The mobile phone as a distractor?

Antecedents and outcomes of mobile phone checking behavior in class or while doing homework among secondary school students

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Communication and Information Sciences
Master Thesis
Specialization: Business Communication and Digital Media

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November 2013



Voorwoord

Voor u ligt mijn thesis welke geschreven is ter afsluiting van de masteropleiding Communicatie- en Informatiewetenschappen aan Tilburg University. Na ruim vijf jaar komt er een einde aan mijn studententijd in Tilburg. Tijdens mijn bachelor Algemene Cultuurwetenschappen heb ik een semester in Chicago doorgebracht. Daar heb ik in het kader van mijn minor vakken gevolgd in marketing en communicatie. Mijn interesse was gewekt en zodoende kwam ik terecht bij de master Communicatie- en Informatiewetenschappen.

Hoewel ik iets langer gedaan heb over het afronden van mijn thesis, heb ik het schrijven ervan altijd als leuk ervaren. Het onderwerp vond ik meteen erg interessant en ik kon me goed met het onderwerp identificeren omdat ik zelf ook een grootgebruiker ben van (mobiele) media. Een belangrijk persoonlijk doel van het schrijven van mijn thesis was om er iets van te leren, dit omdat ik nog niet eerder ervaring had opgedaan met een dergelijke manier van onderzoek doen. Ik kan met zekerheid zeggen dat ik dat doel bereikt heb en ben dan ook erg tevreden met het eindresultaat.

Graag wil ik mijn begeleiders Mariek vanden Abeele, Marije van Amelsvoort en Marieke Hoetjes bedanken voor hun begeleiding, sturing en feedback gedurende het schrijfproces. Daarnaast wil ik mijn familie en vrienden bedanken voor hun steun en interesse. Tot slot wil ik het Beatrixcollege te Tilburg bedanken voor hun medewerking bij het verzamelen van de data. Bedankt!

Corine Boonman
November 2013

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Abstract

Recently, concerns have been voiced about teenagers' tendency to 'compulsively' check their mobile phone during class and/or while making their homework, and the negative consequences that this checking behavior may have on their school performance. The aim of the current study is to provide insight into (1) whether mobile phone checking behavior is associated with indicators of school performance and (2) what factors predict the frequency with which teenagers check their mobile phone during learning activities. With respect to the potential negative outcomes of checking behavior, we hypothesized that teenagers who check their mobile phone more frequently during learning activities, would report greater academic distractibility, (both directly and indirectly via distractibility) a lower average grade and lower perceived cognitive learning. With respect to the predictors of checking behavior during learning activities, we hypothesized that teenagers who score higher on self-regulated learning, and who have higher academic motivation, would be less likely to check their mobile phone during class and/or while making their homework. To examine these hypotheses, we conducted a quantitative survey research (N = 365) among secondary school students in the Netherlands. Checking of the mobile phone was found to negatively predict academic distractibility, which, in turn, negatively predicted average grade. No direct relationship, however, was found between mobile phone checking behavior in class or while doing homework and average grade. In contrast to our expectations, there was a positive relationship between mobile phone checking behavior in class or while doing homework and perceived cognitive learning. The results of the study further show that there was a negative relation between self-regulated learning and mobile phone checking behavior class or while doing homework. Academic motivation did not predict the frequency of mobile phone checking behavior in class or while doing homework. Limitations, implications and suggestions for future research are discussed in the discussion section.

Tags: mobile phone, checking behavior, self-regulated learning, intrinsic motivation, extrinsic motivation, academic distractibility, perceived cognitive learning

1. Introduction

The use of the mobile phone, and in particular the mobile Internet, has increased dramatically in recent years. Today, almost all children in the Netherlands who are older than 12 own a mobile phone, and about 60% of these own a smartphone with which they can access the mobile Internet (Stichting Mijn Kind Online, 2012). With their (smart-)phone, these teenagers can engage in a range of activities, such as getting quick access to social networking sites such as Facebook and Hyves, sending text messages or mobile messages, checking the news, and surfing the Internet.

Society is increasingly concerned about the role the mobile phone plays in the lives of teenagers. One of the major concerns that is oftentimes voiced by people, is that teen mobile phone use may become uncontrolled or excessive (Billieux, 2012). Young adults indeed have the tendency to check the mobile phone continuously throughout the day: recent research has revealed that smartphone usage is characterized by short, yet highly frequent usage sessions that are spread throughout the day (Oulasvirta, Rattenbury, Ma & Raita, 2012). This finding suggests that smartphone usage often consists of relatively brief 'checking' sessions. This 'checking' takes place intermittent with or even simultaneously during other tasks or activities (such as learning activities). Consequently, teenagers' mobile phone checking behavior can be conceived of as a form of multitasking behavior.

The multitasking that smartphone use induces throughout the day may not be 'innocent'. Scholars have argued that the multitasking and divided attention associated with the use of electronic media such as smartphones can lead to problems in performing tasks that require attention and perseverance, such as school tasks (Levine, Waite & Bowman, 2012). Because teenagers are extensive users of the mobile phone and mobile Internet, and because mobile phone checking behavior is likely to lead to increased multitasking during learning activities, it can thus be expected that there might be negative implications of mobile phone checking behavior during learning activities for teenagers' performance on school tasks.

To date, several studies have examined the relationship between media use and school performance (e.g., Waite, Levine & Bowman, 2009; Rosen, Carrier & Cheever, 2013; Kirschner & Karpinski, 2010). Only a limited number of studies (e.g., Wei, Wang & Klausner, 2012), however, have acknowledged the role of the mobile phone in relation to school performance, and, to date, research on mobile phone *checking behavior* in particular is lacking. Additionally, most of the extant research focuses on college student populations, leaving the population of

secondary school students relatively understudied. This is unfortunate, as teenagers are already power users of mobile communication technologies. Mobile phones afford them to covertly (i.e. 'under the radar' of parents and teachers) check whether there is new content at anytime and anyplace. Given the growing recognition in the academic field that mobile phones induce a 'checking habit' in users (Oulasvirta et al., 2012), and that such habits are likely to interfere with learning tasks (e.g., Rosen et al., 2013), research on the association between teenagers' checking behavior during these learning activities and their school performance is vital to inform parents, teachers and teenagers about the potential negative consequences of this behavior. If evidence is found, this may support the development of educational policies and interventions to counter the negative consequences of checking behavior during learning activities, such as Rosen et al.'s (2013) suggestion to incorporate technology breaks in class.

The purpose of this study is thus to investigate correlates of secondary school students' mobile phone checking behavior in class and while doing homework. The first aim is to investigate the relationship between teenagers' mobile phone checking behavior in class or while doing homework and three indicators of school performance. To that end, we first examine the direct relationship between mobile phone checking behavior and students' grade average. Second, Levine et al. (2012) argue that frequent media distractions lead to the development of a cognitive learning style of 'academic distractibility', which in turn negatively impacts students' grades. We test this claim by examining whether academic distractibility mediates the relationship between checking behavior and grade average. Finally, as there is debate on whether grades are an accurate reflection of students' cognitive learning experience (Frymier & Houser, 1999; Rovai, 2002), we examine perceived cognitive learning (i.e. students' perception that they are learning) as a third correlate of mobile phone checking behavior.

Not all students may be equally 'at risk'. Previous research has identified two personality traits that may be associated with (distractibility during) learning activities: self-regulated learning (i.e. the cognitive meta-skills to facilitate learning) and (intrinsic and extrinsic) academic motivation (Pintrich & De Groot, 1990; Deci & Ryan, 1985; 1991). Therefore, the second aim of the current study is to examine whether these two factors can be identified as antecedents of teenagers' mobile phone checking behavior in class or while doing homework.

To examine the aforementioned hypotheses, we draw from the results of a quantitative survey study among 365 Dutch secondary school students.

2. Theoretical framework

2.1 Teenagers' mobile phone use

People use their smartphone mostly for maintaining social relationships, with a main role for mobile messaging, emailing and consulting social media websites (Stichting Mijn Kind Online, 2012). Examples of social media websites are Facebook, Twitter, LinkedIn and YouTube. In addition, reading news, playing games and listening to music are given as primary reasons for the use of the smartphone (Centraal Bureau voor de Statistiek, 2012). Keeping in touch with parents and friends is mentioned by teenagers as the main reason for owning a mobile phone (Stichting Mijn Kind Online, 2012). This finding is supported by research by Park and Lee (2012), in which students indicated that caring for others is the main reason for owning a smartphone. Teenagers' smartphone use is similar to that of adults. They often use their mobile phone to send text messages via SMS or via mobile messengers such as Ping or Whatsapp. In addition, 32% of all teenagers use e-mail via the mobile phone (Stichting Mijn Kind Online, 2012).

As mentioned above, a societal concern with regard to teenagers' mobile phone use is that it may become uncontrolled or excessive, and that this may negatively impact their everyday life (Billieux, 2012). Media reports of teenagers' phone use, for example, oftentimes frame today's generation of youths as a generation that is massively 'addicted' to their phone, and that this addiction negatively affects aspects of their personal life, such as their social relationships and their learning (e.g., Walsh & White, 2007). According to Walsh and White (2007), mobile phone use has the potential to result in negative outcomes in several domains. Young adults may, for example, increasingly face financial problems due to their (excessive) mobile phone use, and the use of the mobile phone while driving a car or bicycle may cause accidents. A main domain of concern is mobile phone use in the classroom, which may lead to distraction and disruption and therefore may have a negative impact on school performance. Although history has taught that 'media panics' are oftentimes unwarranted, recent research on the impact of (media) distractions on learning suggests that the latter concern may be justified. A cause for that concern lies in the mobile phone's capacity to induce a 'checking habit', which -, compared to the use of other cyber-media (e.g., a laptop computer) - can be typically associated with the use of the mobile phone

2.2 Checking habit

A recent study by Oulasvirta et al. (2012) revealed that smartphone usage is characterized by short, yet highly frequent usage sessions that are spread throughout the day. These usage sessions appear to be "automated behaviors where the device is quickly opened to check the standby screen or information content in a specific application" (p. 3). Given the frequency (and brevity) of these usage sessions, Oulasvirta et al. consider them to be the result of a 'checking habit' that is induced and sustained by the (smart-)phone capacity to provide quick access to rewards such as social networking, communication and news. These rewards help users to avoid boredom, cope with a lack of stimuli in everyday situations, and make them aware of interesting news, events and social networks.

Because they are executed automatically, checking habits can be regarded as cognitively inexpensive behaviors (Oulasvirta, Rattenbury, Ma & Raita, 2012). These habits, however, are believed to function as a gateway to other applications and contents (e.g., when users check the most recent status updates on their social network site, and one of these status updates includes a link to video content, they may continue to watch that video). Checking habits may therefore increase the overall usage of the mobile phone. Oulasvirta et al. (2012) therefore also refer to checking habits as 'gateway habits'. These (gateway) checking habits may become problematic when they interfere with learning tasks.

2.3 Checking of the mobile phone and school performance

A study by Jacobsen and Forste (2010) revealed that sixty-two per cent of college students multitask by using media during other activities. Cyber-media multitasking entails that one performs two or more activities or tasks at the same time, one of which a cyber-media activity (Levine, Waite & Bowman, 2012). An example is the use of instant messaging (IM), a communication tool that allows an individual to communicate in separate typed conversations with many people at the same time, while being online on the computer. When receiving a message, users are notified with a pop-up screen at the bottom of their screen which creates multiple interruptions and demands multitasking behavior. Research indicates that IMing puts stress on cognitive processing when simultaneously working on another task such as for example academic reading (Levine, Waite & Bowman, 2007). Individuals, who (cyber-media) multitask more often, experience greater difficulty filtering out irrelevant stimuli from their environment,

are less likely to ignore irrelevant representations in memory and are less effective in suppressing the activation of irrelevant tasks (Ophir, Nass & Wagner, 2009).

Due to the habitual character of mobile phone checking behavior, mobile phone checking behavior is likely to occur intermittent or concurrent with other tasks and behaviors. In other words, mobile phone checking behavior can be considered as a cyber-media multitasking behavior. Hence, it is plausible that when students engage in this form of multitasking during learning activities, such as, in the classroom or while doing homework, that negative outcomes in terms of learning may occur. In this study, these negative outcomes are measured in terms of students' academic distractibility, their average grade and their perceived cognitive learning.

2.3.1 Academic distractibility

A concept closely related to multitasking is academic distractibility: the extent to which a person is distracted while performing academic work (Levine, Waite & Bowman, 2012). In a literature review, Levine et al. (2012) note that research conducted in the field of cognitive psychology has provided evidence "that multitasking affects our ability to pay focused attention and to learn efficiently" (p. 7). Multitasking, and thus also cyber-media multitasking (including mobile phone checking behavior) is thus regarded as an antecedent of academic distractibility.

Two (related) mechanisms may explain the link between multitasking and academic distractibility (Levine, Waite & Bowman, 2007). The first mechanism is direct distraction through multitasking while performing academic tasks. When students IM while studying, for example, the direct interference with the studying process can be considered as a 'state' of academic distraction that negatively affects the learning process. The second mechanism concerns the longer-term effect of such distractions. If students consistently multitask during activities, a general cognitive style of short and shifting attention may develop, causing them to have a 'trait'-like predisposition for distractibility for academic tasks.

Waite, Levine and Bowman (2009) initially found evidence for the latter mechanisms, in that the more students multitasked by instant messaging on their computer, the higher their academic distractibility was. The authors therefore conclude that the use of IM creates a "cognitive style based on short, superficial multitasking rather than in-depth focus" (p.565). It is likely that the same mechanisms apply to mobile phone checking behavior during learning activities such as in class or while doing homework. Hence, the following hypothesis can be proposed:

H1: Students who check their mobile phone more frequently in class or while doing homework have a higher academic distractibility than students who check their mobile phone less frequently.

There are studies available that demonstrate the relationship between (heavy) cyber-media use and (media) multitasking behavior on the one hand, and lower academic performance on the other. Students who use and open Facebook during learning activities, for example, have been found to have a lower grade point average (Rosen, Carrier & Cheever, 2013; Kirschner & Karpanski, 2010). These findings are supported by research by Junco and Cotton (2012) who found that the frequency of cyber-media multitasking negatively predicted overall college grade point average. In this study, it is assumed that the same can be expected for mobile phone checking behavior. Hence, the following hypothesis can be proposed:

H2: Students who check their mobile phone more frequently have lower grades than students who check their mobile phone less frequently.

With regard to the second hypothesis it might be interesting to examine *why* mobile phone checking behavior possibly affects grade average. In their attempt to provide an explanation for the negative relationship between Facebook use and academic performance, Kirschner and Karpanski (2010) suggest that this negative relationship results from trying to combine two cognitive processes at once, which has a negative impact on the effectiveness and the efficiency of studying (Kirschner & Karpanski, 2010). Other authors equally state that bad results may be attributed to the fact that media multitasking forms a direct interference while studying (Levine, Waite & Bowman, 2007). These studies thus imply that a loss of efficiency and effectiveness due to academic distractibility can go at the expense of grade performance. Therefore, the following hypothesis can be proposed:

H3a: *The higher a student's academic distractibility is, the lower his/her average grade is compared to students who have a less high academic distractibility.*

Besides a direct relationship between checking behavior of the mobile phone and academic distractibility on average grade, this last hypothesis also implies that there is likely an indirect relationship between mobile phone checking behavior and average grade with academic distractibility as mediator. In this study, it will be examined whether this is the case. Hence, the following hypothesis is proposed:

H3b: Academic distractibility mediates the relationship between mobile phone checking behavior and average grade.

2.3.2 Perceived cognitive learning

Traditionally, grades are used as a measurement of learning. Lately, however, the focus on grades as a measure of learning has come under attack (Frymier & Houser, 1999). It is often difficult to evaluate whether a high grade in, for example, mathematics, represents the same level of learning as a high grade in geography. Besides that, grades can be influenced by other factors than the learning process, such as, for example, attendance, short-term recall ability, writing skills, test anxiety and the fact that different teachers may have different ways of grading tests (Frymier & Houser, 1999; Rovai, 2002). According to Rovai (2002), grades can have little or no relationship to what students have actually learned. It can occur that students already know the material at the beginning of the class or that the grade is more related to participation or attendance in class or influenced by events as, for example, work turned in late. In those cases, the grade is not related to cognitive learning, and a better measure needs to be sought for. One such measure is perceived cognitive learning.

According to Frymier and Houser (1999), cognitive learning itself is "often the primary focus of formal education and is what grades are intended to measure" (p.2). Cognitive learning is defined by Bloom, Engelhart, Furst, Hill and Krathwohl (1956) as "recall or recognition of knowledge and the development of intellectual abilities and skills". Furthermore, Bloom et al. (1956) proposed a taxonomy in which cognitive learning consists of six levels: knowledge, comprehension, application, analysis, synthesis, and evaluation. Cognitive learning is difficult to measure, especially for survey studies because self-report measures of learning must be used (Frymier & Houser, 1999). Nevertheless, previous research has proven the validity of self-reports as a measure of perceived cognitive learning (Rovai, 2002; Pace, 1990).

In this study, perceived cognitive learning will be used as a secondary learning outcome to students' grade average. The following hypothesis can be presented in extension of the theory:

H4: Students who check their mobile phone more frequently in class or while doing homework, perceive less cognitive learning than students who check their mobile phone less frequently in class or while doing homework.

2.4 Antecedents of mobile phone checking behavior in class/while doing homework

Not all students may be equally likely to habitually check their mobile phone during these learning activities. Hence, it is also important to look at antecedents of mobile phone checking behavior in class or while doing homework. In this study, two potential antecedents are considered: - self-regulated learning and academic motivation.

2.4.1 Self-regulated learning

Several studies have shown that self-regulation of cognition and behavior is an important aspect of learning and school performance in the class room (Pintrich & De Groot, 1990), since school performance cannot be fully explained on the basis of skills and abilities (Schunk & Zimmerman, 2012). According to Zimmerman (1989), students can be described as self-regulated to "the degree that they are metacognitively, motivationally, and behaviorally active participants in their own learning process" (p. 329). Research by Pintrich and De Groot (1990) showed that students, who use self-regulatory strategies, have a higher grade average than students who do not use these strategies.

Pintrich and De Groot (1990) define three components that are especially important for classroom performance with regard to self-regulated learning. The first component includes students' metacognitive strategies with regard to planning, monitoring and modifying their cognition. Secondly, students' management and control of their effort on classroom academic tasks is proposed as an important component. For example, students who persist to accomplish a difficult task, or students who can block out distracters (e.g., noisy classmates) are better able to retain their cognitive involvement in the task, allowing them to perform better. Lastly, the actual cognitive strategies that are used by students to learn, remember and understand material is considered as an important component of self-regulative learning. Unlike their passive classmates, students who score high on self-regulated learning seek information in a proactive manner when needed (Zimmerman, 1990).

Research by Wei et al. (2012) showed that there is a negative correlation between self-regulation and the use of SMS in the classroom, thus indicating that students who score high on self-regulative learning are less inclined to send text messages during class. It is likely that a similar relationship exists for mobile phone checking behavior in class or while doing homework:

H5: Students who are better at self-regulated learning are less inclined to check their mobile phone in class or while doing homework than students who are not good at self-regulated learning.

According to Pintrich and De Groot (1990), knowledge of cognitive and metacognitive strategies is usually not sufficient to stimulate school performance. Students must also actively regulate their cognition and effort, as well as be motivated to use the strategies (Pintrich & De Groot, 1990). In other words: what a student learns in school does not only depend on his abilities, but also on the extent to which a student is motivated to use his abilities (Hamstra & Van den Ende, 2006). Therefore, a second factor in this study that may serve as an antecedent of mobile phone checking behavior in class or while doing homework, is academic motivation.

2.4.2 Academic motivation

According to Ryan and Deci (2000), to be motivated means to be moved to do something. The concept of motivation is very important in education and several conceptual perspectives have been proposed in order to better understand academic motivation (Vallerand, Pelletier, Blais, Briere, Senecal & Vallieres, 1992). An important theoretical approach is the one which presumes that behavior can be intrinsically motivated, extrinsically motivated or amotivated (Deci & Ryan, 1985; 1991).

Intrinsic motivation refers to doing an activity for oneself and for the pleasure and satisfaction that come from participation (Deci & Ryan, 1985; 1991). An example of intrinsic motivation with regard to education is that a student goes to school because he/she finds it interesting and finds that it gives satisfaction to learn (Vallerand et al., 1992). Extrinsic motivation refers to behaviors that are performed because they provide access to an external goal (e.g., money) and that are not performed for their own interest (Vallerand et al., 1992). For example, a student goes to school because his parents told him to go or the example of a student

who studies all night for an exam because he/she thinks that is what a good student should do. Amotivated is the third type of motivation as defined by Deci and Ryan (1991). A person who is amotivated is neither intrinsically or extrinsically motivated and they perceive their behavior as caused by forces out of their own control (Vallerand et al., 1992). For example, a student can feel confused and wonder why he/she even goes to school. Amotivated will be left out of consideration in this study.

With regard to the theory about academic motivation as proposed by Deci and Ryan (1985; 1991), the following hypotheses can be proposed:

H6a: The more intrinsically motivated students are, the less they check their mobile phone in class or while doing homework compared to students who are less intrinsically motivated.

H6b: The more extrinsically motivated students are, the less they check their mobile phone in class or while doing homework compared to students who are less extrinsically motivated.

Additionally, Ryan and Deci (2000) state that extrinsic motivation has typically been characterized as "a pale and impoverished form of motivation that contrast with intrinsic motivation because the latter oftentimes results in high quality learning and creativity." (p. 55). Therefore, the following hypothesis is presented:

H6c: The relationship between intrinsic motivation and checking behavior is stronger than the relationship between extrinsic motivation and checking behavior.

2.5 Conceptual model

The theory and associated hypotheses result in the following conceptual model which will be investigated in this study. Because the antecedents examined in the current study (self-regulated learning and motivation) are likely to also directly affect the 'outcome' measures (distractibility, grade and perceived cognitive learning), these factors are controlled for in the analyses of H1 – H4.

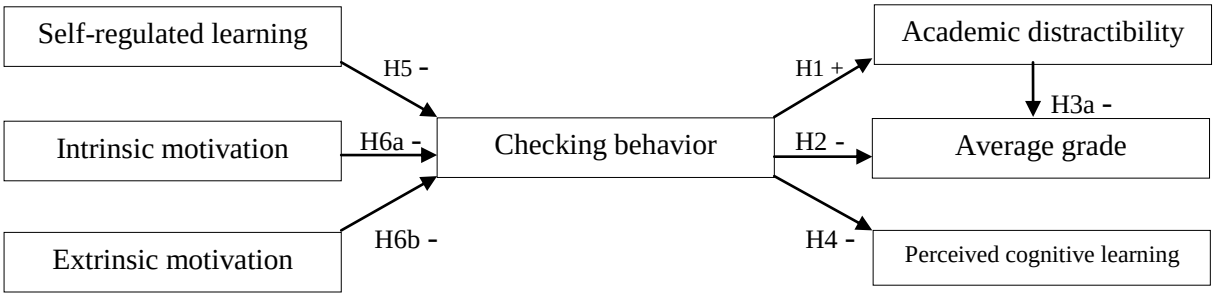


***Figure 1**: conceptual model*

3. Method

3.1 Procedure

The data for this study were gathered by means of a survey and were collected by four researchers who are in the master Communication and Information Sciences at Tilburg University. Before the actual data collection took place, a pretest was conducted at the Beatrixcollege in Tilburg to check for inconsistencies in the questionnaire and to measure how long it would take students to finish the survey. Approximately 23 students participated in the pretest and were asked to provide feedback on the survey. After the pretest, minor adjustments were made to the survey based on the feedback that was provided by the students.

For the actual study, secondary schools were approached and asked whether they could facilitate the data collection. Eventually, the survey was conducted at the following secondary schools in the Netherlands: Beatrixcollege in Tilburg, Gymnasium Bernrode in Heeswijk Dinther, Bisschoppelijk College Broekhin in Reuver, College den Hulster in Venlo, Valuascollege in Venlo and finally, Mollercollege in Waalwijk. In order to collect the data, the researchers visited the schools and conducted the survey in class. The survey was conducted offline, on paper and lasted approximately between 30-40 minutes.

3.2 Material

The survey was created by means of a collaborative effort of four researchers from Tilburg University who shared the same thesis topic. In total, the survey consisted of six parts. The first part covered demographics such as gender, age and level of education. The second part consisted of questions with regard to mobile phone use. For example, participants were asked whether they accessed the Internet via their mobile phone and if yes, how often they engaged in activities such as sending/checking e-mail, checking social media, watching videos and searching for information. Also, participants were asked how many text messages, Whatsapp messages and phone calls they sent and received on an average day. Lastly, the second part consisted of two scales that measured compulsive mobile phone use. The third part of the survey consisted of questions covering impulsivity followed by the fourth part which consisted of questions with regard to mobile phone use and values and norms. The fifth part of the survey addressed questions regarding friendships and mobile phone use. The sixth and final part of the survey consisted of questions with regard to school work and mobile phone use. In this study, only the

first, second and sixth part will be taken into account, since the other parts covered the research conducted by the other three researchers.

3.3 Participants

The survey was conducted among 365 participants, ranging from 12 to 18 years (*M* = 14.81, *SD* = 0.50). Fourty-seven per cent (46.8%) was male (*N* = 171), 53.2% was female (*N* = 194). Table 1 shows the number of respondents for each secondary school where the survey was conducted.

Table 1. *Number of respondents for each secondary school*
N = 365

Secondary school	Number of respondents	Percentage
Beatrixcollege	118	32.3
Gymnasium Bernrode	82	22.5
Bisschoppelijk College Broekhin	2	0.5
College den Hulster	4	1.1
Valuascollege	74	20.3
Mollercollege	85	23.3

With regard to level of education, 44.9% of all participants came from VMBO-T, 15.1% came from HAVO and 24.4% came from VWO/VWO+. Besides that, 7.1% of all participants came from a first-year combination class VMBO-T/Havo and 8.5% came from a first-year combination class Havo/VWO. The largest group of participants were in their third year of study (*N* = 179) followed by students who were in their first year (*N* = 73). Only 1 participant reported being a seventh year student (it may be assumed that this student doubled a year). In this study, there were no participants who were in their fourth year of study (see table 2 and 3).

Table 2. *Level of education*
N = 365

Level of education	Number of respondents	Percentage
VMBO Theoretical	164	44.9
VMBO Theoretical/Havo	26	7.1
Havo	55	15.1
Havo/VWO	31	8.5
VWO	84	23.0
VWO+	5	1.4

Table 3*. Year of study*
N = 365

Year of study	Number of respondents	Percentage
1	73	20.0
2	31	8.5
3	179	49.0
5	37	10.1
6	44	12.1
7	1	0.3

Almost all participants owned a mobile phone: 99.7% (*N* = 364), 0.3% (*N* = 1) did not own a mobile phone. Participants owned their mobile phone on average 4.2 years (*SD* = 1.71). Of all participants, 64.7% had a mobile Internet subscription (*N* = 235), 35.1% did not (*N* = 128). 93.7% of all participants accessed the Internet via their mobile phone (*N* = 341).

Participants reported sending on average 2 SMS messages per day (*SD* = 3.92) and receiving on average 3 SMS messages per day (*SD* = 10.49). For Whatsapp/Ping messages, the quantity of messages was a lot higher. On average, participants sent 180 messages per day (*SD* = 222.44) and received 244 messages per day (*SD* = 291.94). The mobile phone was used the least for phone calls: on average, participants made 1 phone call per day (*SD* = 2.21) and received 2 phone calls (*SD* = 2.80). Lastly, on a 4-point Likert scale, it was asked how often respondents engaged in certain activities on the Internet via their mobile phone (1 = more than 10 times per day, 2 = 5 to 10 times per day, 3 = 1 to 5 times per day, 4 = less than once per day).

3.4 Measures

3.4.1 Checking behavior

To measure checking behavior in class or while doing homework, the Technology Use in the Classroom scale by Gonder (2010) was utilized. For the purpose of this study, the scale was adapted to the use of the mobile phone in class or while doing homework. The scale thus consisted of 14 items that measured how frequently students use their mobile phone in class or while doing homework to engage in activities such as receiving text/mobile messages, updating one's blog, status or social networking space, and accessing the Internet for non-academic purposes. The items were rated on a 5-point Likert scale ranging from (1) never to (5) often. The scale had a Cronbach Alpha of .80. On average, respondents reported an average checking score of 2.71 (*SD* = 0.71). Additionally, it was examined whether groups of variables in this scale

would cluster together since there are several distinct categories of smartphone applications such as communication, media playback, productivity applications, games, mapping applications, and applications which enable the user to surf the web (Falaki et al, 2010). A factor analysis was conducted and revealed that even though some variables clustered together in factors, the factors only explained a small amount of the variance (<60%). Therefore, it was decided to use the scale in its totality.

3.4.2 Self-regulated learning

Self-regulated learning was measured by means of the Self-Regulation Scale derived from the Motivation Strategies for Learning Questionnaire from Pintrich and De Groot (1990). The scale consists of 9 items that were measured by means of a 5-point Likert scale ranging from (1) completely disagree to (5) completely agree. The scale consists of both metacognitive strategy and effort management items. Examples of metacognitive strategy items are: "I ask myself questions to make sure I know the material I have been studying," and "I work on practice exercises and answer end of the chapter questions even when I don't have to". Examples of effort management items are: "When I'm reading I stop once in a while and go over what I have read" and "When work is hard I either give up or study only the easy parts". Recoding took place on items that were negatively worded. In this study, the scale had a Cronbach Alpha of .70. On average, the respondents had a moderate self-regulated learning score of 3.06 (*SD* = 0.71).

3.4.3 Academic motivation

Intrinsic and extrinsic motivation were measured by means of 11 items from The Academic Motivation Scale (AMS) from Vallerand et al. (1992). The original scale consists of 28 items divided into three subscales assessing the three types of motivation: intrinsic motivation, extrinsic motivation and amotivation. For the purpose of this study, only intrinsic and extrinsic motivation were included.

Intrinsic motivation Intrinsic motivation was measured by means of 4 items. Answers could be given on a 5-point Likert scale that ranged from (1) completely disagree to (5) completely agree. Examples of items that measure intrinsic motivation were: "Because I experience pleasure and satisfaction while learning new things" and "For the pleasure I experience while surpassing myself in my studies". The subscale had an adequate Cronbach Alpha of .77. On average, respondents reported to be rather intrinsically motivated (*M* = 3.73, *SD* = 0.67).

Extrinsic motivation Extrinsic motivation was measured by means of 7 items. Answers could be given on a 5-point Likert scale that ranged from (1) completely disagree to (5) completely agree. Examples of items that measure extrinsic motivation were: “In order to get a more prestigious job later on” and “Because eventually it will enable me to enter the job market in a field that I like”. The subscale had a Cronbach Alpha of .77. On average, respondents indicated an extrinsic motivation score of 2.83 (*SD* = 0.82).

3.4.4 Academic distractibility

The scale to measure academic distractibility was constructed by combining the Academic Distractibility Scale from Levine, Waite and Bowman (2007) with two items derived from the Sustained Attention Scale by Wei, Wang and Klausner (2012). Answers could be given on a 5-point Likert scale that ranged from (1) completely disagree to (5) completely agree. Examples of items from the Academic Distractibility Scale were: "I find it easy to focus on required reading work", and "I feel impatient when I am reading a textbook”. Items from the Sustained Attention Scale were: "I can sustain my attention to learning activities throughout the class", and "I pay my full attention to classroom discussions in that class”. Recoding took place on items that were positively formulated in order to adequately measure academic distractibility. The scale had a Cronbach Alpha of .60. The Alpha could not be improved by removing items. Respondents reported an average academic distractibility of 2.88 (*SD* = 0.65).

3.4.5 Perceived cognitive learning

Perceived cognitive learning was measured by means of the Revised Cognitive Learning Indicators Scale by Frymier and Houser (1999). This scale is a revised version of a scale that was originally developed by Frymier, Shulman and Houser (1996). The scale consists of 7 items that are rated on a 5-point Likert scale ranging from (1) completely disagree to (5) completely agree. Examples of items were: “I like to talk about what I am doing in school with friends and family”, “I see connections between the course content and my career goals” and “I think about the course content outside class”. The scale had a Cronbach Alpha of .81. On average, respondents reported a perceived cognitive learning score of 2.56 (*SD* = 0.67).

3.4.6 School performance

To measure school performance, respondents were asked to report their average school grade.

3.4.7 Control variables

Finally, gender (1= male, 2= female), age and level of education (1 = VMBO Theoretisch, 2 = VMBO Theoretisch/HAVO, 3 = HAVO, 4 = HAVO/VWO, 5 = VWO, 6 = VWO+) were used as control variables in the regression analyses.

4. Results

4.1 Descriptives

Our hypotheses were tested by means of linear regression analyses. Before reporting the results of these analyses, however, some general findings with regard to mobile phone checking behavior in class or while doing homework will be presented. Respondents were asked to indicate how often they engage in certain checking behaviors in class or while doing homework on a 5-point scale ranging from (1) never to (5) often. It appeared that respondents checked their mobile phone most often in class of while doing homework to check what time it is (M = 3.93, SD = 1.20). This result was followed by sending (M = 3.42, SD = 1.29) and receiving text/mobile messages (M = 3.26, SD = 1.30), listening to music (M = 3.20, SD = 1.47) and updating one's blog or social network site (M = 2.93, SD = 1.44) (see Table 4). It can be noted that relatively large standard deviations were found for each of these behaviors, which indicates that there was considerable variability in the responses of the respondents.

Table 4. *Checking activities in class or while doing homework*
N = 365

Checking activity	Mean	Standard Deviation
To check what time it is	3.93	1.20
Send messages	3.42	1.29
Receive messages	3.26	1.30
Listen to music or radio	3.20	1.47
Update blog/social network	2.93	1.44
Start new conversation	2.82	2.02
Surf the Internet for purposes unrelated to study	2.65	1.26
Surf the Internet for study material related to the subject matter	2.51	1.26
Play games	2.47	1.36
Read e-mail	2.21	1.28
Surf the Internet for study material **not** related to the subject matter	2.20	1.24
Set reminder/alarm clock	2.14	1.36
Take notes	1.95	1.16

4.2 Correlations

Before conducting multiple regression analyses to test our hypotheses, we first examined how the different variables used in this study correlate (see table 5). Checking of the mobile phone in class or while doing homework was significantly related to self-regulated learning (r =-.309, p<.001), extrinsic motivation (r =-.170, p<.05), distractibility (r =.340, p<.001), average grade (r =-.156, p<.05) and age (r =.209, p<.001). Additionally, it is worth mentioning that there was a weak significant positive correlation between mobile phone checking behavior and level of education (r =.099, p =.059). The above correlations indicate a relationship between checking of the mobile phone on the one hand, and school work implications on the other.

The average grade of the respondents was significantly related to self-regulated learning (r =.342, p<.001), intrinsic motivation (r =.206, p<.001), extrinsic motivation (r =.208, p<.001), distractibility (r =-.203, p<.001), cognitive learning (r =.263, p<.001) and age (r =-173, p<.001). Age is significantly correlated to all variables except for cognitive learning. Level of education is significantly related to intrinsic motivation (r =.164, p<.05), extrinsic motivation (r =-.285, p<.001), cognitive learning (r =.368, p <.001) and age (r =.372, p <.001).

Table 5: *Correlations between the different variables*

	1	2	3	4	5	6	7	8	9	10
1. Self-regulated learning	1									
2. Intrinsic motivation	.41**	1								
3. Extrinsic motivation	.32**	.33**	1							
4. Checking behavior	-.31**	-.10	-.17*	1						
5. Distractibility	-.56**	-.48**	-.28**	.34**	1					
6. Cognitive learning	.44**	.54**	.19**	-.01	-.44**	1				
7. Average grade	.34**	.21**	.21**	-.16*	-.20**	.26**	1			
8. Gender	.05	.07	.08	.07	.01	-.03	.04	1		
9. Age	-.21**	-.11*	-.49**	.21**	.11*	.04	-.17*	-.16*	1	
10. Level of education	-.02	.16*	-.29**	.10	-.07	.37**	-.02	-.02	.37**	1

** Note: $p < .001$

* Note: $p < .05$

4.3 Hypotheses

4.3.1 Mobile phone checking behavior as a predictor of academic distractibility

In order to verify whether mobile phone checking behavior in class or while doing homework would predict academic distractibility (H1), a multiple regression was conducted. Gender, age and level of education explained 3% of the variance of academic distractibility (*F-change* (3, 357) = 3.30, p<.05). Only age and level of education appeared to be significant predictors: older adolescents and those in a 'lower' school track reported greater academic distractibility. Adding mobile phone checking behavior in class or while doing homework in block 2 significantly improved the model (R^2 *change* =.10, *F-change* (1,356) = 42.20, p<.001): the more often a student reported mobile phone checking behavior in class or while doing homework, the higher s/he rated his/her academic distractibility. Self-regulated learning, intrinsic motivation and extrinsic motivation further improved the model (R^2 *change* =.30, *F-change* (3, 353) = 62.01, p<.001). Level of education was no longer a predictor of academic distractibility when controlling for the latter factors. Checking of the mobile phone in class or while doing homework remained a significant, positive predictor (β = .19, t = 4.45, p<.001), meaning that hypothesis 1 was supported (see Table 6).

***Table** 6: Multiple regression analysis for checking of the mobile phone on academic distractibility*

Model	**Predictors**	***β***	***T***	***F***	***ΔR²***	***ΔF***
1	Gender	.04	.82	3.30	.03	3.30*
	Age	.16*	2.84			
	Level of education	-.13*	-2.26			
2	Gender	.01	.13	13.31	.10	42.20***
	Age	.09	1.66			
	Level of education	-.14*	-2.6			
	Checking of the mobile phone	.33***	6.50			
3	Gender	.04	.97	38.10	.30	62.01***
	Age	-.05	-1.10			
	Level of education	-.05	-1.16			
	Checking of the mobile phone	.19***	4.45			

Self-regulated learning	-.38***	-8.14
Intrinsic motivation	-.28***	-5.84
Extrinsic motivation	-.08	-1.57

Note: *p< .05, **p< .005, ***p< .001

4.3.2 Grade average

With regard to grade average, it was assumed that students who check their mobile phone more frequently (H2) and students with a higher academic distractibility (H3a), would have a lower average grade compared to students who check their mobile phone less frequently, and who have low academic distractibility. These hypotheses were investigated by means of a multiple regression analysis. In block 1, gender, age and level of education explained 4% of the variance of grade average (*F-change* (3, 350) = 4.68, p<.005). Only age appeared to be a significant negative predictor of grade average, meaning that the older a student is, the less high their grade average is. Adding checking of the mobile phone in class or while doing homework in block 2 significantly improved the model (R^2 *change* =.02, *F-change* (1,349) = 5.86, p<.05). Checking of the mobile phone in class or while doing homework proved to be a significant, negative predictor of grade average (β = -.13, t = -2.42, p< .05; H2 supported). In block 3, academic distractibility was added which significantly improved the model (*F-change* (1,348) = 7.64, p<.01). Academic distractibility itself appeared to be a significant, negative predictor of grade average (β = -.15, t = -2.76, p< .01). This means that the more easily a student is academically distracted, the lower his/her average grade is. Thus, hypothesis 3a was supported (see Table 7). When controlling for academic distractibility, checking of the mobile phone in class or while doing homework no longer appeared to be a significant predictor of grade average. This means that the second hypothesis (H2), which presumed that students who check their mobile phone more frequently have lower grades than students who check their mobile phone less frequently, could no longer be supported when the role of academic distractibility is taken into account. These findings thus suggest that academic distractibility fully mediates the relationship between mobile phone checking behavior and average grade (H3b).

***Table** 7: Multiple regression analysis for checking of the mobile phone and academic distractibility on grade average*

Model	**Predictors**	***β***	***T***	***F***	***ΔR²***	***ΔF***
1	Gender	.01	.12	4.68	.04	4.68**
	Age	-.21***	-3.66			
	Level of education	.10	1.75			
2	Gender	.02	.40	5.03	.02	5.86*
	Age	-.18**	-3.11			
	Level of education	.10	1.81			
	Checking of the mobile phone	-.13*	-2.42			
3	Gender	.36	.36	5.63	.02	7.64*
	Age	-.17*	-2.90			
	Level of education	.08	1.40			
	Checking of the mobile phone	-.08	-1.41			
	Academic distractibility	-.15**	-2.76			

Note: *p< .05, **p< .005, ***p< .001

4.3.3 Perceived cognitive learning

The fourth hypothesis stated that students who check their mobile phone more frequently would score lower on perceived cognitive learning than students who check their mobile phone less frequently. A multiple regression analysis was carried out with perceived cognitive learning as the dependent variable. Gender, age and level of education explained 15% of the variance in perceived cognitive learning scores (*F-change* (3, 357) = 20.27, p<.001). Only age and level of education appeared to be significant predictors of perceived cognitive learning: older and more highly educated adolescents reported a lower level of perceived cognitive learning. Adding mobile phone checking behavior in class or while doing homework in block 2 did not significantly improve the model (*R² change* =.00, *F-change* (3, 356) = .23, p= .63). In block 3, self-regulated learning, intrinsic motivation and extrinsic motivation were added to the model. This led to a significant improvement of the model (*R² change* =.32, *F-change* (3, 353) = 71.07, p>.001). Self-regulated learning (*β* = .32, *t* = 6.97, *p*< .01), intrinsic motivation (*β* = .34, *t* = 7.57, *p*<.001) and extrinsic motivation (*β* = .12, *t* = 2.40, *p*<.05) were all three positive significant predictors of perceived cognitive learning. Interestingly, when controlling for self-regulated

learning, intrinsic and extrinsic motivation, mobile phone checking behavior appeared to be a significant, positive predictor of perceived cognitive learning (β = .11, t = 2.51, p<.05): the more a student checks the mobile phone in class or while doing homework, the higher his/her perceived cognitive learning is. Thus, this means that the fourth hypothesis was not supported (see Table 8).

***Table** 8: Multiple regression analysis for checking of the mobile phone on perceived cognitive learning*

Model	**Predictors**	***β***	***T***	***F***	***ΔR²***	***ΔF***
1	Gender	-.04	-.89	20.27	.15	20.27***
	Age	-.12*	-2.18			
	Level of education	.41***	7.71			
2	Gender	-.04	-.82	15.23	.00	.23
	Age	-.11*	-2.04			
	Level of education	.41***	7.72			
	Checking of the mobile phone	-.02	-.48			
3	Gender	-.07	-1.92	44.30	.32	71.07***
	Age	.05	1.05			
	Level of education	.32***	7.24			
	Checking of the mobile phone	.11*	2.51			
	Self-regulated learning	.32***	6.97			
	Intrinsic motivation	.34***	7.57			
	Extrinsic motivation	.12*	2.40			

Note: *p< .05, **p< .005, ***p< .001

4.3.4 Self-regulated learning and academic motivation as predictors of checking behavior

The fifth hypothesis stated that students who are better at self-regulated learning would be less inclined to check the mobile phone in class or while doing homework than students who are not good at self-regulated learning. Hypothesis 6a and 6b presumed that the more intrinsically motivated (H6a) and extrinsically motivated (H6b) students are, the less they would check their mobile phone in class or while doing homework compared to students who are less motivated. These three hypotheses were tested by means of a multiple regression analysis with gender, age and level of education as control variables. The latter control variables explained 6% of the

variance in mobile phone checking behavior (*F-change* (3,357) = 7.08, p<.001). Only age (β = .22, t = 3.82, p<.001) and gender (β = .11, t = 2.16, p<.05) were significant predictors, with older and female students showing a greater tendency to check during homework/in class. Adding self-regulated learning and intrinsic and extrinsic academic motivation in block 2 significantly improved the model (R^2 *change* =.08, *F-change* (3,354) = 10.43, p<.001). The results revealed that self-regulated learning was a significant, negative predictor of checking of the mobile phone (β = -.29, t = -5,23, p<.001) (see table 6): students who claimed to be better at self-regulated learning, reported being less inclined to check the mobile phone in class or while doing homework (H5 supported).

Intrinsic motivation (β = .03, t = .50, p = .62) and extrinsic motivation (β = -.01, t = -.20, p = .84) did not predict mobile phone checking behavior (H6a and H6b not supported). However, when looking at correlations, extrinsic motivation was found to relate significantly to checking behavior (r = -.17, p<.05). Hypothesis 6c presumed that the relationship between intrinsic motivation and checking behavior would be stronger than the relationship between extrinsic motivation and checking behavior. In the multiple regression analyses, neither types of motivation significantly predicted checking behavior. Thus, hypothesis 6c was not supported (see Table 9). However, it should be mentioned that in the correlations table, as stated before, only extrinsic motivation was found to relate significantly to checking behavior (r = -.17, p <.05).

Interesting to mention is the strong relationship between self-regulated learning and intrinsic (r = .41, p< .01) and extrinsic motivation (r = .32, p<.01). In that regard, it can be stated that self-regulated learning might possibly be mediating the relationship between academic motivation and mobile phone checking behavior.

***Table** 9: Multiple regression analysis for self-regulated learning and academic motivation on checking of the mobile phone*

Model	**Predictors**	***β***	***T***	***F***	***ΔR²***	***ΔF***
1	Gender	.11*	2.16	7.08	.06	7.08***
	Age	.22***	3.82			
	Level of education	.03	.47			
2	Gender	.12*	2.30	9.04	.08	10.43***
	Age	.15*	2.44			

	Level of education	.04	.66
	Self-regulated learning	-.29***	-5.23
	Intrinsic motivation	.03	.50
	Extrinsic motivation	-.01	-.20

Note: *p< .05, **p< .005, ***p< .001

5. Discussion

This study investigated secondary school students' mobile phone checking behavior in class or while doing homework. The purpose of the study was twofold. First, we examined the relationship between mobile phone checking behavior in class or while doing homework on the one hand, and three indicators of school performance (academic distractibility, grade average and perceived cognitive learning) on the other. Second, we examined whether two antecedents, namely self-regulated learning and academic motivation, predicted how frequently students check their mobile phone in class or while doing homework.

5.1 Checking of the mobile phone and school performance.

5.1.1 Academic distractibility and grade average

The first hypothesis stated that students who check their mobile phone more frequently in class or while doing homework have a higher academic distractibility than students who check their mobile phone less frequently. This hypothesis was confirmed by this study. Like other types of cyber-media use, the checking of the mobile phone thus appears to form a distraction while performing academic tasks and may thus help create a "cognitive style based on short, superficial multitasking rather than in-depth focus" (p.565) (Levine, Waite & Bowman, 2007). This finding is in contrast to Oulasvirta et al. (2012) who state that checking habits, because they are executed automatically, can be regarded as cognitively inexpensive behaviors.

With regard to grade average, it was assumed that students who check their mobile phone more frequently (H2) and students with a higher academic distractibility (H3a) would have a lower average grade compared to students who check their phone less frequently, and who have low academic distractibility. The results indicate that even though at first, checking behavior in class or while doing homework appeared to be a significant negative predictor of grade average, this was no longer the case when controlling for academic distractibility. Meaning that these findings suggest that academic distractibility fully mediates the relationship between mobile phone checking behavior and average grade (H3b). These findings correspond with research by Levine et al. (2007) who state that the direct interference with the studying process can be considered as a 'state' of academic distraction that negatively affects the learning process.

Although research on this topic is still lacking, concerns are rising in (popular) literature about the development of this new "cognitive style based on short, superficial multitasking rather than in-depth focus" (p.565) (Levine, Waite & Bowman, 2007). Our findings with regard to multitasking, academic distractibility and school performance can be understood by using theory about cognitive processes in the human brain. According to Carr (2012), short, superficial multitasking as a result of cyber-media use causes a reduction of the use of the working memory of the brain. The short-term memory in the brain however, is overwhelmed by information, which results in information not reaching the long-term memory of the brain and thus, influencing learning processes. This is called cognitive overload by Mayer and Moreno (2003): the processing demands evoked by the learning task may exceed the processing capacity of the cognitive system. What happens is that, when checking the mobile phone during learning activities, the obtained information is competing with information obtained from engaging in learning activities. Because the working memory is limited, not all information can be held, which is also known as the information processing bottleneck (Junco & Cotton, 2012).

In addition, the development of this cognitive style is referred to as "continuous partial attention" by Linda Stone (http://www.lindastone.net). This is from multitasking in a way that - with multitasking - we still try to get as many things done as possible, whereas with continuous partial attention, we pay partial attention, continuously because we do not want to miss anything. The latter is also referred to as fear of missing out (Przybylski, Murayama, DeHaan, & Gladwell, 2013), which might, in the light of the current study, be particular applicable for teenagers, because keeping in touch with parents and friends is mentioned by teenagers as the main reason for owning a mobile phone (Stichting Mijn Kind Online, 2012).

Levine, Waite & Bowman (2007) speculate that brain development of teenagers may be affected by engaging in multitasking activities such as IMing in such a way that, in time, their brains may adapt to these cognitive styles of short, superficial multitasking. This would then mean that traditional teaching methods (e.g., reading long text books and sustaining attention for a long time) are outdated in that they do not fit contemporary students' optimal means of learning. It is suggested for future research to further investigate the current developments with regard to cyber-media use, distractibility and brain functioning and what the implications might be for learning activities in and outside the classroom.

5.1.2 Perceived cognitive learning

We expected that students who check their mobile phone more often would score lower on cognitive learning than students who check their mobile phone less often (H4). No support was found for this hypothesis. On the contrary, mobile phone checking behavior positively predicted perceived cognitive learning: the more a student checks the mobile phone in class or while doing homework, the higher his/her perceived cognitive learning was. A tentative explanation may be that students who check the mobile phone more frequently also have tighter friendships, and therefore enjoy going to school more and value school more because that is where they meet their friends. For example, in the scale measuring perceived cognitive learning, it was asked how often a participant talks to family and friends about what he/she does in school.

5.2 Self-regulated learning and academic motivation as antecedents of checking behavior

The second aim of this study was to investigate to what extent two antecedents, self-regulated learning and academic motivation, predicted students' checking behavior of the mobile phone in class or while doing homework. Self-regulation of cognition and behavior is an important aspect of learning and school performance in the class room (Pintrich & De Groot, 1990). Students, who are better at self-regulated learning, are more capable to manage and control their effort on classroom academic tasks, for example, by blocking out distracters in order to retain their cognitive involvement. Hence, it was expected that students who are better at self-regulated learning would be less inclined to check their mobile phone in class or while doing homework (H5). Our findings support this hypothesis, and thus suggest that educational policies could focus on increasing self-regulated learning. This could result in students being better at regulating their mobile phone usage and checking behavior in class or while doing homework, and thus reduce the implications this could have for school performance.

With regard to academic motivation, we expected that more intrinsically (H6a) and more extrinsically motivated students (H6b) would check their mobile phone less frequently in class or while doing homework. Lastly, it was expected that the relationship between intrinsic motivation and checking behavior would be stronger than the relationship between extrinsic motivation and checking behavior (H2c). However, it was found that academic motivation, whether intrinsic or extrinsic, did not significantly predict mobile phone checking behavior in class or while doing homework. This finding can possibly be explained by that academic motivation does not

necessarily contradict with checking one's mobile phone: a student can extensively check the mobile phone in class or while doing homework and still be academically motivated (intrinsically and/or extrinsically). Besides that, the findings can possible be explained by the results that show that self-regulated learning mediates the relationship between academic motivation and mobile phone checking behavior.

5.3 Socio-demographic factors

In this study, gender, age and level of education were included as control variables in the multiple regression analyses. Gender and age were both significant positive predictors of checking of the mobile phone in class or while doing homework. It appeared that older students check the mobile phone more frequently in class or while doing homework. This is in contrast to studies from Bianchi and Philips (2005) and Hassanzadeh and Rezaei (2011) who stated that younger people use the mobile phone more. However, these studies also focus on age groups of eighteen years and older. For future research it might be interesting to examine differences in age and mobile phone use within the group of teenagers. The results in the current study also indicate that girls check the mobile phone more often than boys. In this research, it was found that the mobile phone was second most used for sending and receiving messages (after checking what time it is) which corresponds with using the mobile phone for social reasons. From that perspective, the finding that girls check their mobile phone more than boys seems in line with research by Bianchi and Philips (2005) who found that females are more likely to use their mobile phone for social reasons and research by Hassanzadeh and Rezaei (2011) who found that girls use the mobile phone more for personal communication in comparison to boys who use the mobile phone more for instrumental purposes such as coordination of everyday life.

Age turned out to be a significant negative predictor of grade average. This means that the older a student is, the lower his/her average grade is. This finding could be explained by the fact that as children move up the educational program, their beliefs and behaviors about school become less positive, which is closely related to a decrease in intrinsic motivation (Lepper, Corpus & Iyengar, 2005; Anderman & Maehr, 1994). Another possible explanation that stems from Lepper, Corpus and Iyengar (2005) is that rewards from teachers are increasingly less valued by older children because they more often value their peer group instead. This could have an effect on their average grade and/or their willingness to work hard for good grades.

Lastly, level of education appeared to be a significant positive predictor of perceived cognitive learning: the higher the level of education, the higher the reported perceived cognitive learning was. It may be assumed that students in the higher levels of education are more interested in school and therefore are better at recalling knowledge and the development of intellectual abilities and skills (Bloom, Engelhart, Furst, Hill & Krathwohl, 1956). Also, according to Anderman and Maehr (1994), motivational problems could occur in the case of students who "may not be able to compete favorably for grades and other types of academic recognition" (p. 291), such as students in the lower levels of education. Their performance level in school makes them believe that they do not possess the capacities that are important in a scholarly and academic context (Anderman & Maehr, 1994) which might possibly affect their reported perceived cognitive learning.

5.4 Limitations

Certain limitations to this study can be identified. First, it is worth mentioning that the scale to measure academic distractibility had a Cronbach Alpha of .60., which does not match the norm of .70 (Field, 2009). It is recommended for future research to either expand the number of items on the scale, or to use multiple measures of academic distractibility in order to obtain a more reliable measurement instrument.

A second limitation concerns the research method. Our results may have been influenced by social desirability (Nederhof, 1985). This occurs when respondents either give answers of which he or she actually believes them to be true for him or herself, even though when this is not the case or when respondents deliberately give certain answers to create a different image of him or herself to avoid a certain evaluation (Nederhof, 1985). In the current study, social desirability is especially relevant when measuring school performance, where respondents were asked to score their average school grade. It appeared that many students found it difficult to do so, either because they did not know their average grade or it might have occurred that compared to their class mates, they did not want to score extremely high or low. For future research, it is advisable to collect average grades through official school records. It is needless to say that privacy matters should be taken into consideration.

It appeared in this study that updating one's blog or social network site is the sixth most engaged in activity on the mobile phone. What is left out of consideration here is simply checking social networking sites for updates posted by 'friends' in their network. Also, no

distinction is made between checking of the mobile phone in class and while doing homework, which can be regarded as two distinct learning activities. These distinctions should be taken into account in future research on this topic.

Lastly, it should also be taken into account that the frequency of checking behavior might not be a watertight representation of reality. Many students found it hard to estimate how often they engage in a certain checking behavior in class or while doing homework. Future research could possibly avoid this problem by using software modified phones that can count the activities that are performed on the mobile phone and thus, how often a participant checks his/her mobile phone and in which specific checking activity the participants engage in.

5.5 Implications and suggestions for future research

There are certain implications that can be attributed to this study, even though further research is required. With regard to theoretical implications, it can be stated that this study is one of the first to examine mobile phone checking behavior in relation to school work and can form a foundation for further research with regard to mobile phone use since research on checking behavior in particular is lacking. This study offers new insights in how mobile phone checking behavior influences academic distractibility and in turn, school performance. The finding that mobile phone checking behavior, through academic distractibility is a significant negative predictor of grade average can be utilized to in order to demonstrate that there are indeed negative consequences of mobile phone use, hereby reinforcing research by Walsh and White (2007) and Wei et al. (2012).

The findings of our study also have practical implications. First, the outcomes of this study can be utilized in the development of educational policies with regard to mobile phone use in the classroom. At this point, schools often experience difficulties with regard to in-class phone policies, due to the relatively new character of the mobile phone and the lack of research. In this study, checking of the mobile phone appeared to be a negative predictor of academic distractibility which in turn, was a negative predictor of grade average. Consequently, banning the mobile phone during learning activities may seem appealing to ‘solve’ this issue. However, Rosen et al. (2013) reported that the internal distraction that may result from a ban on the mobile phone, may be equally detrimental to students’ attention. They therefore advise to install ‘one minute technology breaks’ after 15 minutes of learning, so as to quickly appease the ‘habit’, and

to have students renew their attention after this short break. Future research on what interventions and policies are most beneficial, however, is required. The outcomes of the current study indicate, however, that it is advisable for teachers and educational policy makers to delve into this topic.

In the current study, we examined a cluster of mobile media uses. Future research, however, may focus on what particular uses are most strongly associated with distractibility. Interesting to mention in that regard, is that mobile messaging (via for example Whatsapp or Ping), which possesses the same features as instant messaging (IM) via the computer, was the second most engaged-in checking activity (after checking what time it is). Hence, from a communicative point of view, it might be very interesting to determine how the specific affordances of these applications (e.g., between synchronous and asynchronous) appear to contribute to academic distractibility.

Another suggestion for future research is to include teachers' point of view on the topic. For example, does the use of the mobile phone in class by students affect their teaching and/or do they get distracted themselves by students in class who are using the mobile phone during lessons? Also, what is the attitude of teachers regarding mobile phone use in class? This could possibly be measured by means of in-depth interviews with secondary school teachers.

Finally, future research may address a more brain psychical view on the subject. According to Levine, Waite and Bowman (2007), brain development of children and teenagers may be affected by cyber-media use and multitasking in a way that it changes attention focus and cognitive processing. Could it be that our brains adapt to multitasking behavior? Should traditional learning methods be revised in order for them to better match the ways in which teenagers process information? A longitudinal experimental study could be conducted to examine this.

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Appendix – The survey

Datum:

School:

Klas:

Nummer:

In verband met het afstuderen aan Tilburg University doen wij een onderzoek naar jongeren en hun mobiele telefoon. Met deze vragenlijst willen wij graag meer te weten komen over jongeren en hun mobiele telefoongebruik. Sommige vragen zijn persoonlijk, maar alles wat je invult is **volledig vertrouwelijk**. Dit betekent dat **niemand thuis, op school of onder je vrienden ooit te weten zal komen wat je op deze vragen antwoordt.** Daarnaast gebruikt alleen Tilburg University je antwoorden waardoor niemand weet welke antwoorden jij hebt gegeven. Antwoord dus gerust zo eerlijk mogelijk.

Het invullen van de vragenlijst duurt ongeveer 20 minuten. Lees elke vraag goed door voor je de vraag beantwoordt, maar denk niet te lang over een vraag na. Onthoud dat er geen goede of foute antwoorden zijn, want het gaat om jouw mening. Vul in wat het eerste in je opkomt en wees eerlijk. Alvast bedankt!

Deel 1

We beginnen met een paar vragen over jou

1. **Ben je een jongen of een meisje?** ☐ jongen ☐ meisje

2. **Wat is je leeftijd?** …….. jaar

3. **In welk studiejaar zit je?** ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

4. **Wat is je onderwijsniveau?** ☐ VMBO Theoretisch ☐ VMBO Theoretisch/HAVO ☐ HAVO ☐ Havo/VWO ☐ VWO ☐ VWO+

5. **Heb je een eigen mobiele telefoon?**

   ☐ Ja

   ☐ Nee

➔ **Als je geen mobiele telefoon hebt mag je de vragenlijst inleveren**

6. Hoe lang heb je al een mobiele telefoon? …….. jaar

Deel 2

Je krijgt nu een aantal vragen over je mobiele telefoon en het gebruik hiervan.

7. Heb jij een mobiel abonnement? ☐ ja ☐ nee

8. Ga jij soms via je mobiele telefoon op het internet? ☐ ja ☐ nee

Indien JA: Hoe vaak doe je de volgende dingen op internet via je mobiel?

	Facebook/ Hyves	E-mailen	Filmpjes bekijken	Informatie opzoeken
Meer dan 10 keer per dag	☐	☐	☐	☐
5 tot 10 keer per dag	☐	☐	☐	☐
1 tot 5 keer per dag	☐	☐	☐	☐
Minder dan 1 keer per dag	☐	☐	☐	☐

9. Hoeveel sms'jes verstuur en ontvang jij op een gemiddelde dag?

Ik verstuur ……. sms'jes op een gemiddelde dag en

Ik ontvang …….. sms'jes op een gemiddelde dag.

10. Hoeveel WhatsApp'jes verstuur en ontvang jij op een gemiddelde dag?

Ik verstuur ……. WhatsApp'jes op een gemiddelde dag en

Ik ontvang …….. WhatsApp'jes op een gemiddelde dag.

11. Hoeveel telefoontjes pleeg en ontvang jij op een gemiddelde dag?

Ik bel ……. keer op een gemiddelde dag en

Ik word …….. keer gebeld op een gemiddelde dag.

12. Hieronder zie je dertien stellingen over mobiele telefoongebruik. Geef door een vinkje in de hokjes te plaatsen aan in hoeverre de stelling op jou van toepassing is.

	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
Wanneer ik geen gebruik van mijn mobiel kan maken voel ik me verbitterd	☐	☐	☐	☐
Ik heb wel eens geprobeerd om minder gebruik te maken van mijn mobiel, maar dit is mislukt	☐	☐	☐	☐
Ik heb mijn mobiel de hele dag bij me	☐	☐	☐	☐
Ik gebruik mijn mobiel zelfs als ik met anderen eet/praat	☐	☐	☐	☐
Wanneer de batterij van mijn mobiel leeg is ben ik nerveus	☐	☐	☐	☐
Ik gebruik mijn mobiel op ieder moment dat het kan	☐	☐	☐	☐
Ik zeg wel vaker tegen mezelf als ik mijn mobiel gebruikt, *"nog even"*	☐	☐	☐	☐
Wanneer ik geen gebruik van mijn mobiel maak, voel ik me geïrriteerd	☐	☐	☐	☐
Ik bekijk regelmatig mijn gemiste oproepen en sms'jes/WhatsApp'jes	☐	☐	☐	☐
Ik heb zo nu en dan het idee dat mijn mobiel oproepen/sms'jes/WhatsApp'jes ontvangt terwijl dit niet het geval is	☐	☐	☐	☐
Ik antwoord altijd direct op gemiste oproepen en sms'jes/WhatsApp'jes	☐	☐	☐	☐
Mijn mobiel is nooit de hele dag uitgeschakeld	☐	☐	☐	☐
Wanneer ik geen gebruik kan maken van mijn mobiel voel ik me gespannen	☐	☐	☐	☐

13. Hieronder staan verschillende stellingen. Geef door een vinkje in de hokjes te plaatsen aan in hoeverre de stelling op jou van toepassing is.

Het checken van mijn mobiel is iets…

	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
Dat ik automatisch doe	☐	☐	☐	☐
Dat ik doe zonder het me bewust te herinneren	☐	☐	☐	☐
Dat ik doe zonder erbij na te denken	☐	☐	☐	☐
Waar ik mee bezig ben zonder dat ik het door heb	☐	☐	☐	☐
Waar ik niet over na hoef te denken	☐	☐	☐	☐
Dat ik doe zonder me voor te nemen om het te doen	☐	☐	☐	☐
Dat me geen enkele moeite kost om te doen	☐	☐	☐	☐
Dat ik moeilijk vind om niet te doen	☐	☐	☐	☐
Dat typisch “mij” is	☐	☐	☐	☐
Dat bij mijn dagelijkse routine hoort	☐	☐	☐	☐

Deel 3

14. Hieronder staan verschillende stellingen over jezelf. Geef door een vinkje in de hokjes te plaatsen aan in hoeverre de stelling op jou van toepassing is.

	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
Ik ben productief en krijg altijd mijn taak af	☐	☐	☐	☐
Wanneer ik me slecht voel dan kan ik soms niet ophouden met wat ik aan het doen ben ook al voel ik me daar juist slechter door	☐	☐	☐	☐
Als ik boos ben zeg ik vaak dingen waar ik later spijt van heb	☐	☐	☐	☐
Ik heb moeite om weerstand te bieden aan mijn verlangens (bijv. naar eten, sigaretten etc.)	☐	☐	☐	☐
Soms doe ik dingen zonder na te denken waar ik later spijt van krijg	☐	☐	☐	☐
Ik ben in staat mijn gevoelens onder controle te houden	☐	☐	☐	☐
Ik beschik over voldoende discipline om mijn taken op tijd af te krijgen	☐	☐	☐	☐
Als ik ergens aan begin dan maak ik dit ook af	☐	☐	☐	☐
Soms moet ik zoveel kleine dingen doen dat ik ze uiteindelijk allemaal niet doe	☐	☐	☐	☐
Ik doe vaak dingen zonder er bij na te denken	☐	☐	☐	☐
Ik kan me makkelijk concentreren	☐	☐	☐	☐
Ik vind het moeilijk om niet volgens mijn gevoel te handelen	☐	☐	☐	☐
Ik heb de neiging gemakkelijk op te geven	☐	☐	☐	☐
Ik beland vaak in situaties waar ik later spijt van krijg	☐	☐	☐	☐
Om mezelf een beter gevoel te geven, wanneer ik me slecht voel, doe ik vaak dingen waar ik later spijt van krijg	☐	☐	☐	☐
Als ik me afgewezen voel, zeg ik vaak dingen waar ik later spijt van krijg	☐	☐	☐	☐
Als ik me ongelukkig voel, doe ik vaak dingen zonder na te denken	☐	☐	☐	☐
Ik hou er niet van als ik mijn taak niet af heb	☐	☐	☐	☐
Als ik ergens aan begonnen ben, haat ik het om hiermee te stoppen	☐	☐	☐	☐

Als ik aan een taak begin krijg ik het bijna altijd af	☐	☐	☐	☐
Als ik me ongelukkig voel maak ik dit gevoel vaak erger door dingen te doen zonder er bij na te denken	☐	☐	☐	☐
Ik maak af waar ik aan begonnen ben	☐	☐	☐	☐

Deel 4

15. Hieronder staan verschillende situaties over het gebruik van je mobiele telefoon. Geef door een vinkje in de hokjes te plaatsen aan in hoeverre de stelling op jou van toepassing is.

Ik vind het vervelend als een vriend of vriendin tijdens een gesprek met mij…

	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
De telefoon opneemt en een gesprek voert.	☐	☐	☐	☐
Een ontvangen sms- of Whatsapp-bericht leest.	☐	☐	☐	☐
Reageert op een sms- of Whatsapp-bericht.	☐	☐	☐	☐
Op het scherm van de mobiele telefoon kijkt.	☐	☐	☐	☐
De mobiele telefoon zichtbaar op tafel ligt.	☐	☐	☐	☐

Wanneer ik op stap ben met vrienden vind ik het vervelend als een vriend of vriendin..,

	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
De telefoon opneemt en een gesprek voert.	☐	☐	☐	☐
Een ontvangen sms- of Whatsapp-bericht leest.	☐	☐	☐	☐
Reageert op een sms- of Whatsapp-bericht.	☐	☐	☐	☐
Op het scherm van de mobiele telefoon kijkt.	☐	☐	☐	☐
De mobiele telefoon zichtbaar op tafel ligt.	☐	☐	☐	☐

Ik vind het onbeleefd als andere mensen bellen met een mobiele telefoon…

	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
Tijdens een theatervoorstelling.	☐	☐	☐	☐
Tijdens het kijken van een film in een bioscoop.	☐	☐	☐	☐
Tijdens een les op school.	☐	☐	☐	☐
Tijdens het wandelen op straat.	☐	☐	☐	☐
Tijdens een rit met het openbaar vervoer (bus of trein)	☐	☐	☐	☐
Tijdens een etentje in een restaurant.	☐	☐	☐	☐
Tijdens een etentje bij een vriend of vriendin thuis.	☐	☐	☐	☐
Aan de kassa van een supermarkt.	☐	☐	☐	☐
Als iemand de weg aan mij vraagt.	☐	☐	☐	☐
Tijdens een gesprek met mijn vader of moeder.	☐	☐	☐	☐
Als je een vriend of vriendin tegenkomt op straat.	☐	☐	☐	☐

Ik vind het onbeleefd als andere mensen reageren op een sms- of Whatsapp-bericht…

	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
Tijdens een theatervoorstelling.	☐	☐	☐	☐
Tijdens het kijken van een film in een bioscoop.	☐	☐	☐	☐
Tijdens een les op school.	☐	☐	☐	☐
Tijdens het wandelen op straat.	☐	☐	☐	☐
Tijdens een rit met het openbaar vervoer (bus of trein)	☐	☐	☐	☐
Tijdens een etentje in een restaurant.	☐	☐	☐	☐
Tijdens een etentje bij een vriend of vriendin thuis.	☐	☐	☐	☐
Aan de kassa van een supermarkt.	☐	☐	☐	☐
Als iemand de weg aan mij vraagt.	☐	☐	☐	☐

Tijdens een gesprek met mijn vader of moeder.	☐	☐	☐	☐
Als je een vriend of vriendin tegenkomt op straat.	☐	☐	☐	☐

Andere mensen in mijn omgeving (zoals jouw ouders, leraar/lerares of de trainer van je sportteam) vinden het onbeleefd als ik bel met een mobiele telefoon...

	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
Tijdens een theatervoorstelling.	☐	☐	☐	☐
Tijdens het kijken van een film in een bioscoop.	☐	☐	☐	☐
Tijdens een les op school.	☐	☐	☐	☐
Tijdens het wandelen op straat.	☐	☐	☐	☐
Tijdens een rit met het openbaar vervoer (bus of trein)	☐	☐	☐	☐
Tijdens een etentje in een restaurant.	☐	☐	☐	☐
Tijdens een etentje bij een vriend of vriendin thuis.	☐	☐	☐	☐
Aan de kassa van een supermarkt.	☐	☐	☐	☐
Als iemand de weg aan mij vraagt.	☐	☐	☐	☐
Tijdens een gesprek met mijn vader of moeder.	☐	☐	☐	☐
Als je een vriend of vriendin tegenkomt op straat.	☐	☐	☐	☐

Andere mensen in mijn omgeving (zoals jouw ouders, leraar/lerares of de trainer van je sportteam) vinden het onbeleefd als ik reageer op een sms- of WhatsApp-bericht…

	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
Tijdens een theatervoorstelling.	☐	☐	☐	☐
Tijdens het kijken van een film in een bioscoop.	☐	☐	☐	☐
Tijdens een les op school.	☐	☐	☐	☐
Tijdens het wandelen op straat.	☐	☐	☐	☐

Tijdens een rit met het openbaar vervoer (bus of trein)	☐	☐	☐	☐
Tijdens een etentje in een restaurant.	☐	☐	☐	☐
Tijdens een etentje bij een vriend of vriendin thuis.	☐	☐	☐	☐
Aan de kassa van een supermarkt.	☐	☐	☐	☐
Als iemand de weg aan mij vraagt.	☐	☐	☐	☐
Tijdens een gesprek met mijn vader of moeder.	☐	☐	☐	☐
Als je een vriend of vriendin tegenkomt op straat.	☐	☐	☐	☐

Deel 5

16. Hieronder staan verschillende stellingen over je vriendschappen en mobiel telefoongebruik. Geef door een vinkje in de hokjes te plaatsen aan in hoeverre de stelling op jou van toepassing is. Probeer niet te lang over de vragen na te denken en vink het hokje aan dat voor jou gevoel het beste bij jou past.

	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
Ik ben blij met de vriendschappen die ik heb	☐	☐	☐	☐
Ik vind dat ik vriendschappen van hoge kwaliteit heb	☐	☐	☐	☐
Ik geef veel om mijn vrienden	☐	☐	☐	☐
Ik ben tevreden over de vriendschappen die ik heb	☐	☐	☐	☐
Ik heb het gevoel dat ik sterke vriendschappen heb	☐	☐	☐	☐

	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
Als ik bij mijn vrienden ben maak ik gebruik van mijn mobiele telefoon	☐	☐	☐	☐
Ik ben de vaak de eerste die zijn mobiele telefoon gebruikt als ik met vrienden samen ben	☐	☐	☐	☐
Wanneer mijn vrienden en ik samen zijn ben ik meer met mijn mobiele telefoon bezig dan mijn vrienden	☐	☐	☐	☐

Als mijn vrienden bij mij zijn maken ze gebruik van hun mobiele telefoon	☐	☐	☐	☐
Mijn vrienden zijn vaak de eerste die hun telefoon gebruiken wanneer we samen zijn	☐	☐	☐	☐
Wanneer we samen zijn maken mijn vrienden vaker gebruik van hun telefoon dan ik	☐	☐	☐	☐

17. Deze vragen gaan in op de wijze waarop je jouw vriendschappen ziet. Vink het hokje aan dat van toepassing is op jou en de vriend(inn)en die het eerste in je gedachten opkomen.

Mijn vriend(inn)en...	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
en ik spenderen veel tijd samen	☐	☐	☐	☐
geven me advies wanneer ik dat nodig heb	☐	☐	☐	☐
en ik ondernemen samen dingen	☐	☐	☐	☐
en ik helpen elkaar	☐	☐	☐	☐
en ik blijven vriend(inn)en, ook als we ruzie hebben	☐	☐	☐	☐
zouden me helpen als ik word gepest	☐	☐	☐	☐
en ik hechten evenveel waarde aan onze vriendschap	☐	☐	☐	☐

Mijn vriend(inn)en…	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
zouden door me gemist worden als ze zouden verhuizen	☐	☐	☐	☐
zijn personen op wie ik kan vertrouwen en bouwen	☐	☐	☐	☐
helpen me wanneer ik ergens moeite mee heb	☐	☐	☐	☐
lijken soms minder om de vriendschap te geven dan ik	☐	☐	☐	☐
zijn blij voor me als ik iets goed heb gedaan	☐	☐	☐	☐
en ik zullen, denk ik, altijd vrienden blijven, wat er ook gebeurd	☐	☐	☐	☐
doen wel eens iets voor me	☐	☐	☐	☐
zorgen ervoor dat ik me speciaal voel	☐	☐	☐	☐
kunnen me kwetsen wanneer we een discussie hebben	☐	☐	☐	☐

worden door mij gemist wanneer ik ze een tijdje niet zie	☐	☐	☐	☐
nemen het voor me op als iemand me belachelijk maakt	☐	☐	☐	☐
en ik hebben wel eens ruzie	☐	☐	☐	☐
zouden het voor me opnemen als iemand me in de problemen zou brengen	☐	☐	☐	☐
en ik spenderen de vrije tijd die we op school hebben meestal samen (pauze, tussenuren)	☐	☐	☐	☐
zijn degenen waarmee ik kan praten als ik thuis of op school een probleem heb	☐	☐	☐	☐
kunnen me irriteren ondanks dat ik ze vraag of ze ermee op willen houden	☐	☐	☐	☐
Mijn vriend(inn)en…	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
zouden me geld lenen als ik geld nodig heb	☐	☐	☐	☐
bedenken vaker leuke dingen om samen te doen dan ik	☐	☐	☐	☐
blijven boos op me na een ruzie, zelfs nadat ik sorry heb gezegd	☐	☐	☐	☐
helpen me met moeilijke dingen of met dingen die door meerdere personen gedaan moeten worden	☐	☐	☐	☐
en ik gaan in het weekend en na school bij elkaar thuis langs	☐	☐	☐	☐
en ik zitten soms te praten over school, sport of andere dingen die we leuk vinden	☐	☐	☐	☐
zouden me helpen het antwoord op een vraag te krijgen als ik het zelf niet weet	☐	☐	☐	☐
zouden mijn vriend(inn)en blijven als anderen mij niet leuk zouden vinden	☐	☐	☐	☐
vinden mij belangrijk als vriend(in)	☐	☐	☐	☐

Mijn vriend(inn)en…	Helemaal mee oneens	Mee oneens	Mee eens	Helemaal mee eens
vinden het minder belangrijk om bevriend met elkaar te zijn dan ik	☐	☐	☐	☐
zouden me helpen als dat nodig is	☐	☐	☐	☐
zijn degenen aan wie ik kan vertellen waar ik mee zit als ik het aan niemand anders kan vertellen	☐	☐	☐	☐
en ik verdelen alles eerlijk onder elkaar	☐	☐	☐	☐

vinden de vriendschap met mij belangrijker dan andere dingen	☐	☐	☐	☐
zijn degenen op wie ik kan rekenen als ik iets moeilijks moet doen	☐	☐	☐	☐
en ik kunnen het gemakkelijk uitpraten als we ons aan elkaar irriteren	☐	☐	☐	☐
en ik hebben vaak ruzie	☐	☐	☐	☐
en ik zijn het vaak oneens over dingen	☐	☐	☐	☐
en ik kunnen een ruzie afsluiten door sorry te zeggen	☐	☐	☐	☐
zorgen ervoor dat ik gelukkig ben wanneer ik tijd met ze doorbreng	☐	☐	☐	☐
geven evenveel om mij als ik om hen	☐	☐	☐	☐
zijn personen waar ik aan denk als ze niet bij me zijn	☐	☐	☐	☐

Deel 6

Hieronder volgen enkele vragen over mobiele telefoongebruik en schoolwerk. Geef door een vinkje in de hokjes te plaatsen aan in hoeverre de stelling op jou van toepassing is. Denk niet te lang na over de vraag. Ook hier geldt: er is geen goed of slecht antwoord.

18. Mijn gemiddelde cijfer op school is ongeveer: ……,…... (bijvoorbeeld 6,0 of 7,5)

	Zeer slecht	Slecht	Goed	Heel goed
Mijn cijfers op school zijn over het algemeen	☐	☐	☐	☐
Vergeleken met mijn cijfers zijn de cijfers van mijn klasgenoten	☐	☐	☐	☐

19. Ik check mijn mobiele telefoon tijdens de les of het maken van huiswerk om….

	Nooit		Soms		Vaak
Berichten te ontvangen (SMS, Whatsapp, Ping etc.)	☐	☐	☐	☐	☐
Te reageren op berichten die ik ontvang van anderen	☐	☐	☐	☐	☐
Berichten te zenden naar anderen (nieuw gesprek starten i.p.v. reageren op een bericht)	☐	☐	☐	☐	☐
Op het internet te zoeken naar studiemateriaal **dat gerelateerd is aan** de stof waar ik op dat moment mee bezig ben in de les	☐	☐	☐	☐	☐
Op het internet te zoeken naar studiemateriaal **dat niet gerelateerd is aan** de stof waar ik op dat moment mee bezig ben in de les	☐	☐	☐	☐	☐
Op het internet te surfen voor doeleinden die niks met studie te maken hebben	☐	☐	☐	☐	☐
Mijn e-mail te lezen	☐	☐	☐	☐	☐
Mijn blog, sociale netwerk (bijv. Facebook, Twitter of Hyves) te updaten	☐	☐	☐	☐	☐
Spelletjes te spelen	☐	☐	☐	☐	☐
Om naar muziek of de radio te luisteren	☐	☐	☐	☐	☐
Mijn agenda te bekijken	☐	☐	☐	☐	☐

	Een reminder of wekker in te stellen/te bekijken	☐	☐	☐	☐	☐
	Aantekeningen te maken	☐	☐	☐	☐	☐
	Te kijken hoe laat het is	☐	☐	☐	☐	☐

20. Hieronder volgen stellingen over hoe jij omgaat met leren en lesstof.

		Helemaal mee oneens	Mee oneens	Niet mee eens/niet mee oneens	Mee eens	Helemaal mee eens
1	Ik stel mezelf tijdens het leren vragen om zeker te weten dat ik de stof begrijp	☐	☐	☐	☐	☐
2	Als de stof moeilijk is geef ik op of leer ik alleen de makkelijke stukken	☐	☐	☐	☐	☐
3	Ik maak oefeningen en opdrachten in het boek zelfs wanneer ik dat niet hoef te doen	☐	☐	☐	☐	☐
4	Zelfs als de stof saai en oninteressant is blijf ik werken tot ik klaar ben	☐	☐	☐	☐	☐
5	Voordat ik begin met leren denk ik na over de dingen die ik moet doen om de stof te leren	☐	☐	☐	☐	☐
6	Ik merk vaak dat ik niet begrijp wat ik aan het lezen ben	☐	☐	☐	☐	☐
7	Ik merk vaak dat wanneer de leraar aan het praten is ik aan andere dingen denk en niet echt luister naar wat de leraar zegt	☐	☐	☐	☐	☐
8	Tijdens het lezen stop ik af en toe om de stof te herhalen die ik tot nu toe gelezen heb	☐	☐	☐	☐	☐
9	Ik werk hard om een hoog cijfer te halen, zelfs als ik het vak niet leuk vind	☐	☐	☐	☐	☐

21. Hieronder volgen stellingen over motivatie om naar school te gaan.

Waarom ga je naar school?

	Helemaal mee oneens	Mee oneens	Niet mee eens/niet mee oneens	Mee eens	Helemaal mee eens
Omdat ik ten minste een middelbare schooldiploma moet halen om later een goede baan te krijgen	☐	☐	☐	☐	☐
Omdat ik plezier en voldoening haal uit het leren van nieuwe dingen	☐	☐	☐	☐	☐
Omdat ik denk dat middelbare schoolonderwijs me zal helpen voorbereiden op de carrière die ik voor ogen heb	☐	☐	☐	☐	☐
Omdat ik graag naar school ga	☐	☐	☐	☐	☐
Eerlijk gezegd weet ik het niet, ik heb het gevoel dat ik mijn tijd verspil op school	☐	☐	☐	☐	☐
Voor het plezier dat ik ervaar als ik mezelf overtref tijdens het leren	☐	☐	☐	☐	☐
Om mezelf te bewijzen dat ik in staat ben een middelbare schooldiploma te halen	☐	☐	☐	☐	☐
Om later een meer prestigieuze baan te krijgen	☐	☐	☐	☐	☐
Voor het plezier dat ik ervaar als ik nieuwe dingen ontdek die ik nooit eerder gezien heb	☐	☐	☐	☐	☐
Omdat het me uiteindelijk in staat stelt de arbeidsmarkt te betreden in een veld dat ik leuk vind	☐	☐	☐	☐	☐
Ik vind school leuk	☐	☐	☐	☐	☐
Ik had ooit goede redenen om naar school te gaan, maar tegenwoordig twijfel ik of ik moet blijven	☐	☐	☐	☐	☐
Vanwege het feit dat wanneer ik slaag ik mij belangrijk zal voelen	☐	☐	☐	☐	☐
Omdat ik later een “goed leven” wil hebben	☐	☐	☐	☐	☐
Voor het plezier dat ik ervaar in het verbreden van mijn kennis over onderwerpen die mij aanspreken.	☐	☐	☐	☐	☐

22. Nu volgen er enkele stellingen over het maken van schoolwerk

	Helemaal mee oneens	Mee oneens	Niet mee eens/niet mee oneens	Mee eens	Helemaal mee eens
Ik vind het gemakkelijk om mij te focussen op verplicht leeswerk	☐	☐	☐	☐	☐
Ik voel me ongeduldig wanneer ik een tekstboek aan het lezen ben	☐	☐	☐	☐	☐
Ik ben makkelijk afgeleid tijdens het lezen van opdrachten	☐	☐	☐	☐	☐
Ik lees zelden het toegewezen leeswerk voor een vak	☐	☐	☐	☐	☐
Ik kan gedurende de hele les mijn aandacht bij leeractiviteiten houden	☐	☐	☐	☐	☐
Ik besteed mijn volle aandacht aan klassikale discussies	☐	☐	☐	☐	☐

23. Nu volgen er enkele stellingen over jouw leerproces

	Nooit	Soms	Regelmatig	Vaak	Bijna altijd
Ik praat met familie en vrienden over wat ik doe op school	☐	☐	☐	☐	☐
Ik leg lesmateriaal uit aan medeleerlingen	☐	☐	☐	☐	☐
Buiten school denk ik na over het lesmateriaal	☐	☐	☐	☐	☐
Ik zie de aansluiting tussen lesmateriaal en mijn carrièredoelen	☐	☐	☐	☐	☐
Ik bekijk het lesmateriaal achteraf nog een keer	☐	☐	☐	☐	☐
Ik vergelijk informatie uit de les met andere dingen die ik geleerd heb	☐	☐	☐	☐	☐
Ik heb het gevoel dat ik veel geleerd heb op school.	☐	☐	☐	☐	☐

Dit is het einde van de enquête. Bedankt voor het invullen!

Heb je nog vragen of opmerkingen naar aanleiding van de enquête, vul deze dan hieronder in: