



SI-2010-KEP-4101007

EU NET ADB

<http://www.eunetadb.eu>

The development of adaptive and maladaptive patterns of Internet use among European adolescents at risk for Internet addictive behaviours:

A Grounded theory inquiry

Deliverable	<i>D5: Qualitative Analysis</i>
Dissemination level	Public
Delivery date	November 3 rd , 2012
Status	Final
Author(s)	Dreier, M ¹ ., Tzavela, E ² ., Wölfling, K ¹ ., Mavromati, F ² ., Duven, E ¹ ., Karakitsou, Ch ³ ., Macarie, G ⁴ ., Veldhuis, L ⁵ ., Wójcik, S ⁶ ., Halapi, E ⁷ ., Sigursteinsdottir, H ⁷ ., Oliaga, A ⁸ ., Tsitsika, A ² .



Safer Internet Programme

This project is funded under the Safer Internet Programme^A, a multiannual Community Programme on promoting safer use of the Internet and new online technologies.

^A <http://ec.europa.eu/saferinternet>

CONSORTIUM PARTNERS – AFFILIATIONS

1. Outpatient Clinic for Computer Game and Internet Addictive Behaviour Mainz/ Clinic and Polyclinic for Psychosomatic Medicine and Psychotherapy at the University Medical Center of the Johannes Gutenberg-University Mainz (UMC-Mainz), Germany
2. National and Kapodistrian University of Athens (N.K.U.A.), Second Dept. of Pediatrics, P & A. Kyriakou Children's Hospital, Adolescent Health Unit (A.H.U.), Greece
3. Deree, The American College of Greece, Greece
4. Grigore T. Popa University of Medicine and Pharmacy Iasi (UMF), Romania
5. IVO Addiction Research Institute, the Netherlands
6. Nobody's Children Foundation (NCF), Poland
7. University of Akureyri (UNAK), Iceland
8. Protegeles, Spain

ABSTRACT

Context and Funding: This qualitative study is part of a larger mixed-methods project carried out across seven European countries and funded under the Safer Internet Programme (SI-2011-KEP-4101007), a multiannual Community Programme on promoting safer use of the Internet and new online technologies. This study constitutes Work Package 5 (WP5).

Background and Aims: Although there is a steady expansion of Internet use and Internet addiction research, the concept of Internet Addictive Behaviours (IAB) is in its infancy. Qualitative research is ideal in tackling definitional matters on scientific constructs that are not yet mature. Specifically, this grounded theory study was designed to explain the development of Internet use among European adolescents who are at risk for IAB.

Methods: A purposive sample of adolescents aged 14-17 years was recruited in seven European countries (Greece, Spain, Poland, Germany, Romania, Netherlands and Iceland) and was administered the Internet Addiction Test (IAT; Young, 1998). In-depth interviews were subsequently conducted resulting in a final sample of 124 adolescents showing signs of Internet addictive behaviour (score ≥ 30 points in IAT). Interviews were audiotaped, transcribed verbatim and analyzed with the step-wise full version of Grounded Theory approach (Strauss & Corbin, 1990; 1998). Interviewing and initial (open) coding were conducted in each country by the local consortium partners, while subsequent levels of analyses were performed by the two coordinating partners (Germany and Greece).

Results: The developmental progression of internet use in adolescence is conceptualized as *digital pathways*, personal online journeys of exploration starting with adolescents evolving into regular users and content creators. By discovering online opportunities, adolescents satisfy their teen thirst for information and social connection, which in turn often leads them to the mode of being “*Always Online and Checking Out*”. This phenomenon is mediated and maintained through processes of facilitating adolescent life and empowering their social self. In response to being **Always Online**, adolescents employed adaptive or maladaptive strategies which in turn lead to **Digital Outcomes**, ranging from “stuck online” (“I am addicted”) to adaptive managing (Juggling it All) and self-correcting (Coming Full Cycle). Digital outcomes were strongly interconnected with developmental pathways and as such, the process of Internet use development into variable outcomes was coined **Navigating Adolescent Pathways** – our study’s **core thematic category**.

Conclusions: Findings provide important evidence on normative developmental and contextual considerations mediating increased online engagement and Internet addictive behaviours, and to the multiple outcomes of Internet engagement.

Keywords: *Adolescence, Internet use, Internet Addictive Behaviour, qualitative, Grounded Theory*

Cite as:

Dreier, M., Tzavela, E., Wölfling, K., Mavromati, F., F., Duven, E., Karakitsou, Ch., Macarie, G., Veldhuis, L., Wójcik, S., Halapi, E., Sigursteinsdottir, H., Oliaga, A., Tsitsika, A (2012). The development of adaptive and maladaptive patterns of Internet use among European adolescents at risk for internet addictive behaviours: A Grounded theory inquiry. National and Kapodistrian University of Athens (N.K.U.A.), Athens: EU NET ADB. Available at www.eunetadb.eu.

TABLE OF CONTENTS

CONSORTIUM PARTNERS – AFFILIATIONS	I
ABSTRACT	II
CONTRIBUTORS	VI
ACKNOWLEDGEMENTS	VII
1. INTRODUCTION	1
1.1 THE INTERNET AS CONTEXTUAL FACTOR: COGNITIVE AND SOCIO-EMOTIONAL DEVELOPMENT IN ADOLESCENCE	2
1.1.1 ADOLESCENCE: COGNITIVE DEVELOPMENT AND THE INTERNET	2
1.1.2 ADOLESCENCE: SOCIO-EMOTIONAL DEVELOPMENT AND THE INTERNET	3
1.2 “INTERNET ADDICTION” THEORETICAL BACKGROUND AND PREVALENCE	5
1.3 GENERAL AIMS: WHY USING A QUALITATIVE APPROACH	7
1.4 THE EU NET ADB STUDY: A MIXED METHODS STUDY INTEGRATING TWO RESEARCH PARADIGMS	9
2. METHOD	10
2.1 RESEARCH AIMS, RESEARCH QUESTION AND APPROACH	10
2.2 PARTICIPANTS	11
2.2.1 PARTICIPATING COUNTRIES AND ROLE IN PROJECT	11
2.2.2 ETHICS	12
2.2.3 CHARACTERISTICS OF THE PARTICIPATING ADOLESCENTS	13
2.3 PROCEDURE	15
2.3.1 INCLUSION CRITERIA AND RECRUITMENT PROCEDURE	15
2.3.2 THE PILOT STUDY	16
2.3.3 DEVELOPMENT OF INTERVIEW SCHEDULE	16
2.3.4 ADMINISTRATION OF SEMI-STRUCTURE INTERVIEW	17
2.3.5 TRANSCRIPTION AND TRANSLATION OF INTERVIEW MATERIAL	17

2.4 ANALYTIC APPROACH: CODING PROCEDURE	17
2.4.1 OPEN CODING	18
2.4.2 AXIAL CODING.....	18
2.4.3 SELECTIVE CODING.....	19
2.5 RIGOUR.....	19
3. RESULTS AND DISCUSSION	21
3.1 EMERGED CODES AND BROAD THEMATIC CATEGORIES	21
3.2 THE STORYLINE	24
3.3 BROAD THEMATIC CATEGORIES AND DISCUSSION	27
3.3.1 GROWING INTO A CONTENT CREATOR.....	27
3.3.2 ADOLESCENT THIRST	38
3.3.3 ALWAYS ONLINE: CHECKING OUT.....	44
3.3.4 FROM EASING ADOLESCENCE TO EMPOWERING SELF.....	50
3.3.5 JUGGLING A CHANGING REALITY	58
3.3.6 DIGITAL OUTCOMES	68
4. SUMMATIVE DISCUSSION	84
5. LIMITATIONS OF THE STUDY	92
6. RECOMMENDATIONS AND POLICY IMPLICATIONS	94
6.1 FRAMING AND DIRECTIONS OF RECOMMENDATIONS	94
6.2 AWARENESS CAMPAIGNS AIMED AT ADOLESCENTS AND THEIR PARENTS	95
6.3 NATIONAL REGULATION AND EDUCATION IN SCHOOLS.....	98
6.4 TRAINING FOR COUNSELORS AND MENTAL HEALTH PROFESSIONALS	98
6.5 NATIONAL (EDUCATIONAL SYSTEM) REGULATION.....	99
6.6 INDUSTRY REGULATION	99
REFERENCES	100

ANNEX	113
A. INTERVIEW SCHEDULE	113
B. DETAILED PARTICIPANT TABLES (PER COUNTRY)	118
TABLE 8. DEMOGRAPHIC CHARACTERISTICS OF EACH COUNTRY’S PARTICIPANTS WITH RECRUITMENT AND INTERVIEW DETAILS	118
C. ANALYSIS SUPPLEMENTARY TABLES OF EMERGED CONCEPTS AND PROPERTIES PER AXIAL CATEGORY	125
TABLE 9. AXIAL 1 GROWING INTO A CONTENT CREATOR: CONCEPTS, PROPERTIES, CONTEXTUAL LAYERS AND THEMES	125
TABLE 10. AXIAL 2 CONCEPTS, PROPERTIES – ADOLESCENT THIRST	126
TABLE 11. AXIAL 3 CONCEPTS, PROPERTIES – ALWAYS ONLINE AND CHECKING OUT	127
TABLE 12. AXIAL 4 CONCEPTS, PROPERTIES – FROM EASING ADOLESCENCE TO EMPOWERING SELF	128
D. EU NET ADB PROJECT	129
OVERVIEW	129
OBJECTIVES	129
WORK PACKAGES	129
INTERNATIONAL ADVISORY BOARD FOR THE QUALITATIVE STUDY	130
EXTERNAL ADVISORS FOR THE QUALITATIVE STUDY	130
E. EU NET ADB PROJECT MEMBERS	131

CONTRIBUTORS

Chapter	Writers
1. INTRODUCTION	Chryssoula Karakitsou (CK) Eleni Tzavela (ET) Szymon Wójcik (SW) Michael Dreier (MD)
2. METHOD	Michael Dreier Lidy Veldhuis (LV) Foteini Mavromati (FM) Klaus Wölfling (KW) Eva Duven (ED) Eleni Tzavela George Macarie (MG)
3. MAIN RESULTS	Eleni Tzavela Michael Dreier Foteini Mavromati Klaus Wölfling Eva Duven Chryssoula Karakitsou Eva Halapi George Macarie
4. SUMMATIVE DISCUSSION AND LIMITATIONS	Chryssoula Karakitsou Eleni Tzavela Foteini Mavromati Michael Dreier Klaus Wölfling Artemis Tsitsika
5. LIMITATIONS	Eleni Tzavela Chryssoula Karakitsou
6. RECOMMENDATIONS AND POLICY IMPLICATIONS	Eleni Tzavela

ACKNOWLEDGEMENTS

We want to extend our appreciation to all who contributed to the planning, conduction and evaluation of this project. Our most sincere thanks are extended to our *International and External Advisors*. Foremost to Dr. Chryssoula Karakitsou (International Advisory Board; see Annex D) for her active, continuous and invaluable contribution to the analysis and report writing. Special thanks to our External Advisors who conducted the intermediate and final evaluation of the report: Dr. Donald Greydanus for his constructive comments and continuous support from early steps of this project; Dr. Elisabeth Staksrud for her significant contribution to both research components, and Dr. Ranjana Das for her valuable feedback on the report (for details see Annex D).

Our special thanks are addressed to the *school teachers and principals* that supported our recruitment procedure and mostly to our participants that shared their stories with us.

Special thanks to the *coordinating centers' department heads* for graciously offering their expertise and guidance: Prof. Dr. Manfred E. Beutel (Outpatient Clinic for Computer Game and Internet Addictive Behaviour Mainz/ Clinic and Polyclinic for Psychosomatic Medicine and Psychotherapy at the University Medical Center of the Johannes Gutenberg-University Mainz, Germany) and Dr. Chryssa Bakoula (Second Dept. of Pediatrics, P. & A. Kyriakou Children's Hospital, Athens, Greece).

Sincere thank you to our *supportive research assistants and translators*:

Bärbel Schulz, Helene Rickert, Kristina Papp, Lisa Naab, Susann Köster, Jan Becker, Matthias Strie (UMC-Mainz, Germany); Anthousa Sefereiadou, Chryssoula Feridou, Christina Themeli (AHU, Greece); Alicia García, Isabel Aboy (Protegeles, Spain); Martijn Altenburg, Laura van Duin, Stephen Card, Angeline Giel-Kelly, Janneke ten Kate (IVO, the Netherlands); Katarzyna Makaruk, Joanna Włodarczyk, Zofia Włodarczyk, (NCF, Poland); Sigrunsif Joelsdottir, Sigrun Vesteynsdottir, Margret Audur Sigurbjörnsdóttir, Hjalti Johannesson, Halldor S. Gudmundsson, Tryggvi G. Ingason, Boas Valdorsson and Valgerdur Olafsdottir (UNAK, Iceland).

Finally, many thanks to our valued colleagues who undertook the *final editing* of the report: Eva Halapi for her invaluable input throughout the report that introduced coherence to the report; Szymon Wójcik for his meticulous work in the introduction; and Mari Janikian for her sharp edge and editing of the method.



The world of everyday life is not only taken for granted as a reality by the ordinary members of society in the subjectively meaningful conduct of their lives. It is a world that originates in their thoughts and actions, and is maintained as real by these.

Berger & Luckmann, 1966

1. INTRODUCTION

Adolescence is a transitional period marked with significant changes in physical, cognitive and socio-emotional domains. With respect to cognitive abilities, adolescents have newly acquired capacities of reasoning, planning, decision making and hypothetical thinking (Keating, 1990; Moshman, 1998), which develop in the course of social participation (Cole, 1996) while their implementation varies considerably across learning contexts (Keating, 2004; Markovits & Barrouillet, 2002). The Internet has been widely researched as a **new context of social and cognitive development for adolescents**.

Today's adolescents were born in the mid-1990s – an era of climbing Internet penetration across European countries. They grew up in homes with PCs and Internet connection – although mostly dial-up in the 1990s. By the early 2000s, as these children were entering grade school, broadband Internet (“always on” connections) was penetrating European homes at incremental rates. This cohort of children was introduced to the digital world most typically in middle childhood – with some variability depending on the socio-cultural context of development. They are part of a generation often referred to as the *Net Generation* (Kelsey, 2007; Tapscott, 1998; 2009): namely, children born between the early 1980s and the mid-1990s. This generation was one of the first to be introduced to information through **digital pathways** of learning; they learned in digital the first time around, in contrast to the rest of us who re-learned digital ways after first being taught more traditional ways of learning and socializing. In fact, they were born digital; they do not remember any other way – digital ways are second nature to them (Palfrey & Gasser, 2008). Today's adolescents are typically more computer literate than any previous generation and often more than their parents and their teachers (Oblinger & Oblinger, 2005).

For young people, daily practices are heavily mediated by technology – since this is the primary way they know. They read blogs rather than newspapers; they study online and very rarely visit libraries; they get their music and movies online and rarely have to pay for them; and, most pervasively, they interact online on social media, often befriending each other online before doing so in person.

Today's adolescents were born at the launch of social networking sites (SNS) – they are the first generation to grow up with social media and have fully embraced them. Of European 13-16 year olds, 77% have a profile on a SNS (Livingstone, Ólafsson & Staksrud, 2011), while very recent data suggests that 70% of 14-17 year olds¹ use SNS daily (Tsitsika et al., 2013). For most adolescents, social media constitutes an extension of their offline sociability and entertainment, often seamlessly integrating their offline and online functioning. For others the Internet may be their preferred way of communication as suggested by recent findings indicating that about half of European adolescents aged 11-16 find it easier to be themselves on the Internet than when they interact with people face-to-face (Livingstone, Haddon, Görzig & Ólafsson, 2011). Born at the onset of a fully emerged digital age, adolescents are inextricably bound up with their Internet-saturated setting (Holloway & Valentine, 2001). For today's adolescents the Internet constitutes a **developmental context** of learning and acquiring social-emotional skills.

1.1 THE INTERNET AS CONTEXTUAL FACTOR: COGNITIVE AND SOCIO-EMOTIONAL DEVELOPMENT IN ADOLESCENCE

1.1.1 ADOLESCENCE: COGNITIVE DEVELOPMENT AND THE INTERNET

Internet's interactivity, connectivity and accessibility have shaped the learning preferences and behaviours of today's adolescents (Dresang, 2005; Oblinger & Oblinger, 2005). For instance, young people like fast access to information, are collaborative and engaged learners who use the Web as a reference library, and readily absorb and convey information in non-text formats (Shenton & Dixon, 2004). They also expect their education to integrate technology and the Internet (Philip, 2007).

Electronic media has been found to enhance representational competencies, like iconic representation, mental rotation, spatial visualization (see Greenfield & Calvert, 2004) and hypermedia has been associated with high levels of attention

¹ EU NET ADB study; Representative sample in seven European countries (see section 1.4).

and engagement (Lawless, Mills & Brown, 2003), knowledge building (Kozma, 1991; Landow, 1997) and increased control over content and speed of presented information (Dresang, 2005). Yet, these effects can be short term (Subrahmanyam, Greenfield, Kraut & Gross, 2001), situation specific (Dillon & Gabbard, 1998), and learner specific (Houghton et al., 2004; Lawless et al., 2003; McMahon & Duffy, 1993). Finally, technology and the Internet might increase motivation and promote representational competencies and attention, but are not enhancing learning and academic achievement per se, regardless of how they are implemented (Schmidt & Vandewater, 2008). Although an earlier study with 7th to 12th graders showed both that heavy computer users had better academic achievements compared to lighter users, and that well-structured technology-enriched curricula have lasting impact to academic performance (Cole, 1996), the results are equivocal and vary based on learner and context characteristics.

1.1.2 ADOLESCENCE: SOCIO-EMOTIONAL DEVELOPMENT AND THE INTERNET

During adolescent years, socialization extends and expands outside family confines and family interaction decreases (Rubin, Bukowski & Parker, 2006). Adolescents begin to expand their social networks into cliques and crowds (e.g., Brown, 1990; Dunphy, 1963), spend more time and experience greater intimacy with friends (e.g., Berndt, 1992 1996; Crosnoe, 2000), form romantic interests and relationships (e.g. Connolly, Furman & Konarski, 2000; Feiring, 1999), and experiment with various identities (McKenna & Bargh, 1998; Rubin et al., 2006). The construction of a personally meaningful and socially validated identity constitutes a key developmental task of adolescence and is related to psychological well-being (Marcia, 1993).

Peer relations and the social contexts where they are experienced significantly contribute both to the identify formation process and psychosocial adjustment. For instance, adolescent friendships enhance the development of social skills, intimacy, empathy, perspective-taking, and conflict resolution (Berndt, 1992; Buhrmester, 1990; Furman & Buhrmester, 1992; Hartup, 1993) and also reliably predict self-esteem, social adjustment and overall well-being (Berndt, 1996; Hartup, 1992). Further, interaction with more extensive peer groups allows

social comparison, contributes to the development of shared norms and promotes a sense of belonging, validating further adolescents' development of identity (Brechwald & Prinstein, 2011).

A number of studies showed that the Internet provides a venue where marginalized teens are able to seek social support (McKenna & Bargh, 1998) and increases feelings of closeness towards these friends (Valkenburg & Peter, 2007). In addition, individuals who initially communicate online are often shown to like each other more than individuals who initially communicate in a face-to-face setting (Bargh, McKenna & Fitzsimons, 2002). By using the Internet adolescents report the feeling of being connected to the outside world (Chou, 2001) and are more able to express their "true self" than offline (Amichai-Hamburger, Wainapel & Fox, 2002; Bargh, McKenna & Fitzsimons, 2002).

Such findings are consistent with the "hyperpersonal communication theory" (Walther, 1996) stressing that the audiovisual anonymity and asynchrony of computer-mediated communication promote self-disclosure and control of self-presentation. Valkenburg and Peter (2007) found that 15 year olds were more likely than any other younger group to endorse the view that online communication is more effective than offline communication in self-disclosing intimate information; similar findings have been reported among the socially anxious youngsters (Campbell, Cumming & Hughes, 2006; Peris et al., 2002; Peter, Valkenburg & Schouten, 2005).

Finally, although the anonymity afforded by the Internet might contribute to self-disclosure and subsequently promote relationship closeness, it can also disinhibit adolescents and lead to negative content in their online interaction. Results showed that adolescents are exposed to negative stereotypes and racial prejudice against themselves and others (Tynes, 2009), while racial slurs and negative comments about ethnicity were far more common in unmonitored than monitored chat rooms frequented by young adolescents (Tynes, Reynolds & Greenfield, 2004).

Overall results on the effects of Internet use might appear equivocal. This can be in part due to the fact that most studies have been cross sectional and correlational, with few longitudinal studies examining the short and long term

impact of Internet use. While some Internet researchers support theories suggesting a positive impact of the Internet use on young people (e.g. stimulation hypothesis in online communication; Valkenburg & Peter, 2007), others still suggest that different activities may have different impacts on social and overall well-being and that certain profiles of users might misuse their time online on activities which have short-term benefits (Douglas et al., 2008).

1.2 “INTERNET ADDICTION” THEORETICAL BACKGROUND AND PREVALENCE

Parallel to the appreciation that the Internet has become not only a convenient but also a necessary component of contemporary adolescent life, there is a growing body of literature on the problem of the so-called Internet addiction. Very recently, publications draw attention to the difference between *over-users*, *heavy users* and *addicted users* (e.g. Israelashvili, Kim & Bukobza, 2012). Such qualitative differentiation shows growing acceptance of the possibility that adolescents’ over-engagement with the Internet can be adaptive if it serves age-related purposes but that it also can be maladaptive.

Nonetheless, maladaptive online behaviours have been widely documented and investigated, often conceptualized as *Internet addictive behaviour* (IAB). IAB constitutes a new reality and a new entity within the range of pathological behaviours – a novice health care issue and a new morbidity still under rigorous investigation. The phenomenon was first discussed in the mid-1990s (Young, 1996), and has been extensively investigated in the past 15 years. Yet, the scientific community worldwide has not reached a conclusion on whether this behavioural pattern constitutes an actual “addiction”. The American Psychiatric Association has not included IAB in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) as a clinical entity so far, and recommends additional research on this matter. Although the phenomenon has been studied for more than 15 years, the disputes regarding its nature, definitions and terminology are ongoing and no unanimously accepted terms and definitions exist.

Various names and definitions have been proposed in literature, including Internet Addiction, Internet Abuse, Internet Dependence, Compulsive Internet Use, Excessive Internet Use, Pathological and Problematic Internet Use, Internet Use

Disorder, and others (cf. Shapira et al., 2003; Widyanto & Griffiths, 2006). The use of certain terminology is to some extent connected with differences in framing the problem. Each of these terms has its supporters among scholars and the main division seems to be between opponents and proponents of using the concept of “addiction” to describe the phenomenon. *Internet Addiction* was the term proposed by Kimberly Young in her pioneering studies in 1996 and later as she developed the Internet Addiction Test (IAT; Young, 1998) – a diagnostic tool also used in this project. The tool is based on the assumption that extensive use of the Internet may develop into psychological dependency similar to the one experienced by people addicted to gambling. Consequently, DSM-IV criteria for “pathological gambling” were adapted to diagnose Internet addiction. Some authors prefer to use the term Internet Addictive Behaviour (IAB) to underline common characteristics with the subset of behavioural rather than substance abuse disorders. What is typical for these approaches is the focus on *behavioural symptoms* exhibited by users. Griffiths (2000) proposes a set of symptoms based on clinical case study evidence. These symptoms include salience (dominating role of Internet in life), tolerance (increasing amounts of time online needed), mood modification (feeling of “buzz” while browsing the net), occurrence of conflicts (both inter- and intrapersonal) and relapse (e.g. unsuccessful attempts of self-limitation). Several issues connected with this approach have been raised. First, some authors believe that the broad use of the term “addiction” may dilute its meaning and is actually building a false analogy especially as some scholars are not fully convinced that this pathology falls into the category of “addiction”. Second, defining the problem in “addiction” categories may be in fact counter-effective for treatment as individuals may feel even less in control over their Internet use being defined as “addict” (Morahan-Martin, 2005).

Another widely used term is Problematic or Pathological Internet Use (PIU). Davis (2001) states that the word “addiction” usually implies physiological dependence, whereas the adjective “pathological” denotes compulsive behaviours. The term Problematic Internet Use (PIU) was coined to underline the negative academic or social outcomes that are caused by such a behaviour and its maladaptive character (Caplan, 2003). The term PIU is also believed to be more

broadly defined than Internet Addiction and is meant to address not only the clinical cases but rather a wide spectrum of situations in which the Internet use is characterized by control deficiency and negative outcomes for the user (Caplan & High, 2011). Another significant researcher in this field, Nathan Shapira, also prefers the term PIU owing to the fact that it is still not determined if this phenomenon is better described in terms of obsessive-compulsive or impulse control disorders (Shapira et al., 2003). Many scholars hoped that definition problems, such as whether “Internet addiction” is a distinct disorder or a behaviour problem secondary to other disorders, would be solved by its inclusion in the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders (DSM) 5th edition (DSM-V). However, “Internet Use Disorder” has been announced as the disorder to be included in the DSM-V, namely under the section of disorders requiring further study (DSM-V; APA, 2012). In a substantial metasynthesis of Internet addiction research, Byun and colleagues (2009) consider the development of a common definition as the most important challenge for researchers. It seems that the scientific community has not reached this goal yet and further research is needed to explore the very nature of the phenomenon. It seems that a qualitative approach can be extremely useful towards this purpose, especially because such research makes as few initial assumptions as possible.

1.3 GENERAL AIMS: WHY USING A QUALITATIVE APPROACH

Internet technology is constantly evolving and applications available to adolescent users are changing, resulting into the appearance of different patterns of behaviours and new profiles of users. The introduction of social media allows for more interactive and social online activities (O’Reilly, 2005) where users have greater control over the dissemination of content. As a result, there is a pronounced shift in the prevailing reasons driving youngsters to the Internet, from entertainment and consumption of content to communication and creation of content (Chang, 2006; Lorenzo, Oblinger & Dziuban, 2007). The phenomenon of Internet use is dynamic with various patterns of use changing drastically; for instance the initial gender differences on Internet use has disappeared in subsequent studies (Gross, 2004; Subrahmanyam, Greenfield, Kraut & Gross, 2001),

and interpersonal exchange has become more private among friends, rather than public among strangers (Gross, 2004; Lenhart & Madden, 2007; Peter, Valkenburg & Schouten, 2006).

Methodologies employed to examine Internet use along with its ensuing consequences should keep pace with the continuous transformation of the digital landscape and also be regularly revised accounting for new forms of Internet use and functions. Qualitative research can shed light into new developments. Livingstone (2003) noted the scarcity of qualitative data on Internet and emphasized the need to collect data shedding light on the quality of Internet use, the social conditions, the cultural practices, and the personal meanings ascribed to Internet and its use. Literature, exploring the sources of inconsistent findings between Internet use and its impact on adolescents' lives and development, underestimates time spend online as a decisive factor. Instead, researchers call attention to the role of more subjective aspects of adolescent Internet use such as personal motives and needs (Gordon, Juang & Syed 2007; Gross, 2004). This type of information might be less accessible and rich from fixed-response measures than from open-ended response formats.

Furthermore, although there is a steady expansion of Internet addiction research, the concept of Internet addiction is in its infancy (Yang & Tung, 2007) and there is much skepticism surrounding it (Mitchell, 2000). Traditionally, qualitative research precedes quantitative research tackling better definitional matters on scientific constructs which are not yet mature. In the context of the present study, qualitative methodology can provide rich and contextual material on the experience of individuals with excessive Internet use and offer new insight into the better understanding of the phenomenon from the lived experiences of these users. Thus, this type of inquiry can make valuable theoretical and methodological contributions. First, the delineation of the different pathways Internet users are following using the medium can explicate how some users develop dependent profiles and funnel theory building research on Internet addiction. Second, the identification of the properties and dimensions of problematic use can elucidate the construct, and guide a large body of

quantitative studies focusing on the development of valid diagnostic procedures and criteria.

1.4 THE EU NET ADB STUDY: A MIXED METHODS STUDY INTEGRATING TWO RESEARCH PARADIGMS

This qualitative study is part of a larger mixed methods project carried out in seven European countries (list of participating countries, institutions, and contributions in Table 1; page 11) and managed and coordinated by the Adolescent Health Unit (AHU) of the Second Dept. of Pediatrics in Athens, Greece. The project was funded under the Safer Internet Programme (SI-2011-KEP-4101007) as a Knowledge Enhancement Project.

The project employed a mixed methods design, combining (1) a *quantitative assessment* of the prevalence and risk factors associated with Internet addictive behaviour (IAB) in adolescence (see Tsitsika et al., 2013), and (2) a *qualitative exploration* of the development of Internet use among adolescents at risk for addictive behaviours, presented in this report.

The project adopted a **mixed-methods design** in order to develop a systematic representation both of adolescents' self-reported behaviours (assessed through quantitative questionnaires) and of their lived experience (captured through personal detailed narrations). Our foremost aim was to **delineate the phenomenon of IAB in adolescence by integrating and complementing the two research paradigms.**

2. METHOD

2.1 RESEARCH AIMS, RESEARCH QUESTION AND APPROACH

The present qualitative study aimed to explore the lived experiences of adolescents who are over-engaged with the Internet and report signs of addictive behaviour (to varying degrees). In particular, our aim was **to uncover the conditions in the midst of which adolescent Internet overindulgence unfolds and evolves, and to explore the experienced consequences.** To map the associated underlying *social processes*, we elected a process-oriented research question, initially phrased as ***“How does Internet addictive behaviour develop?”*** However, consistent with the cyclical nature of qualitative research, this initial question was revised. A need to rephrase the research question surfaced from the first wave of data collection which revealed that adolescents’ narrations were not typically centered on the issue of “addiction”. Consequently, in an effort to capture a broader picture of adolescent experiences, the research question was adjusted to ***“How does Internet use develop among European adolescents who are at risk for Internet addictive behaviour?”***.

As the phenomenon of IAB is relatively “new” and no formal theory or formal diagnostic criteria have been developed, Grounded Theory (GT) was deemed a good fit for this process-oriented exploratory study. GT (Glaser & Strauss, 1967; Strauss & Corbin, 1990; 1998) is designed to facilitate the development of new contextualized theories. In this respect, GT is “grounded in the data” – built on concepts emerging from the data rather than on analytical constructs from pre-existing theories. GT is ideal for exploring social processes and behaviours of groups in which little exploration of the contextual factors has been undertaken. Strauss and Corbin’s three-stage analytic approach (1990; 1998) of open, axial, and selective coding involves continuous reappraisal of the data for relational issues of context, causal conditions, and interrelationships which rendered the GT approach as compatible with the objective of **understanding the conditions that contribute to adaptive and maladaptive Internet use among adolescents.** Based on the process-oriented research question and the

aforementioned advantages of GT, all three researchers involved in the design phase of the project (ET, KW, FM) unanimously agreed to adopt the GT approach.

2.2 PARTICIPANTS

2.2.1 PARTICIPATING COUNTRIES AND ROLE IN PROJECT

Seven European countries participated in the present study: Greece, Spain, Poland, Germany, Romania, the Netherlands, and Iceland (for details on participating countries and their role in the project see Table 1; complete details on partners in Annex E). The research-teams within each participating country recruited and invited adolescents showing signs of IAB to participate in a semi-structured interview. Recruitment and interviewing was conducted between summer 2011 and spring 2012.

Table 1. Participating countries and role in project

Partner name	Country	Role in project	Interviews conducted and analyzed
AHU	Greece	Data collection (conducting interviews) Data analysis at three consecutive stages (open, axial and selective coding)	20
PROTEGELES	Spain	Data collection (conducting interviews) Initial stage of data analysis (open coding)	20
NCF	Poland	Data collection (conducting interviews) Initial stage of data analysis (open coding)	20
UMC-Mainz	Germany	Data collection (conducting interviews) Data analysis at three consecutive stages (open, axial and selective coding)	20
LMK	Germany	Not participating in the qualitative study	0
UMF	Romania	Data collection (conducting interviews) Initial stage of data analysis (open coding)	16
IVO	The Netherlands	Data collection (conducting interviews) Initial stage of data analysis (open coding)	16
UNAK	Iceland	Data collection (conducting interviews) Initial stage of data analysis (open coding)	12
Consortium-wide	7 countries		124

Note. For details on participating partners please see Consortium Partners-Affiliations

The scope of the present sampling method with respect to the sample size was extended in terms of the classic GT approach. Thus, one could argue that here a “hybrid-theory” was used which applied concepts of GT. While according to the

classic GT approach, data collection phase (e.g. theoretical sampling) is terminated once the research question has been answered comprehensively from the existing data; in the present study, starting off with a broader sample offered different advantages. This widespread sample offered prospects for addressing new research questions. The opportunity of having such an extensive sample offered opportunities of sub-analysis. For instance, it was possible to explicitly address gamers or focus on cultural aspects that participants from different countries elaborated in their narrations. Thus, the data set was robust enough to deliver answers for future additional questions and consequently be a source of rich information.

2.2.2 ETHICS

The welfare of the participants was our overriding consideration; therefore it was important that all ethical guidelines would be followed and respective permission would be solicited. Each partner was responsible for filing a petition requesting permission for the study with their local appropriate State agencies, Ministry of Education, or other Ethics committee relevant to each context, and to follow all local ethical guidelines and restrictions. Educational authorities were contacted for local restrictions. The study protocol was approved by the respective Ethical Committees of each participating country.

Written informed consent was obtained from the parents/guardians of all eligible adolescents prior to participation in the study. Furthermore, respecting the adolescents' maturity and independence, the investigators solicited their verbal assent for participation. Adolescents were informed about the overall purpose of the research as well as the risks and benefits of participation. They were further informed that participation was voluntary and they could withdraw at any time with no negative repercussions.

Anonymity and confidentiality were stressed prior to the administration and the procedures undertaken towards this end (anonymisation) were explained to the participants. Limits to confidentiality were addressed, explaining that if adolescents reported that they are being harmed in some way, action would be

taken. Confidentiality and anonymity was further guaranteed during the data processing stage of the project by removing any identifiers from the data set.

Following the principle of beneficence, researchers minimized the risk associated with the study (Kvale, 1996; Marshall & Bossman, 1995). Appropriate referral sources for professional help were ready if necessary. Specifically, participants were provided with an information leaflet at the end of the interview, including the contact details of information about Internet safety and local help lines (or other appropriate referral sites), whereby the adolescent could access confidential help and professional advice.

In addition, every possible effort was made to maximize the benefits resulting from research. Self-acknowledgment could be a possible benefit as participants were given a voice; a sense of purpose could be reinforced as they shared information intended to help others. The benefit of increasing *self-awareness* was stressed since the in-depth discussion could potentially spur introspection on how each participant uses the Internet (Hutchinson, Wilson & Wilson, 1994).

2.2.3 CHARACTERISTICS OF THE PARTICIPATING ADOLESCENTS

A total of 124 adolescents participated in the present study. See Table 2 (page 14) for an overview of the characteristics of the participating adolescents and of their interviews. Detailed demographic data of participants are presented in Table 8 in Annex B. The sample's mean age was 16.0 years ($SD=0.7$), 56.5% of the interviewed adolescents were boys, 62.0% lived in an urban area, 81.3% were 10th grade students and 51% performed average in school. Adolescents' mean score on the IAT test was 47.3 ($SD=12.9$; range: 30-90).

Table 2. Characteristics of the total sample of adolescents and for each participating country

	Frequency in study population (%) (unless otherwise specified) per country							
	Total sample (%)	Germany (n = 20)	Greece (n = 20)	Iceland (n = 12)	Poland (n = 20)	Romania (n = 16)	Spain (n = 20)	The Netherlands (n = 16)
Boys (n = 124)	70 (56.5)	10 (50.0)	10 (50.0)	8 (66.7)	10 (50.0)	8 (50.0)	12 (60.0)	12 (75.0)
Mean age, years (SD) (n = 124)	16.0 (0.7)	16.1 (0.6)	15.7 (0.6)	15.3 (0.7)	15.3 (0.5)	16.7 (0.4)	16.5 (0.4)	16.3 (0.5)
Type of residence location (n = 124)								
Rural / sub-urban area	47 (37.9)	5 (25.0)	7 (35.0)	10 (83.3)	2 (10.0)	3 (18.8)	7 (35.0)	13 (81.3)
Urban area	77 (62.0)	15 (75.0)	13 (65.0)	2 (16.7)	18 (90.0)	13 (81.2)	13 (65.0)	3 (18.8)
School grade (n = 123)								
9 th grade	10 (8.1)	2 (10.0)	3 (15.0)	4 (33.3)	0	0	0	1 (6.7)
10 th grade	100 (81.3)	15 (75.0)	16 (80.0)	8 (66.7)	13 (65.0)	16	20	12 (80.0)
11 th grade	13 (10.6)	3 (15.0)	1 (5.0)	0	7 (35.0)	0	0	2 (13.3)
School Performance (n = 104)								
Below average	17 (17.0)	6 (30.0)	1 (5.9)	5 (45.5)	0	0	2 (10.0)	3 (18.8)
Average	53 (50.0)	10 (50.0)	6 (35.3)	2 (18.2)	14 (70.0)	11 (55.0)	11 (55.0)	10 (62.5)
Above average	34 (33.0)	4 (20.0)	10 (58.8)	4 (36.4)	6 (30.0)	7 (35.0)	7 (35.0)	3 (18.8)
Mean score on IAT (SD) (n = 124)	47.34(12.9)	52.6 (11.5)	47.3 (11.8)	49.8 (12.7)	47.0 (16.2)	40.4 (10.3)	49.1 (10.7)	44.3 (14.4)
Mean duration interview min (SD) (n = 124)	45.6 (12.4)	43.3 (9.0)	51.7 (7.5)	44.2 (19.4)	34.4 (7.5)	56.0 (14.3)	47.6 (8.6)	42.8 (8.8)

2.3 PROCEDURE

2.3.1 INCLUSION CRITERIA AND RECRUITMENT PROCEDURE

Inclusion criteria for participation in the study required adolescents to be 14 to 17 years old and have a score of 40 points or more on the Internet Addiction Test (IAT). The IAT covers 20 items, each rated on a 6-point Likert scale (0-5), thus its total score ranges from 0-100 points (Young, 1998). Due to the step-wise analysis approach, three different waves of data collection were scheduled. The first wave included 41 interviews [male 56.1%], the second 33 interviews [male 51.52%], and the third 50 [male 60%] interviews. After the first wave of data collection and analysis, the cutoff score was lowered to 30 points; this decision was in response to our emergent GT, which captured a variable range of experiences of over-engaged Internet users. By including participants reporting fewer signs of addictive behaviour (based on endorsed IAT criteria), we widened the population under study, hoping to trace the development of adaptive and maladaptive patterns of internet use to *earlier* stages. By including adolescents exhibiting “early signs” of maladaptive Internet use, we aimed to generate a Grounded Theory that **would guide early intervention incentives**, rather than focusing on adolescents with fully developed maladaptive Internet behaviour.

Recruitment was primarily school-based and invitation for participation in the interview was typically extended to students participating in the EU NET ADB quantitative study who completed an anonymous questionnaire which included the IAT. Open invitations to participate were posted on flyers at school blackboards and school bus stops or were disseminated via school communication systems or by advertising in school magazines. Also, adolescents were recruited via sport clubs, Internet forums, Internet cafés, youth clubs, a computer gaming fair, and other youth specific fairs. Further, in all countries, the ‘snowball’ technique was used in recruiting adolescents, as some of them spontaneously wanted to participate too, because their peers had done so. Some adolescents were also recruited through the personal network of the researchers. In some countries and for a limited time during the first phase, incentives were used to facilitate recruitment. Namely, cinema vouchers were offered to participants in the Netherlands, Germany, while

in Iceland cinema vouchers were offered in appreciation². All interviews were conducted by trained professionals who were familiar with, and conformed to, the requirements of the codes of ethical conduct or guidelines on interviewing young people.

2.3.2 THE PILOT STUDY

A pilot study was implemented aiming to develop the interview schedule (IS). Four adolescents (2 males and 2 females) residing in Germany and Greece and aged 15 to 16 years old were interviewed. Resulting modifications of the IS included the expansion of the *warming up* section to allow a smoother beginning of the interview process, the rephrasing of some questions to enhance clarity, the development of supplementary prompts and inclusion of sub-questions to facilitate narration, and the addition of questions on the basis of novel aspects surfacing from narrations during the interviews.

2.3.3 DEVELOPMENT OF INTERVIEW SCHEDULE

A semi-structured interview schedule (IS; Annex A) was constructed with a focus on the collection of a broad data basis that would provide an in-depth understanding of the specific determinants and conditions that underlie the development of IAB among adolescents with signs of addictive Internet use. Open-ended questions were used to enhance participants' narration, accompanied with follow-up questions, aiming to facilitate elaboration on initial answers. Overall, the interview schedule comprised of five main parts: a) Warm up, b) Internet initiation, evolution, and current use, c) Needs met by Internet use, d) Self-perceived repercussions, and e) Personal aims in regard to Internet use.

The development of the interview schedule incorporated a central multi-stage process of readjustment. Feedback for potential additions or modifications was also provided by the researchers of participating countries that conducted the local interviews and open-coding as well as from the project's advisors. Interview questions and prompts continued to be revised according to new emerging data in

² Cinema vouchers were given to Icelandic adolescents after the interview was concluded as a sign of appreciation, but were not used as incentive for participation, because adolescents did not know beforehand that they would be given a voucher.

participants' narratives that were open for further exploration as they were identified during the first stage of analysis (open-coding).

2.3.4 ADMINISTRATION OF SEMI-STRUCTURE INTERVIEW

Prior to the interview, it was emphasized to the participants that there were no right or wrong answers or attitudes, and that the interviewer was interested to learn their personal story regarding Internet use. During the initial, warm-up phase of the interview the researcher shared a few things about himself/herself to facilitate commencement of his/her narration. The mean duration of the interviews was 45.6 minutes (SD=12.4). In order to ensure the inclusion of in-depth narrations, the interviewers were advised to conduct at least a 30 minutes interview. Additionally a target interview transcript length of 450 transcript lines was set, while the minimum requirement was arranged on 350 transcript lines.

2.3.5 TRANSCRIPTION AND TRANSLATION OF INTERVIEW MATERIAL

A transcription guide was prepared for use and orientation by every consortium partner. Translations of transcripts were carried out by researchers fully competent and with relevant credentials in English language or professional translators. The translations were internally quality controlled by a second reader. Both the translator and the second reader were required to sign the release form, which accompanied the transcripts.

2.4 ANALYTIC APPROACH: CODING PROCEDURE

The analysis of the obtained narrations was based on Strauss and Corbin's (1990; 1998) three-stage process of open, axial and selective coding. These data were merged from codes to concepts and from concepts to broader conceptual categories (see Table 3 Glossary; page 18).

The interviews were manually open coded (no coding software was used) by the researchers of each participating country, and thereafter translated into English. Subsequently, open codes (in English) were validated and consolidated into one master databank of open codes by the coordinating centers (UMC and AHU). The final steps of integrative analyses (axial and selective coding) were

conducted by three main researchers in the coordinating centers; a sociologist (MD), a developmental psychologist (ET) and a counseling psychologist (FM). The analysts' different field of expertise contributed uniquely to the meaning-making process of data analysis and safeguarded sensitivity to different perspectives and a relatively complete representation of participants' experience.

2.4.1 OPEN CODING

Open-coding is the analytic process that “breaks up the data”. Towards this end, open coding “fractures” the data into concepts and categories, progressively identifying and integrating categories of meaning from data (Willig, 2009). A Glossary of GT terms is presented in Table 3. The development of an exemplar category, depicting the open coding process and emergent concepts, is shown in Table 4 (page 20).

Table 3. Glossary of Grounded Theory terminology (Stylistic font replicated in text)

Terms	Definition
<i>Concepts</i>	Descriptive conceptual labels placed on discrete happenings, events and other concrete instances of phenomena. The building blocks of theory.
<i>Categories</i>	A classification or grouping of concepts under a higher level of abstraction. The categories are highly abstract and analytic as they do not simply describe particular instances of phenomena but add meaning to them.
<i>Properties</i>	Attributes pertaining to a category, or conceptual characteristics of a category.
<i>Degree of Variability</i>	The degree to which a concept varies dimensionally along its properties, with variation being built into the theory (see also Dimension).
<i>Dimensions</i>	Location of properties along a continuum.
Coding Paradigm	An analytic tool devised to help integrate structure and process into theory generation; used to develop relations between categories.
Phenomenon	Central idea in the data about which a set of actions are directed at handling, or to which a set of conditions is related
Axial Categories	Central categories building a coding paradigm, representing broad thematic categories.
Storyline	The conceptualization of the story told.
CORE CATEGORY	The central category around which all the other axial categories are integrated.

Note. The terms are based on Strauss & Corbin (1990; 1998)

2.4.2 AXIAL CODING

Axial coding denotes the reassembly of fragmented data, creating novel sub-categories and categories, elaborating the link(s) between them. In this respect, the coding process is undertaken in 4 steps 1) hypothetical linking and combination of sub-categories and categories, 2) verification of those links and combinations

during a data-based analysis, 3) searching for facts that can explain dimensional occurrences and 4) analysis of different phenomena (Strauss & Corbin, 1990; 1998).

During axial coding, the conditions that trigger the phenomena, their context, employed strategy and subsequent consequences were identified. During analysis there was a continuous interplay between both coding levels (open and axial).

2.4.3 SELECTIVE CODING

During selective coding a storyline which represents a narrative description on the central core conceptual categories of the study is constructed. This is followed by the selection of a core category (see Glossary) to ground the emerging theory which is generated on a meta-level, and has also thematic relevance to the current field of research (Strauss & Corbin, 1990; 1998).

2.5 RIGOUR

The present study was strongly oriented on GT by Strauss & Corbin (1990; 1998) and therefore aimed at fulfilling the relevant criteria for empirical grounding. Thus, the generated concepts were grounded in up to 20 interviews per country and linked during axial coding. As a first step in the analysis, open coding grounded in the data took place. This was followed by the development of axial coding to represent processes and to also show the linkages between concepts on a relational and causal level. The axial categories and the overall storyline represented the results of these linkages. The linkages between concepts were conceptualized on the axial level. Coherency in axial coding was ensured by high discriminatory power of each axial category. To guarantee well-developed categories, concepts were only used once within and between each axial category. This was accomplished by reformulating categories and reassigning quotes so that categories were distinct and had no overlapping concepts. The conceptual linkages were included in the form suggested by Corbin & Strauss (1990; 1998), with every axial category containing features for context, causal conditions, strategies and consequences.

To ensure quality on the open-coding conducted locally by each partner, feedback on procedure and results was continuously given individually to partners by the coordinating centers. During the integration phase (merging of data), the research teams at AHU and UMC integrated data for half of the partners. The quality of the integration by each team was then assessed by the other research team. In addition, weekly or fortnightly video-call meetings were scheduled to discuss the integration of material on the theoretical and practical level. To ensure involvement and input from all participating members, all partners were invited to participate in face-to-face and video-call meetings. Transparency was provided by regular meetings with involved members of the International advisory board in which the process of analysis was described in detail and discussed with all researchers present. In addition, minutes were kept during the face-to-face and video-call meetings. Importantly, quality checks on open and axial coding were conducted within the research teams.

Table 4. Exemplar category development with quote and coded concepts

Exemplar quote			Coded concepts on a line-by-line basis
<i>NL01L18-23: When I was little we had one of those modem things and that went *makes dial-up noise*, something like that and that was super slow. Then we had behavioural goals here at home, like that I wasn't allowed to throw cushions if I was angry, and with that I could earn "Internet-minutes" and that's how it started actually. At school, we could be on the computer for an hour every Friday. Yeah, that is how it started, and in the beginning it was games or spele.nl.</i>			→ technological constrains → behavioural goals → parental mediation → "how it started" → school access → online games
Concepts	Properties	Dimensions	Category
<i>Assistance provided</i>	Learning style	Self-learning to fully assisted	Initiation Online
<i>Social mediation provided</i>			
<i>Well remembered vs. Too young to remember</i>	<i>Recollection degree</i>	<i>Vague to well-remembered</i>	
<i>First impression</i>	<i>Discovery level</i>	<i>Subtle to overt</i>	
<i>Use limited in time and applications Parental restrictions and rules</i>	<i>Restrictions imposed</i>	<i>Subtle to overt restrictions</i>	
<i>School access Educational access Games (offline or online)</i>	<i>Child as consumer of content</i>	<i>Subtle to intense consumption of content</i>	
<i>Technological Difficulties encountered</i>	<i>Early difficulties</i>	<i>Subtle to overt</i>	

3. RESULTS AND DISCUSSION

3.1 EMERGED CODES AND BROAD THEMATIC CATEGORIES

Our findings were the product of grounded theory (GT) analysis carried out on the rich narrations of 124 adolescents living across 7 European countries, purposively sampled due to showing signs of IAB.

One thousand five hundred (1500) concepts (see Glossary) emerged from initial open coding conducted locally by each partner. Based on a centrally implemented merging process 440 concepts were validated and thereafter clustered into 78 thematic categories of meaning (bold italics in text). These categories were further developed in terms of their properties and dimensions. An indicative example of the process of evolution from quotes to concepts and properties and into thematic category is shown in Table 4 for the category *Initiation Online*.

During subsequent stages of analysis, the 78 thematic categories of meaning were examined for interrelations and were integrated into six broad thematic (axial) categories (see Glossary), which are presented in Table 5 (page 22). For details on emerged concepts of each axial category separately see Tables 9-12 (page 125-128) in Annex C, and for pivotal interrelations grounding the emerging model see Table 7 (page 83) in text.

Table 5. Broad thematic (axial) categories, their properties, and role in paradigm

Axial category	Properties	Role in Paradigm
Always online and Checking out	<ul style="list-style-type: none"> ❖ <i>Permanent Engagement: Always Online</i> ❖ <i>Sustaining Contact: Checking Out Online</i> ❖ <i>Multi-Tabbing and Multi-Tasking</i> ❖ <i>Internet Use Turning Automatic and Habitual: Element of Everyday Life</i> 	Phenomenon
Adolescent Thirst	<ul style="list-style-type: none"> ❖ <i>Need For Connection to Peers and The World</i> ❖ <i>Curiosity for Information</i> ❖ <i>Need for Self-Searching</i> ❖ <i>Need for Action</i> 	Causal condition
Growing into a User Content Creator	<ul style="list-style-type: none"> ❖ <i>Online Initiation: Timing and Mediation</i> ❖ <i>Peers and Parents Mediating Online Pathways</i> ❖ <i>Changing Parental Role, Control and Practices</i> ❖ <i>Changing Routine: From Boredom to Burden</i> 	The (developmental) context
From Easing Adolescence to Empowering Self	<ul style="list-style-type: none"> ❖ <i>Easing Adolescence</i> ❖ <i>Empowering Self</i> 	Intervening conditions
Juggling a Changing Reality	<ul style="list-style-type: none"> ❖ <i>Attitude to Change (Resistance....Readiness)</i> ❖ <i>Degree of Self-Regulation</i> 	Action/interaction strategies
DIGITAL OUTCOMES	<ul style="list-style-type: none"> ❖ <i>Online Craving</i> ❖ <i>Offline Engagement</i> 	Consequences

The axial categories were further developed and integrated into a larger theoretical scheme by employing the coding paradigm (see glossary) where each of these categories were ascribed a particular role in the emergent theory denoting the role of *phenomenon*, *causal conditions*, *context*, *intervening conditions*, or *consequences*. Axial categories, their properties and roles in the coding paradigm are shown in Table 5 and their interrelations are graphically depicted in Figure 1 (page 23).

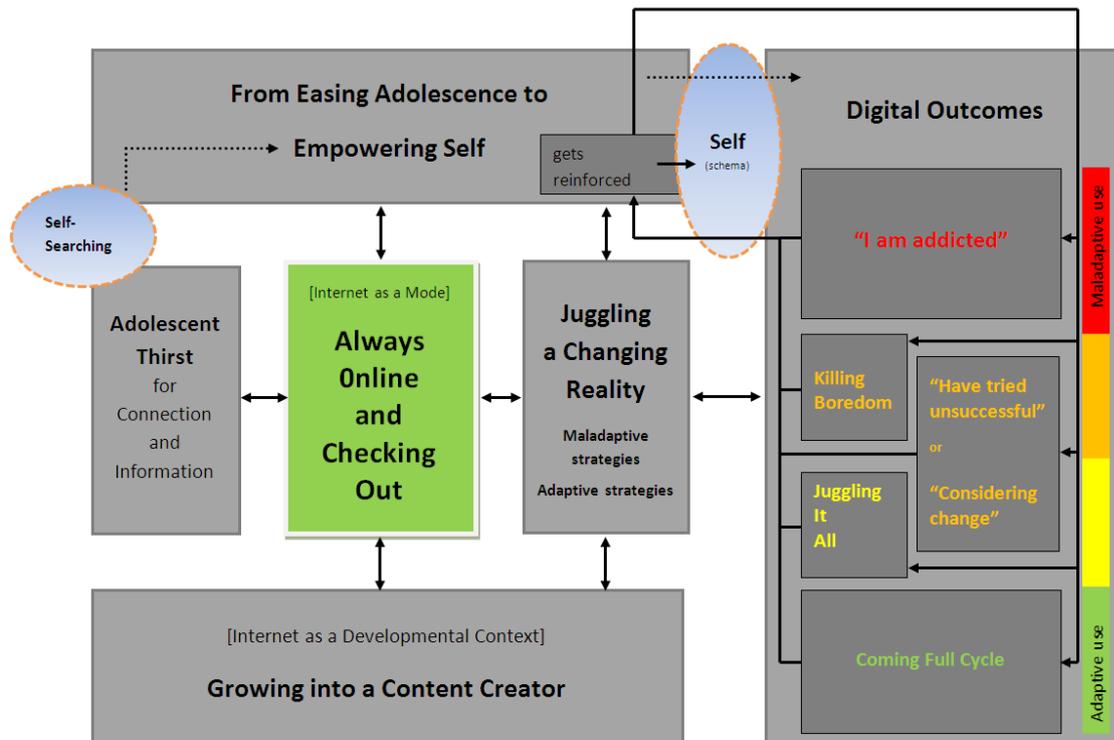


Figure 1. Emerged GT Model of Internet use patterns among adolescents at risk for IAB

During the final and integrative steps of our analysis, the **storyline** was developed which elucidated axial categories' inter-relations in a narrative style. The **core category** (see glossary) was identified and its relevance to the emerging framework was elaborated upon it. Finally, our emerging theory was validated against our data with *confirmatory analyses* of narrations against our model's outcomes, spurring final refinements to our model.

In this report, we employ a *top-down presentation* of our results. First, we start with a presentation of the **storyline** and the **core category**. We then undertake an in-depth descriptive presentation of the six emerged **axial categories**, which constitute our study's most salient themes and the building blocks of our Grounded Theory.

3.2 THE STORYLINE

Adolescents' narrations of their initiation into the Internet and their subsequent online personal progression was conceptualized as *digital pathways* of development. By early adolescence, Internet use escalated to a higher level of competence and engagement. This process was described as progressing in an explosive manner propelled forward by the discovery of social media, after which the adolescent was shown as ***Growing into a Regular User and a Content Creator***. This new phase of online engagement was framed within a backdrop of online and offline developmental, familial, and social changes. Peers and parents were described as significantly mediating Internet use.

Participants unanimously described being drawn online to quench their ***Adolescent Thirst***, a need which in our paradigm functioned as the key *causal motive* for Internet use. The most prevalent thirst was an innate *Curiosity*, a need to *Get Answers* on a thematically wide range of questions, with a focus on attaining fast and most current information. Another pivotal and commonly described thirst was the need to *Keep in Touch* with existing and new contacts. The latter was a powerful and undisputed motive explicitly narrated as a need to sustaining continuous online connection in the social network platforms used by the vast majority of our participants. For a much smaller portion of our participants, an additional motive was their need for personal exploration which was conceptualized as a need for *Self-Searching* and testing out possible selves via a constant pursuit of feedback in the form of *Seeking Comments and Likes*. An additional need for *Continuous Action* was described, interrelated to a need to *Kill Boredom* and fill in spare time.

Once adolescents discovered that their thirst for information and social updates could be easily and readily quenched online, Internet use boomed to the present phase of Permanent Online Engagement, where Internet is a mode and the main motive is *Sustaining Contact* – behaviourally manifested as *Checking Out* online happenings. This new state of digital 'being' became our study's central phenomenon (see Table 5), capturing the currently lived experience of ***Always Online and Checking Out***. For the majority of participants this mode was achieved

and maintained by the use of smart phone and multiple devices, often *Multi-Tabbing and Multi-Tasking* in an effort to handle online and offline endeavors.

Online overt behavioural patterns were reinforced and maintained by ample opportunities to quench adolescent thirst for connection and information access. Being facilitated on a practical, personal, and interpersonal level resulted into an unanimous agreement among all adolescent that Internet is *Easing Adolescent Life*. The domains and the manner by which adolescents were experiencing this facilitation were influenced by their personal competencies (or constraints), the latter mediating the degree of facilitation: ranging from sheer facilitation (*Easing*) to a more profound “boosting” of self (*Empowerment*). Online behaviours were perpetuated through positive online encounters, such as overtly *Being Liked*, *Gaining Excellence in Games and Filling Empty Time*, which renders adolescents *Feeling Boosted*. A few individuals were especially benefited since the Internet allowed them to *Bypass Personal Barriers* (such as shyness) or *Escape Personal Problems or Voids*, both of which were described as *Empowering Self*. This was a pivotal category functioning as the intervening condition of our paradigm (see Table 5) since it facilitated increased *Online Engagement* and was inter-related to *Online Craving*, rendering the intervening nature of *Easing Adolescence To Empowering Self* as central to the development of an IAB.

In an effort to handle their busy schedules and increased online engagement, our participants developed a variety of behavioural and cognitive strategies which were adaptive or maladaptive in nature and were implemented either in a voluntary or involuntary manner incorporating different degree of experienced pressure and difficulty. These strategies were conceptualized as constituting an act of *Juggling a Changing Reality*, in an effort to sustain online presence and keep up with current offline duties. The *Degree of Self-Regulation* that participants possessed and their *relative Resistance or Readiness for Change* determined the type of strategy used.

As a result of lived experience of being Always Online and Checking Out, and based on the adaptive or maladaptive strategies used to handle it, participants progressed on their digital pathways and reached their current lived experience of “digital being”, coined as *Digital Outcomes*. Digital

outcomes were governed by differential levels of *Online Craving* and of *Offline Engagement*, the interplay of which differentiated participants' *current* Internet use patterns. Some participants described distress and described themselves as *Being Stuck Online* or *Addicted*, often specific to certain online applications, such as social networking and gaming. These experiences were linked with maladaptive strategies such as low levels of *Prioritizing* and high levels of *Normalizing excessive use*. For some adolescents digital pathways fluctuated and were cyclical in nature, reaching high and lows, and were governed by negotiations of control over use and awareness of maladaptive or excessive use. Some of these participants described having experienced *Excess* or *Distress in the Past* and having found ways to come out of this difficulty. Change was described as occurring after realizing that offline alternatives are worthier, which brought about a *Self-Correction* process governed by self-regulation and behavioural modification, described as *Coming Full Cycle*. An alternative, less effortful route to *Coming Full Cycle* was described as *Saturation*, occurring after an original period of enthusiasm and over-engagement. A third group of adolescents who possessed internal resources of self-discipline and sufficient self-regulation described being able to handle Internet use and somehow integrate it smoothly into their daily schedule. This pathway was described as *Juggling it All*. The last identified digital outcome was that of *Killing Boredom*. Adolescents found in this position most often experienced their offline environment as boring due to lacking alternative activities of interest. As a result, online engagement provided handy and comfortable time filler of low excitement and enthusiasm.

As it becomes evident, **Digital Outcomes were shaped by the interaction of the physical and virtual world and by the way adolescents experienced them both as contexts of growth.** Adolescents' narrations included, explicit or implicit, comparative evaluations of general advantages and disadvantages, as well as of personal losses and benefits of growing into the physical and the virtual world. The perceived complementarity, convergence, or discrepancy in adolescents' accounts of their two worlds of development exemplified *Digital Pathways* and the broader developmental process of *Navigating Adolescent Pathways*. This process integrates online and offline developmental trajectories of change and

experimentation, unfolding in parallel, crisscrossed, or intergraded. Consequently, the way adolescents experienced and negotiated the dynamic mutual *interplay* between the two worlds attained the status of our core thematic category: *Navigating Adolescent Pathways*.

3.3 BROAD THEMATIC CATEGORIES AND DISCUSSION

Six broad thematic categories emerged from our analyses and are presented in detail below including their relevant emerged concepts, properties, role, and interrelation to the coding paradigm. Concepts and properties are supported by participating adolescents' quotes, followed by their corresponding gender, age, country of origin, and reference number (in parenthesis).

3.3.1 GROWING INTO A CONTENT CREATOR

This broad thematic category captures and integrates themes pertaining to developmental and social conditions, and constitutes the context against which the phenomenon *Always Online and Checking Out* unfolded. Narrations relevant to adolescents' surrounding social context were centered on peers, parents, and daily routine. The wider developmental context is mid-adolescence, a time of rapid changes on a physical, cognitive and relational level. The theme of *change* was salient across narrations pertaining to contextual conditions which were characterized by four main properties:

- *Online Initiation: Timing and Mediation*
- *Peers Mediating Online Pathways*
- *Changing Parental Role, Control and Practices*
- *Changing Routine: From Boredom to Burden*

The personal evolution in online time engagement and skills acquisition was conceptualized as *digital pathways*, beginning sometime between middle childhood and pre-adolescence (the elementary years) when our participants had their first contact with the Internet. *Online Initiation* was socially mediated and typically characterized by limited use, both in time and breath of applications. A

slow online evolution was described especially for those who were still in middle childhood, whereas the pace of progression was accelerated for participants who started using the Internet in pre-adolescence. The initial stage was followed by a salient evolution and skill progression, marked by the changing nature of online activities-mediated by peers, parents and the daily routine. A turning point in the initial progression of digital pathways is the shift to content creation as denoted in *Growing into a Regular User and a Content Creator*. For details on emerged concepts and properties of this thematic category see Table 9 in Annex C.

Online Initiation: Timing and Mediation

First experiences with the Internet included descriptions of the earliest online contact (*Recollecting Initiation*) and of the way participants were introduced to the Internet (*Learning style*). During the initial online phase, the child was typically assisted or guided by a more expert user – a parent, a sibling or a friend. A *Learning Style* of guided assistance was commonly described across participants and across countries:

I was in secondary school, my dad taught me how to search on the Internet in order to do my homework, he used to stay with me.

Girl, 16 years, Romania (13)

Observational learning was evidenced as well in the narrations with many participants describing “watching others” using the Internet and thereafter replicating observed online behaviours:

I started learning by watching others: how they use the Internet or the computer. I mean, I didn't get any direct indications. They didn't tell me what to do, I would just observe them, I replicate at home on my computer and online.

Boy, 16 years, Romania (13)

³ Denotes characteristics of the participant: gender, age, country of origin and interview number.

Consistent with emerged patterns of learning style there is previous evidence indicating that informal guided assistance is typical in childhood; a report coming from the U.S. (NetDay, 2004) showed that 6th to 12th graders relied upon their informal learning environments and networks to learn about technology. Friends, family or observational learning (among those who explored on their own) were the primary sources for information about new technologies and Internet sites rather than formal learning environments (e.g. school).

In contrast to common patterns of learning style, marked differences emerged across countries in regards to the *timing* of the earliest contact – typically described in chronological or grade level terms – and the ensuing *recollection* that was of varying degree of *Vividness*. The variability in the vividness of recollection was captured in the dimensional range of this significant property; from recent-distinct memory to distant-vague memory. An interesting trend emerged whereby adolescents living in northern European countries (NL, IS, D, PL) found it difficult to recall their very first online experiences when prompted to do so. These participants described the Internet as deeply embedded in their early childhood memories and found it difficult to recall earliest online experiences:

I don't know anymore how I came into contact with the Internet.

Boy, 16 years, The Netherlands (12)

I don't know, it just happened. It's such a long time ago. I think I was about six years old when I first started to look something up in the Internet, just google something.

Boy, 16 years, Germany (18)

The Internet? (surprised) The Internet has been there since I can remember, always.

Boy, 15 years, Poland (15)

On the contrary, for most participants in Greece, Spain and Romania the Internet entered into their life in mid to late elementary school years (and in a few cases in early secondary school), making the first online experiences distinctly remembered. Some participants viewed their initiation as “delayed” or “late” or

occurring at an “older age” – usually explaining it as practical constraints (lack of home Internet access or device):

Well, I started using the Internet when I received a computer as a first communion present⁴.

Boy, 16 years, Spain (4)

The Internet, I started using it at an older age, when I was 8 or 9 years old.

Boy, 16 years, Greece (18)

Care should be taken in attributing the observed differences in the timing of initiation on cultural aspects or parental mediation processes. Alternatively, context-specific technological conditions and in particular local Internet penetration rates may offer a better explanation of the reported differences. Noteworthy, Iceland has the highest Internet penetration rate (97% penetration in population) in the world, while the Netherlands and Germany hold the 8th (89.5%) and 16th positions (82.7%) respectively. Contexts with high broadband connectivity offer added convenience to connect online. The remaining of our participating countries has rates below 65%⁵.

Peers Mediating Online Pathways

Participants described both the active and indirect processes by which siblings and friends acted both as coaches and as models of online behaviour, in most cases purposively guiding participants into becoming involved online. Mediation was not always direct in the form of assistance but as well indirect through prevailing contextual practices as in the case of *Peer Friending Practices* which constituted facilitative conditions in the progression of digital pathways. Adherence to *Peer Norms* of Internet use and specifically participation to social networking platforms was strongly reflected in adolescents’ narrations and interrelated to their need to belong to peer-groups and avoid exclusion. Consequently, *Exclusion Avoidance* clearly mediated their progression into higher

⁴ Typically at 9 years of age

⁵ Spain; Poland: 62%; Greece: 47%; Romania 39.2% from <http://www.internetworldstats.com/europa.htm>

levels of engagement. The Internet allows adolescents to create and reinforce social norms which lead to distinct peer group knowledge. For instance, topics discussed in the schoolyard often pertain to the Internet and as such require *online presence* to enable participation in relevant offline discussions. Non-participation in online normative activities was described as putting adolescents at risk for social exclusion or leading to inadequate “social presence”:

Once I even read somewhere on the Internet that people who are not on Facebook are not alive. (laughter)

Girl, 15 years, Poland (16)

“Hanging out” on SNS was described as a peer daylong habit while the “etiquette” (*New Social Etiquette*) and practices governing SNS use were distinct in their own way; adolescents described new social practices taking place through the use of SNS. One distinct example of online social practices altering the adolescent social scene was on how befriending starts online (*First Online*):

It's occurred to me that it's weird that I am from a generation that first gets to know each other and then meets each other in person. You see that happening ever more on Twitter and such things. People who meet each other online and then in real life, that's never happened in the past.

Boy, 16 years, The Netherlands (4)

Online Flirting was mentioned by many participants, while starting and ending online romantic relationships was described as well. *New Approach Strategies* were shown as evolving on SNS and described as overcoming face-to-face interpersonal difficulties, such as adolescent shyness; these “strategies” were presented as the “new” ways to initiate contact online, rather distinct from face-to-face contact:

*Ok basically most people talk first in Facebook and then when they meet up they may talk in person. Otherwise no guy will come up to you and say hello. (I: Why not?) Because **it no longer works this way**. Mostly because guys are very shy and they can't approach you out of the blue and say hi. While in Facebook, ok they will find something to comment on, like a photo, and then they will pick up a chat. It works this way. They are looking for an occasion.*

Girl, 14 years, Greece (10)

Acknowledging online friends' content by uploading "Likes" was another very frequently described daily online practice. Receiving comments and likes seemed to have high importance for some participants (*Have to Have Comments*) while non-response to uploaded material was considered as lack of interest:

That I have to do something so people in my life get in my profile. If people don't get in my Tuenti⁶, that's like if you stop being interesting to people.

Boy, 16 years, Spain (1)

The overarching theme in peer mediation was the changing friending practices and the potency of peer social "pressure" along the narrated need to adhere to norms of online behaviour. Noteworthy was that adolescents ascribed heightened importance to online interactions and reactions, similarly as they did to offline peer feedback. It has been previously suggested that adolescents self-esteem can be influenced by feedback received online (Valkenburg & Peters, Schouten, 2006).

Changing Parental Role, Control and Practices

Parents were described as directly guiding participants in their early digital steps (in childhood) while presently (in adolescence) *change* was a salient theme, and altering parental mediation was typically described. **Parental Mediation** practices were shown to operate on a direct behavioural level (*Loosened Parental Monitoring*) and on an indirect socio-cognitive level (*Parental Ambivalence*).

Loosened Parental Monitoring was narrated as a shift in the surveillance and guidance in regards to time spent online and in applications used. Many participants ascribed a degree of personal growth inherent in the changing parental monitoring, and both (growing and changing parenting) were closely linked with Internet use across narrations. Increased independence was salient in most stories, although to different degrees, and closely interrelated to increased

⁶ Tuenti - Social Network Service mainly used in Spain

Internet use, suggesting that *Increased Independence* was shown to be a **requisite to digital progression**. *Greater Freedom* was narrated as prevailing both online and offline, at times described as a shift to self-regulation:

[I am] reasonably free. I get all the freedom from my mum in actually everything, on the Internet and also when it comes to returning home. How late you get home, etcetera, but you can put your own restrictions. My mum would allow me to be behind my computer the whole day. She is not that strict so that she would switch off the computer like my father would do. But she did teach me that after a while I myself should think, "No now it's enough".

Boy, 17 years, The Netherlands (8)

Oh yes! Now that I am older and have more things to do and parents give you more freedom, well maybe I use it more.

Boy, 16 years, Spain (2)

Not all adolescents experienced the same degree of change in parental involvement, and this ranged from loosened parental supervision (most typical) to ongoing parental restrictions (in a few cases). In cases of ongoing parental restrictions, most participants viewed them as 'annoying' although a few adolescents admitted that restrictions came 'in handy' in keeping Internet use down:

Yes it's them [the parents] trying to keep it [the Internet use] down (...) Honestly, it's just incredibly annoying but can also come in handy.

Boy, 15 years, Iceland (10)

When the parents were leaving the house they saw that I wasn't asleep, that I was online, and they got really mad at me. I told them it would never happen again.

Girl, 15 years, Poland (16)

Adolescents whose parents imposed strict restrictions used various ways to *Bypass Parental Control* (further elaborated in section 3.3.5).

Parental Ambivalence was conceptualized as a cognitive facilitator in the progression of digital pathways and increased engagement – a robust theme representing mixed parental attitudes towards the Internet and its use. Participants described receiving both positive and negative views on Internet utility and safety from their parents with no consistency on their behalf. Some participants reported a discrepancy between parental preaching and parental behaviours. The discrepant and blurry parental stance gave adolescent room for interpretation and often a stepping-stone for defying parental rules.

In regards to the parent-child role, some narrations related to a *Role Reversal* taking place online; the child becomes the teacher of online skills and the parent is the naïve learner. These narrations primarily referred to the digital naiveté of parents. Some adolescents were less responsive to parental requests for assistance while others took initiative and suggested that parents open accounts on Facebook for example:

She would also like to learn more about it [the Internet] because she doesn't really know how to use it. And I wouldn't like to teach her (laughing). I get bored, she's a slow learner. She usually wants to get on Messenger or Facebook and I'm like 'No way! You have nothing to see. She is allowed to play, and that is all [laughing].

Girl, 16 years, Romania (10)

In sum, adolescents' regular Internet use and attainment of digital creator status seems to be mediated by diminished parental control and by recounted parental ambivalence. Previous studies based on parental self-reports confirm such varied attitudes with the vast majority of parents acknowledging Internet's educational potential (Livingstone, 2003) while simultaneously expressing concerns over adolescents' psychological adjustment (Lenhart, Madden & Hitlin, 2005; Livingstone & Bober, 2004). The described inconsistency between parental beliefs and behaviours has been explained by the limited knowledge parents have on Internet technology, as compared to their children (Lenhart, Rainie & Lewis, 2001) and by the growing difficulty among parents to penetrate Internet use (Subrahmanyam & Greenfield, 2008). Surveys indicate that most parents of adolescent children neither set rules nor monitor their children's use closely

(Lenhart & Madden, 2007; Rosen, Cheever & Carrier, 2007). A number of studies with high school students showed decreased parental control with less than 15% of adolescents reporting any parental restrictions (Rogers, Taylor, Cuning, Jones & Taylor, 2006) while in earlier studies 21% reported parental use of Internet filters and 18% claimed parental knowledge of sites visited (Roberts, Foehr, Rideout & Brodie, 1999).

Changing Routine: From Boredom to Burden

Most adolescents described their daily routine as a busy time with multiple endeavours taking place in school and out-of-school. The adolescent routine was unanimously described as a *Structured Routine* – a routine governed by regularity and repetition with multiple mentions of time pressure (“no time”, “rushed”, “late”). In regards to the demands imposed, descriptions varied significantly between participants and countries, and this divergence was captured in the continuum *Loaded Vs. Boring Teen Routine*. Some adolescents described their routine as easy-going while others referred to overload and distress. Offline engagements differed significantly across countries. Greek, Spanish and Romanian adolescents commonly described a “heavy” academic schedule and a “loaded”, “tiring”, or “busy” daily routine. For these adolescents, their online time was embedded in their structured routine:

It's very busy. And because it's so busy I make up plans in my head, so that I can do them all. I mean I know I have to go to school, go out for a bit, go home, and do my homework and then Internet (smiling). It is something normal.

Girl, 17 years, Romania (14)

Other participants, primarily those living in the Netherlands, Germany and Iceland, did not refer to academic overload, but described a full – equally “tiring”– schedule with additional duties beyond academics, including house chores and jobs in some cases:

I have long days at school, because school finishes at 16:15 except for Tuesdays. So then I am often really tired after school; besides that I also have

different things I do next to school. Babysitting or playing sports, getting together with my boyfriend.

Girl, 16 years, The Netherlands (15)

A few participants described being academically under-challenged and having a lot of free time. For this group, the Internet was presented as a handy way to *Kill Boredom* (see section 3.3.2). Therefore, **the pathway to increased online engagement was described either spurring from boredom or from overload and burden** – either academic or extra-curricular. In both cases participants often described using the Internet as a means for “getting away” from their burdens while Internet time was perceived as their very personal time (*My Time and Space*). Adolescents view the Internet as their own “space” where they can develop their own individuality and make their own decisions. Similarly, researchers in the SAFT study found that adolescents reported experiencing the Internet as a “*liberating free zone where teenagers’ own logic and set of rules reign*” (Bjørnstad & Ellingsen, 2004, p. 32).

Growing Into a User and a Content Creator

Following the initial phase of engagement, a normative phase of gradually increasing online engagement spurred. This typically took place in early adolescence and influenced by peers, parents and routine. Common in the narrations was an increase in the time spent online and a personal leap into the next “level” of Internet engagement, that of *Content Creator*. This status came in contrast with earliest practices when the novice users spent limited amounts of time online, engaging in few online activities related to *Content Consumption*. Many participants described that in earlier years Internet use was confined to “consuming” games and seeking information, for school and personal use. The changing role of the Internet in the adolescent life was widely elaborated and is well captured in the narration of a Dutch participant:

Yes, in the beginning Internet was a way to spend free time, originally Internet was the goal, now it’s more the medium by which things can be done.

Boy, 15 years, The Netherlands (4)

With entry in secondary school, the Internet evolved *into a means*, a tool to access information, to develop skills and to build social networks. This dynamic evolution appeared as a natural evolution in the *digital pathways*, going hand-in-hand with offline growth and the typical adolescent development and exploration. The word *discovery* was very often used and depicted digital explorations, often described as opening up novice online activities and increasing online engagement:

*I have **discovered** new music groups, new ideas, and new things that I would have never known them to exist, and I discovered them through the Internet, and these things have changed my life in various ways.*

Girl, 15 years, Greece (11)

The *Discovery of Social Networks* was one of the most memorable and vividly narrated online experience, described as “amazing” or opening up “a new world”. The multiplicity of social media turned young users into more involved users.

At home I was the first to use social media, because my friends discovered Facebook and thought it was amazing and so I had to have it. So they [my friends] set it up for me and then I started using it at home.

Boy, 16 years, The Netherlands (13)

Social media were used by every single one of our participants with social networking, sharing, and gaming being the protagonists of online applications used. Setting up accounts in peer-preferred platforms, generating, and sharing content on these platforms were described as the *Expected Online Norm* – denoted by the frequent use of the adverb *of course* and the proactive *set up* indication:

*When I entered Gymnasium I set up an email account and then I used the net more often and I learned through friends about some sites; so eventually I **myself set up** an account on Facebook and then also set up a hi5 (...) **Of course** I use YouTube for songs and videos and **of course** some online games as well.*

Boy, 14 years, Greece (1)

With immersion in social media, and especially social networks, adolescents turned into *Creators Of Digital Content*, finding ways to express personal opinions and identities (expanded in section 3.3.4 *From Easing Adolescence to Empowering Self*). The category **Content Creator** was closely interrelated with developmental leaps in “maturity” and growth, and as such this category was labeled *Growing into a User and a Content Creator*.

A number of studies (e.g. Chang, 2006; Lorenzo et al., 2007) support the pronounced shift from entertainment and consumption of content to communication and creation of content. Such shift can be explained by the introduction of Web 2.0 technologies (e.g. blogs, wikis, SNS, Social bookmarking services, P2P (peer-to-peer) networks) which allowed alliances and sharing between users (O’Reilly, 2005). The documentation of adolescents’ regular use of such applications (Cairncross, 2007; Kvavik, 2005; Oliver & Goerke, 2007) has granted them the label ‘prosumers’ (Chang, 2006) or ‘produmers’ (Towers, Smith & Bruns, 2005).

3.3.2 ADOLESCENT THIRST

This category captures the underlying needs and motivation for daily online presence which were described as thirst for social interaction, knowledge of the world and themselves. ***Adolescents Thirst*** constitutes the causal condition in our theory, driving adolescents into being “Always online and checking out” (see Table 5). Participants described using the Internet primarily for communication and social exchange and were most interested in the Internet’s opportunities for searching information. Adolescent thirst was centered on four properties; *Curiosity for information*, *Need for Connection to Peers and the World*, *Need for Self-Searching*, and *Need for Action*. For details on emerged concepts see Table 10 in Annex C.

Curiosity for Information

Adolescent Thirst captures their interest in almost anything new. The most prevalent **Thirst** was *Curiosity for Information* – attaining fast and most current information in order to *Get Answers* on a wide range of questions. Although the

thirst for knowledge is quenched on a daily basis in an offline setting as well, the Internet allows adolescents to gain instant access and to be able to drill deeper in all topics they are interested in (e.g. learning to play the guitar, to draw, to cook, to create a website, or to use certain professional programs):

I have googled just about everything, from how you should dress with this or that and just for baking and cooking and just everything.

Girl, 15 years Iceland (3)

Adolescents keep themselves updated on political, economic, and cultural issues and make plans for their future education or professional path. In this sense, the Internet engagement affects their personal development and helps them to become more knowledgeable:

Uhm, knowledge. Knowledge and self-development (...) I think that if you, I mean I am now in a the age of 15, so I think it's important to take up as much information as you can about the world around you.

Boy, 15 years, The Netherlands (16)

Teens are typically continuously online, constantly checking out new information which is significantly supported by mobile devices and Internet flat rates. The need for being up to date and the importance of curiosity for upcoming hypes further supports the regular use of the Internet:

Uhh, constantly, but that is a bit because I have the function of a trend watcher. Because of that of course. That's also expected from me that I am aware of new developments.

Boy, 15 years, The Netherlands (4)

Need for Connection to Peers and the World

Participant's *Thirst for Connection to Peers* stems from the basic psychological need for connection to the people in one's environment:

The most important reason? To stay up to date about everything that is happening, what people are doing, what they think, what they want, what they are going to do, what they have done.

Boy, 16 years, The Netherlands (14)

Adolescents described being thirsty for new social input. A commonly reported vehicle that adolescents used to quench their thirst were social networking sites (SNS). For adolescents, the Internet facilitates *Keeping in Touch* which was often mentioned by participants – especially when planning various activities or being restricted by time or distance from meeting face-to-face:

I talk via Skype. With those who live far away. For example I talk to one friend all the time, he's from the Netherlands. And with my uncle who works in England. This Skype, it's good.

Boy, 15 years, Poland (15)

Need for Self-Searching

Adolescents described using the internet for *Self-Searching*, namely exploring their identity via “testing” their SNS profile – their digital self-representation. This was done by uploading photos and comments and waiting for feedback from “friends”, often by actively *Seeking Comments and Likes*:

The Internet is designed to make you communicate, to be in line with all the information, technology, everything related to the field in science, everything that interests you, sometimes even to your self-discovery.

Girl, 16 years, Romania (2)

Just as online behaviours are often guided by the need for feedback, online encounters were narrated as shaping adolescents’ behaviours based on online “standards”, including stylistic or behavioural standards as depicted in the category *Altering Behaviours Online*:

My style has certainly changed because of Facebook. Let's say the Internet sets some standards, and each one of us is trying to gain something out of this (...) and one's character changes and one's style – everything. The Internet tells you this and you do this.

Boy, 16 years, Greece (12)

Need for Action

The need for action, variety, and a thirst for stimulating events was commonly reported by the participants of this study. In that respect the Internet is offering a multitude of opportunities to quench this need which were used by the participating adolescents. This phenomenon is exemplified in the following quotes:

The world cannot turn more interesting. It is the way you see the world, the people you choose, and the way you opt to put your thoughts into actions. It is you who makes your life more interesting, or less so. You can either sit around on your couch and do nothing, or you can get out there and do a million things, things which have not crossed your mind how fun they are.

Girl, 15 years, Greece (11)

Well, football (...) I play football (...) I like to play football, and then, for instance, regarding action such as in Call of Duty, I like, well (...) the action [of those games] and they are entertaining.

Boy, 16 years, Spain (11)

Adolescent's daily routine offers the opportunity to use the Internet as a remedy for boredom. However, some participants describe that the Internet often does not bring real relief and may even be boring in itself:

I would say that boredom is in a way connected, you know, like when I have been, like first I go on the net and then I'm done with the things I need to do, and then there is nothing else to do on the net and then I get bored. Still, you know, one feels like one have to be on the net to not get bored. So in that way I'm not doing anything in some way.

Girl, 15 years, Iceland (2)

Most of the time I'm bored, but sometimes I'm also bored online.

Boy, 15 years, Iceland (8)

Because I'm probably fed up with searching on the Internet or I get bored because there are so many things that get repeated.

Boy, 16 years, Romania (8)

Some participants are breaking this helix of boredom and start to become professionals in some areas, e.g. homepage programming, learning from Photoshop tutorials, or being head of a gaming clan:

Most of the programs I often use are more related to business, because I can gain money through them, like computer generated graphics, Corel, Photoshop, Word, Publish, Power Point, I enjoy working on them, it helps and I like it, I mean it helps me relax, I find myself in all of them, especially in Corel and Photoshop and other programs, these I use more often.

Boy, 16 years, Romania (2)

Research among adolescents has identified **3 general types of motives** that drive adolescents to go online: *information gathering/seeking*, *interpersonal communication* and *entertainment* (Wolfradt & Doll, 2001). Another study with Israeli adolescents corroborated these main motives in addition to academic type of Internet use, such as distant learning and school work (Nachmias, Mioduser & Shemla, 2000). Researching and communicating also appeared as the prevailing motives drawing college students into the Internet (Gordon et al., 2007; Rodgers & Sheldon, 2002). All these findings lend further support to the documented needs from participants' narrations.

Online communication permeates the everyday life of youngsters (Lenhart et al., 2005) and a number of empirical findings confirm that communication, if not the most salient, is one of the main reasons for Internet use among adolescents (Gordon et al., 2007; Wolfradt & Doll, 2001). Of European 13-16 year olds, 77% have a profile on a SNS (Livingstone et al., 2011) while very recent data suggests that 70% of 14-17 year olds in Europe use SNS daily (Tsitsika et al., 2013). Adolescents use social networks sites to form new social relationships but also to maintain existing social ties (Bryant, Sanders-Jackson & Smalwood, 2006; Mesch, 2009), as the vast majority of adolescents predominately interact with existing friends rather than strangers (Valkenburg & Peter, 2007) and specifically with their offline friends (Gross, 2004). This connectivity is active (Lenhart, 2009), with the vast majority of them commenting on friends' posted pictures (83%) or/and on friends' blogs (66%), posting private (71%) and public messages (77%) to their pages and chatting with them via Instant Messaging (IM) (54%). Furthermore, findings on blogs (Anderson-Butcher et al., 2010) suggest that adolescents' postings involved "community building" motives as most of their content had pro-social purpose. Adolescents use these social platforms to report regularly on their daily activities,

make plans, say hello, provide feedback and post comments. Similar conversation threads have been found analyzing text messaging (Grinter & Eldridge, 2003).

Adolescence is a time of experimentation and testing of adult behaviour. While the brain is extremely plastic in childhood and a great number of new connections between neurons are built until the onset of puberty, adolescence is characterized by an optimization of the brain (Spear, 2000). Via a “fine tuning” process the brain reorganizes itself by strengthening important and weakening idle connections, allowing a more effective and efficient performance (Steinberg, 2005).

At the same time the impulse for “tasting” novel experiences and the exploration of the world is strengthened. On the neurobiological level people respond to novelties with increased dopamine release in major motivation and reward centers of the brain (Ljungberg, Apicella & Schultz, 1992; Waelti, Dickinson & Schultz, 2001). Especially in adolescence, risky behaviour, often associated with new experiences, is perceived as especially rewarding (cf. Marcotte, Fortin, Potvin & Papillon, 2002). The stimulation of the reward center supports the exploration of the world and is therefore an important catalyst of growing up into an adult. However, it also leaves young people more prone to risky behaviour. The constant search for new experiences goes out of sync with the development of the control areas of the brain, which fully differentiate very late in puberty (Gogtay et al., 2004). One of the latest areas in the brain to develop is the prefrontal cortex, an area suggested to be responsible for ensuring that decisions are made based on previous experiences and on the assessment of the context in which decisions are made. The combination of increased reward sensitivity and lack of control leads to a particular risk-taking behaviour in young people, especially regarding rewarding behaviours (e.g., the use of psychotropic substances, sexually motivated behaviour, gambling, or excessive Internet use) (Marcotte et al., 2002). In general, ***Quenching Thirst*** is the primary motivator of using the Internet. In the present study ***Quenching Thirst*** directly affects the frequency, duration, and the content used. Curiosity is natural for humans; for adolescents it might be even necessary for growing. The need to learn new things and to explore the world (even if merely

virtually) is an important catalyst for developing the self and behavioural routines that facilitate development and striving in adult lives.

3.3.3 ALWAYS ONLINE: CHECKING OUT

This pivotal thematic category grasps the present “online being” of adolescents and constitutes the phenomenon of our GT paradigm (see Table 5) and the central theme around which the present theory emerged, explaining how excessive IU develops among adolescents. We conceptualize the developmental progression of Internet use in adolescence as *digital pathways*, personal online journeys of exploration, learning, and growth. *Digital pathways* evolve from the novice user to a regular user and creator of content, just as the child is developing into an adolescent. The role of the Internet is evolving just like the child’s needs and routine evolve to adolescent needs and *routine*. The Internet was described as turning from *goal* (in childhood) to *medium* (in adolescence), and thereafter serving as a *tool* for communication, schoolwork, and entertainment. This progression was commonly narrated with mention of its “typical” or “normative” nature. With progression on digital pathways came the exposure to a vast array of online activities and opportunities, bringing about a new online reality conceptualized as ***Always Online and Checking Out*** – a new way of being online by which the Internet is a *mode* (see Figure 2). This category assumed the role of phenomenon in our GT model: a phenomenon which was richly narrated as being the lived experience of the majority of our participants across all countries. The relevant narrations were coded into concepts and clustered into four pivotal properties (see Table 5; for details on emerged concepts see Table 11 in Annex C).

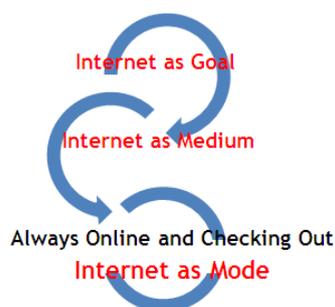


Figure 2. Normative digital pathways leading to the adolescent mode of *Always Online and Checking Out*

Permanent Engagement: Always Online

When referring to personal patterns of Internet use participants spontaneously used adverbs such as “always⁷” or “all day”, “all the time”, “at all times”, “constantly” or “24/7”. Based on its salience and prominence the adverb “always” assumed its position in this category’s label: ***Always Online***. Embedded in the term “always” is the notion of *Permanency* which constitutes one of the pivotal characteristic of the phenomenon and was narrated as a conscious way of “being online”. Some participants described this new mode as a sheer convenience or as a natural evolution of Internet use, often juxtaposing current continuous use with previous intermittent patterns of use:

It is always on (...) I leave Tuenti logged on. Then when I come back home, if I go out and I come back home, I have it ready, I don't have to switch it on and all.

Boy, 16 years, Spain (18)

Yeah, I actually use my Blackberry 24/7.

Boy, 16 years, The Netherlands (10)

Well, yeah, that has changed. Before, after I was finished I always turned it off, and now it's like, I don't know, I just learned that I can leave it on all day, even when I go out for a minute.

Boy, 15 years, Poland (9)

Although ***Always online*** was described as the typical adolescent *mode*, not all participants described continuous connectivity but instead reported going online intermittently, thus showing variability in the phenomenon. Intermittent use was either assumed by choice or imposed externally – typically by the lack of a handheld device. Some intermittent users commented that this pattern of use was beyond the peer group norm:

Well, in my case I use the Internet about two or three hours. My friends, as they have Internet on their mobile phone, well they are always online.

Boy, 16 years, Spain (14)

⁷ The adverb “always” was mentioned 579 times in our Open Codes databank (the complete set of codes from 124 interviews). Across these codes “always” was primarily referring to online use (always online, always on, always on the Internet, always there, always logged on, always connected)

Sustaining Contact: Checking Out Online

Most of the narrations pertaining to the notion of being Always Online were accompanied by justifications and associated motives. These were most typically linked to a need for *Keeping Up* with the peers' dynamic social scene as unfolding offline and typically represented online on social media. Sustaining "contact" or "staying connected" was a pivotal concern and a driving force of many participants – however stories differed in the way of how this was pursued. *Investing Effort* towards this end was often described and this was typically *Effortful and Proactive*, attained usually by carrying handheld devices and proactively messaging, uploading or "tweeting":

About the use of the Internet (...) I am always active, I mean, I always carry my mobile phone with me, I have the Internet on all the time, Twitter and all that (...) I tweet and I am always active there (...) always in constant communication with other people.

Boy, 16 years, Spain (13)

Sustaining connectivity and not "loosing contact" was especially effortful and safeguarded even under some (adverse) conditions, by ingenious methods:

Em when I was involved in a car crash (...) I had a broken hand I couldn't use the Internet. So for approximately two to three weeks I wasn't using the computer a lot by myself, but simply, I had someone else next to me and he would be in my web pages and I would tell him what to do and whom to respond to, so I wouldn't lose my contacts. I was involved with a girl for the first time and I didn't want us to lose contact. My brother would talk to her. I would tell him what to write and my brother would type.

Boy, 16 years, Greece (12)

Inter-related to *Investing Effort* was the notion of *Ensuring Connectivity* which was associated with devices and access. To ensure continuous connectivity, the majority of participants described using at least two devices. At home and at school most participants used desktop computers or laptops while the majority also owned handheld devices. iPods were most frequently used whereas smart-phones were common but not the norm in most countries. There was considerable variation among participants with respect to the availability of devices which was

primarily restricted by budget but also associated with parental permissiveness. Only a few adolescents described having mobile flat rate access and as such unlimited access.

Social networking was the primary motive for staying continuously online and this was described as the need to *Sustain the Information Flow* and *Avoid Missing Out* updates on current events and friends' news. The overt behavioural manifestation of this need was described as continuously checking⁸ online which was conceptualized as *Checking Out*⁹ – a continuous process of checking what is being uploaded:

Yeah, I don't really log off that often, I just click it off and then five minutes later I check again. (...) I have read my new messages and checked what other people said and then I log off.

Boy, 17 years, The Netherlands (6)

I always use [the Internet], always check new developments.

Boy, 15 years, Poland (11)

References to online peer norms were widespread in the narrations either to justify the constant online mode (“everyone does it”) or to explicate the needs such a mode facilitates. Most narrations related to personal use but some were phrased in the third person referring to peers or to normative peer practice:

Yeah, they [peers with Internet on their telephones] need to stay online, otherwise they miss something. They keep checking if there is anything new.

Girl, 16 years, The Netherlands (16)

This Dutch adolescent is also voicing here the conspicuous inter-connection of the continuous connectivity and its prevailing motive: “keep checking if there is anything new” – a relationship often articulated in narrations. Based on the prominence of *always* (the mode), the salience of *checking out* (the prevailing

⁸ The verb “check” appeared 223 times in our Open Codes databank (the complete set of open codes from 124 interviews).

⁹ The preposition “out” was added to the verb “checking” to denote the outward or social orientation of the act of checking, which can be seen as coming in contrast to the type of checking that is done in a maladaptive manner (as in the case of OCD disorders) in which the checking is a symptom compensatory in nature.

motive), and their conspicuous interconnection, the two properties were combined to form the phenomenon's label; ***Always Online: Checking Out.***

Multi-Tabbing and Multi-Tasking

The phenomenon's dynamic nature is reflected in the notion of *Multi-Tabbing* which depicts the narrated behavioural manifestation of *how* online presence is achieved simultaneously on many platforms. Most typically adolescents described using more than one application concurrently, usually social networking or chatting, while also listening to music or browsing platforms, thus grasping multiple online opportunities. In addition to multi-tabbing, adolescents report concurrent multi-tasking by carrying out offline duties in parallel with being online. The most commonly of such described activities was homework or having dinner in front of the screen. Multi-tasking was seen as an effort to combine or juggle online and offline duties and most often appeared effortless and natural; as described by a Polish girl and further elaborated in the section 3.3.5 ***Juggling a Changing Reality:***

Not one day passes without me logging in to Facebook. Facebook is constantly on, when I do my homework, when I'm having breakfast or dinner Facebook is always on.

Girl, 15 years, Poland (16)

Multi-tasking has previously been associated with distractibility (Larson, 2000) and students have reported difficulties completing school assignments, studying for exams and focus attention during classes (Chou, 2001; Tsai & Lin, 2003).

Internet Turning Automatic and Habitual Element of Everyday Life

Some of the narrations showed a certain degree of *Automaticity* in the way the checking out was done: often in a ritualistic manner:

Ehm I am actually more [online], well even more when, when I switch on the computer, I go to Teamspeak automatically and wait, until someone shows up or maybe there are already people and then I just chat with them.

Boy, 15 years, Germany (7)

The majority of participants described Internet use as a *Habit* with patterns of use showing regularity in the adolescent routine, such as going online first thing in the morning or last thing at night, typically justified for checking emails and updates on SNS. Interrelated to the habitual nature of Internet use were descriptions of the Internet being an *Element Of Everyday Life* or a “standard”, suggesting that Internet use is well integrated in the adolescent routine:

A routine, very much like a routine, always the same thing. School, the Internet and that's it, well, except for the weekend, but week days are like that.

Boy, 16 years, Spain (18)

It's this thing that, when I come back home, do my homework, talk a little, I turn my computer on and just browse quickly through whatever I can. Talk to someone, play a game. It's an element of my everyday life.

Boy, 16 years, Poland (19)

Because it has become a bit of a habit I think. Everybody knows. Yeah, it's just a standard part of everybody's life I think.

Boy, 15 years, The Netherlands (7)

As previously suggested, favorite online activities can become automatic through repetition and can be activated even in a state of limited awareness in response to contextual cues (LaRose, 2011).

Online over-engagement has previously been described as maladaptive with potential negative effects in well-being (Ybarra, Alexander & Mitchell, 2005). In contrast, our participants described being *Always Online* as a normative “mode”, a way to follow peer norms, a way to “hang-out”, and check out updates, thus indicating a more normative bearing. Similarly, in a content analysis of comments elicited from 13-19 year olds, the top ten words used to express how going online made them feel included: happy, connected, good, excited, free, entertained, bored, interested, sociable, and independent (Page, Mapstone & MediaSnackers, 2010). These terms reveal important functions that Internet serves (as noted in section 3.3.2 *Adolescent Thirst*) as well as specific needs and states associated with the period of adolescence. This point is illustrated in the qualitative study of

Quayle, Jonsson & Lööf (2012) who found that “always online” is a way of living for adolescents.

In a meta-analysis of 10 qualitative studies on heavy Internet users, Douglas *et al.* (2008) found that Internet’s ubiquity was a key theme contributing to ‘extensive’ use and was associated with the ease of access, the availability of information and communication potentials (Chou, 2001; Ng & Wiemer-Hastings, 2005). Evidently, these features have a special luster to adolescents who are experiential, interactive, opportunistic information-seekers (Lenhart *et al.*, 2005) and also information-distributors (Dresang, 2005). Being always connected (and preferably mobile), they check out happenings through web surfing and social interactions, anywhere and anytime, while expecting immediate answers to questions and fast access to information (Oblinger & Oblinger, 2005). Moreover, because rapid change characterizes both the period of adolescence and the web technology, the need to be updated comes in response to fast changing realities of adolescents’ lives. Hence it is not surprising that the digital environment where youngsters grow and the developmental challenges they face have both shaped their information-seeking behaviour, and in this vein of reasoning ‘*Always online and Checking out*’ can be considered an adaptive mode. To conclude on the adaptive or maladaptive nature of the phenomenon *Always Online* we need to address the self-perceived consequences for adolescent functioning; towards this end we first need to look into intervening conditions mediating the phenomenon and the strategies undertaken to handle it, which are covered in the two following sections.

3.3.4 FROM EASING ADOLESCENCE TO EMPOWERING SELF

This thematic category captures and integrates themes pertaining to conditions which facilitate (or constrain) being *Always Online and Checking Out*. The facilitating conditions emerged as representing a continuum, ranging from *Easing to Empowerment*. For details on emerged concepts see Table 12 in Annex C.

Easing

The Internet is described to ease life in several ways. By using social networks, adolescents overcome time restrictions. This is an important aspect, because adolescents may not have the time – next to school and personal duties – to meet all of their friends in person. Adolescents can easily stay in contact and communicate both with close-by friends in their hometown and with friends or relatives who are living far away. Adolescents can handle almost everything online without even leaving their room.

By viewing other people’s online profiles, pictures they have uploaded, comments they have made on different topics and the information they give about themselves (hobbies, taste of music, etc.), adolescents can easily form first impressions about other users. One might find personal similarities, which facilitate contact initiation and conversation among users who develop such approaching strategies as they turn to the Internet to quench their *Thirst for Social Connections and Updates* (see section 3.3.2):

Well, (short pause) If you see a girl you like, but you are too shy to speak to her you can simply add her on Facebook. (...) You start a conversation. That’s really neutral. Then you meet with her and you talk to her at school for real. You get to know the person a bit more and you are up to write more personal things to her.

Boy, 16 years, Germany (3)

Well, I think (short pause) if I want to meet someone, it’s easier for me to write something on the Internet than go up to them and talk in real life. You can say a bit more on the Internet.

Girl, 15 years, Poland (9)

However, the Internet is also perceived as simply easing the access and the flow of all types of information:

The computer definitely helps me with studies, because things I can’t find in books and which are somewhere in the house, one can always find online. For example, while doing homework, sometimes I may not know something, some formulae, whatever. And that information is easier to find online rather than looking through a pile of books.

Girl, 15 years, Poland (10)

The need of facilitating academic duties was clearly depicted by participants in the concept *Cutting Corners*. Here adolescents described using various shortcuts for completing their homework, e.g. by copying from the Internet or from open access-libraries:

I mean, I don't post stuff myself but I use what other people have put on the Internet. If there's some assignment that I can't manage, I just write it down and then try to understand it later. (...) I mean, I generally try to Google stuff but sometimes people put up stuff they did on Facebook.

Boy, 16 years, Poland (3)

In some cases adolescents transfer the recently gained social strength and empowerment from their online experiences to real world interactions and communication. For these participants, it has become easier to talk to people, as for instance at school without feeling embarrassed or afraid:

I'm more outgoing than I used to be. Now it's easier to meet people because I made positive experiences. If you contact somebody via Internet you actually never get something like "Get away! Who are you?" as a response. It's more probable that they welcome you. And I noticed that it is the same in real life. Or at least it is most of the time. It's rarely the case that somebody says: "What do you want?". They welcome you, too, like they do on the Internet. Most people don't know that.

Boy, 16 years, Germany (3)

In a good way I became more open, anyway after a long period of using the Internet. It became easier to talk to someone, online and in real life. And this thing has many advantages for me. I mean, on this topic I have no problems.

Boy, 16 years, Romania (8)

In addition, they enlarge their circle of friends which is also more diversified with respect to age, nationality, gender, education or social background. Their friendships seem to be less superficial and more in-depth: They take care of each other, talk about problems, support each other, and share important aspects of their life (music, games, fashion, videos, films, opinions, facts).

Thus, adolescents described the Internet as facilitating their lives in many ways, providing entertainment, contributing to the development of new friendships and helping them to keep in touch with peers and finding information.

Empowerment

A digital gratification of the narrated needs and motives of Internet use (e.g. *Curiosity for Information, Need for Self-searching*) was described as satisfying **Adolescent Thirst** (see section 3.3.2) thus providing the basis for adolescents' social and psychological empowerment.

Social networks offer adolescents a platform where they can present themselves in a self-chosen way. They have the opportunity to create a more multifaceted picture of who they (really) are. In fact, adolescents are interested in the impression others have of them:

Maybe because on Facebook, what counts is the way other people see you.

Girl, 15 years, Greece (11)

By uploading photo albums which they fill with photos of vacations, birthday parties, or just daily happenings, everyone who is interested in them can take part in their lives. Receiving comments and “likes” and getting affirmation of their physical appearance makes them feel more self-confident and more comfortable with themselves. Such positive experiences seem to contribute to their social and psychological empowerment:

Yes they are, because you show yourself more and (pause) and if you have many “likes” you are considered good looking if I may say so (pause) so if you believe that others think you are good looking you feel self-confidence and (pause) you don't have self-concerns and (pause) some stuff is worked out. Yes, this is it.

Girl, 15 years, Greece (7)

Adolescents can also become commentators of their own lives. On social media such as forums, chat rooms, Twitter, or their own blogs, adolescents have the opportunity to share their thoughts and feelings with the world; they share

sites, films, games, music, applications, etc. on a regular basis, sometimes even to get the empowering feeling of having discovered it first. This kind of sharing was narrated as often being competitive. Here the winner is the person with the largest amount of new and most unique information:

Yes, of course. But when you find something that excites you, you usually show it to other people. I believe that an application is not so valuable when you use it alone. It pays more if you spread the word, and other people use it. This way you get to be the first one, something like a trophy.

Girl, 15 years, Greece (11)

Social platforms also allow adolescents to keep up with all the new developments of their friends' lives simultaneously, without having to talk to each of them personally. Thus they become socially empowered in the sense of being more involved in their friends' lives:

[I: What do you like best about Facebook?] All the news. You can find out many interesting things. For example who is with whom, who broke up with whom, where people are, who went to which party and how was the party , or when a party is going to happen, because there are events on Facebook, new photos.

Girl, 15 years, Poland (16)

Adolescents also share their happy and satisfied moments with their friends. A problem can be shared with their friends who offer support. Adolescents have confidential conversations online, in which they share very intimate things like fears, sorrows or happenings. They help each other by finding appropriate words and narrating from their own experiences. This may lead to an increased sense of intimacy and empower adolescents:

Yes. It helps you when you are in a situation and you want to share this situation with somebody. However, not just anybody, but someone you know, with whom you have chatted face to face and you know that he is a trustworthy person so you know you can share things with him and that he will help you.

Girl, 15 years, Greece (11)

The process of meeting new people and adding online friends to one's social network can also lead to easily formed and more diversified cliques and crowds, due to the broader pool of available friends and the absence of temporal and geographic constraints. The Internet can enable adolescents to pursue developmental tasks in a less threatening context than face-to-face settings. First, a number of venues on the Internet (e.g. SNS, blogs) can function as 'identity workshops' by exposing adolescents to diversified communities with varying degrees of homogeneity. With message boards, chat rooms, and other social utilities, adolescents are able to expand their social networks, find people similar to them who might be more difficult to meet in their lives (especially the marginalized groups), make social comparisons, and practice their social skills. Furthermore the unique features of the Internet, namely anonymity and absence of geographic and temporal constraints, equip adolescents with opportunities to explore various roles and identities and also contribute to self-concept clarity.

Consequently, adolescents have a strong need for their peer-group's acknowledgement. The underlying process that mediates this need is upward social comparison. Here adolescents are modeling their skills in relation to their reference groups' main interests which results in self-improvement:

Yeah well, there are people who are better than me, and that's how I want to be.

Boy, 15 years, Germany (2)

Empowerment also takes place during gaming. Friends can meet and stay in touch via gaming platforms or simply by playing with others. The members of the team co-operate to find the best strategies to defeat opponents or to reach the next level in the game. While gaming they communicate through chats and forums:

I communicate with people around the world through a game. It resembles Facebook, and you see who is active and you can invite them to play with you.

Boy, 16 years, Romania (5)

Resulting from the time gamers spend together over months and years, reciprocal identification, a corporate feeling, and a feeling of social belongingness arises.

Another feature of online communication which may facilitate the social and psychological empowerment of adolescents is the anonymity afforded which was described as *Hidden Behind the Screen*. This enables *Overcoming and Hiding Personal Characteristics and Behaviour*. The Internet ensures anonymity and acts as a “protective” barrier. Adolescents are not controlled or observed in the same way when they are online, which is contrasted to the offline environment. The combination of these factors creates a broadened state of mind. In comparison to real life situations, all personal characteristics and external restrictions like doubts, shame, nervousness, insecurity – individual inhibitions – as well as prohibitions by law, parents, etc. are surmounted. Through the anonymity and asynchronicity of the Internet, adolescents overcome personality or developmental characteristics which inhibit them from behaving as they wish in real life situations:

Yes, I feel more secure to ask people certain things sitting behind the desktop (short break). I have such a fear to be laughed at in real life but when I sit at my computer this fear disappears because I don't see, see, (laughing) see it whether someone is laughing at me.

Girl, 16 years, Germany (12)

Consequently, they are less inhibited, feel less embarrassed, and become more courageous, open, and outgoing. So behind the screen they are able to show an uninhibited self:

Because I am shy. On the Internet I lose my inhibitions, because one is (hesitates) because one is daring to do more things. I don't know the exact reason for it, but it is like this.

Boy, 15 years, Germany (5)

In particular, participants who were shy in an offline environment adopted new friending approaches that they could use to cover their social fragility. Brunet and Schmidt (2007) found that socially anxious females shared personal information to a greater extent when they were concealed from their peers than

when they were not. Indeed, Desjarlais and Willoughby (2010) found that frequency of computer use with friends was positively associated with friendship quality. Communication with friends may then provide adolescent girls with opportunities to engage in social exchanges that foster self-disclosure, which in turn increases perceived friendship quality.

Adolescents may escape into this virtual world, either because online they don't come against their real world problems or they can handle them in a better way. Additionally they have the possibility to focus on issues which are less emotionally burdening and more psychological empowering. Not having to deal with real life problems might only contribute to short-term empowering and easing, leading to a probable vicious cycle of escalating offline problems that are not dealt with.

For some adolescents it is a daily habit to boot up their computer. In a more extreme point of view the Internet represents a place, where adolescents feel comfortable and safe, where they know how things work and feel able to control the situation.

Present findings are in line with *stimulation theory*, which proposes that certain online activities contribute to positive outcomes in adolescence (McKenna & Bargh, 2000). According to stimulation theory, the Internet connects individuals with one another and therefore can enhance one's social experience. With respect to the content of communication, adolescents exchange current news of their everyday happenings and reiterate the same developmental concerns as offline. In particular, studies of online teen chat rooms that analyzed 12,000 utterances from 1100 participants found that identity presentation (Subrahmanyam et al., 2006) and partner selection (Šmahel & Subrahmanyam, 2007) were two central themes. Also, adolescents sometimes rely on the Internet to initiate romantic contact, maintain existing romantic relationships, and discuss difficult topics with romantic partners, including terminating relationships (Lenhart et al., 2001). Considering empirical findings on the impact of online communication show that individuals who initially communicate online are often being observed to like each other more than individuals who initially communicate in a face-to-face setting (Bargh et al., 2002). This finding suggests that the Internet is a likely venue for easily gathering

sources of social support by increasing the probability of meeting likeable others. For instance, researchers have shown that the Internet provides a venue where marginalized teens are able to seek social support (McKenna & Bargh, 1998). Also, studies examining the impact of online communication with friends showed that the higher the amount of time spend interacting with friends online, the greater the reported intimacy and disclosure (Gross, 2004; Lenhart et al., 2001; Mesch, 2009; Valkenburg & Peter, 2007).

With respect to blogging and based on the self-disclosure theory (Derlaga & Berg, 1987) and social capital theory (Bourdieu, 1984), it can be suggested that blogging enhances social capital and also subjective well-being, as bloggers perceive themselves as better integrated and receive greater social support (Ko & Kuo, 2009). However, social reputation is also a strong motivator in games which can lead to empowerment. Adolescents use games to compete and display their skills. Griffiths (1997) and Wan and Chiou (2006) studied gamers with addictive tendencies and reported that Internet satisfied the gamers need for achievement, excitement, and challenge as well as perceived sense of control over their lives. However, they sometimes do not have a realistic view of who they are, and lack the self-confidence enabling them to be independent of others' evaluation.

If alternative resources of empowerment are available, those can be used for a functional coping with stress and may decrease the use of the Internet as a coping strategy. Therefore online and offline empowerment and easing life is crucial for *how* the Internet use progresses.

3.3.5 JUGGLING A CHANGING REALITY

This axial category captures participant's response to a changing reality and routine in which frequent and extended Internet use has evolved into an additional but integral component of their everyday life. Within the frame of our main GT paradigm, this category constitutes the *strategies* (see Table 5) employed by adolescents as a response to the mode of being **Always Online**. It portrays adolescents' efforts to sustain online presence while handling their daily duties, thus capturing the notion of time and task management. As mentioned in section

3.3.1 (*Growing into a Content Creator*), adolescents' academic obligations, everyday duties, social life, and extracurricular activities compose the picture of a loaded and structured routine. Although the intensity of this structured routine varied significantly across participants on the basis of individual and sociocultural differences, for the majority of them it raised the need of time management and adjustment of their everyday schedule. Such management and adaptation was deemed necessary as their daily schedule was affected by the time and energy invested online:

Because I am busy and next to that I spend a lot of time on the Internet (...) Then it's hard to manage everything.

Boy, 16 years, The Netherlands (5)

Participants' response to this changing routine, which called for behavioural readjustment and reduction of online engagement, was conceptualized as ***Juggling a Changing Reality***; different types of voluntary or involuntary reactions and different degrees of experienced pressure were incorporated within this process. The degree of *Self-regulation* and relative *Readiness or Resistance to Change* comprised the two properties pertaining to this axial category and determining the extent to which adolescents developed adaptive or maladaptive strategies as a response to rescheduling. In addition, the strategies implemented constituted in turn the conceptual categories relating to the outcome of the presented axial theme. More specifically, participants reacted to this changing reality by developing a) an adaptive response entailing different cognitive and behavioural strategies which facilitated management of time and balancing of daily online presence vs. offline engagement or b) a maladaptive response, again incorporating cognitive and behavioural strategies which in that case served the purpose of maintaining increased online presence with ensuing decreased offline engagement in main areas of their everyday life.

Adaptive Coping Strategies: 'Setting or Accepting Constraints of Use'

An adaptive coping response was demonstrated in a significant number of our participants' narrations and was depicted in various categories which were

conceptually clustered as ‘*Setting/Accepting Constraints of Use*’. The first consciously and purposefully employed strategy was that of *Self-monitoring and Limiting Use*, which ranged from general to specific and mainly involved regulating online time. Some participants, for instance, simply described their effort to be self-disciplined and keep a time limit regarding Internet use while others shared specific techniques they have developed. Besides instructing themselves “(you had) enough now”, other behavioural tips included using their mobile phone instead of PC to go online or forbidding oneself to waste time on non-focused online surfing. This latter technique was used in order to set a limit on the amount of time spent online and minimize the chances of losing track of time and be caught-up online:

Yes, there are some restrictions that I imposed on myself, when I am not staying on some sites that are not worth it. That's it.

Boy, 17 years, Romania (20)

That depends, sometimes the match lasts longer, because there's a draw, and we need to play overtime. Then obviously the game is 20 minutes or half an hour longer, and I'm done a little later. But mostly when I say that I finish at that time, I finish at that time. It just doesn't really happen to me that I play longer than I intended.

Boy, 15 years, Poland (17)

In addition to self-monitoring, *Prioritizing* was another well-evidenced strategy a number of participants employed in their effort to handle their time and everyday online and offline activities, interests and duties. Participants described in different ways and different degrees the way they distributed the time and sequence of their offline and online activities within a day's schedule. Time distribution was based on what they considered as a priority out of their daily obligations, social arrangements, and scheduled activities. Going online was often reported to be allowed by oneself only after having completed school assignments. Time distribution was frequently readjusted depending on the load of activities within a day or period of time (e.g. exams). Narrations most frequently indicated time spent online being split in different time slots, such as after studying, going

out with friends, or pursuing other extracurricular activities, and in fewer cases being totally skipped due to particularly overloaded schedule:

But it depends on the time I have, because on Mondays and Wednesdays I play basketball (short break) and when I get back, well it depends, if I have done homework before basketball I get on the Internet, since I arrive from basketball till I have dinner.

Boy, 16 years, Spain (1)

The last couple of weeks that we had exams at school I haven't been using it that much because I wanted to study.

Boy, 16 years, Greece (2)

In an effort to balance time investment between online and offline presence, a number of participants also got into the process of *Exploring New Offline Alternatives*. Specifically, some had managed to incorporate new offline activities in their everyday routine or started investing more time in previous areas of interest again that had been neglected due to their extended online presence. For other adolescents this exploration still remained on a cognitive level manifesting an underlying, internalized self-preparation for readjusting their online behaviour by considering possible alternatives that could interest them and facilitate them in reducing their online engagement:

Well to give up some time spent on Facebook or YouTube and give some more time for my hobbies and to sports, maybe even to my family as well.

Girl, 16 years, Romania (6)

I started being involved in other activities (...) not letting myself be carried away by it (Internet use), in general.

Boy, 15 years, Greece (17)

Analysis revealed that these conscious strategies presented above were often employed simultaneously and were commonly underlined across participants by a certain degree of manifested *self-regulation* and readiness for change, ranging from moderate to high and determining the relevant *Difficulty and Unsuccessful Trials* experienced by adolescents in their implementation. For those adolescents who, even prior to the invasion of Internet, were self-disciplined in main areas of their life and duties and who described themselves as generally more

organized, their attempt to juggle online presence came in a more natural and smooth way. These participants were usually also less dependent on externally imposed restrictions:

Parents don't place any restrictions, but I put them for me myself and try to abide by them.

Girl, 15 years, Poland (10)

No, I think that (...) I know how to control myself quite well; I know when I need to stop. I don't spend all day on the Internet or anything like that. No.

Girl, 16 years, Spain (3)

On the contrary, for adolescents who lacked the internal resource of self-regulation and self-discipline, balancing online presence and offline engagement was a more pressuring and effortful process, involving more unsuccessful trials. This difficulty was often related to particular online activities of preference, mainly social networking and online gaming:

Yes I try to (short pause) but I'm not always successful (...) If I finish my homework then I can go on Facebook or something like that (...) [I: And do you follow that, can you?] (...) Um, sometimes, just sometimes.

Girl, 17 years, Iceland (12)

Moreover, adolescents' degree of readiness and wish for change was often mediated by two factors, often acting complementarily. The first one was reflected in the conceptual category *Negotiating Benefits and Losses* which captured the comparative and evaluating process of the perceived or incurred advantages and disadvantages of increased online engagement. Experienced benefits such as accessibility of information, ease of communication, and entertainment were often juxtaposed to offline alternatives, most often social activities and primarily peer encounters and family affairs. Incurred losses were manifested in different levels of offline *Neglecting*, mainly related to reduced face-to-face interactions, bygone family relations, and decreased academic performance:

On one side, it's something nice and good, since it helps you with loads of things, but, on the other, you may miss loads of things because of it. There is a balance between those two sides and you cannot tell which is best.

Boy, 16 years, Greece (19)

Uhm, it has had a negative influence on my school performance, because you go on the Internet more and more and spend less and less time on your homework and get even worse grades.

Boy, 15 years, The Netherlands (11)

The second factor mediating adolescents' readiness and wish for change laid within the adolescents' degree of *Future Orientation*, reflected in the relative presence or absence of future goals, ranging from specific to general, which were most often related with future studies and profession of preference. A substantial number of narrations revealed that experienced losses in areas of offline engagement which were perceived as important and/or presence of future goals enhanced adolescents' motivation for changing their online patterns and increased the possibility of entering a self-regulating process:

Yes I would like to change my habits. I would like to shorten my time on the Internet and on the computer and to use them only if necessary. And that's so that I can have more time for my hobbies.

Girl, 16 years, Romania (16)

Well, no. I could spend some more time with my mother instead of being in the Internet. When I was younger I was sometimes on the Internet instead of learning. But in nowadays I know that it's important for my future, therefore I don't spend as much time in the Internet as I did once.

Girl, 16 years, Germany (13)

A number of our participating adolescents developed the adaptive cognitive strategy of *Legitimizing* imposed constraints of use as their lack of internal resources regarding self-discipline, but relative readiness for change made them more dependent on externally imposed restraints in this readjusting process. For those participants, this juggling of changing reality had been facilitated mainly by parental time restrictions which were legitimized and accepted by adolescents as they acknowledged that in the absence of these imposed restrictions they would be easily "trapped" online:

I guess I need to. If it was up to me then I would not have these limitations and then I would just go at full tilt. I just need to accept this and I understand now mostly why I have to.

Boy, 15 years, Iceland (10)

So they didn't exactly prohibit it but they've set restrictions and if those restrictions were not there I would have been destroyed (...) I would be addicted, I would stuck for sure.

Boy, 16 years, Greece (9)

Other participants though, who also exhibited lower ability for self-regulation but at the same time lacked externally imposed restrictions, manifested the greater degree of difficulty in their effort to balance their online presence. Based on this experiential knowledge those adolescents often legitimized potentially imposed restrictions and seemed to wish for increased surveillance and supervision of their use and more specifically defined restrictions for usage. Such attitude manifests a certain degree of readiness to accept and compromise with increased parental advising and monitoring regarding their net use:

I try to but I can't. I would like to, but I can't. What I said before (...) "just 5 more minutes", it turns into an hour. I just can't.

Girl, 16 years, Spain (7)

Yeah, maybe for example if my mother pressured me a bit more. Then it would go faster, maybe a bit faster especially because, if she walked in my room every second to check if I was on the Internet, then it would change.

Boy, 16 years, The Netherlands (5)

Maladaptive Coping Strategies: 'Bypassing Constraints of Use'

As aforementioned, a substantial number of our participants responded to the changing reality in a maladaptive way by the implementation of behavioural and cognitive strategies which served the purpose of maintaining extended Internet use on a daily and regular basis. This response was reflected in a conceptual cluster of categories depicting a process of *Bypassing Constraints of Use* where strategies and frequency of their implementation varied across participants but were commonly driven by the urge to get connected and/or stay connected. They were

also underlined by adolescents' relative resistance for change and the consequent absence of any effort for self-regulation and usage monitoring. Our participants' narrations most frequently revealed the development of specific behaviours for *Bypassing Parental Control*, ranging from pretending to not be online or finding ways to conceal their actual online time, to discovering or changing the password set by parents and managing to go online in their absence:

Yeah, but I turn the sound off and then they are asleep and don't hear that I am playing.

Boy, 16 years, The Netherlands (14)

My parents had a password on the computer and I could not use it. Then (...) well (...) when the holidays were close, every time that my mother left the password set and, for example, went to bathe my sister, I then took advantage of the situation, changed the password and then, I was able to use the computer the following day.

Girl, 16 years, Spain (6)

A small number of our participants also reported *Bypassing School Restrictions* by visiting Internet sites during lessons via their iPhones or again by developing strategies to bypass technical barriers like password protected access:

I got the keyword for the limited Internet access in school so in that way I can be online during class too, use YouTube and all that.

Boy, 15 years, Iceland (8)

Cognitive strategies were also employed in the spectrum of adolescents' maladaptive response with the first again being that of *Legitimizing* though in this case, it served to justify and excuse online over-involvement either as reinforced by parental models or as being mandatory for academic obligations. In some cases reinforcement through parental modeling and consequent legitimization concerned cases where parents were themselves investing significant portion of their time online. In other cases it involved absence of any parental restrictions on adolescent's extended online engagement since the adolescent experienced it as entertaining and fun. More often narrated though was participants' legitimization

of their overuse as mandatory for school assignment and relevant information searching:

That's why my father is encouraging me that far (...) My mother says, (thinking) well my mother is using Facebook, too. She doesn't really play games, but she says: As long as I enjoy it, I shall keep on doing it.

Boy, 16 years, Germany (8)

Uhh, school. You have to get so much information you have to get everywhere. School is just like that, you are pushed there because you have the Internet.

Boy, 17 years, The Netherlands (8)

Another cognitive strategy employed by a number of participants whose narrations revealed relatively addictive patterns of online engagement was that of *Normalization and Downward Comparison* of use. In this case when prompted to compare their online time with that of their peers, participants often tended to either normalize it, describing it as similar to that of peers and “normal” within their specific age group or compared themselves with important others (parents, siblings or friends) who were equally or even more excessive users. This latter practice left them with the perception of themselves as average or even more self-disciplined users:

Normal (...) isn't it? I think it's like the rest of my friends. Nowadays everybody... nowadays everybody uses the Internet more or less and I, well (...) I'm the same. It's true that I spend time connected but it's because I'm doing things (...) I think I'm using my time well. People might have done other things in the past, but nowadays this is the way of getting entertained.

Girl, 16 years, Spain (20)

They do not mind that I use the Internet, because they are users themselves. No matter how odd this might sound, both my parents use Facebook, and they know YouTube. They are users as well. Believe me, my mother is really stuck with games – more than myself.

Girl, 15 years, Greece (11)

A less common maladaptive strategy was that of *Procrastinating*. Adolescents exhibiting this type of response usually acknowledged their current overuse, held a

more moderate degree of resistance – as reflected by their future-oriented openness for change – but most importantly did not demonstrate any effort to change or monitor their online patterns in their present state. Their narrations revealed a certain degree of postponing any readjustment of their extended online engagement and also a justifying belief that their Internet use would change in the future as a result of altered conditions and different obligations:

Change it. (thinks) Yes, in future, well, when I'm in police school, it's more strict there (...) Because you have to learn more, concentrate on different things, work and yeah, you just go there to check your mails and write to friends. Change, I would miss it, but you have to do this.

Boy, 15 years, Germany (14)

I think about the moment when I would be a grown up and I would have my own family and home to support and then the Internet would come on the last place, or at least this is how it should happen.

Girl, 16 years, Romania (16)

To conclude, responding to their changing reality, participants reacted by developing different behavioural and cognitive strategies which were adaptive or maladaptive in nature and were implemented either in a natural or effortful manner. The type of response and the extent to which each strategy was used among participants was affected by participants' degree of self-regulation and their relative resistance or readiness for change. That in turn determined their current online position described in detail in the next section of our analysis (see Table 7).

Attempts to control use have been empirically documented in studies on excessive Internet users. Douglas et al. (2008), summarizing findings of qualitative studies on excessive users, found that a significant number of users indeed try to control their habitual use of the Internet. For instance, self-determination and self-regulation was reported by students as the most effective strategy to curb Internet misuse although not all were equally skillful to demonstrate disciplined behaviour. This result suggests that some heavy users have insight in the problematic aspects of their use and also have a wish to change but are struggling. This is in line with our data where a number of excessive users appreciated the

need for managing their online presence and got into the process of employing behavioural strategies such as prioritizing, self-monitoring, limiting use, and considering or experimenting with offline alternatives. The demonstration of self-regulation and the implementation of adaptive coping strategies present many challenges to some adolescents with excessive patterns of use. As our data revealed, a number of adolescents who were on the contemplation stage of change wished control to have been externally imposed as they lacked the personal skill of self-discipline and self-regulation. As it has already been mentioned in section 3.3.1 (*Growing into a Content Creator*), empirical evidence (e.g. Lenhart & Madden, 2007) suggests that the majority of parents do not set rules and are not involved in close monitoring of adolescents' Internet use. Moreover, Lin, Lin and Wu (2009) investigated the effects of parental monitoring and leisure activities in adolescents' Internet addiction and found that supportive parental monitoring, as well as outward activity decreases the tendencies of IAB. Our data replicated this relationship between lack of parental restriction, limited participation in offline activities, and increased tendency for overuse. Parental monitoring seemed to have a decisive impact on balancing online and offline presence, especially for participants who lacked the internal resource of self-control. In contrast, adolescents with greater ability of self-regulation were less dependent on imposed restrictions by parents in their effort to balance their use. Thus, the implementation and success of adaptive copying strategies might relate to adolescents' offline resources (e.g. offline support) and their personal skills regarding self-discipline. Those with limited resources and deficient regulatory skills might be more at risk.

3.3.6 DIGITAL OUTCOMES

The developmental progression of Internet use in adolescence was coined as *digital pathways*, personal online journeys of exploration, learning, and growth. *Digital pathways* were described as evolving from childhood through adolescence and culminating in *Digital Outcomes*. This thematic category represents the *consequences* in our GT paradigm and illustrates the *current*

lived experiences stemming from adolescents' efforts to handle being *Always Online* while *Juggling a Changing Reality*. As shown in Table 7, robust inter-relations between the strategies employed and the subsequent lived consequences validate our GT model's structure and provide coherence to our theory, explaining how Internet use evolves and is experienced by over-engaged adolescents in mid adolescence. For most participants current *Digital Outcomes* were described as following a significant period of online over-engagement – typically spanning from pre- to mid adolescence – along with its consequent incurred costs and benefits. In the course of “navigating” digital pathways, nearly all participants reported mixed and often conflicting views regarding two pivotal processes governing *Digital Outcomes*:

- *Online Craving*
- *Offline Engagement*

Online Craving captured adolescents' descriptions of the temptation or urge to use the Internet or specific applications therein. Participants often reported a “need” to go online or stay online longer, or a “temptation” to access some particular platform. Craving ranged in intensity, from *low/subtle* (signified by signs of dampened enthusiasm or a weak desire for online engagement) to *high/intense craving* (associated with self-descriptions of inability to resist the Internet and being “Addicted” or “Dependent” to the Internet or to a particular application).

Offline Engagement referred to the degree to which adolescents were involved in offline activities, primarily social engagements, academic tasks, and out-of-school activities. Narrations referred to the offline activities pursued or bypassed, available or unavailable, exhibiting significant variability across participants, ranging from *being withdrawn* to *intense offline engagement*.

Based on the mutual interplay of those two processes, different behavioural and cognitive outcomes spurred as seen in Table 6 (page 70). While the preteen years (early digital steps) were marked by many online behavioural similarities across participants and across countries (as shown in common experiences of *Always Online*), **later digital steps showed variability in how the digital environment was negotiated and experienced**. Digital pathways split off in different directions **based on the extent to which the Internet eased**

adolescents’ life or empowered them, as well as on the strategies employed to manage their online presence. In mid-adolescence some adolescents described their digital pathways as dynamic and changeable, often self-disclosing “eye opening” experiences and behavioural changes. The associated digital outcomes were characterized by change (*Coming Full Cycle*) or by adequate managing (*Juggling it All*). On the contrary, other participants described more rigid digital pathways, typically associated with maladaptive coping strategies: either *Stuck online* (narrations of “I am addicted”) or merely escaping boredom (*Killing Boredom*).

As indicated by their defining characteristics/processes, Digital Outcomes were not confined to the online world but were clearly interrelated to the offline world, namely to current *Offline Engagement* and more broadly to adolescent change and experimentation. The way adolescents experienced and negotiated the dynamic mutual *interplay* between their dual contexts of development, their online and the offline “pathways” attained the status of our core thematic category: *Navigating Adolescent Pathways*.

Table 6. Digital Outcomes based on the interplay of emerged defining processes

Offline engagement ►	Low	High
Online craving ▼		
Low	Killing Boredom	Coming Full Cycle [or Considering Change]
High	Stuck Online: “I am addicted”	Juggling it All

3.3.6.1 Stuck Online: “I am addicted”

A certain degree of excess or lack of control was described by many adolescents, expressing an over-involvement which appeared problematic compared to common enthusiasm. Some participants even described themselves as “addicted” to the Internet.

Sometimes it takes up a lot of time, and sometimes it becomes my whole life (laughter). I don’t know, it’s addictive for sure. It’s got me a little hooked.

Girl, 15 years, Poland (9)

Descriptions related to conditions facilitating intense Internet use were typical of being *Stuck Online* – which was one of our digital outcomes. This digital outcome was characterized by high online craving and low offline engagement. Significant psychosocial impact was often narrated and this was associated with physical problems and a drop of school performance:

School achievements which aren't linked to the Internet (laughs) (...) No, actually not. So it did influence my grades and that's why I failed. Because of this excessive use.

Boy, 15 years, Germany (5)

Prolonged time spent online and continuing “overuse” could have severe consequences – not only on psychological and relational, but also on the physical level (*Impact of overuse*); adolescents experienced problems with their eyes, headaches, dizziness, but also sleep disturbances as a consequence of heavily using the Internet:

I use the computer a lot though I can feel that it's harder to concentrate on the studies if it gets too much. And I can't sleep at night.

Boy, 14 years, Iceland (6)

Further, physical problems from prolonged sitting (e.g. in school and at home) in front of the computer), coupled with a lack of physical activity could lead to severe back pain. Sleep disturbances were also common among teenagers who reported “addicted” to the Internet as they often used the Internet in the late evening hours. This might result in sleepiness in school and overtime, in the development of reversed circadian rhythms. Being caught up in the Internet, in particular when engaged in gaming, also resulted in skipping meals – as meal times were at times simply forgotten.

No, I never fall asleep immediately. I always lay awake half an hour, one hour until I fall asleep. And then I wake up in the middle of the night. (...) (Interrupting) Yes, I think about [the Internet] the whole day and about the person I wrote to and about what and whom I wrote about. I am thinking about that. Not that much about unimportant things but a lot about important stuff.

Girl, 16 years, Germany (12)

Participants Stuck Online commonly described decreased offline engagement, stemming or associated with maladaptive strategies of *neglecting* important offline activities: social and academic life minimized, duties and chores bypassed, and skipped activities that were previously experienced as rewarding and of importance. Being online becomes one of the most motivationally relevant activities while everything and everyone else becomes less important:

Well I used to go out more. Being outside, going swimming, or stuff like that. I haven't been swimming for about 2 years. I haven't been out with my friend in the evening for over 4 month now, such things you neglect.

Girl, 15 years, Germany (1)

In games like WOW¹⁰ and LOL¹¹, some kids spent a lot of money and a lot of time. Or they can enter some championship and they lose money. They reach a point where they get addicted to such a degree that they neglect everything else, and they spent their whole day with games.

Girl, 15 years, Greece (11)

When Internet use is prohibited or unavailable and adolescents cannot use the Internet or their favorite applications, *Online Craving* emerges. This was manifested by the feeling of “missing something”.

I felt like something was missing and I didn't know what. I mean it's like when you know you have something to do, but you don't remember exactly what it is. (...) you get used to it [the Internet], and at least you have something to do.

Girl, 16 years, Romania (10)

¹⁰ WOW – World Of Warcraft is Massively Multiplayer Online Role-Playing Game (MMORPG)

¹¹ LoL – League of Legends is a multiplayer online battle arena video game

This game, it's just addictive (...) You want to do it all the time. You wake up and think: "I need to go on this site"

Boy, 15 years, Poland (13)

The following two quotes indicate the high online craving and the low degree of offline engagement of adolescents who described to be *Stuck Online*. This appeared to result in no longer enjoying the experience to meet friends in an offline environment:

I spend less time with my friends and I don't go out as often as I used to. I mean instead of getting out with my friends I prefer staying home online.

Girl, 16 years, Romania (17)

I'm always on my computer and I like it. I'm drawn to it. If I leave it, I come back for a moment or leave it again, or come back. I'm really drawn to it and I cannot stop – when someone calls me and tells me to go out, I don't go.

Girl, 15 years, Poland (14)

Attempts to quit or reduce the use of certain applications were typically experienced as challenging by most participants:

A few months ago I deleted my profile on Facebook (...) but I realized I couldn't make it, so I reactivated it again.

Girl, 16 years, Germany (13)

She [mother] tried to make me cut down [Internet use] to 2 hours but I found that just too little (...) Just crazy (...) I just said I needed at least 4-5 hours per day. I was a bit annoyed. This can take a lot of time.

Boy, 15 years, Iceland (8)

Some adolescents have lost their ability to relax and instead found relief in online emotion regulatory activities. Staying offline became a challenge and for some it was not possible to resist the urge to log on, thus the process became compulsive. Automatised processes, such as always using the Internet when feeling sad or frustrated, kicked in and were difficult to break. When access was

denied, emotional and behavioural reactions ranged from aggression to depression and to anxiety:

Aggression, addiction, a lot. You better like to be on Facebook than doing your homework, you better like to be on Facebook than walk with your dog. You don't fulfill your duties anymore, you just do this (...) I don't know, you're just in the Internet.

Boy, 17 years, Germany (18)

Yes. Yes, when I feel sad and all, sometimes, well, or (...) I have a couple of things, I go on Tuenti and maybe, maybe someone knows about my problem and helps me out. Well, it helps you. Or I go on (...) you might think this is silly, but I go on, for example, on "asco de vida", I see that other people are going through worse things and I say "look, maybe what I am going through is not so important". Or I go on "cuánto cabrón" and I read things and I have a laugh, even though I might have a very important problem, you know? I have a laugh during that moment. Then yes, it helps me. It's the same when I feel happy, when I feel happy I go on it, and I laugh even more.

Boy, 16 years, Spain (18)

The experience of being "Stuck online" revealed cognitive and emotional difficulties which have already been reported in the literature on IAB (Kraut et al., 1998; Selfhout, Branje, Delsing, Ter Bogt & Meus, 2009, Caplan & High, 2011). Sleep disturbances arising from IAB have also been reported by Choi et al. (2009) where Internet addicted adolescents had much higher odds to experience daytime sleepiness than non-addicted adolescents. Even if negative consequences are experienced and rightly attributed to the online behaviour, some adolescents are still unable to consider changing their Internet use and need help from external sources, such as peers, parents, teachers, or health care professionals.

3.3.6.2 Coming Full Cycle

The behavioural pattern of low *Online Craving* and high *Offline Engagement* was characteristic of adolescents **Coming Full Cycle**. This digital outcome captured the active **adaptive process of progressively altering one's online behaviour**, a process described as the lived experience by a sub-sample of our participants.

Within this adaptive behavioural pattern two distinct processes (or routes) prevailed: *Saturation*, which was less conscious and effortful, and *Self-correction*, which was more conscious and effortful. Both routes occurred after a period of intense online engagement, typically described in the past tense and referring to pre- or early adolescence. The evolved behavioural change was described as a more recent development and was narrated in the present tense. In the context of adolescent development, this corrective process was conceptualized as adaptive, marked by a *shift* from online over-indulgence to a modified (or under modification) and more regulated engagement.

Saturation captures the lower end of the continuum of *Online Craving* and was often narrated as a natural process of “*getting enough*”, “*losing interest*”, “*getting “fed up*”, “*getting sick of it*”, or “*becoming tired of the Internet*”. *Habituation* was often described (e.g. “*got used to it*” or “*turned common*”) and was elaborated as a changed perception of the Internet: from being a novel endeavor to becoming a common endeavor. *Saturation* either referred to specific online content or to Internet use in general and to excessive time investment. From a behavioural theoretical perspective this can be considered as an extinction of conditioned online responses which might have developed through repeated unreinforced presentation of online stimuli. Interrelated to the *Saturation* process were themes of personal growth and maturity in negotiating online opportunities. Such themes often included reference to increased freedom and parental permissiveness combined with developed skills in self-regulation and setting personal limits:

I think that I grew up. Before, I couldn't get enough of the computer, probably because it was still new. [Before] I couldn't stay as much time as I wanted, by now I can enter every day. Maybe I wanted to stay longer because I had been set this barrier, because it was forbidden! That was also unconscious. Now, it's so common that I have got used to it myself and I don't need it so much anymore.

Girl, 16 years, Greece (16)

I'd rather be in real life than on the Internet because at some point you become tired of the Internet. It's as if you ate the same thing every day, well at the end you end it up. (...) you no longer enjoy eating the food even if you like it.

Boy, 16 years, Spain (4)

Self-correction was the more effortful side of the corrective process and this was typically spurred after personally encountering losses or after observing others incur problems. In the first case, participants described past experiences of distress and incurred negative consequences, such as physical problems and aches, academic downfall, and conflicts with parents. Most salient of all were *Social Losses*, described as losing friends and being alienated from peers. Alienation was interrelated with past experiences of diminished social engagement, while academic downfall was associated with diminished school engagement. Taken together, **incurred losses were often explicitly linked to past low offline engagement, triggering the need for change.** This change was often mediated by increasing maturity and the newfound ability to assess potential online “drawbacks” and evaluate offline alternatives:

Yes, there was a time when I did not want to leave the Internet; I would sit for hours online (pause). I did not want to do anything else, “Do not move me”; I was caught up by the things I did, and it was a period in which I eventually realized that it is better to get away from that, because it was not in my favor; not that I had nothing to gain, but it was not something that pleased me spiritually speaking. I even had to lose friends by this.

Girl, 17 years, Romania (20)

Other adolescents did not explicitly mention any negative consequences (self-incurred or observed) but explained the self-correction as part of a *maturation process* which brought forward self-reflection in the form of “*what am I doing now?*?”. After this reflective stage a less overt self-regulatory process followed which was governed by *saturation* – as narrated by a Greek 16 year old boy. This boy elaborated a step-wise explanatory “theory” for how his previous over-engagement *Came Full Cycle*¹²:

*I started visiting social networks like Facebook, saying “ah, here I meet new people, that’s nice”, staying online for more and more time, (...) making comments, uploading stuff, and creating a new life like a virtual reality. Um (...) I think that happened after a while though. Then, **you come full cycle**, you start saying “what am I doing now?”, you get tired of it, you shut it down,*

¹² This in-vivo code assumed the position of category label

you go out and you start cutting down the time you spend on it, you start doing other things, you enjoy more and forget about it, get it out of your mind and, just like that; it comes full cycle, I think, and you end up not using it [the Internet] at all.

Boy, 15 years, Greece (17)

Similar experiences of saturation were described by other participants, albeit less explicitly:

I used to spend a lot of time on Nasza Klasa¹³, on Facebook. Now I only go there maybe once a week, to have a look at things, check things out, see who's online. If someone is on, we chat, and that's it.

Boy, 15 years, Poland (17)

In the aforementioned corrective experiences a shift towards offline engagement is indicated. Some participants described taking behavioural measures in trying to cut down time spent online and increase offline engagement, confirming that **offline engagement is pivotal element of the corrective process**. Behavioural measures taken were along the lines of keeping busy with other offline activities, primarily extracurricular activities, like sports and arts – often referred to as “real world” activities:

But I'm trying to cut down. Yesterday for example I was much less at the computer (...) I just dragged my ass to practice.

Boy, 15 years, Iceland (8)

Therefore I started to rather keep myself busy with drawing and well, creative stuff in the real world...

Boy, 15 years, Germany (5)

A few participants described getting involved in a romantic relationship or “falling in love”, which they presented as a very alluring distraction from Internet use, bringing about a shift to offline encounters. In addition to romantic interests, friends and family often facilitated this corrective process by inviting or urging adolescents to offline activities. The latter suggests that **contextual support is an important prerequisite of the corrective process**.

¹³ Nasza Klasa - Social Network Service mainly used in Poland

Along the continuum of self-correcting, an associated cognitive process of *Considering Change* was described which we consider as an intermediate step towards *Coming Full Cycle*. This group of participants was either not convinced that a change is presently needed or was presently unable or unwilling to undertake this change. Most adolescents governed by this behavioural pattern described that external support or restrictive practices would facilitate them in achieving the needed change.

In sum, **self-correcting was closely related to self-monitoring and prioritizing which brought about change primarily described as a shift from online to offline activities**, leading to higher offline engagement at present. Self-observation has been shown to be an effective way to control online activities, and bring them under the control of conscious thought processes (LaRose, Lin & Eastin, 2011). Self-regulation is tied to mental and physical health (Baumeister & Vohs, 2003) and considered a source of adolescent resilience and positive adaptation in the face of risk (Luthar, 2006). Problematic Internet use has been previously conceptualized as a form of deficient self-regulation (Caplan & High, 2011; LaRose, 2011; LaRose et al., 2003). Participants *Coming Full Cycle* appear to have attained or re-gained adequate regulatory skills and have developed adaptive strategies which in turn elicit *adaptive online behaviours*.

3.3.6.3 Juggling it All

Some participants described their current Internet use integrated in their overall daily routine and lives, without showing signs of struggling to meet their daily responsibilities. Within this group, the phenomenon *Always Online* was salient in the narrations while adolescents simultaneously exhibited hearty and well-rounded offline presence which we conceptualized as *Always Present Offline*. The latter was indicated by high activity levels, often across multiple offline contexts: school, athletics, out-of-school activities, and social endeavors. Notwithstanding high activity levels, this group of participants relayed high enthusiasm for the Internet use and at times reported *Online Craving* which typically ranged from moderate to high. Importantly, this group did not describe trying to cut back on

Internet use and expressed satisfaction with their way of using the Internet, although they did mention investing effort to keep up with their busy lives.

These adolescents often appeared to multi-task and possess adequate self-regulatory skills as indicated by the use of prioritizing and self-monitoring strategies. When academic duties peaked, they employed time management strategies and reduced online use to accommodate for the time needed for schoolwork. Some adolescents described that they literally hid their laptop or “put it off their mind”, as often the case during periods of testing or taking exams. Procrastination was described at times, but most prevalent were descriptions of decisiveness, behavioural goals, rules, and ascribing priorities based on needs:

*So based on what topic was being tested I acted accordingly (...) when I had my English exam I felt no need to study so I would spend at least 2 or 3 hours on the computer if I had no match [soccer] on that day. **But if I had to study for Ancient Greek or Mathematics then I would simply not login.***

Boy, 14 years, Greece (1)

An additional behavioural pattern surfaced among this group of users was that most adolescents relayed high enthusiasm of specific online applications and did not describe aimless browsing or “wasting time” surfing online. Some were keen information seekers and often linked this to both academic and future-oriented searching. A few others were sport fans who craved for online updates on their team’s scores and often played the same sports offline. Thus, it appeared that the same interests were played out in both online and offline contexts and the experiences extracted from each one were often comparatively presented. This is illustrated in the following case of a Greek boy – an avid soccer player– who showed that while it was convenient to “play” soccer online, his preference was for *The Real Thing* – playing soccer offline:

*[Online] simply some figures are playing but they do not really exist, while when you play soccer yourself, it is much better because you know it’s you, it’s not someone else, it is **you who is playing and who is real.***

Boy, 16 years, Greece (1)

Maybe the most prevalent “profile” of all in this group consisted of adolescents who were true extroverts or highly enjoyed socializing both online and offline. Some of those adolescents were presenting online socializing as a better option by showing preference for online interaction over face-to-face encounters, while others ascribed similar valuation of both types of socializing:

I like to talk to people. It doesn't matter in which way, either I talk to them on the iPod or I speak to them live or on the phone.

Boy, 15 years, Germany (6)

In sum, participants who were fully engaged in both the virtual and the physical world appeared to be able to achieve an **adaptive balance between their online and offline activities**. Thus their experienced digital outcome was conceived as ***Juggling it All***. This digital outcome is strongly associated to adaptive strategies of using the Internet without incurred negative consequences and at the same time grasping online opportunities to the maximum. Adolescents in this group often made clear that they did not intend or plan to diminish online engagement. The socializing narratives are consistent with the *rich-get-richer hypothesis* (c.f. Valkenburg & Peter, 2009) which posits that online sociability can be a continuation of offline sociability for some individuals and therefore enhance it instead of jeopardize it. It seems that for adolescents possessing adequate self-regulatory skills this process can be relevant.

3.3.6.4 Killing Boredom

The behavioural pattern of low *Online Craving* and low *Offline Engagement* was characteristic of adolescents whose digital pathway evolved around ***Killing Boredom***. These adolescents did not narrate being enthusiastic fans of online technologies, nor were they avid followers of specific online applications (e.g. active social networkers or high-achieving gamers). On the contrary, this group of participants was characterized by a low activity level, enthusiasm and engagement both online and offline. Occasionally they narrated to “miss the Internet” (e.g. indicating online craving). But that was typically described as a need to fill their

dull or boring routine. The endlessness of certain Internet applications makes them a pleasant filler of time. For some adolescents Internet use has become an automatic reaction spurred from dullness and lack of other activities. For this group, Internet use was transient in nature and unstructured, just as their offline routine was described as unstructured and at times under-challenging.

Boredom was experienced and described by many adolescents to be a constant reality in their everyday life. Some participants described feelings of *boredom* and explicitly or implicitly justified their online presence by the lack of exciting alternatives in their offline environment.

Yes, it happens to me to get bored because I stay in the house all day long, doing nothing, especially now because it's cold outside. You have nothing else to do, because you can't go out because you would just freeze.

Boy, 17 years, Romania (9)

Spare time is often used for the Internet, for instance right after school or during evening hours when participants feel that there is nothing else to do. Some participants described a very manageable workload in their everyday life leading to more spare time which was consequently used for the Internet. Especially spare time that is unstructured (e.g. not filled with activities as for example playing football in a team or doing homework in a predefined time frame) was often utilized for online time without a certain goal, just **to keep busy**:

Many times (...) quite a lot, because sometimes if I get bored or don't start drawing, well the closest option that I have is the computer, which... I have to admit that when I get bored and I simply go on it because of boredom, I tend to get even more bored. But (...) yes, normally or many times it is because of boredom, and I am doing practically nothing.

Boy, 16 years, Spain (12)

Low offline engagement was common among participants who currently experienced the digital environment as a place for “*Killing Boredom*”. Further, the *Need for Distraction* from the offline world was often mentioned by participants:

It's easy, playing games for example. When I came home from school, I had to do it, to get some distraction, because school was crap, and therefore I had to

play. I mean, I visited others as well, but they played games, too. We didn't play then, but we watched a game or bought one, yeah.

Boy, 16 years, Germany (18)

Killing Boredom was the only identified online position that was not found to be directly related with the implementation of specific maladaptive strategies (and therefore is not depicted in Table 7). Instead, for participants of this group Internet over-engagement served an underlying need for distraction and relief from their experienced boredom which stemmed from their lack of offline engagement and activities of interest.

The lack of offline engagement is pivotal here. Indeed, a study by Page and Mapstone (2010) analysed the content of posts in adolescents' blogs and showed that the most commonly reported theme in adolescents' posts involved feelings of boredom. More specifically, 56% of the sample mentioned "being bored" at least once within their posts. Similarly, 29.2% mentioned being bored by or in school. These findings show that some adolescents might use Internet to combat boredom in their discretionary time.

Table 7. Juggling a Changing Reality, Digital Outcomes properties, dimensions and interrelations at the dimensional level

Properties of Juggling a Changing Reality	Outcome strategies employed		Dimension of properties associated with each strategy	Interrelated Dimensions of Digital Outcomes Properties (Craving and Offline Engagement)	associated consequence Digital Outcomes
Degree of self-regulation	Adaptive Strategies	Self-monitoring and limiting of use	→ moderate ... high self-regulation → readiness for change	High Craving	Juggling it All
		Prioritizing	→ moderate ... high self-regulation → readiness for change		
		Exploring/considering new offline alternatives	→ moderate ... high self-regulation → readiness for change	High Offline Engagement	Considering Change
		Legitimizing imposed restrictions	→ low self-regulation → readiness for change	Low Craving	Coming Full Cycle
Attitude to change	Maladaptive Strategies	Procrastinating	→ moderate resistance for change → low self-regulation	High Craving	Stuck Online: "I am addicted"
		Bypassing imposed restraints of use	→ resistance for change → low self-regulation		
		Legitimizing use	→ resistance for change → low self-regulation		
		Normalizing and downward comparison	→ resistance for change → low self-regulation		
				Low Offline Engagement	

4. SUMMATIVE DISCUSSION

The aim of our study was to examine the development of Internet use among adolescents at risk for Internet addictive behaviours (IAB) and as such we purposely sampled and interviewed adolescents reporting signs of IAB (ranging from mild to severe). Even so, the analysis revealed that a substantial number of our participants did not describe experiences indicative or consistent with “addictive behaviour”– although those were clearly articulated by a subset of our participants who were coined as being **Stuck Online**. Thus, the emerged theory represents a wider range of **Digital Outcomes**, all evolving from the unanimously narrated mode of being **Always Online and Checking Out**.

This *mode* of adolescent online “being” captures the vivid and continuous online engagement of digitally immersed adolescents born in the mid-1990s. Young people growing up in the digital era are not only given unique opportunities online, such as to satisfy their intrinsic human curiosity and psychological need to explore, but adolescents in particular can negotiate or pursue pivotal developmental needs on the Internet. The adolescent mode of being Always Online can signify *online social presence*, as it was spurring from a commonly narrated normative **Adolescent Thirst** to keep connected to peer groups and updated of worldly happenings. This thirst was behaviourally manifested by *Checking Out*, a type of information-seeking behaviour with a strong social orientation for seeking and sharing. Information seeking has been previously suggested to be social with a goal of “knowing together” and sharing information (Dresang, Gross & Thompson, 2002). Dresang (2005) claimed that sharing knowledge is the preferred learning style of adolescents, while Ridings and Gefen (2004) found that sharing news and personal information were the main motives for participating in online communities, followed by social support as well as friendship. In adolescence, sharing can denote a sense of belonging which not only satisfies a pivotal developmental need and **contributes to the validation of adolescents’ developing identity** (Brechtwald & Prinstein,

2011), but is also a **significant prognostic factor for social and cognitive growth** (Hartup, 1989, 1996; Piaget, 1932) and **later personal adjustment** (Parker & Asher, 1987; Parker, Rubin, Price & DeRossier, 1995). Thus, although Always Online and Checking out are expressed in the digital environment, they are strongly interrelated to offline needs and developmental processes. While online, adolescents bring and bridge people and issues from their offline into their online worlds. As suggested by one of our participants, we should be hesitant to label online excessive use an “addiction”:

For me it [Internet use] is normal, and if I am on my computer for a bit longer then that's also normal for me. Yeah, it is so in your rhythm (...) I do not think you should see it as an addiction because it's something extremely useful.

Boy, 15 years, The Netherlands (1)

Although Always Online was the common experience of participants in their pre- or early adolescent years, their digital progression and consequent personal **Digital Outcomes exhibited significant variability** in mid adolescence. In line with the notion of developmental pathways (developmental science; Davies & Cicchetti, 2004; Rutter & Sroufe, 2000) as dynamic and malleable across time, we similarly conceptualize the developmental progression of Internet use from childhood to adolescence as emerging *digital pathways*. The evolution of digital pathways was framed within a backdrop of online and offline developmental, environmental, and relational *changes*. **Change and evolution on digital pathways** were salient components in most narrations and were **mediated by parents and peers**.

Most participants described the loosening of parental control and monitoring both offline and online which reflects a normative increase in liberties typically given to adolescents. Our findings are consistent with results from the European SAFT project suggesting that parental regulation, although present during the initiation period, was shown to diminish once adolescents had used the Internet for some time (Bjornstad & Ellingsen, 2004). Similarly, in the EU NET ADB quantitative study, eight in ten

adolescents reported that their parents often or very often do not know which sites they visit (Tsitsika et al., 2013). Importantly, even in cases of ongoing close parental supervision, parental restrictions were described as typically being bypassed. Thus, **the progression of digital pathways is facilitated by diminished parental supervision, either loosened by the parents or bypassed** by adolescents. Despite growing Internet penetration among the adult population (Aquino & McCarthy, 2011), adolescents claimed to be more knowledgeable than their parents. Moreover, parental ambivalence was thoroughly elaborated as conflicting and often interpreted as “permissive”; the latter might arise from diverse parental views on Internet use and its effects as previously suggested (Livingstone & Bober, 2004). The practical difficulties parents face in penetrating private platforms designed for private communication might also have contributed to their ambivalence (Subrahmanyam & Greenfield, 2008).

As peer relationships and friendships assume a central role in adolescents’ lives (Rubin et al., 2006), peer influences become more important than parental influences (cf. Childers & Rao, 1992) and **the Internet provides a new social context for peer interactions**. The peer group was narrated as a driving force behind online communication choices (choice of SNS platforms, daily patterns of use) which is consistent with a peak in conformity to the peer group documented in middle adolescence. Conformity to peers is normative in this developmental period (Erikson, 1963) and less negative than suggested by stereotypes (Berndt, 1992). Studies empirically testing the effect of social influences on Internet behaviours within the framework of the Model of Planned Behaviour (Ajzen, 1991) showed that group norms predict the frequency of SNS use by adolescents (e.g. Baker & White, 2010).

Our participants described novice peer friending practices taking place on SNS platforms – such as **making new friends online** and also starting romantic relationships online. Earlier studies suggest that compared to adults, adolescents are more likely to use the Internet to meet new people (Lenhart et al., 2005; Subrahmanyam, Greenfield, Kraut & Gross,

2001), a practice consistent with their developmental need for social experimentation and expansion of peer groups (Brown, Mounts, Lamborn & Steinberg, 1993). Noteworthy, every single one of our participants had an SNS account and most of them described SNS as a facilitative context for checking out updates of friends and events and for developing stronger ties with schoolmates or acquaintances.

Indeed, a study on SNS use by Dutch adolescents showed that the more regular the use was, the more positive feedback was received, enhancing their self-esteem (Valkenburg, Peter & Schouten, 2006). Longitudinal studies, measuring communication impact on relationship satisfaction suggest that friendship quality increases with frequency of IM use (Valkenburg & Peter, 2009) and chatting (Desjarlais & Willoughby, 2010). It is possible that frequent use of communication platforms with friends promotes the sense of psychological closeness especially if it involves self-disclosure (Valkenburg & Peter, 2007). Thus, it appears that online interpersonal interactions are experienced and practiced in a similar manner as offline interactions. Moreover, most participants described their online sociability as thereafter transferring offline, suggesting that the two contexts are closely interconnected and that online communication is facilitative for most adolescents in their overall social functioning.

Central to adolescent development, **peer relationships are pivotal in the process of identity formation** (Brown, 1990; Pugh & Hart, 1999). As suggested by some participants, the anonymity and asynchronicity of online communication affords **opportunities to control self-presentation and practice self-disclosure** a finding that comes in agreement with previous studies (Mesch, 2009; Valkenburg & Peter, 2011). **Both processes are stepping stones for the construction of a coherent identity** (Subrahmanyam & Greenfield, 2008). These findings also resonate particularly shy adolescents' descriptions of the new strategies offered by Internet to talk about embarrassing issues and make subtle approaches towards romantic partners.

The supportive function of peer relationships is particularly decisive during this period, characterized by increased changes and demands. Peer support has been found to facilitate transitions and to help adolescents cope with developmental tasks (Berndt & Savin-Williams, 1993; Hartup, 1993; Parker & Asher, 1987). Studies on online social environments (Šmahel & Subrahmanyam, 2007; Subrahmanyam & Greenfield, 2008; Subrahmanyam, Šmahel & Greenfield, 2006) show that adolescents use them to deal with some of their developmental concerns, namely formulating identity and establishing relations with peers and romantic partners (Brown, 2004). In sum, **digital pathways are heavily shaped by the peer group and its social norms and online experiences are strongly interconnected with normative developmental processes.** Online communities can provide alternative or supplementary support networks for adolescents, and online hanging out like its offline counterpart can serve multiple developmental tasks. Importantly, the onset of digital pathways from the mode of **Always Online** is not only normative and socially mediated for today's adolescents, **but is strongly associated with the adolescents' needs and pivotal developmental tasks – thus can be seen as adaptive in nature.**

However, in order to conclude whether the adaptive potential and gains of Internet use are preserved one needs to **focus on the degree to which adolescents are facilitated and empowered** from processes and practices experienced online. In our emergent theory these experiences constituted the *intervening conditions* shaping the ascribed value placed on the Internet and its ensuing level of engagement. The facilitating conditions were identified as **ranging from Easing Adolescence to Social and Psychological Empowerment.** This breadth indicates if the Internet simply renders life easier for adolescents or has a more profound impact: empowering adolescents in functioning. The obtained range of positive effects of Internet use is consistent with the *stimulation theory* (McKenna & Bargh, 2000) according to which time spent online can lead to social connectedness and high quality friendships. Distinctly, the *rich-get-richer hypothesis*, postulates that online time solidifies the skills of socially

competent individuals and further contributes to higher self-efficacy and well-being (Gross, Juvonen & Gable, 2002; Kraut et al., 1998; Peter et al., 2005). It is **the range of facilitation** (from easing to empowerment) as well as the nature and the breadth of activities pursued **that determine the progression of adolescent digital pathways.**

Importantly, adolescents' digital pathways and subsequent digital outcomes **were affected by the implementation of adaptive or maladaptive coping strategies** to handle their continuous online presence while “juggling” against the offline world. Our analyses revealed that their implementation related to **available resources** (e.g. parental supervision, existing peer support) and adolescents' **self-regulatory skills**. Previous studies (e.g. Lin et al., 2009) have supported this relationship between increased parental monitoring and decreased tendency for IAB among adolescents. However, the findings of the present study suggest that supportive parental monitoring can be influential mainly for adolescents who may lack the internal resource of self-discipline but most importantly possess a certain degree of readiness and wish to change their online behaviour. On the contrary, for adolescents whose attitude to change reflected a relative resistance and indifference towards coping with their increased online engagement, parental monitoring was found to be of minor or no influence.

Digital Outcomes captured the current lived consequences of being *Always Online*. The variability exhibited in Digital Outcomes (four main positions and intermediate ones) is an example of **multi-finality**: common “beginnings” in digital pathways – exhibited in rather common contextual conditions and similar behavioural exhibitions of the phenomenon – were shown to **culminate in rather diverse digital outcomes**. The variability exhibited in digital outcomes is **defined by two underlying processes: online craving and offline engagement**, confirming that digital pathways and outcomes are defined by the interplay of online and offline processes. This robust interplay is a pivotal component of our emerging theory. Online behaviours are closely associated with the negotiation of offline “tasks”,

namely peer inclusion, information seeking, and identity exploration. This mutual interplay is captured in our theory's core thematic process: **Navigating Adolescent Pathways**, suggesting that **Internet use and over-engagement is strongly interrelated to offline adolescent functioning**. Specifically, low offline engagement can be either reinforced or triggered by Internet use. A number of participants reported incidences of offline neglect or disengagement which was either temporal and resolved (e.g. by processes of saturation or self-correction) or currently experienced and worrisome. Nevertheless, offline engagement played a critical role in the Digital Outcomes reached by our participants.

In sum, **Digital Outcomes are governed by internal resources and strategies employed and linked to environmental opportunities for offline engagement**. In our study **self-regulation** was shown to be closely tied to Internet use behaviours while it has previously been linked to mental and physical health (Baumeister & Vohs, 2003) and is considered a source of adolescent resilience and positive adaptation in the face of risk (Luthar, 2006). In regards to external factors influencing digital outcomes, parental mediation does not seem to *directly* influence digital outcomes. Notably, **parental mediation was shown to indirectly influence via offline engagement opportunities provided** and guidance towards undertaking such activities. Such offline engagement opportunities appear to function as a *protective factor* towards maintaining or regaining adaptive Internet behaviour. On the contrary, it has been previously suggested that excessive use was a way to escape from scholastic pressure, cope with negative emotions like loneliness and boredom, release stress, and discharge anger and frustration. Thus, the entertaining and communication opportunities might be particularly salient to those who use it to cope with offline difficulties (Griffiths, 1997; Wan & Chiou, 2006). Browsing the web aimlessly can be distracting from offline tasks, and to a certain degree adaptive, but can be related to negative outcomes if it is overextended (see Gordon, Juang & Syed, 2007).

The present study showed that the relationship between online activities and experiences and digital outcomes is not direct. On the contrary, it is moderated by individual variables (self-regulation, personality traits) and contextual variables (offline friendships, family relations, parental monitoring, and other resources) (see Selfhout et al., 2009). Some adolescents with low self-regulation and/or low offline social presence ascribe increased value and priority to their online presence and for them, the Internet takes over a significant part of their functioning. For this group – the *Stuck Online* group – the criteria of *salience* and *neglect life* (based on IAT) are validated. Other adolescents who are already competent and self-regulated get “richer” by using the Internet; for this group the *rich get richer hypothesis* is confirmed as these adolescents have an intense yet balanced online and offline presence (Juggling it all). Still others who have adequately developed self-regulatory skills manage to regulate or contain the Internet’s facilitative and empowering potential, at times after a considerable time of increased engagement (Coming Full Cycle). Finally, for a few adolescents the Internet is just an outlet of low “life” engagement, and they merely use it as a way to fill their time or emotional “gaps” (Killing Boredom).

5. LIMITATIONS OF THE STUDY

Notwithstanding the general strengths of the qualitative approach and our study's particular strengths stemming from a significant cross-cultural sample, plus the carefully chosen and monitored implementation of the GT method (detailed in section 2.5 Rigour), a number of research limitations should be taken into consideration:

- *Recollection bias* – adolescents were asked to recollect both present and past online experiences, the latter often covering middle childhood (e.g., spanning up to 10 years back). Therefore, recollection biases or inaccuracies might be present in our data.
- *Sampling limitations* – as it is typical of school-based surveys, adolescents who do not attend school were not represented. Furthermore, participation was voluntary. In the case that participating adolescents differed significantly in their characteristics from their counterparts who may be experiencing similar symptoms but did not opt to participate, the views of the latter group might have not been represented in this report.
- *Inclusion criteria* – we relied solely on self-report data for including participants in the study, thus limiting the measurement of Internet behaviour to individual perceptions. Further, although it is difficult to assess the validity of adolescents' responses on IAT in the absence of other sources (e.g. parents, teachers), our study was primarily concerned with adolescents' experiences that are largely subjective and personal.
- *IAT instrument limitations* – the use of the Internet Addiction Test (IAT) is based on a specific conceptualisation of Internet addiction which results in the systematic exclusion of adolescents with problematic behaviour not fitting into that theoretical framework. Furthermore, this instrument has not yet been clinically validated in the participating countries.

- *Researchers' bias* – the conduction of the interviews and data analyses may have been influenced by the researchers' personal biases and their theoretical orientation or discipline. Yet, every effort has been taken to increase the trustworthiness of the present findings by constantly performing trustworthiness checks and involving researchers from diverse disciplines (see section 2.4 Analytic approach – coding procedure).
- *Survey and interview context* – every effort was made to ensure anonymity and confidentiality. We made sure that adolescents filled out the questionnaires in privacy and they were assured that the interviews would be anonymised. However, as with any survey conducted in school, the danger of receiving 'socially desirable' answers may exist and we cannot rule out that despite our best efforts some did not feel secure enough to be completely honest.
- *Generalization* – seven European countries participated in the EU NET ADB study and as such findings from this study may not be generalizable to Europe as a whole or to other parts of the world. As is the case with qualitative approaches, it may not be feasible to extrapolate findings to broader populations but rather to suggest a tentative model.

6. RECOMMENDATIONS AND POLICY IMPLICATIONS

Despite aforementioned limitations, the findings in this study suggest that adolescent Internet use and over-engagement can be a primarily positive and developmentally appropriate activity. Adolescents in this sample were typically *Always Online*, but a significant portion of them managed to maintain a balance in their lives and sustain benefits from Internet use.

6.1 FRAMING AND DIRECTIONS OF RECOMMENDATIONS

Our recommendations are framed within the integrative policy-making efforts undertaken within the European Commission's **Safer Internet Programme (SIP)**¹⁴ which aims to empower and protect children and young people online by raising awareness and fighting illegal and harmful online content and conduct. SIP initiatives include INSAFE Awareness Centers, INHOPE Hotlines, initiatives on industry regulation, and significant research programs such as the EU Kids Online¹⁵ and the ROBERT¹⁶ projects.

The EU NET ADB study is a Safer Internet Knowledge Enhancements project; therefore our recommendations are focused on specific directions for action:

- Awareness campaigns aimed primarily at adolescents and their parents
- Education in schools
- Training for counselors and mental health professionals
- National (educational system) regulation
- Industry regulatory practices

¹⁴ http://ec.europa.eu/information_society/activities/sip/index_en.htm

¹⁵ <http://www2.lse.ac.uk/media@lse/research/EUKidsOnline/Home.aspx>

¹⁶ http://ec.europa.eu/information_society/apps/projects/factsheet/index.cfm?project_ref=SI-2009-KEP-410905

6.2 AWARENESS CAMPAIGNS AIMED AT ADOLESCENTS AND THEIR PARENTS

Raising awareness is a pivotal aim of this project and of SIP policy, primarily implemented through SI Awareness Centers. In regards to awareness initiatives targeting youth at risk for IAB our findings can contribute towards:

(1) **Specifying the groups at risk** based on self-perceived benefits and losses experienced online, thus going *beyond clinical criteria*.

(2) **Determining the content of campaigns** based on the “players” (peers and parents) who mediate Internet use in adolescence, and grounded on the underlying processes which were shown to mediate digital pathways and adolescent digital outcomes.

Based on the emerged model, namely the adolescent “mode” of online being (Always Online) and the developmental needs negotiated therein, we suggest that awareness campaigns should incorporate the following guidelines:

- Increase awareness on the strong **interrelation between online and offline adolescent functioning**, pointing to the mutual interactivity of the two in generating adaptive and maladaptive adolescent online behaviours and outcomes. This would introduce a more holistic approach in promoting adaptive Internet use, with focus on incorporating offline engagement.
- Increase awareness on the emerged notion that **on the Internet adolescents “navigate developmental pathways”**: the Internet offers opportunities to express and negotiate pivotal age-specific “tasks” (identity, knowledge, and connection to peers).
- **Treat Internet over-engagement as potentially adaptive** and avoid focusing recommendations on restrictive practices, such as restricting time or content of Internet use.

- **Start with the positive and adaptive potential**, namely **facilitation of adolescent life** in academic and social functioning and in satisfying normative affective (sense of belonging) and cognitive needs (need for information and exploration).
- Proceed to **explain with what could constitute maladaptive Internet use**, focusing on *how* Internet use may turn into a problem in adolescence. Present the possible losses experienced by some adolescents (those “stuck online”).
- Present **adaptive strategies** employed by “real” adolescents (demographics included) showing how some adolescents “juggle” online use while also managing offline responsibilities. For youth this may be done by acknowledging developmental challenges as increasingly perplexing (“juggling life”) while focusing on behavioural strategies that can be employed towards handling them; the latter should include **self-monitoring, and prioritizing**. Real examples of how adolescents actually do (with verbatim quotes) can be provided.
- Counter-present **maladaptive strategies and processes**, stressing **neglecting** the offline world as one (again through real examples).
- **Shift the responsibility of “good practice” to the adolescents themselves**, conveying the message that as they mature and attain more independence (online and offline), likewise they need to take on more responsibility and awareness of their online behaviours. The notion of diminished parental control (in childhood) gradually shifting to increased adolescent *self-control* can be elaborated, and practices facilitating this process can be presented.

To go a step further than awareness, and foster **adoption and practice of aforementioned aims**, techniques can be introduced in the context of prevention initiatives; these could focus on ways to practice balanced Internet use and maximize benefits from it:

- **Encourage self-observation and self-monitoring** and suggest how to accomplish this by providing techniques and online tools. Online calendars and reminders can be used for self-monitoring. Based on research findings, online surveys or apps can be developed with less focus on clinical symptoms and more on underlying processes and lived experiences. The aim would be to provide “warning signs” of maladaptive online and positive feedback for adaptive behaviours.
- **Foster self-control** and provide the logic behind doing so, including increased independence and self-reliance.

Recommendations for parents should be based on the **changing parental role** during the adolescent years and to common parental practices of inconsistent advising (revealed in our study) and suggest:

- **Exercising consistency** as important element of parental advising, stressing how ambiguity and inconsistency can relay permissiveness and foster maladaptive online behaviours.
- **Minimizing** or avoiding use of **parental control** software especially in mid-adolescence, to facilitate the shifting of the responsibility to adolescents themselves as they are cognitively capable of doing so – in a gradual manner. Passing the responsibility can contribute to increased self-reliance and can foster independence.
- **“Modeling” adaptive online behaviours themselves**, as one of the most highly potent and influential modes of teaching their children. Parental online behaviour should be consistent with the behaviours parents “preach”.
- **Providing support and help to adolescents pursuing offline activities** which can function as protective factors against maladaptive online behaviour.

6.3 NATIONAL REGULATION AND EDUCATION IN SCHOOLS

Governments should ensure that school curricula reflect current online practices and the current age of children's initiation online. Local findings on online initiation age, as evidenced in this report and in EU NET ADB quantitative study (Tsitsika et al., 2013) should **guide the age of e-safety introduction in National school curricula** and the introduction of online tools as educational tools. Considering that many adolescents are heavily engaged online, the Internet is a means by which educators can approach adolescents, and it can be **a powerful educational tool**. A number of studies suggest that Internet can provide educational opportunities and support its use as an instruction and learning tool (Oblinger & Oblinger, 2005). By encouraging the development of learning environments [e.g. following Vygotsky's principles (1978)] education can employ the natural propensity of today's students toward discovery and collaboration. Indeed, a number of educational projects have successfully implemented such features (Cole, 1996; Dresang, Gross & Holt, 2004).

6.4 TRAINING FOR COUNSELORS AND MENTAL HEALTH PROFESSIONALS

Counselors working with adolescents need to acknowledge online preferences and daily online practices, and be aware of underlying processes governing Internet use. Moreover, school counselors are in a unique position to identify early **signs of maladaptive online behaviour**.

- **Identify** – counselors can be assisted in identifying adolescents at increased risks – guided by the conditions associated with each digital outcome.
- **Intervene early** – targeting maladaptive online behaviours and linking them to personal online and offline consequences.
- **Intervene online** – if counseling in the school or the community is not available: refer to online counselors and Insafe Helplines.

- **Set realistic goals** – help youth use the Internet in a productive healthy and controllable way, acknowledging that Always Online is the adolescent mode of being.

6.5 NATIONAL (EDUCATIONAL SYSTEM) REGULATION

Based on the strong interrelation between online use and offline engagement revealed in our study and on the physical and mental health benefits stemming from involvement in out-of-school activities, National educational curricula should **widen the breadth and depth of extra-curricular opportunities offered to adolescents**. Opportunities should be offered for extracurricular activities to be integrated into busy adolescent schedules and incentives for participation should be granted through the school system. Model curricula (such as the International Baccalaureate Program) can be used as means to foster extracurricular involvement within the school system.

6.6 INDUSTRY REGULATION

Digital pathways progression and their robust interrelations to developmental pathways should guide industry's decisions on age restrictions for subscription in online platforms, such as social networking platforms. It appears that social media use is governed by complex underlying social processes and skills that cannot easily be negotiated in the pre- or early teen years due to relative immaturity in socio-emotional development. The skills needed to navigate SNS highly extend digital skills and reach more profoundly into socio-emotional development. As such, it is the industry's responsibility to not only set age-appropriate limits for participation in applications requiring "advanced" skills, but as well to employ all necessary measures to enforce these age limitations.

REFERENCES

- Anderson-Butcher, D., Lasseigne, A., Ball, A., Brzozowski, M., Lehnert, M., & McCormick, B. L. (2010). Adolescent weblog use: Risky or protective? *Child and Adolescent Social Work, 27*, 63-77.
- Aquino, C., & McCarthy, C. (2011). 2010 Europe Digital Year in review. Retrieved August 24, 2011, from <http://www.comscoredatamine.com/2011/02/2010-europe-digital-year-in-review/>.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*, 179-211.
- American Psychiatric Association (2012). *DSM-V Development*. Retrieved from www.dsm5.org.
- Amichai-Hamburger, Y., Wainapel, G., & Fox, S. (2002). On the Internet no one knows I'm an introvert: extraversion, neuroticism, and Internet interaction. *CyberPsychology and Behaviour, 5*(2), 125-128.
- Baker, R.K., & White, K.M. (2010). Predicting adolescents' use of social networking sites from an extended theory of planned behaviour perspective. *Computers in Human Behaviour, 26*(6), 1591-1597.
- Bargh, J.A., McKenna, & Fitzsimons, G.M. (2002). Can you see the real me? Activation and expression of the "true self" on the Internet. *Journal of Social Issues, 58*(1), 33-48.
- Baumeister, R. F., & Vohs, K. (2003). Self-regulation and the executive function of the self. In M.R. Leary, & J.P. Tangney (Eds), *Handbook of self and identity*. New York: Guilford.
- Berger, P. L., & Luckmann, T. (1966). *The social construction of reality: A treatise in the sociology of knowledge*. New York: Doubleday.
- Berndt, T.J. (1992). The features and effects of friendship in early adolescence. *Child Development, 53*(6), 1447-1460.
- Berndt, T. J. (1996). Exploring the effects of friendship quality on social development. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendship in childhood and adolescence* (pp. 346-365). Cambridge: Cambridge University Press.

- Berndt, T.J., & Savin-Williams R.C. (1993). Peer relations and friendships. In P.H. Tolan, & B. J. Cohler (Eds). *Handbook of clinical research and practice with adolescents. Wiley series on personality processes* (pp. 203-219). Oxford, England: John Wiley & Sons.
- Bjørnstad, T. L., & Ellingsen, T. (2004). *Onliners: A report about youth and the Internet*. Norwegian Board of Film Classification.
- Bourdieu, P. (1984). *Distinction: a Social Critique of the Judgment of Taste*. Cambridge, MA: Harvard University Press.
- Brechwald, W. A., & Prinstein, M. J. (2011). Beyond homophily: a decade of advances in understanding peer influence processes. *Journal of Research on Adolescence*, 21(1), 166-179.
- Brown, B. B. (1990). Peer groups and peer cultures. In S. S. Feldman, & G. R. Elliott (Eds.), *At the threshold: The developing adolescent* (pp. 171-196). Cambridge, MA: Harvard University Press.
- Brown, B. B. (2004). Adolescents' relationships with peers. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd edition, pp. 363-394). New York: Wiley.
- Brown, B. B., Mounts, N., Lamborn, S. D., & Steinberg, L. (1993). Parenting practices and peer groups affiliation in adolescence. *Child Development*, 64, 467-482.
- Brunet, P. M., & Schmidt, L. A. (2007). Is shyness context specific? Relation between shyness and online self-disclosure with and without a live webcam in young adults. *Journal of Research in Personality*, 41(4), 938-945.
- Bryant, J. A., Sanders-Jackson, A., & Smallwood, A. M. K. (2006). IMing, textmessaging, and adolescent social networks. *Journal of Computer-Mediated Communication*, 11, 577-592.
- Buhrmester, D. (1990). Intimacy of friendship, interpersonal competence, and adjustment during preadolescence and adolescence. *Child Development*, 61, 1101-1111.
- Byun, S., Ruffini, C., Mills, J. E., Douglas, A. C., Niang, M., Stepchenkova, S., Lee, S. K., Loutfi, J., Lee, J., Atallah, M., & Blanton, M. (2009). Internet Addiction: Metasynthesis of 1996-2006 Quantitative Research. *CyberPsychology & Behaviour*, 12(2), 203-207.
- Cairncross, F. (2007). Generation Y and new media: Where next? In *the impact of digitization - a generation apart*. London, United Kingdom: KPMG International. Retrieved from <http://www.kpmg.com/Industries/ICE/Other/ImpactDigit.html>.

- Campbell, A. J., Cumming, S. R., & Hughes, I. (2006). Internet use by the socially fearful: addiction or therapy? *CyberPsychology and Behaviour*, 9, 69-81.
- Caplan, S. E. (2003). Preference for online social interaction: A theory of problematic internet use and psychosocial well-being. *Communication Research*, 30(6), 625-648.
- Caplan, S. E., & High, A. C. (2011). Online social interaction, psychosocial well-being and problematic internet use. In K. S. Young, & N. de Abreu (Eds.), *Internet addiction: A handbook and guide to evaluation and treatment*. Hoboken: John Wiley and Sons.
- Chang, S. (2006). *Are they willing to contribute? Prosumer characteristics among the Australian youth*. Paper presented at Digital Natives in Australia and Korea. Conference at the University of Melbourne.
- Childers, T. L., & Rao, A. R. (1992). The influence of familial and peer-based reference groups on consumer decisions. *Journal of Consumer Research*, 2, 198-211.
- Choi, K., Son, H., Park, M., Han, J., Kim, K., Lee, B., & Gwak, H. (2009). Internet overuse and excessive daytime sleepiness in adolescents. *Psychiatry Clin Neurosci*, 63(4), 455-62.
- Chou, C. (2001). Internet abuse and addiction among Taiwan college students: An online interview study. *CyberPsychology and Behaviour*, 4(5), 573-585.
- Cole, M. (1996). *Cultural psychology: A once and future discipline*. Cambridge, MA: Belknap Harvard.
- Connolly, J., Furman, W., & Konarski, R. (2000). The role of peers in the emergence of heterosexual romantic relationships in early adolescence. *Child Development*, 71, 1395-1408.
- Crosnoe, R. (2000). Friendships in childhood and adolescence: The life course and new directions. *Social Psychology Quarterly*, 4, 377-391.
- Davis, F., & Cicchetti, D. (2004). Towards an integration of family systems and developmental psychopathology approached. *Development and Psychopathology*, 16, 477-481.
- Davis, R. A. (2001). A cognitive-behavioural model of pathological internet use. *Computers in Human Behaviour*, 17(2), 187-195.
- Derlega, V. J., & Berg, J. H. (1987). *Self-disclosure: Theory, research, and therapy*. New York: Plenum Press.

- Desjarlais, M., & Willoughby, T. (2010). A longitudinal study of the relation between adolescent boys' and girls' computer use with friends and friendship quality: Support for the social compensation or the rich-get-richer hypothesis? *Computers in Human Behavior*, 26, 896-905.
- Dey, I. (1999). *Grounding grounded theory: guidelines for academic inquiry*. San Diego: Academic Press.
- Dillon, A., & Gabbard, R. (1998). Hypermedia as an educational technology: a review of the quantitative research literature on learner comprehension, control, and style. *Review of Educational Research*, 68(3), 322-349.
- Douglas, A. C., Mills, J. E., Niang, M., Stepchenkova, S., Byun, S., Ruffini, C., Lee, S. K., Loutfi, J., Lee, J. K., Atallah, M., & Blanton, M. (2008). Internet addiction: Meta-synthesis of qualitative research for the decade 1996-2006. *Computers in Human Behaviour*, 24 (6), 3027-3044.
- Dresang, E. T. (2005). Access: The information-seeking Behaviour of youth in the digital environment. *Library Trends*, 54(2), 178-196.
- Dresang, E. T., Gross, M., & Holt, L. E. (2004). *New perspectives: An analysis of gender, netgeneration children, and computers in an urban public library compared to results from studies in other environments*. Paper presented at Library Research Seminar II, Kansas City, Missouri, October 14-16, 2004.
- Dresang, E. T., Gross, M., & Thompson, K. (2002). *Project CATE: Summer and fall focus groups: Baseline data report*. Saint Louis: Saint Louis Public Library.
- Dunphy, D. C. (1963). The social structure of urban adolescent peer groups. *Sociometry*, 26(2), 230-246.
- Erikson, E. H. (1968). *Identity, youth and crisis*. (1st ed.). New York: W.W. Norton.
- Feiring, C. (1999). Other-sex friendship networks and the development of romantic relationships in adolescence. *Journal of Youth and Adolescence*, 28, 495-512.
- Furman, W., & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development*, 63, 103-115.
- Glaser, B. G., & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine.
- Griffiths, M. D. (1997). Computer game playing in early adolescence. *Youth and Society*, 29, 223-237.

- Griffiths, M. D. (2000). Does Internet and Computer “Addiction” Exist? Some Case Study Evidence. *Cyberpsychology & Behaviour*, 3(2), 211-218.
- Grinter, R. E., & Eldridge, M. A. (2003). Wan2tlk?: Everyday Text Messaging, *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. New York: ACM Press, 441-48.
- Gogtay, N., Giedd, J.N., Lusk, L., Hayashi, K.M., Greenstein, D., Vaituzis, A.C., Nugent III, T.F., Herman, D.H., Clasen, L.S., Toga, A.W., Rapoport, J.L., & Thompson, P.M. (2004). Dynamic mapping of human cortical development during childhood through early adulthood. *PNAS*, 101(21), 8174-79.
- Gordon, C, F., Juang, L. P., & Syed, M. (2007). Internet use and well-being among college students: Beyond frequency of use. *Journal of College Student Development*, 48(6), 674-688.
- Greenfield P. M., & Calvert, S. L. (2004). Electronic media and human development: The legacy of Rodney R. Cocking. *Applied Developmental Psychology*, 25 (6), 627-631.
- Gross, E. F. (2004). Adolescent Internet use: What we expect, what teens report. *Applied Developmental Psychology*, 25, 633-649.
- Gross, E. F., Juvonen, J., & Gable, S. L. (2002). Internet use and well-being in adolescence. *Journal of Social Issues*, 58, 75-90.
- Hartup, W. W. (1989). Social relationships and their developmental significance. *American Psychologist*, 44, 130-136.
- Hartup, W. W. (1992). Friendships and their developmental significance. In H. McGurk (Eds.), *Childhood social development: Contemporary perspectives* (pp. 175-206). New York: Psychology Press.
- Hartup, W. W. (1993). Adolescents and their friends. In B. Laursent (Eds.), *Close friendships in adolescence. New directions for child development*. No 60 (pp. 3-22). San Fransisco, CA: Jossey-Brass.
- Hartup, W. W. (1996). The company they keep: friendships and their developmental significance. *Child development*, 67, 1-13.
- Holloway, S. L., & Valentine, G. (2001). *Cyberkids: Youth identities and communities in an online world*. London: Routledge.
- Houghton, S., Milner, N., West, J., Douglas, G., Lawrence, V., Whiting, K., Tannock, R., & Durkin, K. (2004). Motor control and sequencing of boys with attention deficit/hyperactivity disorder during computer game play. *British Journal of Educational Technology*, 35(1), 21-34.

- Hutchinson, S. A., Wilson, M. E. & Wilson, H. S. (1994). Benefits of participating in research interviews. *Journal of Nursing Scholarship*, 26, 161-166.
- Israelashvili, M., Kim, T., & Bukobza, G. (2012). Adolescents' over-use of the cyber world-Internet addiction or identity exploration? *Journal of Adolescence*, 35(2), 417-24.
- Keating, D. (1990). Adolescent thinking. In S. S. Feldman, & G. R. Glen (Eds.) *At the threshold: The developing adolescent* (pp. 54-89). Cambridge, MA: Harvard University Press.
- Keating, D. (2004). Cognitive and brain development. In R.M. Lerner, & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed.). Hoboken, NJ: John Wiley & Sons.
- Kelsey, C. (2007). *Generation MySpace: Helping your teen survive online adolescence*. Avalon: New York.
- Ko, H. C., & Kuo, F. Y. (2009). Can blogging enhance subjective well-being through self-disclosure? *Cyberpsychology & Behaviour*, 12(1), 75-9.
- Kozma, R. B. (1991). Learning with Media. *Review of Educational Research*, 61, 179-211.
- Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist*, 53, 1017-1031.
- Kvavik, R. B. (2005). Convenience, Communications, and Control: How Students Use Technology. In D. G. Oblinger, & J. L. Oblinger (Eds.), *Educating the net generation* (pp. 7.1-7.20): EDUCAUSE.
- Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing*. Thousand Oaks, CA: Sage.
- Larson, R. W. (2000). Toward a psychology of positive youth development. *The American Psychologist*, 55(1), 170-183.
- Lawless, K. A., Mills, R., & Brown, S. W. (2003). Children's hypertext navigation strategies. *Journal of Research on Technology in Education*, 34(3), 274-284.
- Landow, G. P. (1997). *Hypertext 2.0: The Convergence of Contemporary Critical Theory and Technology*. Baltimore: Johns Hopkins University Press.

- LaRose, R. (2011). Uses and gratifications of Internet addiction. In K. S. Young, & C. de Abreu (Eds.). *Internet addiction: A handbook and guide to evaluation and treatment* (pp. 55-72). Hoboken, NJ: John Wiley & Sons Inc.
- LaRose, R., Lin, C. A., & Eastin, M. S. (2003). Unregulated Internet Usage: Addiction, Habit, or Deficient Self-Regulation? *Media Psychology*, 5(3), 225-253.
- Lenhart, A. (2009). Teens and sexting. Pew Research Centre. Available online at http://www.pewinternet.org/~media//Files/Reports/2009/PIP_Teens_and_Sexting.pdf.
- Lenhart, A., & Madden, M. (2007). *Teens, privacy & online social networks: How teens manage their online identities and personal information in the age of MySpace*. Washington, DC: Pew Internet & American Life Project. Available from http://www.pewinternet.org/PPF/r/211/report_display.asp.
- Lenhart, A., Madden, M., & Hitlin, P. (2005). *Teens and technology: You are leading the transition to a fully wired and mobile nation*. Retrieved October 12, 2005, from www.pewinternet.org/pdfs/PIP_Teens_Tech_July2005web.pdf
- Lenhart, A., Rainie, L., & Lewis, O. (2001). *Teenage life online: The rise of the instant-message generation and the internet's impact on friendships and family relationships*. Washington, DC: Pew Internet and American Life Project.
- Lin, C. H., Lin, S., & Wu, P. (2009). The effects of parental monitoring and leisure boredom on adolescents' internet addiction. *Adolescence*, 44 (176), 993-1004.
- Livingstone, S. (2003). Children's use of the Internet: Reflections on the emerging research agenda. *New Media & Society*, 5(2), 147-166.
- Livingstone, S., & Bober, M. (2004). *UK Children Go Online: Surveying the experiences of young people and their parents*. Retrieved on August 6, 2004 from www.children-go-online.net.
- Livingstone, S., Haddon, L., Görzig, A., & Ólafsson, K. (2011). *EU Kids Online Final Report*. London: EU Kids Online, LSE.
- Livingstone, S., Ólafsson, K., & Staksrud, E. (2011). *Social networking, age and privacy*. EU Kids Online Network, London, UK.
- Ljungberg, T., Apicella, P., & Schultz, W. (1992). Responses of monkey dopamine neurons during learning of behavioural reactions. *J Neurophysiol*, 67(1), 145-163.

- Lorenzo, G., Oblinger, D., & Dziuban, C. (2007). How choice, co-creation, and culture are changing what it means to be net savvy. *Educause Quarterly*, 30(1).
- Luthar, S. S. (2006). Resilience in development: A synthesis of research across five decades. In D. Cicchetti, & J. Cohen (Eds.), *Developmental psychopathology: Risk, disorder, and adaptation* (pp. 740-795). New York: Wiley.
- Marcia, J. E. (1993). The status of the statuses: research review. In J. Marcia, A. Waterman, D. Matteson, S. Archer, & J. Orlofsky (Eds.), *Ego identity* (pp. 22-41). New York: Springer-Verlag.
- Marcotte, D., Fortin, L., Potvin, P., & Papillon, M. (2002). Gender differences in depressive symptoms during adolescence: Role of gender-typed characteristics, self-esteem, body image, stressful life events, and pubertal status. *Journal of Emotional and Behavioural Disorders*, 10, 29-42.
- Markovits, H., & Barrouillet, P. (2002). The development of conditional reasoning: A mental model account. *Developmental Review*, 22, 5-36.
- Marshall, C., & Rossman, G. B. (1995). *Designing qualitative research*. Thousand Oaks, CA: Sage.
- McKenna, K., & Bargh, J. A. (1998). Coming out in the age of the internet: Identity "demarginalization" through virtual group participation. *Journal of Personality and Social Psychology*, 75, 681-694.
- McKenna, K., & Bargh, J. A. (2000). Plan 9 from cyberspace: The implications of the internet for personality and social psychology. *Personality and Social Psychology Review. Special Issue: Personality and social psychology at the interface: New direction for interdisciplinary research*, 4 (1), 57-75.
- McMahon, T. A., & Duffy, T. M. (1993). Computers extending the learning environment: Connecting home and school. In *Proceedings of selected research and development presentations at the Convention of the Association for Educational Communications and Technology*. New Orleans, LA, January 13-17.
- Mesch, G. (2009). Social Context and Adolescents' Choice of communication Channels. *Computers in Human Behaviour*, 25 (1), 244-251.
- Mitchell, P. (2000). Internet addiction: Genuine diagnosis or not? *The Lancet*, 355, 632.
- Morahan-Martin, L. (2005). Internet Abuse. Addiction? Disorder? Symptom? Alternative Explanations?. *Social Science Computer Review*, 23 (1).

- Moshman, D. (1998). Cognitive development beyond childhood. In D. Kuhn, & R. S. Siegler (Eds.), *Handbook of child psychology* (5th ed.), Vol.2: *Cognition, perception and language*. (pp. 947-978). New York: Wiley.
- Nachmias, R., Mioduser D., & Shemla, A. (2000) Internet usage by students in an Israeli high school. *Journal of Educational Computing Research*, 22(1), 55-73.
- NetDay (2004). *Voices and views of today's tech-savvy students: national report on NetDay Speak up Day for Students 2003*. NetDay, March.
- Ng, B., & Wiemer-Hastings, P. (2005). Addiction to the Internet and online gaming. *CyberPsychology and Behaviour*, 8(2), 110-113.
- Oblinger, D. G., & Oblinger, J. L. (Eds.). (2005). *Educating the Net Generation*. EDUCAUSE. Available at www.educause.edu/educatingtyhenetgen/
- Oliver, B., & Goerke, V. (2007). Australian undergraduates' use and ownership of emerging technologies: Implications and opportunities for creating engaging learning experiences for the Net Generation. *Australasian Journal of Educational Technology*, 23 (2), 171-186.
- O'Reilly, T. (2005). *What Is Web 2.0: Design Patterns and Business Models for the Next Generation of Software*. Available from <http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>.
- Palfrey, J., & Gasser, U. (2008). *Born Digital: Understanding the first generation of digital natives*. New York: Basic Books.
- Page, K., Mapstone, M., & MediaSnackers. (2010). How does the web make youth feel? Exploring the positive digital native rhetoric. *Journal of Marketing Management*, 26 (13-14), 1345-1366.
- Parker, J. P., & Asher S.R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin*, 102, 357-389.
- Parker, J. P., Rubin, K.H., Price, J., & DeRossier, M. E. (1995). Peer relations, child development and adjustment: A developmental psychopathological perspective. In D. Cicchetti & D. Cohen (Eds.), *Developmental psychopathology, Vol. 2: Risk, disorder and adaptation* (pp. 96-161). New York: Wiley.
- Peris, R., Gimeno, M. A., Pinazo, D., Ortet, G., Carrero, V., Sanchiz, M., et al. (2002). Online chat rooms: Virtual spaces of interaction for socially oriented people. *CyberPsychology & Behaviour*, 5, 43-51.

- Peter, J., Valkenburg, P. M., & Schouten, A. P. (2005). Developing a model of adolescent friendship formation on the Internet. *CyberPsychology and Behaviour*, 8, 423-430.
- Peter, J., Valkenburg, P. M., & Schouten, A. P. (2006). Characteristics and motives of adolescents talking with strangers on the Internet. *CyberPsychology & Behaviour*, 9, 526-530.
- Philip, D. (2007). The knowledge building paradigm: A model of learning for Net Generation students. *Innovate: Journal of Online Education*, 3(5).
- Piaget, J. (1932). *The moral judgment of the child*. New York: Free Press.
- Pugh, M. J. V., & Hart, D. (1999). Identity development and peer group participation. In J. A. McLellan, & M. J. V. Pugh (Eds.), *The role of peer groups in adolescent social identity: Exploring the importance of stability and change* (pp. 55-70). San Francisco, CA: Jossey-Bass.
- Quayle, E., Jonsson, L. & Lööf, L. (2012). Online behaviour related to child sexual abuse: Interviews with affected young people. Council of the Baltic Sea States, Stockholm: ROBERT project.
- Ridings, C. M., & Gefen, D. (2004). Virtual community attraction: Why people hang out online. *Journal of Computer-Mediated Communication*, 10(1).
- Rodgers, S., & K. M. Sheldon (2002). The Web Motivation Inventory: An Improved way to Characterize Internet Users. *Journal of Advertising Research*, 42(5), 85-94.
- Roberts, D. F., Foehr, U.G., Rideout, V.J., & Brodie. M. (1999). *Generation M: Media in the Lives of 8-18 Year-olds*. Menlo Park, CA: Kaiser Family Foundation.
- Rogers, M., Taylor, C. B., Cunning, D., Jones, M., & Taylor, K. (2006). Parental restrictions on adolescent Internet use, *Pediatrics*, 118 (4), 1804 -1805.
- Rosen, L., Cheever, N. A., & Carrier, M. L. (2007). *The impact of parental attachment style, limit setting, and monitoring on teen MySpace behaviour*. California State University: Dominguez Hills, Available from <http://www.csudh.edu/psych/The%20Impact%20of%20Parental%20Attachment%20Style%20Rosen-Cheever-Ca.pdf>.
- Rubin, K. H., Bukowski, W. M., & Parker, J. G. (2006). Peer interactions, relationships, and groups. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology* (6th ed.). *Social, emotional, and personality development*, Vol. 3 (pp. 571-645) Hoboken, NJ: John Wiley & Sons Inc.

- Rutter, M., Sroufe, L. A., (2000). Developmental psychopathology: Concepts and challenges. *Development and Psychopathology*, 12(3), 265-296.
- Schmidt, M. E., & Vandewater, E. A. (2008). Media and attention, cognition, and school achievement. *The Future of Children*, 18(1), 63-85.
- Selfhout, M. H. W., Branje, S. J. T., Delsing, M., Ter Bogt T. F. M., & Meeus, W. H. J. (2009). Different types of Internet use, depression, and social anxiety: The role of perceived friendship quality. *Journal of Adolescence*, 32, 819-833.
- Shapira, N. A., Lessig, M. C., Goldsmith, T. D., Szabo, S. T., Lazoritz, M., Gold, M. S., & Stein, D. J. (2003). Problematic internet use: proposed classification and diagnostic criteria. *Depression and Anxiety*, 17(4), 207-216.
- Shenton, A. K., & Dixon, P. (2004). Issues arising from young: An Interview study. *CyberPsychology and Behaviour*, 6(6), 649-652.
- Šmahel, D., & Subrahmanyam, K. (2007). Any girls want to chat press 911: Partner selection in monitored and unmonitored teen chat rooms. *Cyberpsychology & Behaviour*, 10, 346-353.
- Spear, L. P. (2000). The adolescent brain and age-related: Behavioural manifestations. *Neuroscience & Biobehavioral Reviews*, 24(4), 417-463.
- Strauss, A. L., & Corbin, J. (1990). Basics of qualitative research. Newbury Park: Sage.
- Strauss A. L., & Corbin, J. (1998). Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory, 2nd ed. London : SAGE Publications.
- Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in cognitive sciences*, 9(2), 69-74.
- Subrahmanyam, K., & Greenfield, P. M. (2008). Communicating online: Adolescent relationships and the media. *The Future of Children: Children and Media Technology*, 18(1), 119-146.
- Subrahmanyam, K., Šmahel, D., & Greenfield, P. M. (2006). Connecting developmental processes to the Internet: Identity presentation and sexual exploration in online teen chatrooms. *Developmental Psychology*, 42, 1-12.
- Subrahmanyam, K., Greenfield, P., Kraut, R., & Gross, E. (2001). The impact of computer use on children's and adolescents' development. *Applied Developmental Psychology*, 22, 7-30.

- Tapscott, D. (1998). *Growing up digital: the rise of the Net generation*. McGraw-Hill Books, New York: New York.
- Tapscott, D. (2009). *Grown up digital: how the Net generation is changing your world*. McGraw-Hill Books, New York: New York.
- Towers, S.J., Smith, J.E., & Bruns, A. (2005). *E-learning environments: Generation C - the missing link*. In proceedings of Symposium on Teaching Technology in Higher Education: The 24/7 e-University. Perth: Western Australia.
- Tsai, C.-C., & Lin, S. S. J. (2003). Internet addiction of adolescents in Taiwan: An Interview study. *CyberPsychology and Behaviour*, 6(6), 649-652.
- Tsitsika, A., Janikian, M., Tzavela, E., Schoenmakers, T. M., Ólafsson, K., Halapi, E., Tzavara, C., Wójcik, S., Makaruk, K., Critselis, E., Müller, K.W., Dreier, M., Holtz, S., Wölfling, K., lordache, A., Oliaga, A., Chele, G., Macarie, G., & Richardson, C. (2013). Internet use and Internet addictive behaviour among European adolescents: A cross-sectional study. National and Kapodistrian University of Athens (N.K.U.A.), Athens: EU NET ADB. Available at www.eunetadb.eu.
- Tynes, B. (2009). Role-Taking in Online ‘Classrooms’: What Adolescents Are Learning about Race and Ethnicity. *Developmental Psychology*, 43(6), 1312-1320.
- Tynes, B., Reynolds, L., & Greenfield, P. (2004). Adolescence, Race, and Ethnicity on the Internet: A Comparison of Discourse in Monitored vs. Unmonitored Chat Rooms. *Journal of Applied Developmental Psychology*, 25(6), 667-84.
- Valkenburg, P. M., & Peter, J. (2009). Social consequences of the Internet for adolescents: A decade of research. *Current Directions in Psychological Science*, 18(1), 1-5.
- Valkenburg, P. M., & Peter, J. (2007). Preadolescents’ and adolescents’ online communication and their closeness to friends. *Developmental Psychology*, 43, 267-277.
- Valkenburg, P. M., & Peter, J. (2011). Online communication among Adolescents: An integrated model of its attraction, opportunities and Risk. *Journal of Adolescent Health* 48(2), 121-127.
- Valkenburg, P. M., Peter, J., & Schouten, A. (2006). Friend Networking Sites and Their Relationship to Adolescents’ Well-Being and Social Self-Esteem, *CyberPsychology & Behaviour*, 9(5), 584-90.
- Vygotsky, L.S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

- Waelti, P., Dickinson, A., & Schultz, W. (2001). Dopamine responses comply with basic assumptions of formal learning theory. *Nature*, 412(6842), 43-48.
- Walther, J. B. (1996). Computer-mediated communication: impersonal, interpersonal and hyperpersonal interaction. *Communication Research*, 23(1), 3-43.
- Wan, C. S., & Chiou, W. B. (2006). Psychological motives and online games addiction: A test of flow theory and humanistic needs theory for Taiwanese adolescents. *CyberPsychology & Behavior*, 9(3), 317-324.
- Widyanto, L., & Griffiths, M. (2006). "Internet Addiction": A Critical Review. *International Journal of Mental Health and Addiction*, 4, 31-51.
- Willig, C. (2009). *Introducing qualitative research in psychology*. London: Open University Press.
- Wolfradt, U., & Doll, J. (2001). Motives of adolescents to use the internet as a function of personality traits, personal and social factors. *Journal of Educational Computing Research*, 24(1), 13-27.
- Yang, S., & Tung C. (2007). Comparison of Internet addicts and non-addicts in Taiwanese high school. *Computers in Human Behavior*, 23, 79-96.
- Ybarra, M. K., Alexander, C., & Mitchell, K. (2005). Depressive symptomatology, youth internet use, and online interactions: A national survey. *Journal of Adolescent Health*, 36, 9-18.
- Young, K. S. (1996). *Internet addiction: The emergence of a new clinical disorder*. Poster presented at the 104th Annual Convention of the American Psychological Association in Toronto, Canada, August 16, 1996.
- Young, K. S. (1998). *Caught in the Net*. New York, NY: John Wiley & Sons.

ANNEX

A. INTERVIEW SCHEDULE

EU NET ADB WP5 Revised Interview Schedule (IS-2R)

PART A: Warm up

1. To begin with, could you tell me a few things about yourself? Perhaps you could start with your date of birth, where you grew up, your hobbies, the things you like or dislike or anything else you want to refer to. During your narration I will listen carefully and I am not going to interrupt your flow of words.
2. What is it that made you decide to participate in the present study and share your personal experience regarding Internet use?
3. Could you also describe to me an ordinary day in your life?
[Allow for narration]
 - a. How would you characterise it?
 - b. How do you think you handle your daily responsibilities?

Part B: Internet initiation, evolution, current use, and daily life

1. Tell me a bit about your story regarding Internet use. You may want to start with how you first started using the Internet and how your personal usage developed?
Prompt (if needed): Perhaps you could tell me about changes [*focus and explore changes*] which you have noticed in how you use the Internet. I mean if something has changed since you first started using the Internet.
2. Which devices are you using to connect online?
Prompts (if needed): Laptop, mobile device, Xbox
[Allow for narration]
Prompt: In what situations do you use each of these devices?
3. So, at present what is the average time you spend using the Internet per day and how does that compare with your peers?
[Allow for narration]
 - Do you consider this amount of time as appropriate or common?

4. How do you typically use the Internet? I mean, what kind of Internet *applications* do you mostly use?
[Allow for narration]
 - a. What is it that you like about these applications?
[Allow for narration]
 - b. is there anything you would have like to change now in the way you are using these applications?
 - c. How is X application [state application of preference] related to your peers?
 - d. What do you think children of your age like mostly about the Internet, and how they use it in general?
 - e. What do you think about peers who do not use Facebook or are not into gaming?

5. Have you, in the past or present, faced barriers or constraints in using the Internet in the way that you would have liked to use it?
[Allow for narration]
 - a. If yes, what kind of barriers were these?
Prompt (if needed): Like for instance age restrictions to subscribe to some sites, or parental constraints?
 - b. How do/did you handle these barriers and constraints?
 - c. Any self-restrictions?

6. How would you characterize yourself in terms of Internet use? [Explore the narration]

7. Could you please describe your lifestyle?
[Note to translator: may need to use word lifestyle in English if translation alternative not optimal for adolescents]
Prompt (only if participant is having a difficulty responding to the question): What are some habits, interests, priorities, goals or values you hold in your everyday life?
[Allow for narration]
 - a. How is it related to the Internet?
[Allow for narration]
 - b. Have there been any lifestyle changes that were based on your Internet use or habits changed in relation to the Internet?

8. Have there been any days or periods, when you used the Internet in a much different way to your common way of usage?

Prompts (if needed): I am referring to amount of usage, using much more or much less than typically.

- Now please remember the last day you did not use the Internet AT ALL. Can you tell me about that day?

Prompt (if needed): How did this day affect your feelings, thoughts or behaviour, if it did?

PART C: Needs met

1. You mentioned that what you like the most about the Internet is XXXX (explicit reference to participant's applications of preference). Now I would like you to think and describe to me your emotions a) before going online to use these applications b) while being online c) before logout and d) while being offline. You could use examples of relevant situations that come in mind.

Prompts:

- a. Do you notice for instance saying: "Just five minutes more on the Internet" before logging off?
- b. When is this more likely to happen? Please describe to me such a typical situation that comes to your mind.

2. What is in your opinion the most important reason that makes you use the Internet in the way you do?

Prompts:

- a. Is boredom related to your Internet use and how would you explain this?
- b. Do you use the Internet in particular when being in certain mood?
- c. (optional) Try to describe how often you are the first to use an Internet-application in your circle of friends or in your family.
- d. (optional) What does the reaction by your friend or family look like when the notice that you are using a new Internet-application?

3. What do you think your parents think about the way YOU are using the Internet?

4. If some of your friends are overusing the Internet, do you have an idea why this happens?

5. Now think of yourself when you are in the Internet world compared to your life outside the Internet. Are there any differences or similarities in the way you behave, feel or communicate with others? Prompt (if needed): In your opinion are these two worlds similar or different and in what ways?
6. Now I would like to ask whether you have ever visited any sites meant for adults only. If yes can you tell me what was your motive to do so and how did it affect you if it did? Prompt (if needed): E.g. online poker or pornographic pages.

PART D: Self-perceived repercussions

1. From your experience so far what do you believe to be the advantages of Internet use for adolescents? Has it brought any positive changes in your everyday? (e.g. homework, communication, etc.)
2. And what do you believe to be the disadvantages of Internet use, if any? Has it brought any negative changes in your everyday life so far?
Prompts (optional):
 - How do you find time?
 - How does it affect other activities?
 - How does it affect your schoolwork?
 - Have you experienced any problems associated with Internet use?
 - If cyberbullying was mentioned: Please tell me a bit about how this happened and how you handled it.
 - Many people say that the Internet does not forget anything. Are there any things inside the Internet about yourself, which you would like to erase? (If yes: Please describe why THIS was saved online and how this affected your thoughts.)
3. In summary how would you say the way you evolved as an Internet user has affected you and your life in general?
Prompts (if needed):
 - Did it affect the way you communicate with others in real life?
 - How has social networks affected the way you see yourself and the way you relate to others?
 - Biggest SNS vs. 2nd biggest SNS in your country [Facebook or please use the country-specific most relevant alternative to Facebook]

PART E: Personal aims in regard to Internet use

1. Would you imagine your Internet use changing in a few years' time?
IF YES: Ask for reasons and proceed with Q2.
2. Would you want to change your patterns and habits regarding Internet use?
IF YES: What are the reasons you want so and how would you expect this effort to be?
3. What would be the conditions or people that would facilitate you to do so?
4. A world without the Internet: What would this mean to you? What would change for you?
5. What would turn the offline world more interesting for you?
6. As last question, I would like to ask you one of the first questions of this interview. Before you answer this question, could you please pause for a moment and think about the different facts we just talked about? So, the question is: Could you please try to tell me about the role that the computer and the Internet have in your life? While answering please try to integrate some relevant examples of your own story. I will listen carefully.

Thank You.

B. DETAILED PARTICIPANT TABLES (PER COUNTRY)

TABLE 8. DEMOGRAPHIC CHARACTERISTICS OF EACH COUNTRY'S PARTICIPANTS WITH RECRUITMENT AND INTERVIEW DETAILS

Phase	Participant Ref.	Interviewer	Gender	Duration	Age	Recruitment Type	Grade	School performance	IAT Score	Type of residence location
Phase 1	GR01	ET	M	50'	14	WP4 pool	Rising 10 th	Average	43	Sub-Urban
	GR02	FM	M	48'	16	Snowball from GR3	Rising 11 th	Above average	40	Urban
	GR03	ET	M	58'	15	Snowball from WP4	Rising 10 th	Above average	43	Urban
	GR04	FM	F	37'	16	AHU intake	10 th	Above average	65	Rural
	GR05	FM	F	50'	16	School-based	10 th	Average	55	Urban
	GR06	ET	F	50'	14	School-based	9 th	Above	60	Urban
	GR07	ET	F	58'	15	School-based	10 th	15	58	Urban
	GR08	FM	F	55'	16	School-based	10 th	Above	46	Urban
	GR09	FM	M	50'	16	School-based	10 th	Above	48	Urban
	GR10	ET	F	61'	14	School-based	9 th	Above	61	Urban
Phase 2	GR11	ET	F	65'	15	School-based	10 th	N.A.	40	Urban
	GR12	ET	M	57'	16	School-based	10 th	N.A.	54	Urban
	GR13	ET	M	52'	15	School-based	10 th	Above	47	Urban
	GR14	FM	F	50'	16	School-based	10 th	Average	50	Urban
	GR15	FM	F	50'	16	School-based	10 th	Above average	35	Urban
Phase 3	GR16	ET	F	59'	15	School-based	10 th	Average	37	Rural
	GR17	ET	M	59'	15	School-based	10 th	Average	31	Rural
	GR18	FM	M	42'	16	School-based	10 th	Above	32	Sub-Urban
	GR19	FM	M	45'	16	School-based	10 th	Below	71	Sub-Urban
	GR20	AS	M	38'	15	School-based	9 th	Average	30	Sub-Urban

Phase	Participant Ref.	Interviewer	Gender	Duration	Age	Recruitment Type	Grade	School performance	IAT Score	Type of residence location
Phase 1	SP01	MG	M	62'	16	School-based	10 th	Average	51	Urban
	SP02	AG	M	54'	16	School-based	10 th	Average	45	Urban
	SP03	AG	F	41'	16	School-based	10 th	Above average	46	Urban
	SP04	AG	M	42'	16	School-based	10 th	Average	54	Urban
Phase 2	SP05	IA	M	52'	17	School-based	10 th	Average	71	Sub-Urban
	SP06	IA	F	54'	16	School-based	10 th	Above average	63	Sub-Urban
Phase 1	SP07	AG	F	37'	16	School-based	10 th	Below average	52	Urban
	SP08	MG	F	40'	16	School-based	10 th	Average	40	Urban
	SP09	MG	M	37'	16	School-based	10 th	Above average	40	Urban
	SP10	MG	F	43'	16	School-based	10 th	Average	47	Urban
Phase 2	SP11	IA	M	50'	16	School-based	10 th	Average	74	Sub-Urban
Phase 3	SP12	AG	M	61'	16	School-based	10 th	Above average	31	Sub-Urban
	SP13	AG	M	55'	16	School-based	10 th	Average	50	Sub-Urban
	SP14	AG	M	45'	16	School-based	10 th	Average	53	Sub-Urban
	SP15	AG	M	64'	17	School-based	10 th	Above average	39	Sub-Urban
	SP16	AG	M	48'	16	School-based	10 th	Above average	55	Urban
	SP17	AG	F	42'	17	School-based	10 th	Below average	44	Urban
	SP18	AG	M	47'	16	School-based	10 th	Above average	43	Urban
	SP19	AG	F	39'	16	School-based	10 th	Average	41	Urban
	SP20	AG	F	38'	16	School-based	10 th	Average	42	Urban

Phase	Participant Ref.	Interviewer	Gender	Duration	Age	Recruitment Type	Grade	School performance	IAT Score	Type of residence location
Phase 1	PL01	JW	M	25'	15	School-based	11 th	N.A.	53	Sub-Urban
	PL02	JW	F	22'	16	School-based	11 th	N.A.	51	Sub-Urban
	PL03	JW	M	20'	16	School-based	11 th	N.A.	52	Sub-Urban
	PL04	KM	M	37'	16	School-based	11 th	N.A.	52	Sub-Urban
	PL05	KM	F	20'	16	School-based	11 th	N.A.	90	Sub-Urban
Phase 2	PL06	JW	M	42'	15	School-based	11 th	N.A.	38	Urban
	PL07	JW	F	38'	15	School-based	10 th	N.A.	35	Urban
	PL08	KM	F	44'	16	School-based	10 th	N.A.	30	Sub-Urban
	PL09	ZW	F	38'	15	School-based	10 th	N.A.	34	Sub-Urban
	PL10	ZW	F	31'	15	School-based	10 th	N.A.	39	Sub-Urban
	PL11	KM	M	40'	15	School-based	10 th	N.A.	34	Sub-Urban
	PL12	ZW	F	33'	15	School-based	10 th	N.A.	36	Urban
	PL13	JW	M	38'	15	School-based	10 th	N.A.	59	Urban
	PL14	KM	F	42'	15	School-based	10 th	N.A.	81	Urban
	PL15	JW	M	37'	15	School-based	10 th	N.A.	39	Urban
Phase 3	PL16	KM	F	42'	15	School-based	10 th	N.A.	49	Rural
	PL17	JW	M	39'	15	School-based	10 th	N.A.	30	Sub-Urban
	PL18	KM	F	30'	15	School-based	10 th	N.A.	58	Urban
	PL19	JW	M	37'	15	School-based	11 th	N.A.	33	Urban
	PL20	JW	M	32'	15	School-based	10 th	N.A.	47	Urban

Phase	Participant Ref.	Interviewer	Gender	Duration	Age	Recruitment Type	Grade	School performance	IAT Score	Type of residence location
Phase 1	D01	MD	F	40'	15	School-based	10 th	Above average	41	Sub-Urban
	D02	KM	M	39'	15	School-based	10 th	Below average	59	Urban
	D03	MD	M	41'	16	School-based	11 th	Average	41	Rural
	D04	MD	F	35'	16	School-based	10 th	Average	40	Sub-Urban
	D05	ED	M	61'	15	School-based	10 th	Average	61	Rural
	D06	MD	M	70'	15	School-based	10 th	Average	40	Rural
	D07	KW	M	53'	16	School-based	11 th	Above average	53	Rural
	D08	MD	M	38'	16	School-based	11 th	Average	45	Rural
	D09	MD	F	35'	16	School-based	10 th	Average	48	Sub-Urban
	D10	KW	F	37'	15	School-based	10 th	Above average	40	Sub-Urban
Phase 2	D11	MD	M	43'	16	School-based	10 th	Average	58	Urban
	D12	MD	F	51'	16	School-based	10 th	Below average	44	Urban
	D13	KM	F	43'	16	School-based	10 th	Below average	59	Urban
	D14	KM	M	38'	15	School-based	10 th	Below average	48	Urban
	D15	ED	F	42'	16	School-based	10 th	Average	48	Urban
Phase 3	D16	ED	F	44'	15	School-based	10 th	Below average	68	Urban
	D17	MD	F	37'	16	School-based	10 th	Below average	67	Urban
	D18	MD	M	42'	16	School-based	10 th	Average	61	Urban
	D19	MD	M	40'	15	School-based	9 th	Above average	82	Urban
	D20	MD	F	37'	15	School-based	9 th	Average	49	Sub-Urban

Phase	Participant Ref.	Interviewer	Gender	Duration	Age	Recruitment Type	Grade	School performance	IAT Score	Type of residence location
Phase 1	RO01	ET	M	61'	16	WP4 pool	10 th	Average	42	Rural
	RO02	GM	F	53'	16	WP4 pool	10 th	Above average	43	Urban
	RO03	ET	M	47'	16	WP4 pool	10 th	Average	41	Urban
	RO04	ET	M	38'	17	WP4 pool	10 th	Average	42	Urban
	RO05	AI	M	51'	16	WP6 pool	10 th	Above average	32	Urban
Phase 2	RO06	GM	F	38'	16	WP6 pool	10 th	Above average	31	Urban
	RO07	AI	F	44'	16	WP6 pool	10 th	Average	30	Rural
	RO08	AI	M	78'	16	WP6 pool	10 th	Average	35	Urban
	RO09	AI	M	42'	17	WP6 pool	10 th	Average	38	Urban
	RO10	AI	F	55'	16	WP6 pool	10 th	Average	43	Urban
Phase 3	RO11	AI	F	65'	16	WP6 pool	10 th	Above average	31	Urban
	RO12	AI	M	88'	16	WP6 pool	10 th	Above average	30	Urban
	RO13	AI	F	59'	17	WP6 pool	10 th	Average	56	Rural
	RO14	AI	F	69'	16	WP6 pool	10 th	Average	59	Urban
	RO15	AI	F	63'	16	WP6 pool	10 th	Average	61	Urban
	RO16	GM	F	45'	17	WP6 pool	10 th	Average	32	Urban

Phase	Participant Ref.	Interviewer	Gender	Duration	Age	Recruitment Type	Grade	School performance	IAT Score	Type of residence location
Phase 1	NL01	MA	M	62'	16	Forum Internet	10th	Average	52	Rural
	NL02	MA	M	48'	16	Forum Internet	11th	Average	46	Rural
	NL03	MA	F	43'	16	Forum Internet	10th	Below average	44	Rural
Phase 2	NL04	LD	M	42'	15	Forum Internet	10th	Above average	37	Urban
	NL05	LD	M	30'	16	School-based	10th	Above average	37	Rural
	NL06	LD	M	33'	16	School-based	10th	Average	30	Rural
	NL07	LD	M	38'	15	School-based	10th	Above average	33	Rural
	NL08	LD	M	40'	16	School-based	10th	Average	43	Urban
Phase 3	NL09	LD	M	45'	16	School-based	11th	Average	37	Rural
	NL10	AG	M	58'	16	School-based	9th	Average	44	Rural
	NL11	AG	M	30'	15	Forum Internet	10th	Below average	51	Rural
	NL12	AG	M	45'	15	School-based	10th	Average	34	Rural
	NL13	AG	M	44'	16	School-based	10th	Average	34	Rural
	NL14	AG	M	46'	16	School-based	N.A.	Average	74	Rural
	NL15	LD	F	45'	16	School-based	10th	Average	80	Rural
	NL16	LD	F	36'	16	School-based	10th	Below average	32	Urban

Phase	Participant Ref.	Interviewer	Gender	Duration	Age	Recruitment Type	Grade	School performance	IAT Score	Type of residence location
Phase 3	IS01	TI	M	56'	15	School-based	10 th	Below average	38	Sub-Urban
	IS02	BV	F	52'	15	School-based	10 th	Above average	37	Urban
	IS03	TI	F	28'	15	School-based	10 th	Above average	36	Rural
	IS04	TR	M	32'	14	School-based	9 th	Average	39	Sub-Urban
	IS05	TR	M	24'	15	School-based	10 th	Below average	49	Sub-Urban
	IS06	TR	M	40'	14	School-based	9 th	Average	69	Sub-Urban
	IS07	TR	M	23'	14	School-based	9 th	Below average	58	Sub-Urban
	IS08	TR	M	45'	15	School-based	10 th	Average-below average	63	Sub-Urban
	IS09	HG	F	80'	14	School-based	9 th	Above average	38	Sub-Urban
	IS10	HG	M	91'	15	School-based	10 th	Below average	45	Sub-Urban
	IS11	TR	M	36'	15	School-based	10 th	N.A.	68	Sub-Urban
	IS12	VO	F	58'	17	School-based	10 th	Above average	57	Urban

C. ANALYSIS SUPPLEMENTARY TABLES OF EMERGED CONCEPTS AND PROPERTIES PER AXIAL CATEGORY

TABLE 9. AXIAL 1 GROWING INTO A CONTENT CREATOR: CONCEPTS, PROPERTIES, CONTEXTUAL LAYERS AND THEMES

Context Layer	Concepts	Properties (and dimensions)
Self as user	Learning style (<i>assisted to observational to self-learning</i>) Recollecting Initiation Content Creation	Online Initiation: Timing and Mediation (Vividness: from recent-distinct memory to distant-vague Learning style (<i>assisted to observational to self-learning</i>) Peers mediating online pathways Changing parental role, control and practices (<i>Loosened</i> to Ongoing parental restrictions) Changing adolescent routine: (from boredom to burden)
Peers	Online Peer Friending practices Online Norms Exclusion Avoidance New Social Etiquette <i>Have to Have Comments</i>	
Parents	<i>Greater Freedom</i> <i>Diminished parental mediation</i> Role reversal Parental ambivalence	
Routine	Teen routine: Loaded vs. Boring	

TABLE 10. AXIAL 2 CONCEPTS, PROPERTIES – ADOLESCENT THIRST

Concepts	Properties
<p>Online Peer Norms Online friending practices Socially mediated initiation and discovery Internet Overtaking Routine Net Talk</p>	<p>Need for connection to peers and the world Curiosity for information Need for Self-searching Need for action</p>
<p>From child as consumer (online imitation) to Grown into a content creator Need for speed Always online and Checking out</p>	
<p>Proximal and distant sources of influence Boredom and Burden Use shaping personality</p>	
<p>Bypassing connection barriers Handling parental control Practical restrictions in accessing ne Parental monitoring of use and restrictive practices</p>	

TABLE 11. AXIAL 3 CONCEPTS, PROPERTIES – ALWAYS ONLINE AND CHECKING OUT

Concepts	Properties (and dimensions)
Degree of online engagement: Always Online Permanency	Permanent online engagement: Always online(continuous/permanent or intermittent)
Sustaining Connection Avoid missing out Checking out Investing Effort Ensuring Connectivity	Sustaining contact: Checking out (Effortful and Proactive to Laissez-faire) Multi-tabbing and multi-tasking (low to intense)
Multi-tabbing engagement “online but not looking” Multi-tasking	Internet turning automatic and habitual: Element of Life (low ... to intense)
Automaticity Habitual – “an element of life”	

TABLE 12. AXIAL 4 CONCEPTS, PROPERTIES – FROM EASING ADOLESCENCE TO EMPOWERING SELF

Concepts	Properties
<p>Online befriending practices Interaction facilitated on social media Sharing online On social networking: to see and to be seen Fear of exclusion</p>	<p>Virtual world of unbounded possibilities</p> <p>Real world with its restrictions</p> <p>Easing</p>
<p>Quenching thirst for knowledge, Learning by cutting corners Seeking fun and entertainment</p> <p>Gamers’ characteristics and gaming motivation My photos-self representations My avatar virtual world:</p> <ul style="list-style-type: none"> - Impersonation and fulfillment - Boosting self on social media <p>Assessing Internet’s role in life Net altering behaviour/mood and invading teen culture</p>	
<p>Bypassing online risks: Self-control and discipline Overcoming and hiding personal characteristics and behaviour (Privacy-identity risks – Content-permanency) Data security risks Net as a coping mechanism Hidden behind the screen: do anything and be anyone you like Personal risks and potential impact on wellbeing</p>	

D. EU NET ADB PROJECT

OVERVIEW

The EU NET ADB project is funded from 2010-2012 by the EC's Safer Internet Programme.

The project aims to enhance knowledge of the studied European adolescents' experiences regarding functional and dysfunctional Internet use. The EU NET ADB project has conducted a survey of adolescents' experiences of Internet behaviour in seven European countries. It generated a substantial body of data rigorously collected and cross nationally comparable in order to investigate prevalence, associated factors and consequences of Internet addictive behavioural patterns. The findings will be disseminated through a series of reports and presentations during 2012-13.

OBJECTIVES

1. To evaluate the prevalence and determinants of Internet addictive behaviour among the studied European adolescents;
2. To increase awareness among associated stakeholders and the public;
3. To enhance the knowledge base required for the development of public health strategies, fully relating to the EC's call and objectives.

WORK PACKAGES

Six work packages have been designed to meet these objectives:

- WP1: Project Management
- WP2: Project Assessment and Evaluation
- WP3: Dissemination of Project Results
- WP4: Methodology of the Research Requirements Specification
- WP5: Qualitative Assessment of the Determinants and Development associated with Addictive Internet Use among European Adolescents
- WP6: Quantitative Evaluation of the Prevalence and Risk Factors of Internet Addictive Behaviour among European Adolescents

INTERNATIONAL ADVISORY BOARD FOR THE QUALITATIVE STUDY

- **Helsper, Ellen**, Ph.D., Department of Media and Communications, London School of Economics, UK.
- **Karakitsou, Chryssoula**, M.Sc., Ph.D., Deree, The American College of Greece, Athens, Greece.
- **Kokkevi, Anna**, Ph.D., Section of Epidemiology Research and Prevention in the fields of Drug Abuse and Psychosocial Health Promotion of the University Mental Health Research Institute (UMHRI), Athens, Greece.
- **Merrick, Joav**, MD, MMedSci, DMSc, Department of Pediatrics, Hadassah-Hebrew University Medical Center, Mount Scopus Campus, Jerusalem, Israel.
- **Shahtahmasebi, Said**, Ph.D., Centre for Health and Social Practice at Waikato Institute of Technology, Hamilton, New Zealand.
- **Shek Tan-lei, Daniel**, PhD, BBS, JP, Department of Applied Social Sciences Faculty of Health and Social Sciences, the Hong Kong Polytechnic University, Hong Kong.

EXTERNAL ADVISORS FOR THE QUALITATIVE STUDY

- **Das, Ranjana**, Ph.D., University of Leicester, Department of Media & Communications Bankfield House, Leicester, United Kingdom.
- **Greydanus, Donald E.**, MD, FAAP, FSAM, FIAP (H), Pediatric Department Chair and Pediatric Program Director, Western Michigan University, School of Medicine, Michigan, USA.
- **Staksrud, Elisabeth**, Ph.D., Department of Media and Communication, University of Oslo, Norway.

E. EU NET ADB PROJECT MEMBERS

	Country	Institution	Team Members
1	Greece	<p>Artemis Tsitsika info@youth-health.gr Mari Janikian mjanikian@acg.edu Eleni Tzavela etzavela@med.uoa.gr National and Kapodistrian University of Athens (N.K.U.A.), Adolescent Health Unit (A.H.U.), Second Department of Paediatrics, 24 Mesogeion Ave., Goudi 11527, Athens, Greece</p>	<p>Artemis Tsitsika Mari Janikian Eleni Tzavela George Antonogeorgos Foteini Mavromati Elena Critselis Kalliopi Athanasiou Vicky Dimitrakopoulou Sotiria Nika Athanasios Kyritsis Stavroula Georgiadi</p>
2	Spain	<p>Ana Oliaga San Atilano anao@protegeles.com PROTEGELES, C/ José Echegaray nº8 Edif.3 28230 Las Rozas (Madrid), Spain</p>	<p>Ana Luiza Rotta Soares Ana Oliaga San Atilano Melissa Gómez Seago</p>
3	Poland	<p>Szymon Wójcik szymon.wojcik@fdn.pl Katarzyna Makaruk katarzyna.makaruk@fdn.pl Nobody's Children Foundation (NCF), 31 Katowicka Street 03-932 Warsaw, Poland</p>	<p>Szymon Wójcik Katarzyna Makaruk Joanna Włodarczyk Zofia Włodarczyk</p>
4	Germany	<p>Peter Behrens behrens@lmk-online.de Sebastian Holtz holtz@lmk-online.de The Central Authority for Media and Communication in Rhineland Palatinate (LMK), Turmstraße 10, Postfach 21 7263, 67072 Ludwigshafen, Germany</p>	<p>Peter Behrens Sebastian Holtz Isabell Tatsch Thomas Rathgeb</p>

5	Germany	<p>Michael Dreier michael.dreier@uni-mainz.de Klaus Wölfling woelfling@uni-mainz.de Eva Duven duven@uni-mainz.de Outpatient Clinic for Computer Game and Internet Addictive Behaviour Mainz/ Clinic and Polyclinic for Psychosomatic Medicine and Psychotherapy at the University Medical Center of the Johannes Gutenberg-University Mainz (UMC-Mainz),</p> <p>Untere Zahlbacher Straße 8 55131 Mainz, Germany</p>	<p>M. E. Beutel Klaus Wölfling Michael Dreier Kai W. Müller Eva Duven</p>
6	Romania	<p>Gabriela Elena Chele gabrielachele@yahoo.com Grigore T. Popa University of Medicine and Pharmacy Iasi (UMF),</p> <p>Str. Universitatii nr.16 700115 Iasi, Romania</p>	<p>Cristinel Ștefănescu Gabriela Elena Chele George Florian Macarie Manuela Apostol Ana Voichița Tebeanu Iordache Andreea</p>
7	Netherlands	<p>Tim Schoenmakers schoenmakers@ivo.nl IVO Addiction Research Institute, Heemraadssingel 194</p> <p>3021 DM Rotterdam, the Netherlands</p>	<p>Tim Schoenmakers Lydian Veldhuis</p>
8	Iceland	<p>Kjartan Ólafsson kjartan@unak.is Eva Halapi evah@unak.is University of Akureyri (UNAK),</p> <p>Nordurslod 2 600 Akureyri, Iceland</p>	<p>Kjartan Ólafsson Eva Halapi Gunnhildur Helgadóttir Sigrun Vesteinsdóttir Sigrun Sif Joelsdóttir Hjördis Sigursteinsdóttir Halldor Gudmundsson Tryggvi Ingason Solveig Maria Ólafsdóttir</p>