.08	
Age	.003	.003	.03
Personality (introvert, extrovert)	.01	.06	.004
Gender	.02	.06	.01

*Note: R^2 = .001 *** p<.001, ** p<.01, * p<.05*

With respect to online privacy concern, only a significant effect was found of age(*β=.09, p<.05)* (see table 6.5.3). None of the external factors predicted offline privacy concern (see table 6.5.4) and need (do people want to use a mechanism like audience

segregation?) (see table 6.5.5), also none of the external factors predicted audience awareness (see table 6.5.6).

Table 6.5.5: Logistic regression analysis with "need" as the dependent variable

	b	***se b***	***Exp(B)***
Constant	-1,05	.21	
Age	.001	.007	1.001
Personality (introvert, extrovert)	.11	.17	1.110
Gender	.29	.15	1.333

*Note: R^2 = .006 (Nagelkerke R Square) *** p<.001, ** p<.01, * p<.05*

Table 6.5.6: Multiple regression analysis with "audience awareness" as the dependent variable

	b	***se b***	***β***
Constant	3,62	.10	
Age	-,005	.004	-.04
Personality (introvert, extrovert)	.08	.08	.03
Gender	-.08	.07	-.04

*Note: R^2 = .004 *** p<.001, ** p<.01, * p<.05*

The assumptions regarding the influence of external factors on privacy were partially supported. The presented results indicate that age in most situations (except for offline privacy concern) has an effect on the level of privacy concern and attitude. However, the other factors did not (personality) or only partially (gender) influenced privacy. None of the external factors had an effect on need and audience awareness. Therefore, the assumption regarding the influence of external factors on need and awareness were not supported.

Testing of the whole model: influence of external factors, privacy, need, audience awareness and possibility on audience segregation

In the remaining analysis, the whole model was tested. A multiple regression analyses was performed to investigate the effects of the external factors and privacy on use of audience segregation; in this analysis, the following dependent variable was used: total_audience_segregation (do people use proper privacy settings to control access to their personal information?).

Table 6.5.7: Multiple regression analysis with online audience segregation usage (use of proper privacy settings) as the dependent variable.

	b	***se b***	***β***
Constant	-1,028	1,11	
Age	.1	.02	**.20*****
Personality (introvert, extrovert)	1,76	.37	**.16 *****
Gender	-1,01	.36	**-.10 ****
Privacy concern offline	-.50	.28	-.09
Privacy concern online	.12	.29	.02
Privacy attitude offline	-.39	.29	-.06
Privacy attitude online	.94	.31	**.15 ****
Audience awareness (online)	.52	.16	**.12 ****
Need	-.62	.36	- .06
Possibility	.31	.33	.03

*Note: R^2 = .126 *** p<.001, ** p<.01, * p<.05*

Audience segregation online (privacy settings)

Table 6.5.7 reports the results of the regression analyses concerning audience segregation in online situations (based on privacy settings). The results indicate that the model as a whole was statistically significant *F(10, 742) = 10,66, p <.001.* Moreover, the results indicate that the variables age (*β= .20, p<.001*), gender (*β= -.10 p<.001*), personality (*β= .16, p<.001*), online privacy attitude (*β= .15, p<.01*), and audience awareness (*β= .12, p<.01*), had a significant effect on use of online audience segregation (proper use of privacy settings). No significant effects of the factor possibility, need, offline privacy concern, online privacy concern and offline privacy attitude on use of privacy settings was found. It seems that older people, introverts, women, people who do mind when their online privacy is violated and people who are aware of their audiences use audience segregation more often.

Mediator analyses with audience segregation online (privacy settings) as the dependent variable

The Sobel test was only conducted to test a mediating role of privacy attitude online on the effects of age and gender on the use of proper privacy settings (the factors privacy concern offline, privacy concern online, privacy attitude offline and need had no significant effect on online audience segregation. Although the factor audience awareness affected online audience segregation significantly, the external factors did not, therefore a Sobel test was not possible). The Sobel test indicated that online privacy attitude was a significant mediator for both the effects of age (*z=2.00, p <.05*) and gender (*z= -2.48, p <.05*) on the use of proper privacy settings. For age and gender a partly mediation was found, because age and gender also directly affected use of audience segregation.

In summary, the research model was only partly supported, because not all independent and mediator variables had a significant effect on audience segregation.

7 Discussion

The aim of this study was to investigate if people use audience segregation, and which factors influence audience segregation usage. For this purpose, a research model was developed with external factors (age, gender and personality) and the factors need, privacy, audience awareness and possibility influencing audience segregation usage. Also, hypotheses were formulated about the research model to examine differences in privacy issues, privacy settings, privacy risk, social network site usage and audience segregation by age, gender and personality.

Analysis of the data resulted in some interesting findings: Men take more privacy risks than women; they share more high risk personal information and use poorer privacy settings. However, no significant differences were found between men and women, adults and teenagers, and introverts and extroverts regarding privacy concern. Also, no significant differences were found between introverts and extroverts with regard to privacy attitude. In contrast, it does seem that women care more about their privacy (privacy attitude) than men, and adults care more about their privacy than teenagers. Moreover, adults were more aware of potential privacy problems than younger people, and it seems that peoples' offline privacy attitude affects peoples' online privacy attitude.

With regard to audience segregation, it is interesting that women, older respondents and introverts use audience segregation more often than men, younger people and extroverts respectively. Moreover, people who were concerned about their offline privacy and did mind when their offline privacy was violated used offline audience segregation more often than people who were less concerned and did not mind, and people who did mind when their online privacy was violated used online audience segregation more often than people who did not mind. Furthermore, a majority of the respondents did not know that Hyves and Facebook provide mechanisms to separate audiences (i.e. groups of contacts can be created), and of the people who did know about this functionality, only 18,4% used it.

The research model was partly supported; the factors age, gender, personality, (online) privacy attitude and audience awareness affected online use of audience segregation. Furthermore, an indirect effect was found of the external factors age and gender on audience segregation via (online) privacy attitude.

Based on these results, it seems that people should be better informed about privacy risks and how to protect their privacy online, i.e. by using audience segregation mechanisms. Additionally, the results suggest that a social network site, like Clique, which offers audience segregation mechanisms, will be more attractive for older people, women, introverts, people who are aware of their audiences and people who do mind when their (online) privacy is violated.

Privacy risk

Personal data is generously provided and limited privacy protecting mechanisms are used. Due to the variety and richness of personal information disclosed in social network site profiles, their visibility, their public linkages to the members' real identities, and the scope of the network, users may put themselves at risk for a variety of attacks on their physical and online persona (Acquisti and Gross, 2005). With respect to the current study, we found that men provide more personal data, like phone number, email and address, but also make use of

poorer privacy settings. Based on these results, it is arguable that men take more risks, a finding that is consistent with the results of Fogel & Nehmad (2009). It could be that men do not often experience the consequences of cybercrime activities, like cyber bullying. (Danah) Boyd (2007) found in her study that men use social network sites more often to meet new people and to flirt. This could be another reason why men share more personal information and use poorer privacy setting; they probably do not care who has access to their personal information as long as they find new (interesting) contacts.

Privacy concern

Based on the results of the current study, it seems that the average respondent is not that concerned about his or her privacy. These findings are consistent with the results of Gross and Acquisti (2005), who found that the population in their study was by large, unconcerned, or just pragmatic about their personal privacy. The findings also seem in line with research of PEW (2010) in which respondents (especially adults) reported to be less concerned (over the years) about their online privacy (information that can be found on the internet). However, there are also studies, including some recent ones, that found that people were concerned about their privacy (Cranor et al.,1999; Coles-Kemp et al, 2010; Hoadley et al, 2009; Fogel & Nehmad, 2009; Acquiste & Gross, 2006, Tufekci, 2008). It is interesting to note that the survey used in the current study with regard to privacy concern was partly based on the surveys used in the studies of Fogel & Nehmad (2009) and Acquiste & Gross (2006), who both found that people were concerned about their privacy. As most studies concerning privacy and social network sites were conducted in the USA (including the studies of Fogel & Nehmad (2009) and Acquiste & Gross), cultural differences may explain the discrepancies between this study and previous studies. A reason why people are not that concerned about their privacy might be that they underestimate and misunderstand the risks of being a victim of privacy violation, or that they are convinced that the people with whom they have contact with will not violate their privacy, like reading a diary, email or putting messages online without permission. Coles-Kemp et al (2010), for example, found that the majority of the respondents do not experience an invasion on their privacy when they use the internet, which supports this idea. Also, people are not aware that other people might be interested in them and use the information they put online for their own purposes, even to harm them. For example, teachers, parents, or employers may use information of a student, child or future employee (Leenes, 2010).

In this study, no differences were found between men and women regarding privacy concerns. This is in contrast with previous research in which women were more concerned than men about their privacy(e.g. Fogel & Nehmad, 2009, Youn & Hall, 2008). As mentioned before, cultural differences could explain the discrepancies between studies. An explanation for finding no differences between men and women regarding privacy concern might be that women over time have actually become less concerned about their privacy or have developed more trust in other people (everyone shares information). Another explanation might be that women are more aware of their audiences or, because they only share confidential information with people they are really close with.

With regard to privacy concern and age, results in this study were consistent with the findings of Cho et al (2009) and Coles-Kemp et al, (2010), who both found that older people were more concerned about their privacy than younger ones. According to Hoofnagle (2010),

however, we should not start with the proposition that young adults do not care about their privacy and thus do not need regulations and other safeguards. In his study, the results showed that younger adults and older adults are more alike on many privacy topics than they are different. Although the results of Hoofnagle suggest that there are no differences between teenagers and adults concerning their perception of privacy, teenagers share more personal information than older people (as confirmed in the current study) and write themselves literally into being (Sundén, 2003 cited in Boyd, 2007); This may on its own indicate that teenagers are less concerned about their privacy as long as they receive positive reactions of their peers, and consequently will continue with disclosing of personal data.

It was expected that introverts were more concerned about their privacy than extroverts, because in everyday life introverts are more reserved towards others. However, in this study, no differences were found between extroverts and introverts regarding privacy concern. Unfortunately, no studies were found that investigated differences in privacy concern between extroverts and introverts. Therefore, comparison with previous research is not possible.

A reason why no differences were found between extroverts and introverts regarding privacy concern might be that most questions in the survey were based on situations in which people do not have control about the information that is requested/disclosed by others. This could have even be frightened for extroverts resulting in more concerns, and consequently no differences by personality.

Privacy attitude

Although it seems that people are not that concerned about their privacy, they do mind when their privacy is actually violated (privacy attitude). These results are in line with previous studies (e.g. Hoadley et al, 2009; Fogel & Nehmad, 2009; Tufekci, 2008; Boyd & Ellison, 2007; Acquisti & Gross, 2006) that also found that people do mind when their privacy is violated. As in most situations information was disclosed or requested without permission of the subject (the topics of the questions), and people want to have control about the information that is disclosed, these results are not surprising. Barnes (2006) indeed found in his study conducted with 64 undergraduate students (to attempt to better understand student attitudes toward social network sites) that students wanted to keep information private (i.e. they want to have control about the information that is disclosed). However, he also found that students did not seem to realize that Facebook (or other social network sites) is a public space, and that by sharing their personal information online, they do not only share personal information with online friends, but also with parents, future employers, and university officials.

The questions to measure attitude/awareness were partly based on the questions used by Fogel & Nehmad (2009). In their study, the attitude scale was used to compare differences between men and women with regard to privacy attitude (do they mind). However, no differences were found between men and women in their study. This is in contrast with our study, in which women significantly care more about their privacy than men. Discrepancies between our study and the study of Fogel & Nehmad could be explained by the fact that we only used six items of the scale, while Fogel & Nehmad used sixteen items to measure privacy attitude. Also, as mentioned before, cultural differences could explain the discrepancies between studies. A possible reason why women do mind (when their privacy is

violated) than men is that women are continuously approached online by unfamiliar men (stalking), leading to complaints and irritations by these women, while men do not experience such stalking (Dowd, 2010). Moreover, scientists have shown that on the whole, females of all ages tend to worry more and have more intense worries than males. They also tend to perceive more risks in situations and grow more anxious than men[6], because they are more likely than men to believe that past experiences accurately forecast the future (Lagattuta, 2007). This may also explain why women do mind when their privacy is violated than men.

Hoofnagle (2010) mentioned in his study that younger and older people have the same attitude towards privacy and policy suggestions. However, the results of this study suggest that adults care more about their privacy than teenagers. As Hoofnagle(2010) used different questions to measure privacy attitude, this may explain the discrepancies between studies. As older people have more experience in life, it is not strange that they are also more familiar with the consequences of privacy violation. Researchers (e.g. Jay Giedd) of the National Institute of mental Health[7] suggest that the part of the brain that restrains risky behavior, including reckless driving and thinking skills, is not fully developed until the age of 25. This might also be a reason why younger people are less worried about their privacy.

In this study, no differences were found between extroverts and introverts regarding privacy attitude. Therefore, it seems that how people behave towards others (outgoing or less outgoing) in everyday life does not affect the level of privacy attitude. As no previous studies focused on this topic, comparison with other studies was not possible.

Are there differences between online and offline privacy perceptions? (research question four)

Online, context is created in multiple ways: i.e., self-presentation, modes of speech, and community identification. This increase in the complexity of communications suggest that privacy online may differ from privacy in the traditional sense" (Sheehan, 2002). As Sheehan mentioned, the new online world is quite different from the offline world; in the online world new possibilities to communicate and to share information are available, but with the creation of these new communication possibilities also new privacy issues have arisen. Offline and online social situations (interactions) are difficult to compare, because most people see the online world as an extension of their real life, instead of a primary need to socially interact; Carlyne & Kujath (2011), for instance, found in their study that Facebook and MySpace act as an extension of face-to-face interaction. It seems that it is nice to keep in touch with old friends and acquaintances online, but most people still prefer real (face-to-face) interaction with close friends, as was also confirmed in the current study. Moreover, it can be assumed that most people share online less detailed information than offline and people also communicate differently online than offline. Therefore, a relevant question becomes: " is the online world a new world where other privacy rules apply?".

In the current study it was researched whether people differ in their attitude towards online and offline privacy (concern and attitude (do they care about their privacy)). According to the theory of planned behavior, you may expect that when someone is concerned about his privacy (attitude) this attitude applies in every situation regarding

[6] Cited from www.livescience.com
[7] http://www.nimh.nih.gov/index.shtml

privacy. So, when someone is concerned about his offline privacy you may assume that he or she is also concerned about his online privacy. The results of the current study showed that there is indeed a strong positive correlation between offline and online privacy (people who are concerned or do mind when their privacy is violated in the offline world are also concerned or do mind when their privacy is violated in the online world). Hence, research question four "*are there differences between online and offline privacy perceptions?*" is answered.

It should be noted that this topic was not leading in the current study, and research question four was added to the study after research of literature. I am aware of the fact that these results might be marginal. Therefore, this topic definitely deserves more attention in future research.

Audience segregation

In different phases of their life (child, teenager, young adult, adult), people learn how to behave and to communicate in different contexts. They also learn the value of certain information (privacy), while interacting with different types of people (e.g. parents, friends, colleagues, teachers, lovers, family, etc.), i.e. they learn which information they can share with whom and how to behave in certain situations (e.g. a consistent parent or a romantic lover for your girlfriend). Therefore, it was assumed that people use audience segregation in everyday life either conscious or unconscious. The results of the current study confirmed our expectations that people are aware of their audiences in everyday life (use audience segregation consciously) and that they do not share confidential information with others when they are in public areas. Next to that, the results suggest that most people only choose certain people to share their most private information with; people close to the respondents, e.g. friends, (ex) boyfriend/girlfriend, parents, brothers and sisters, were informed about topics such as sexual-/ drugs history and HIV infection, while colleagues, internet friends and acquaintances were not. When people do not want to share information with certain persons offline, they can decide to keep their mouth shut or they can decide to share the information in private (face-to-face, whispering, etc.). In the online world, privacy is a bigger issue, as the online world is one big public area. For example, when you post something on a forum or on the internet in general, millions of people have access to it. Nowadays, many people make use of social network sites and share a lot of personal information on these sites. It seems that most people do not have a good perception of how many people can have access to their information. Although many restrict their profiles, they do not seem to fully understand that their level of privacy protection is relative to the number of friends, their criteria for accepting friends, and the amount and quality of personal data provided in their profiles, which they tend to divulge quite generously (Debatin et al, 2009). To protect people's online privacy, Barnes (2006) mentioned that privacy in online social network sites can be approached in three different ways - social solutions, technical solutions, and legal solutions. Audience segregation might be one of these (technical) solutions. The current study found that people were most of the time aware of their public when disclosing personal information online. However, based on the privacy settings respondents used and the number of friends they had in their contact list, it seems that the majority of respondents allows many people to their private information, i.e. they are not using audience segregation adequately (on a range of 0, *do not use audience segregation* to 12, *do use audience segregation completely*, the mean score was 4,25, meaning the respondents do not use audience segregation very much).

Although, most people think that they behave well (because the majority only allows their friends to their profile (see table 6.1.4)), according to our criteria (see paragraph 5.2.2), and the criteria of Debatin et al. (2009) (i.e. the level of privacy protection is relative to the number of friends and the criteria for accepting friends) they do not. Moreover, a large part of the respondents did not even know that Hyves and Facebook provide them functionality to separate their contacts in different groups. Especially, within Facebook you can protect your profile (very) well with this mechanism. Next to that, of the people who were familiar with these mechanisms (to separate audiences in groups), a majority did not use it, because it took too much time, they did not know how it worked , and some had never looked at it. This supports previous findings (Acquisti & Gross, 2006; Church et al., 2009; Strater & Lipford, 2008) that social network sites fail to inform their users about privacy preserving mechanisms, and that most people struggle with the options to protect their profile. The results may also suggest that people do not need a mechanism like audience segregation. This is arguable, because most respondents answered that they were content with the current possibilities to protect their profile. Moreover, people do not seem to be that concerned about their privacy (confirmed in this study), they do not have accurate risk perceptions of privacy risks (Kuczerawy & Coudert, 2009), they do not seem to fully understand that their level of privacy protection is relative to the number of friends (Debatin et al, 2009) and the majority does not know that certain privacy preserving techniques are available within their social network site (they are just not aware of the risks and possibilities). This could also be reasons why people do not use (or are interested in) mechanisms to protect their profile. On the other hand, the majority of respondents did want to separate their audiences and control access to their personal information (as confirmed in this study), suggesting that they do need privacy preserving mechanisms like audience segregation. However, to get a more meaningful answer, it would have been advisable to put a more detailed description of online audience segregation in the online survey (what is audience segregation and how can it help people to protect their online privacy), to better capture respondents knowledge about online audience segregation and their needs. Hence, research question two "*do people need a concept like audience segregation*?" is not fully answered.

In this study, it was assumed that women (women are more often victim of cybercrimes), older people (older people have more experiences in everyday life), introverts (introverts are less outgoing), people that do mind when their privacy is violated, people who are aware of their audiences and people who do not have a great risk taking attitude would protect their privacy more often than others. In other words, these people will adopt or use audience segregation more often. The results of this study confirmed these assumptions; women, older people, introverts, people who do mind when their privacy is violated (online privacy attitude) and people who are aware of their audiences (audience awareness) use audience segregation more often than men, younger people, extroverts, people who care less about their privacy and people who are less aware of their audiences. As mentioned earlier, the Tilburg Institute of Law, Technology and Society, has built a social network site (Clique) which contains mechanisms to perform audience segregation. To announce Clique as a new social network site, people with previous mentioned characteristics (women, older people, introverts, people who are aware of their audiences and people who do mind when their privacy is violated.) might be the right target group to start with.

Based on these results, research question three "*which external factors explains SNS users adoption of audience segregation?*", and research question one "*to what extent does online and offline privacy behavior influence whether or not SNS users adopt audience segregation*?", are both answered

Research model

In the research model that was introduced in the current study, it was assumed that certain factors (i.e. the external factors age, gender, and possibility) predict online audience segregation usage, both directly and indirectly (via privacy, need and audience awareness). The research model was partly supported; the external factors (age, gender and personality), privacy (online privacy attitude) and audience awareness affected use of audience segregation directly. Also, an indirect effect was found of the factors age and gender via (online) privacy attitude on audience segregation. The factors "possibility" (i.e. whether or not someone has knowledge of the (privacy preserving) options that are provided by a social network site) and "need" (do people want or need a mechanism like audience segregation?) did not influence audience segregation usage. According to the theory of planned behavior, it was argued that someone's attitude (in this case attitude towards privacy) explains why he or she behaves in a certain way. This seems reasonable in offline situations. In real life situations it is easy to keep something private (you just keep your mouth shut or you can whisper something to another person). In online situations, however, this is not as easy as it seems, because most of the time you are dependent of the audience segregation mechanisms provided by websites, social network sites, and other applications. Therefore, it was argued that you cannot perform a certain behavior, in this case audience segregation, if you do not have the knowledge and the possibilities to perform that behavior (i.e. audience segregation mechanisms). Possible reasons why the factor possibility did not affect audience segregation usage might be: 1) the factor possibility was not measured accurately in the online survey. In this study, it was investigated whether people have knowhow of the technical possibilities to separate audiences. Even when you know that people have knowledge of these technical possibilities, you still do not know if they actually use them, i.e. if they actually perform audience segregation. On the other hand, you may assume that when someone has (more) knowledge about the available technical possibilities, he or she will use that functionality sooner (especially, when you want to protect your online privacy); 2) to measure people's knowledge about privacy protecting mechanisms (provided by their social network site), the same questions were used for both Facebook and Hyves users. When analyzing the data, results for Facebook and Hyves users were combined. However, Hyves and Facebook do not provide the same functionality to separate audiences and regulate access to personal information. Consequently, the results may have been obscured; and 3) it is arguable that an online survey is not the most accurate instrument to measure the factors possibility and behavior. Observation or interview methods might be more preferable to investigate how people actually handle and behave in certain situations (e.g. when adding friends, disclosing information, using privacy settings or separating audiences). A possible reason why the factor "need" did not influence audience segregation might be that the question that measured "need" (*would you like to control access to your online personal information so that some people can or cannot see (certain parts of) your profile?)* was not detailed enough; it was not

clearly explained what audience segregation is and how it can help people protect their online privacy.

Although the research model is partly supported, it is advisable to extend the model in future research, and to use additional research methods (e.g. observation or interviews techniques) to more accurately explain audience segregation usage.

8 Limitations

There are some limitations to this study that should be mentioned. First, the recruiting method may have led to a selective group of individuals, which may limits generalizability of the results to other populations, for example, the very old. Second, because a one-time survey was used, it was not possible to establish causality. Third, our survey was self-report rather than observing and recording the behavior. While this study provides insight into whether people are aware of their audiences, it does not clearly capture information on how they actually behave on the internet (do they really use audience segregation).

Finally, this study took place during a snapshot of time in the lifecycle of Hyves and Facebook. Hyves is still the most popular social network site in the Netherlands. However, the number of people that is using Facebook is rapidly increasing in the Netherlands. Therefore, results in future research can differ from current results. Moreover, popularity of social network sites is still growing. With this increasing popularity, companies and marketers will develop new and more advanced methods to collect data of social network site users, and social network sites will continue to introduce new functionalities which (most of the time) will violate people's privacy. Next to that, media attention regarding privacy and social network sites is growing. These developments will definitely influence people's attitude towards privacy and social network sites.

9 Future Work

In this study, a research model was introduced. This model explained only 12,6% of the variance. Therefore, in future studies this model could be extended with other factors that might influence use of audience segregation; factors such as culture, education, number of friends, criteria for accepting friends and level of internet experience might be strong predictors of audience segregation usage. Although the factors need and possibility did not influence audience segregation, it is not advisable to remove them from the research model. Instead different measures should be used. For example, in this study "need" was measured by the question "would you like to control access to your online personal information so that some people can or cannot see (certain parts of) your profile?". This question, however, does not completely measure whether people need a mechanism like audience segregation (i.e. separating of audiences). Therefore, in future research, it would be advisable to put a more detailed description of audience segregation (what is it and how can it help people to protect their online privacy) in the online survey. Currently, most social network sites do not provide proper mechanisms for audience segregation. So, it is difficult for social network site users to experience the advantages of audience segregation and to decide whether or not audience

segregation is a mechanism they really need. With regard to the factor possibility, it might be better to use interviews or observation techniques, as with these methods more in-depth information can be collected (i.e. how people actually behave on social network sites). Furthermore, a workshop could be developed about Clique (a social network site developed by TILT) for social network site users to inform them about audience segregation, and to research if the audience segregation possibilities Clique provide are desirable. Informing Dutch social network site users in general about privacy issues and audience segregation would be desirable, as the results in this study suggest that Dutch people are less concerned about their privacy than people from other countries (e.g. UK, VS), which may predispose them to greater (privacy) risks. Also, it would be interesting to further investigate why these cultural differences exist and what the consequences are regarding risks, privacy, behavior, desires (e.g. do they want to use audience segregation) and knowledge (e.g. how to best inform them about risks).

10 Conclusion

The aim of this study was to investigate if people use audience segregation, and which factors influence audience segregation usage. For this purpose, a research model was developed with external factors (age, gender and personality) and the factors need, privacy, audience awareness and possibility influencing audience segregation usage. On the whole, the research model was partly supported, as some factors did (e.g. age, gender, personality, audience awareness and online privacy attitude) and some did not (e.g. privacy concern (online/offline), privacy attitude (offline), need, possibility) influence audience segregation usage. Especially women, older people, introverts, people who are aware of their audiences and people who do mind when their online privacy is violated use audience segregation more often. Therefore, the social network site Clique with its audience segregation mechanisms should be most interesting for people with these characteristics.

Also, hypotheses were formulated about the research model to examine differences in privacy issues, privacy settings, privacy risk, social network site usage and audience segregation by age, gender and personality. Concerning audience segregation, the results of the hypotheses showed that women, older people, introverts and people who do mind when their online privacy is violated use (online) audience segregation more often. Moreover, it was assumed that people use audience segregation offline either conscious or unconscious. The results of the current study confirmed this, as most people were aware of their audiences in everyday life (use audience segregation conscious) most of the time, and they do not share confidential information with others when they are in public areas. Also, in online situations people were aware of their audiences (when they disclose personal information). However, the majority of people did not behave accurately regarding audience segregation, because most people used weak privacy settings or had (to) many friends in their contact list.

Concerning privacy, the results suggest that people were in general not that concerned about their privacy, but they do mind when it was actually violated. Furthermore, women and adults care more about their privacy than men and teenagers. Also, adults were more concerned about their online privacy than young adults.

Furthermore, it can be argued that people do not have an accurate risk perception of (online) privacy risks and do not protect their personal information well. Safer use of social

network sites would thus require a dramatic change in user attitudes. However, as attitudes are hard to change when the bad consequences are not yet perceived, and money (for companies) is more important than the privacy of a single person, the attitude towards privacy will not change. Therefore, more scientific research and media attention is necessary to warn people and try to change their attitude.

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Appendix I

Faculteit Rechtsgeleerdheid

[Universiteit]
t.a.v. het College van Bestuur
[Adres/ Postbus]
[Postcode / Plaats]

Datum
9 december 2010

Onderwerp
toestemming benadering studentenpopulatie tbv onderzoek

Datum uw brief
datum uw brief

Ons kenmerk
PRIME survey UvT

Telefoon
XXXXXXX

Telefax
XXXXXXX

E-mail
XXXXXXX

Geacht College van Bestuur,

Via deze weg willen wij de Erasmus Universiteit Rotterdam verzoeken medewerking te verlenen aan een onderzoek naar het gebruik van Online Sociale Netwerken door studenten en privacy.

De enquête maakt deel uit van een Europees onderzoeksproject, PrimeLife, waarin het Tilburg Institute for Law, Technology, and Society (TILT) deelneemt namens de Universiteit van Tilburg. Het PrimeLife project ontwikkelt privacy bevorderende technologieën. TILT onderzoekt hoe gebruikers van Online Sociale Netwerken (zoals Hyves en Facebook) omgaan met deze netwerken en wat zij doen om hun privacy in balans te brengen (en houden) met hun behoefte aan sociale interactie.

Via een e-mail uitnodiging met een link naar de online vragenlijst willen wij alle studenten aan uw onderwijsinstelling vragen de vragenlijst in te vullen. De enquêtes worden mede vanwege het onderwerp strikt anoniem gehouden. Er worden geen tot personen herleidbare identiteitsgegevens in het onderzoek geregistreerd. De vragen gaan over de mate waarin studenten context scheiding (het centrale concept dat we onderzoeken) hanteren in hun offline en online interacties. De concept vragenlijst is te raadplegen via: <http://vortex.uvt.nl/survey/index.php?sid=83399&lang=nl>. Wij streven er naar de vragenlijst midden/eind december 2010 uit te zetten.

We verzoeken u om de tekst van de uitnodiging deel te nemen aan het onderzoek door te sturen naar alle studenten ingeschreven aan uw instelling. Graag vernemen we van u waar we deze uitnodiging naar toe kunnen sturen. We willen benadrukken dat wij GEEN email adressen van uw studenten willen ontvangen.

Mocht u nog vragen hebben over de aard en achtergronden van het onderzoek, dan kunt u contact opnemen met prof.dr. Ronald Leenes (013-XXXXXXX of 06-XXXXXXXX).

Met vriendelijke groeten,

prof.dr. Ronald Leenes

Appendix II

Deze vragenlijst is onderdeel van een afstudeeronderzoek aan de Universiteit van Tilburg en de Radboud Universiteit in Nijmegen.

Er komen vragen aan bod over jouw gebruik van sociale netwerken, welke informatie je deelt met anderen en je opvattingen over privacy.

Het volledig invullen van de vragenlijst kost minder dan 15 minuten.

Na volledige invulling van de vragenlijst krijg je een anoniem token waarmee je kans maakt op 1 van de twee 8 Gb ipod nano's die we verloten.

De vragenlijst is volledig anoniem, ook je IP adres wordt niet vastgelegd.

Alvast bedankt voor de medewerking

Vragen en opmerkingen

1. Heb je ooit een profiel op een sociaal netwerkt aangemaakt, zoals Hyves, Facebook of Linkedin? *Ja/Nee*

2. Vul bij onderstaande vraag alleen de hokjes in die voor jou van toepassing zijn. Dus heb je alleen een Hyves profiel, vul dan alleen voor Hyves het jaartal, het aantal uur en het aantal contacten in.

	Sinds welk jaar heb je een profiel op..	Hoeveel uur per week ben je gemiddeld bezig met het bekijken en bewerken van je eigen profiel?	Hoeveel uur per week ben je gemiddeld bezig met het bekijken en bewerken van andermans profielen?	Hoeveel contacten (vrienden) heb je op…
Hyves				
Facebook				
Linkedin				
Twitter				
Other social network sites				

3. Waarom heb je profielen op meerdere sociale netwerken?
Selecteer alles wat voldoet
   - ❑ Om mijn verschillende soorten contacten (bijvoorbeeld mijn hobbyvrienden, mijn privé contacten en professionele contacten) gescheiden te houden
   - ❑ Om mijn privacy te beschermen: zo zien mensen slechts een stukje van mij
   - ❑ Om mijn zichtbaarheid te vergroten: ik wil in elk netwerk zitten!
   - ❑ Om mensen met dezelfde hobbies of interesses te kunnen vinden
   - ❑ Om onder mijn echte naam en onder mijn nickname met anderen te kunnen communiceren
   - ❑ Om in contact te blijven met bekenden
   - ❑ Omdat ik Nederlandstalige en internationale contacten heb
   - ❑ Omdat iedereen dat doet
   - ❑ Omdat niet iedereen op hetzelfde sociale netwerk zit
   - ❑ Anders:

4. Heb je meerdere profielen op één social netwerk site (bijv. Hyves)? *Ja/Nee*

5. Waarom heb je meerdere profielen?
   Selecteer alles wat voldoet
   - ❑ Om mijn verschillende soorten contacten (bijvoorbeeld mijn hobbyvrienden, mijn privé contacten en professionele contacten) gescheiden te houden
   - ❑ Om mijn privacy te beschermen: zo zien mensen slechts een stukje van mij
   - ❑ Om mensen met dezelfde hobbies of interesses te kunnen vinden
   - ❑ Om onder mijn echte naam en onder mijn nickname met anderen te kunnen communiceren
   - ❑ Om in contact te blijven met bekenden
   - ❑ Voor mijn plezier
   - ❑ Omdat iedereen dat doet
   - ❑ Anders:

6. Hieronder volgen aan aantal redenen waarom mensen gebruik maken van sociale netwerken. Hoe belangrijk zijn de volgende redenen voor jou?

	Helemaal niet belangrijk	Niet belangrijk	Neutraal	Belangrijk	Zeer belangrijk
Om nieuwe mensen te ontmoeten	❑	❑	❑	❑	❑
Om in contact te blijven met oude vrienden en contacten	❑	❑	❑	❑	❑
Om Foto's te bekijken en te delen met anderen.	❑	❑	❑	❑	❑
Nieuwsgierigheid, (kijken wat andere mensen bezig houdt)	❑	❑	❑	❑	❑
Om mensen te laten weten wat mij bezig houdt	❑	❑	❑	❑	❑
Om mensen met dezelfde interesses te ontmoeten	❑	❑	❑	❑	❑
Om profielen te bekijken van mensen die ik niet ken	❑	❑	❑	❑	❑
Vrienden van vrienden bekijken	❑	❑	❑	❑	❑
Om feestjes te organiseren	❑	❑	❑	❑	❑
Voor mijn plezier (delen van muziek, spelletjes, lid worden van groepen, etc.)	❑	❑	❑	❑	❑
Om informatie te verspreiden	❑	❑	❑	❑	❑

7. Op welk social netwerk ben je het meest actief?
   - ❑ Hyves
   - ❑ Facebook
   - ❑ Twitter
   - ❑ LinkedIn
   - ❑ Anders……

8. Welke informatie heb je op je profiel staan?
   - ❑ Echte voornaam
   - ❑ Echte achternaam
   - ❑ Geslacht
   - ❑ Geboortedatum
   - ❑ Telefoon nummer
   - ❑ Email / MSN
   - ❑ Huisadres
   - ❑ Geloof
   - ❑ Seksuele geaardheid
   - ❑ Relatiestatus
   - ❑ Interesses / favorieten
   - ❑ Krabbels / Wall posts
   - ❑ Favoriete merken
   - ❑ Blog

9. Hieronder volgen een aantal redenen waarom mensen informatie delen. Hoe belangrijk zijn de volgende redenen voor jou? Ik deel informatie, omdat..

	Helemaal niet belangrijk	Niet belangrijk	Neutraal	Belangrijk	Zeer belangrijk
Ik het leuk vind om de dingen die ik mee maak te delen met anderen	❑	❑	❑	❑	❑
Ik mij sociaal beter wil ontwikkelen (mee praten op een forum, of een groep op hyves, etc.)	❑	❑	❑	❑	❑
Ik er vakanties, auto's of andere prijzen mee kan winnen	❑	❑	❑	❑	❑
Ik hierdoor hoop populairder te worden. (bijv. meer volgers op twitter of je blog)	❑	❑	❑	❑	❑
Ik graag nieuws en nieuwtjes verspreid	❑	❑	❑	❑	❑
Ik een baan wil vinden (online plaatsen van je cv, of LinkedIn profiel)	❑	❑	❑	❑	❑
Ik nieuwe mensen wil ontmoeten (Hyves, Facebook, LinkedIn, etc.)	❑	❑	❑	❑	❑
Ik mijn relaties met bestaande contacten wil onderhouden	❑	❑	❑	❑	❑

10. Wie heeft er toegang tot je (Hyves).....

	Iedereen	Hyvers	Vrienden	Vrienden van vrienden	Niemand	Specifieke groepen /contacten	Geen idee	Niet van toepassing
gehele profiel	❑	❑	❑	❑	❑	❑	❑	❑
foto's	❑	❑	❑	❑	❑	❑	❑	❑
contacten/vrienden lijst	❑	❑	❑	❑	❑	❑	❑	❑
contactgegevens (email, telefoon, MSN, etc.)	❑	❑	❑	❑	❑	❑	❑	❑
krabbels	❑	❑	❑	❑	❑	❑	❑	❑
WieWatWaar	❑	❑	❑	❑	❑	❑	❑	❑
blog	❑	❑	❑	❑	❑	❑	❑	❑
favorieten en interesses	❑	❑	❑	❑	❑	❑	❑	❑
persoonlijke informatie (relatie, woonplaats, studie, geboortedatum, etc.)	❑	❑	❑	❑	❑	❑	❑	❑

11. Wie heeft er toegang tot je (Facebook).....

	Iedereen	Vrienden	Vrienden van vrienden	Alleen ikzelf	Specifieke groepen /contacten	Geen idee	Niet van toepassing
gehele profiel	❑	❑	❑	❑	❑	❑	❑
foto's	❑	❑	❑	❑	❑	❑	❑
contacten/vrienden lijst	❑	❑	❑	❑	❑	❑	❑
contactgegevens (email, telefoon, MSN, etc.)	❑	❑	❑	❑	❑	❑	❑
wall posts	❑	❑	❑	❑	❑	❑	❑
status updates	❑	❑	❑	❑	❑	❑	❑
favorieten en interesses	❑	❑	❑	❑	❑	❑	❑
persoonlijke informatie (relatie, woonplaats, studie, geboortedatum, etc.)	❑	❑	❑	❑	❑	❑	❑

12. Kies per vraag het antwoord dat het meest bij je past.

	Nooit	Vrijwel nooit	Wel eens	Meestal	Altijd
Wanneer je geld opneemt of een pin betaling doet, zorg je er dan voor dat niemand meekijkt?	❑	❑	❑	❑	❑
Zou je een conflict met iemand die je aan de telefoon hebt in de trein uitpraten?	❑	❑	❑	❑	❑
Je voert een vertrouwelijk gesprek met een bekende, zou je dit in een druk café doen?	❑	❑	❑	❑	❑
Je geeft een verjaardagsfeest waarbij al je vrienden zijn uitgenodigd, opeens komen je ouders + grootouders binnen. Verander je van onderwerp?	❑	❑	❑	❑	❑
Laat je een brief met vertrouwelijke informatie rond slingeren op school/universiteit of kantoor?	❑	❑	❑	❑	❑

13. Vraag je jezelf wel eens af wie je publiek is...

	Nooit	Vrijwel nooit	Wel eens	Meestal	Altijd
als je online berichten plaatst?	❑	❑	❑	❑	❑
als je online foto's plaatst?	❑	❑	❑	❑	❑
als je je telefoon nummer of email adres online achterlaat?	❑	❑	❑	❑	❑
als je persoonlijke informatie online plaatst (geboortedatum, echte naam, seksuele/politieke voorkeur, interesses,etc.)	❑	❑	❑	❑	❑

14. Selecteer all groepen van contacten waar jij de betreffende informatie aan zou vertellen.
    Selecteer de toepasselijke opties:

	Vrienden	Ouders	Familie	Broer / zus	(ex) Partner	Collega's	Kennissen	Internet vrienden	Niemand
Mijn seks leven vertel ik zeker tegen	❑	❑	❑	❑	❑	❑	❑	❑	❑
Mijn drugs verleden zou ik zeker vertellen aan	❑	❑	❑	❑	❑	❑	❑	❑	❑
Als ik gevoelens heb voor een ander vertel ik dat zeker aan	❑	❑	❑	❑	❑	❑	❑	❑	❑
Als ik gevoelens heb voor een ander van hetzelfde geslacht vertel ik dat zeker aan	❑	❑	❑	❑	❑	❑	❑	❑	❑
Als ik HIV besmet raak vertel ik dat zeker aan	❑	❑	❑	❑	❑	❑	❑	❑	❑

15. De onderstaande vragen hebben betrekking tot (Hyves of Facebook)
    a. Biedt (Hyves of Facebook) je de mogelijkheid de toegang tot informatie zoals, krabbels, foto's, WWW berichten te beperken voor bepaalde groepen of personen? *Ja/Weet niet/Nee*
    b. Biedt (Hyves of Facebook) je de mogelijkheid om eigen groepen van contacten aan te maken? *Ja/Weet niet/Nee*
    c. Waarschuwt (Hyves of Facebook) je hoeveel mensen je status updates, berichten of foto's die je plaatst kunnen zien? *Ja/Weet niet/Nee*
    d. Waarschuwt (Hyves of Facebook) je wie er toegang heeft tot welke delen van je profiel? *Ja/Weet niet/Nee*
    e. Waarschuwt (Hyves if Facebook) je wat wijzigingen aan de privacy insteliingen voor gevolgen heeft? *Ja/Weet niet/Nee*

16. Gebruik je de functionaliteit waarmee je contacten in groepen kan indelen (bijv, vrienden, familie, collega's)? *Ja/Nee*

17. Waarom maak je geen gebruik van de functionaliteit om groepen te maken?
    - ❑ Kost me teveel tijd
    - ❑ Ik weet niet hoe het werkt
    - ❑ Ik heb er nooit naar gekeken
    - ❑ Geen idee
    - ❑ Anders..

18. Heb je behoefte om onderscheid te maken tussen wie de informatie die je op je profiel zet wel en niet kan zien? *Ja/Nee*

19. Ben je tevreden met de mogelijkheden om toegang tot de informatie die je wilt delen kan scheiden? *Ja/Nee*

20. Welke functionaliteit mis je? (Openvraag)

21. Op welke manier communiceer jij het liefst? (Geef een nummer voor elke optie volgen uw voorkeur van 1 tot 7)
    a. Telefoon
    b. SMS /Pingen
    c. E-mail
    d. Blogs
    e. Sociale netwerken
    f. Face to Face
    g. MSN, Skype,etc,

22. Hoe bezorgd ben je dat...

	Helemaal niet bezorgd	Een beetje bezorgd	Normaal	Erg bezorgd	Heel erg bezorgd
anderen informatie over jou online zetten	❑	❑	❑	❑	❑
informatie die je online zet misbruikt kan worden.	❑	❑	❑	❑	❑
bedrijven online informatie over jou verzamelen	❑	❑	❑	❑	❑
een toekomstige werkgever mogelijk informatie over jou op internet kan vinden	❑	❑	❑	❑	❑
mensen zich als jou voordoen op het internet	❑	❑	❑	❑	❑
je familie, er via jouw online profiel achter komt wat je doet.	❑	❑	❑	❑	❑

23. Hoe bezorgd ben je dat...

	Helemaal niet bezorgd	Een beetje bezorgd	Normaal	Erg bezorgd	Heel erg bezorgd
informatie die je vertelt verkeerd begrepen wordt	❑	❑	❑	❑	❑
informatie die je in vertrouwen vertelt, wordt doorverteld	❑	❑	❑	❑	❑
dat je telefoongesprekken worden afgeluisterd	❑	❑	❑	❑	❑
de informatie die je in een trein bespreekt door anderen wordt misbruikt	❑	❑	❑	❑	❑
mensen meekijken wanneer je je pincode invoert	❑	❑	❑	❑	❑
je ouders of vrienden jouw dagboek, email of smsjes lezen	❑	❑	❑	❑	❑

24. Hoe vind je dat...

	Helemaal niet erg	Een beetje erg	Normaal	Erg	Heel erg
je persoonlijke informatie moet opgeven bij het registreren op een website	❑	❑	❑	❑	❑
je Hyves of Facebook profiel voor iedereen zichtbaar is	❑	❑	❑	❑	❑
iemand zich als jou voor kan doen op het internet	❑	❑	❑	❑	❑
mensen of bedrijven jou emails sturen over bijv. Reclame, Seks, Viagra, Vacatures en Vakanties	❑	❑	❑	❑	❑
mensen jouw berichten of emails kunnen onderscheppen	❑	❑	❑	❑	❑
mensen persoonlijke informatie over jou op het internet kunnen vinden (geboortedatum,seksuele-politieke voorkeur, foto´s, etc.)	❑	❑	❑	❑	❑

25. Hoe vind je dat...

	Helemaal niet erg	Een beetje erg	Normaal	Erg	Heel erg
dat mensen mee kunnen luisteren met je gesprekken	❑	❑	❑	❑	❑
iemand zich als jou voordoet.	❑	❑	❑	❑	❑
om persoonlijke informatie vrij te geven bij een enquête op straat	❑	❑	❑	❑	❑
het als mensen ongevraagd foto´s of teksten van jou publiceren.	❑	❑	❑	❑	❑
mensen jouw email, sms of post lezen	❑	❑	❑	❑	❑

26. Wat is je geboortjaar?
27. Wat is je geslacht? *Vrouwelijk/Mannelijk*
28. Heb je de nederlands nationaliteit? *Ja/Nee*
29. Hoelang woon je al in Nederland?

30. Ben je een spraakzaam persoon? *Ja/Nee*
31. Ben je een levendig persoon? *Ja/Nee*
32. Vind je het prettig om nieuwe mensen te ontmoeten? *Ja/Nee*
33. Kun je je meestal op een levendig feest uitleven en er geheel van genieten? *Ja/Nee*
34. Ben jij degene die meestal het initiatief neemt bij het maken van nieuwe vrienden? *Ja/Nee*
35. Kun je gemakkelijk wat leven in een nogal saai feestje brengen? *Ja/Nee*
36. Ben je geneigd je op de achtergrond te houden tijdens sociale evenementen (bijv. op feesten)? *Ja/Nee*
37. Vind je het prettig om in contact met mensen te komen? *Ja/Nee*
38. Vind je het prettig om veel drukte en opwinding om je heen te hebben? *Ja/Nee*
39. Ben je meestal stil als je in een gezelschap bent? *Ja/Nee*
40. Vinden anderen je een levendig persoon? *Ja/Nee*
41. Kun je een feest op gang brengen? *Ja/Nee*