A SHARED RESPONSIBILITY

BUILDING CHILDREN'S ONLINE RESILIENCE

An independent research paper commissioned and supported by Virgin Media and Parent Zone

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CONTENTS

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EXECUTIVE SUMMARY

This research explores how children and young people can be supported to become resilient users of the internet. In this context, resilience is seen as an individual's ability to accurately adapt to changing and sometimes stressful environments and to feel empowered to act instead of react in the face of both novel and threatening challenges.

By applying a psychological research perspective, this research posits that young people's ability to effectively self-regulate their media use actually increases their resilience when encountering potentially harmful or inappropriate content online. This study of British 14-17 year olds explored the potential outcomes of resilience online as well as what environmental and social factors could be seen to predict it. The three main findings are set out below;

1. *Resilience online benefits young people.*

   Young people that self-regulate their internet and social media use – and are thus more resilient – are more likely to seek out opportunities online. They are empowered to use the internet and social media to acquire knowledge, learn new skills, take advantage of digital technologies, express and develop their identities, build and maintain social ties, and follow and participate in news and conversations linked to their communities and current events.

2. *Supportive and enabling parenting has a more positive impact on resilience than parental strategies to restrict or monitor internet use.*

   Our findings indicate that enabling, supportive parenting plays a key role in determining how young people approach digital contexts. Children who felt their parents showed them unconditional love and support, were involved in their lives and respected their choices and opinions were most likely to be resilient online, and thus more likely to benefit from positive outcomes online.

By contrast, our research showed that whilst parental strategies of restriction and monitoring may have some utility in directly shielding young people from potential harms, they could have the unintended negative effect of undermining resilience and constructive engagement online. If we accept that, in an "always on" digital world, monitoring a child's entire digital life is impossible, then by extension, we must surely also accept that children must be empowered with some capacity to judge and respond to risks independently.

Taken together, these conclusions demonstrate that good parenting and allowing children to take risks and develop coping strategies is integral to developing resilience. The same logic, which applied to real world child development says that falling over is an integral part of learning to ride a bike, should be applied online as it can lead to positive self-regulatory learnings. Equally, as in the offline world, any policy of total risk avoidance is not simply ineffective, it is counterproductive.

3. *Young people's digital skills and levels of 'digital optimism' can boost resilience.*

   Young people who believed the internet and digital technology benefit society, as well as those who have built more skills using digital technologies, were more likely to be resilient self-regulators online. This suggests that building the fundamental digital competencies of young people could have unexpected yet positive knock on effects in terms of fostering resilience and positive engagement across a host of online settings.

In identifying the benefits of resilience and the contributing factors to self-regulation online, this research addresses a gap in existing research and hopes to inform an evidence-based policy approach to building resilience amongst young people. The response required is a multifaceted and proportionate one, striking a balance between protecting but not mollycoddling, careful at all points not to stifle a child's natural curiosity and acknowledging that, in some contexts, young people necessarily have to be empowered to make independent judgements about risk.

INTRODUCTION

Digital technology is now integral to all areas of educational and social participation. As such, the distinction between young people's online and offline lives no longer exists. New technologies offer children and young people opportunities to socialise, learn, participate in civic life, creatively produce their own work, and express their identities (Lenhart, Purcell, Smith, & Zickuhr, 2010.; Livingstone et al., 2005; Prensky, 2008). However, the quality that makes the internet a vehicle for such creativity, innovation and exploration – its inherent freedom – is impossible to ensure without a degree of risk..

As in the offline world, the risks associated with exposure vary depending on a range of family, personal and environmental influences. As in the offline world, children cannot be watched at all times and exposure to some degree of risk is unavoidable. The response required is a multifaceted and proportionate one, striking a balance between protecting but not mollycoddling, careful at all points not to stifle a child's natural curiosity and acknowledging that, in some contexts, young people necessarily have to be empowered to make independent judgments about risk.

The Byron Review (Byron, 2008), set out to address just this challenge, exploring how our understanding of children and young people's development could be applied to the online world, and how this in turn could inform action taken by Government, industry, the third sector, and families, to make the internet a safer place for children. The Review set out three strategic objectives for child safety online: to reduce the availability of harmful and inappropriate material online, to restrict access to such harmful material online through a combination of technical tools and informed parenting, and lastly, to "increase children's resilience to the material to which they may be exposed so that they have the confidence and skills to navigate these new media waters more safely" (Byron, 2008).

Since 2008, the policy and media debate has focused heavily on addressing the potential impact of harmful content online. The efforts of UK industry to keep children safe online have surpassed those in other markets. For instance, internet service providers (ISPs) provide free parental controls tools to all customers and hosting sites continue to improve age verification measures to help prevent children accessing age-inappropriate content. Government and industry continue to work together to block child abuse material. Whilst this combined action has made the UK a global leader in creating a safe online environment for children, it has focused primarily on addressing the access and availability objectives raised by the Byron Review. Much less attention has been paid to the third objective of the Review –building resilience amongst children and young people as they go online.

This research aims to make a contribution to understanding what the impact of resilience on children's online engagement is and how this resilience can be nurtured. It is our hope that this research will contribute to the evidence-base required to inform the UK's approach to building resilience amongst young people.

THEORETICAL FRAMEWORK

Young People and the Internet

When considering children's engagement online it is necessary to adopt a holistic view of potential outcomes from internet and social media use. Much academic research has followed trends evident in policy and media debates by focusing on the avoidance of negative online outcomes. Whilst there is a strong existing research base dedicated to understanding how online risks and harm might be predicted, less is known about positive outcomes and how to achieve them.

Indeed, most baseline academic research charting how the internet can be beneficial for teenagers is dated and explores only 'what' children do online rather than the outcomes or benefits of this usage. Only recently have we seen a shift in focus towards helping children take advantage of new online opportunities – such as boosting digital skills and the importance of coding.

Active Engagement Online

Whilst academic research into the positive impact of online engagement might be lacking, it is a sign of how embedded digital technology has become in all spheres of life that it risks stating the obvious to say that active engagement online delivers a wide range of child development benefits.

Findings reported in both qualitative research such as the MacArthur Foundation's Digital Youth Project (Ito et al., 2008) and quantitative research like the EU Kids Online project (Lobe et al., 2011) highlight a range of opportunities and motivations behind adolescents seeking online engagement. Most of the positive opportunities teenagers pursue online fall under five broad categories: socialising, learning, civic engagement, producing their own creative work, and expressing their identities (Lenhart et al., 2010; Livingstone et al., 2005; Prensky, 2008).

Teenagers relish the ease at which they can connect with friends, keep in touch with family, and meet like-minded individuals (Clark, 2005; Lenhart et al., 2010). This ease of connection also encourages some teenagers to connect with civic causes, whether it be by contacting a politician, signing an online petition, or searching for information about current events (Rheingold, 2008). Social media is in particular seen as a tool for collective action (Valenzuela, Park & Kee, 2010) – offering opportunities to draw attention to, share, and debate issues such as civil liberties (Banaji & Buckingham, 2010) or police brutality (Teruelle, 2012).

Young people are also teaching themselves new skills through viewing online videos and finding online support for new hobbies, such as computer programming (Prensky, 2008). Teenagers often share memes, videos, reviews, and their creative writing or blog about their passions (Livingstone, Bober, & Helsper, 2005). At other times, they use the Internet and social media not as a creative outlet, but as a source of self-expression, sharing and presenting the best versions of themselves (Valkenburg & Peter, 2005). Theorists hypothesise that through their online activities, teenagers might develop their identity – long considered the role of adolescence (Hughes-Hassell & Miller, 2003).

AS TECHNOLOGY CONTINUES TO DEVELOP QUICKLY, AND OUR UNDERSTANDING OF ITS EFFECTS FOLLOWS AT A SLOWER PACE, IT REMAINS AN ONGOING CHALLENGE TO BOTH ENSURE POSITIVE OUTCOMES AND GUARD AGAINST THE POTENTIAL RISKS CHILDREN MIGHT FACE ONLINE.

However, it is widely recognised that children's exploration of the online world, just as with the offline world, is not without risk. Research has principally focused on three types of online risk: content, contact, and conduct (Byron, 2008; Hasebrink, Livingstone, & Haddon, 2008), although it should be remembered that these categories often overlap and distinctions between the three are at times blurred.

- *Content risks* relate to children accessing age-inappropriate or harmful material sites that encourage risk taking behaviours (Livingstone, Haddon, Görzig, & Ólafsson, 2010).

- The sometimes anonymous nature of the internet can present so-called *contact risks* – where adults can pretend to be someone they're not online and can contact and potentially harm children and young people through social media or chatrooms.

- Equally, children may find themselves at risk because of their own or other children's behaviour – that is, *conduct risks* (Smith, Mahdavi, Carvalho, Fisher, Russell & Tippett, 2008). The blurred distinction between public and private spaces can also heighten such risks, as children may share personal information or photos without fully understanding or considering the consequences.

By exploring the positive and potentially negative aspects of online engagement it is clear that both must be considered when looking at how to support children to get the most from the online world. As technology continues to develop quickly, and our understanding of its effects follows at a slower pace, it remains an ongoing challenge to both ensure positive outcomes and guard against the potential risks children might face online.

EXTERNAL REGULATION	**INTROJECTION**	**IDENTIFICATION**	**INTEGRATION**	**INTRINSIC MOTIVATION**
Motivated by tangible rewards and punishments.	Swallowing an idea with digesting it.	Identify a behaviour's value and accept it for instrumental reasons.	Recognize a behaviour's value. Integrate it with your values and identity.	Acting of your own volition without an instrumental end.

Level of sustainability once contingencies are removed

Resilience

The Byron Review suggests that building resilience is a core objective of supporting children's ability to manage the risks to which they may be exposed to online, alongside efforts to reduce the availability and accessibility of harmful material online (Byron, 2008).

Resilience can be understood as an individual's ability to accurately adapt to changing and sometimes stressful environments and to feel empowered to act instead of react in the face of both novel and threatening challenges. If we accept that, in an "always on" digital world, monitoring a child's entire digital life is impossible, by extension we must surely accept that children must be empowered with some capacity to judge and respond to risks independently.

Whilst it is increasingly acknowledged that resilience cannot be not fostered through complete avoidance of risk (d'Haenens, Vandoninck & Donoso, 2013), the focus on the type or amount of harmful content children are potentially exposed to online persists.

Research psychologists have instead found that the 'why' of media use, rather than the traditional metrics of 'how much' or 'exposure', provides a more complete picture of online engagement and is a better predictor of outcomes from media use. Understanding what motivates and encourages young people's online engagement – rather than focusing only on how they use the internet or what they might see - can support our understanding of how resilience might be fostered, ultimately encouraging positive experiences as a result of more empowered users.

Autonomous Self-Regulation

Self-determination theory, a widely researched psychological perspective, can be usefully applied in this context. It is concerned with what motivates us – exploring why individuals behave in certain ways.

Self-determination theory posits that one's level of self-regulation is tied to one's motivation when performing a task. When considered in the context of child development, young people with "autonomous self-regulation", or an ability to manage short and long-term desires in line with their values, are seen to face less negative consequences from exposure to harm in offline contexts (Van Petegem, Beyers, Vansteenkiste, & Soenens, 2012). The same can be said of the online world - young people who are autonomous self-regulators show fewer negative repercussions of exposure to harmful content online through social media (Przybylski, Murayama, DeHaan, & Gladwell, 2013) and video gaming (Przybylski, Rigby, & Ryan, 2010; Przybylski, Weinstein, Ryan, & Rigby, 2009). Crucially, research has shown that an individual's ability to effectively self-regulate media use increases one's resilience when encountering potentially harmful or inappropriate content that we may face online (Ryan & Deci, 2000).

Broadly, autonomous motivation reflects an individual's internal desire to complete a task while external motivators represent factors outside of an individual's control, including rewards that may encourage such tasks or punishments that limit them. We find more satisfaction from and produce work of higher quality when autonomously motivated. Put simply, the more autonomous the motivation, the greater the likelihood that resilience and positive behaviour will be sustained once the external motivator disappears.

There are four styles of motivation that impact on the degree to which an individual displays autonomous self-regulation. These are External Regulation, Introjection, Identification, and finally Integration.

- Specific contingencies such as tangible rewards or punishments motivate *externally regulated* behaviours. These may include doing one's homework to avoid being grounded or making one's bed in order to get an allowance. Once the external motivator is removed, the behaviour or value typically dissipates.

- In *introjected motivation*, an individual maintains the contingencies themselves but does not fully accept them. It can be thought of as swallowing the idea without digesting it. Individuals may assume an emotional outcome from obeying/disobeying, such as threats of guilt and shame.

- Oftentimes, individuals *identify* and accept the value of a behaviour or thought. Since it has a discernible value, it can be accepted and internalised as something one should do. For example, someone might exercise because they know it is good for them, not necessarily because they love the sport. In this case, the behaviour is still extrinsically motivated as it is being performed for instrumental reasons. However, it may be better sustained over time, as the individual recognises its worth.

- Finally, we may *integrate* a value or behaviour into our identity because we identify with its importance. This is the most self-determined or autonomous form of extrinsic motivation.

Research has shown however that tasks and behaviours can still be satisfying and performed well, even when extrinsically motivated. It can be thought of as a spectrum with intrinsic motivations showcasing high self-regulation and extrinsic showcasing low self-regulation. Parents, teachers, caregivers, and social circumstances can shape how people regulate their behaviours in general and in terms of digital media and games in particular. But as children mature, and are typically granted more freedom from their parents, their sustained good behaviour relies on what motivates their actions rather than any rules and restrictions which they have abided by. By extension, if children are to grow up benefitting from what the online world has to offer, their good practice or behaviour online must be sustained through encouraging self-regulation online. In the context of adolescents and active engagement online, the importance of identifying the social and environmental factors that contribute to resilient self-regulation is evident, as well as the consequences which one would expect from it.

ENVIRONMENTAL FACTORS CONTRIBUTING TO RESILIENT SELF-REGULATION ONLINE

Caretaker Climate

We understand that nurturing positive outcomes for children and young people begins at home. As primary caregivers, first educators and support networks, parents influence most children and the quality of their parenting has an impact on the outcomes their children achieve (Grolnick, Deci, & Ryan, 1997).

Grolnick, Ryan, and Deci (1991) conceptualise this through a parent involvement and autonomy support scale, measuring caregivers' levels of involvement in a child's emotional and social life, and the extent to which they communicate that they value their child's perspective and developing sense of self. In the offline world, we know that teenagers supported in this way seek out interesting opportunities and are resilient in the face of peer pressure (Grolnick et al., 1997). Relatedly, parent support and affection helps increase children's internal motivation and self-regulation (Grolnick, 2009; Ryan, Stiller, & Lynch, 1994).

Whilst considerable research evaluates the impact of parenting on children's educational outcomes (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Fisch, 2014; Grolnick & Ryan, 1989), we know much less about its impact on children's online outcomes.

It is therefore necessary to explore if, by providing a supportive environment, parents may be able to encourage their children to develop the autonomy necessary to explore positive experiences online and the resilience to either avoid or be unaffected by potential online risks.

Mediation Strategies

In the context of children's engagement online, most attention has been directed towards measuring parental strategies for managing their children's Internet and social media use, but not on what impact such strategies might have (Kirwil, 2009; Livingstone & Helsper, 2008; Lwin, Stanaland, & Mizayaki, 2008).

We understand that parents adopt a range of strategies to manage or attempt to influence their children's online engagement. These depend on both demographic and cultural factors such as their child's age, their own confidence in and knowledge of online spaces, the information they have read in the news, and their own attitudes and beliefs (Sonck, Nikken, & de Haan, 2013). Often, decisions are based on practical and immediate concerns such as 'I think my child spends too long on the computer' or 'I have received a bill I wasn't expecting'. Occasionally, parents are faced with issues they find difficult to respond to such as their child telling them they are being bullied online or they have seen content that has upset or worried them and this propels them into taking action.

However, the internet and social media are not the first technology parents have been forced to grapple with. Much of what we know about how parents adopt rules and orientations towards technologies stems from research into television viewing with parents and children. The negotiation between parents and their children around such devices has been termed: parental mediation, and strategies exist along three domains – active, co-use, and restrictive (Nathanson, 2001).

Active mediation refers to conversations between parents and children about technology and its content. Sample discussions might include talks about online risks, favourite activities to access online, or what teens are doing on Facebook. Coviewing, a more passive strategy, occurs when a parent observes or participates in the media, such as by playing video games with one's child or looking over their shoulder as they browse the Internet. However, coviewing avoids the teaching opportunities associated with active mediation.

Finally, restriction involves limiting or forbidding access to the media. Parents may choose to restrict all access to technologies like video games or adopt more subtle forms of restriction, whether by restricting the time that children can spend online, the content they can access (such as allowing social media but no SnapChat), or the places where kids can use their devices.

It is noteworthy that little research has investigated how parental mediation strategies for Internet and social media use can influence resilient self-regulation of ICTs or active engagement with these digital contexts. Furthermore, research examining parental mediation strategies seldom considers the wider caregiver-child relationship.

Digital Skills and Attitudes

21st century skills are increasingly recognised as vital to supporting educational and long-term vocational outcomes. New policy and educational efforts, such as introducing computer programming into school curriculums, attempt to instil these skills and argue that without strong technical skills, teenagers will be left behind future advancements (Cohen & Livingston, 2013). Not only might these skills impact future outcomes, some constructive outcomes may be lost to those without the ability to critically navigate the new technical landscape or to those who doubt its power.

However, the EU Kids Online study identifies a gap in our understanding of if and how digital skills can impact children's ability to stay safe online, and, by extension, be resilient internet users (Livingstone & Haddon, 2009). It has been suggested that the association between online safety skills and digital literacy should be explored further, as boosting one might also improve the other (Sonck, Livingstone, Kuiper, and de Haan, 2011).

Consideration of young people's attitudes towards the internet and social media, and how they might relate to online resilience is also an area that merits further study. In the US, for instance, levels of concern about online privacy amongst teenagers are shown to have an impact on their behaviour on social networking sites (Feng and Xie, 2014). But there is a gap in our understanding of how general attitudes towards the online world amongst UK adolescents might contribute to their self-regulation online.

Parent digital skills and general attitudes should also be considered in the context of online safety. Indeed, policy makers have increasingly called for parents to improve their digital skills to support their children's' online activities. Research has suggested that parent digital skills might impact their ability to regulate teen media use (Livingstone & Haddon, 2009).

Equally, parental uncertainty about the online actions and experiences of their children, as well as their own attitude toward the internet, has been linked to parental worries and concerns (Sorbring, 2014). This, in turn, might influence how parents attempt to mediate their child's internet and social media use. It has been shown that parents who have a negative outlook on video games, and presume a damaging influence on children, were more likely to restrict their teenagers engaging in such activities (Shin and Huh, 2011).

RESEARCH OBJECTIVES

Based upon the theoretical framework above, the aim of this research was to investigate young people's resilience and self-regulated engagement with the internet and social media.In particular, it sought to answer the following questions:

I. Does self-regulated internet and social media use contribute to positive online outcomes?

- We evaluated four hypotheses concerned with the social, parental, and individual factors linked to effective and constructive engagement with internet and social media - that is, learning skills online, personal growth and expression, building and maintaining social ties, being engaged civically, and expressing creativity online.

- We hypothesised that young people who regulate themselves effectively online would be more likely to have recently capitalised on the internet to teach themselves useful skills, grow as a person, express their thoughts and creativity, build social connections among peers and in the public sphere.

II. Supposing that resilience leads to positive online outcomes, what environmental and social factors contribute to self-regulated internet use?

- The research tested the expectation that general caregiver climate, the extent to which parents are involved and acknowledge and foster their child's perspective and developing values, would bear positively on young people's resilient self-regulated use of the internet and social media.

- Second, the study evaluates the idea that the skills and attitudes that young people have regarding the internet and the attitudes and mediation strategies adopted and implemented by their caregivers relates to how they regulate their use of digital technology, i.e. their resilience.

- Third, we investigated the idea that young people's skills and attitudes as well as caregiver mediation strategies were associated with active and positive engagement online.

METHODOLOGY

Participants

A nationally representative sample of young people from England, Scotland and Wales was recruited for this study. Of these, 926 were male and 1076 were female, ranging in age from 14 to 17 years (M = 15.63, SD = 1.1). To ensure analyses reflected trends in the wider population of young people all analyses presented in this study were weighted by values derived from Nomis based on household location and participant gender to offset response bias linked to participant polling. Data reflecting the representation of social grade, derived from National Readership Survey (NRS) values, is presented in Table 1 and geographic information is shown in Table 2.

Measurements

Participant interviews were conducted using web-based survey tools. The presentation and ordering of assessments, detailed below, were provided to participants in randomised blocks such that the each participant responded to measures in a different order and the individual items in that measure were themselves randomised in order to minimise sequence and order effects.

Resilient Self-Regulation Online

Self-determined use of Information Communication Technologies (ICTs) was measured using two 15-item assessments tapping into individual variability in autonomous regulation with the Internet and social media (see Figure 1). This measure captured young peoples' motivations for engagement ranging from: (1) Intrinsic motivation – "because I find doing on the Internet simply fun." (2) Identified motivation – "the Internet is part of who I am." (3) Introjected motivation – "I feel like using the Internet is something I should do." (4) External motivation: "I use the Internet so my friends will like me." and (5) Amotivation – "I used to have good reasons, but now I'm asking myself if I should continue using the Internet." Individual self-determined scores were computed for each participant.

Digital Skills and Attitudes

This research sought to overcome the difficulties identified around the accurate measurement of digital skills (Sonck, N., Livingstone, S., Kuiper, E., and de Haan, J., 2011), by asking young people about the degree to which young people and parents felt confident using ICTs and performing a range of technical tasks. This was measured using a 10-item scale that asked the participant to rate the extent to which they skilled doing activities that ranged from basic: "uploading documents to an email" to advanced: "setting up and accessing proxy services." The general way young people, caregivers, and their teachers felt about ICTs and technology was measured using a 6-item assessment that participants used to rate the truth of statements regarding the place of ICT in society reflecting both hopes, such as ICTs: "...connect people in meaningful ways" and concerns: "...are unsafe".

Caregiver Climate

The approaches adopted by participants' caregivers towards parenting were measured using the 21-item Parent Involvement and Autonomy Support Scale. This measure uses the responses of young people to measure the extent to which caregiving is characterised by involvement: "my parents find time to talk to me" and "my parents put time and energy into helping me," autonomy support: "my parents, whenever possible, allow me to choose what to do" and "my parents are usually willing to consider things from my point of view," and unconditional regard: " my parents accept me and like me as I am" and "my parents are typically happy to see me."

PARTICIPANTS WERE ASKED TO REFLECT ON THEIR EXPERIENCES ONLINE IN THE PAST SIX MONTHS.

Caregiver Mediation Strategies

The approaches adopted by participants' caregivers to shape how young people use ICTs was measured using seven assessments: (1) active mediation – 5-item scale measured the extent to which caregivers are curious, communicate and solicit feedback regarding the young person's experiences online, with social media, and with electronic games. (2) Co-use – 4-item scale assessed whether caregivers encourage using online technologies with the young person, being nearby when they use games, social media, and the Internet more generally. (3) General restriction – 3-item scale assessed the extent to which caregivers have a blanket bans on some forms of ICTs, prohibiting the ownership or use of games, social media, or the Internet in the household. (4) Content restriction – 3-item scale measured whether caregivers take steps to moderate the content of ICTs in the household including mature kinds of video games, adult social networks and websites. (5) Time restriction – the degree to which caregivers provide rules structuring when and how much young people can use ICTs was measured with this 4-item scale. (6) Place restriction – two items measured whether caregivers enforced rules regarding young people using ICTs alone in their rooms or away from the home with peers. (7) Monitored use – two items measured the extent to which caregivers have direct access to their young person's online accounts (e.g. passwords).

Active Engagement Online

Five aspects of constructive engagement with ICTs were assessed with a 20-item checklist measure. Participants were asked to reflect on their experiences online in the past six months and note if they had: (1) Developed an interest or new ability online: "Learned a new skill such as learning to cook or play an instrument." (2) Was able to be and explore aspects of oneself online: "Expressed my feelings about a topic I care about." (3) Formed or deepened social bonds: "Built my circle of friends." (4) Engaged with civic activity online: "Made a post/comment about current events or politics." and (5) Shared a creative endeavour: "Wrote something creative (e.g. fanfiction) that I shared on a message board." Individual learning, self-development, social relationship, civic engagement, and creative sharing scores were computed for each participant.

FINDINGS

Analytic Approach

All statistical analyses are weighed by population representativeness and control for variability linked to participant age and gender.

Hypothesis I: Resilient Self-Regulation & Active Engagement Online

Statistical models concerned with the effects of resilient Internet usage on constructive ICT engagement indicated it was significantly related to learning online (β = .27), growth and self-expression online (β = .15), building and maintaining relationships (β = .13), being in the know with respect to current events online (β = .16) but not creative expression. A similar pattern was in evidence for resilient social media use (βs = .10 to 16) and it accounted for creative expression online (β = .12) but not civic engagement online.

Taken together, resilient social media and general Internet use was robustly associated with active and constructive ICT engagement.

Hypothesis II: Caregiver Climate & Resilient Self-Regulation Online

Results from regression models assessing the influence of caregiver styles indicated that caregiver involvement (β = .26), autonomy support and perspective taking (β = .21), and unconditional regard (β = .24) were significantly positively associated with self-regulated Internet engagement and all three factors appeared also to support resilient self-regulation of social media use (βs = .16 to .19).

Taken together, these results supported the hypothesis that the general approach that caregivers adopt to parenting facilitates effective and resilient engagement with social media and general Internet use.

Hypothesis III: Attitudes, Skills, Caregiver Mediation & Resilient Self-Regulation Online

Statistical models investigating the effects of young person and caregiver attitudes and digital skills on resilient social media and Internet engagement showed young person ICT skills (β = .14) and attitudes (β = .27) predicted resilient Internet use whereas caregiver (β = .13) and young person attitudes (β = .27) as well as skills (β = .15) were linked to resilient social media regulation. Parental skills and attitudes were not statistically related to general Internet resilience.

These results support the hypothesis that young person digital skills support resilient self-regulation online, whereas there is no statistically significant link between parent digital skills and their children's self-regulation online.

Models investigating the links between caregiver mediation strategies indicated co-use (β = -.13), general restriction (β = -.35), place restriction (β = -.24), and monitoring (β = -.15) appeared to undermine resilient Internet self-regulation whereas general restriction (β = -.20) and place restriction (β = -.16) were negatively related to resilient self-regulation of social media.

Across both internet and social media engagement, active mediation, content restriction, and time restriction appeared to have no overall effect on ICT resilience.

Hypothesis IV: Attitudes, Skills, Caregiver Mediation & Active Engagement Online

Analyses focusing on the extent to which young people used the Internet to learn new skills in the past six months indicated that young person attitudes (β = .18) and skills (β = .21) were positively associated with learning online, but mediation strategies including co-use (β = -.12), general restriction (β = -.23), place restriction (β = -.14), and monitoring (β = -.14) were significantly negatively linked. Caregiver attitudes, active mediation, content restriction, and time restriction did not relate to online learning.

Models considering personal growth and self-expression showed that young person skills and attitudes (βs = .18) were significant and general (β = -.12), as well as content, time, and place restriction were negatively associated (βs = .11). Caregiver attitudes, skills, as well as active mediation, co-use, and monitoring were not linked to self-expression and growth online.

Analyses examining the development and maintenance of social ties in online spaces indicated that young person attitudes (β = .18) and skills (β = .21) were positively associated with social engagement online, whereas general (β = -.21), content (β = -.11), and place restriction (β = -.15), as well as monitoring (β = -.13) hampered this. Caregiver attitudes, skills, as well as active mediation, co-use, and time restriction did not relate to social engagement online.

Models examining civic engagement and the expression of creativity online indicated that young person attitudes (βs = .13 to .14) and skills (βs = .19) were the only significant predictors. Parental skills, attitudes, and mediation strategies were did not relate to these facets of constructive ICT engagement.

ANALYSIS & INTERPRETATION

Resilient Self-Regulation Online

The findings derived from this study of British young people lent general support to our hypotheses that resilient internet and social media engagement may benefit young people online. Adolescents' tending towards higher levels of resilient self-regulation reported they were more likely to have sought out opportunities to acquire knowledge learn new skills online, taken advantage of digital technologies to express and develop their identities, build and maintain their social ties, and follow and participate in news and conversations linked to their communities and current events.

This pattern of findings expands on those observed in psychological research across a wide range of real-world (Ryan & Deci, 2000) and virtual domains (Przybylski et al., 2009). This parallel is an important one, as it opens the door for fostering more resilient and autonomous forms of motivation (see Figure 1).

Antecedents of Resilient Self-Regulation Online

The findings derived from this study also provide important insights into the factors that could influence resilience online and active engagement with the internet and social media. Key findings concern the effects observed for; (1) the general caregiver climate, (2) digital skills and attitudes (3) caregiver mediation strategies and (4) resilient self-regulated online engagement.

Caregiving Climate

First, the present findings lend empirical weight to the idea that the overall psychological quality of parenting may play a key role in determining how young people approach digital contexts. In particular, three aspects of the caregiver child relationship showed robust positive links to resilience; (a) caregiver involvement – being available to a child, knowledgeable and concerned about their experiences, (b) autonomy support – caregivers communicating they respect their child's perspective and developing values, and (c) unconditional regard – not making care or love dependent on a child meeting the caregivers' standards of behaviour, all were linked to resilient self-regulation online.

This set of findings mirror and extend those focusing on young person development in family, peer, sport, and educational contexts (Ryan & Deci, 2002) which suggest that the overall psychological climate young people enjoy shapes how they regulate themselves outside the home.

BY PROVIDING LIMITED, RELEVANT, AND FLEXIBLE OPTIONS, PARENTS AND CAREGIVERS MAY HELP CHILDREN DEVELOP THE CAPACITY TO MAKE EFFECTIVE CHOICES FOR THEMSELVES ONCE THEY ARE THEIR OWN ONLINE.

Digital Skills & Attitudes

Second, this research highlighted the role that a young person's attitudes towards digital technologies, the internet and social media may influence how British adolescents approach these contexts and what they get out of them. Young people who believed information communication technologies benefit society as well as those who have built more skills using digital technologies were more likely to be resilient self-regulators online. Interestingly, caregiver digital skills appeared not to matter, but their attitudes towards online technologies were positively associated with young people being more resilient users of social media.

Across the board young person's digital skills and attitudes towards the online world were positively related to active engagement online. These young people were more likely to engage in online learning, social development, self-expression and creative expression online. This set of findings indicates that steps aimed at building fundamental digital competencies, such as making software coding and design (Cohen & Livingston, 2013) could have unexpected yet positive knock on effects in terms of fostering resilience and positive engagement across a host of online settings.

Caregiver Mediation Strategies

Third, the focus of this research on resilience and active online engagement cast caregiver mediation strategies in a new light. Often seen as a buttress against the potential risks of online spaces, this research indicated they might not advantage constructive engagement online.

In particular, general restriction – forbidding access to the Internet, social media, and electronic games showed the most concerning relations. Young people who had parents utilising this media control strategy tended to be the least resilient online. Similar negative relations were observed for place restriction – forbidding ICT use in specific areas, co-use – requiring parental presence during ICT use, and parental monitoring – requiring caregiver access to young persons' online accounts. Given the cross-sectional nature of these data, it is not clear if these strategies undermine resilience or that the parents of resilient children tend not, on average, to resort to such approaches.

Our findings considering active online engagement underlined a number of additional concerning trends related to caregiver mediation strategies. For example, young people were less likely to seek out information online if their parents used general restriction, place restriction or monitoring strategies. They were also less likely to express themselves online if their caregivers were generally restrictive, controlled content or the times and places young people could use ICTs. Adolescents whose parents implemented monitoring, place, content, or general restriction also tended to be less social online. Parental mediation strategies were unrelated to either civic engagement or creative expression online. Taken together, this pattern of results suggests that broad restrictions and monitoring may have more utility in directly shielding young people from potential harms but could have unintended negative effects on resilient self-regulation as well as constructive engagement online.

Pathways to Resilient Self-Regulation Online

By grounding these results in thirty years of psychological theory and empirical research, we are able to suggest three necessary provisions to facilitate movement towards more autonomous and resilient forms of self-regulation (Deci, Eghari, Patrick, & Leone, 1994).

The first necessary step is providing a meaningful rationale – All people, young people included, need to know they are (or not) supposed to be doing something. Making it clear how and why self-regulation and precautions around a key activity have personal utility to a young person will help them stand behind the efforts and behaviours needed to be more effective online.

The second necessary step is perspective taking – Acknowledging, understanding, and respecting another person's interest and engagement with an activity. Communicating that one cares enough to learn about and accept specific aspects of a young person's online life may go a long way to keeping open lines of dialogue between caregivers and adolescents. This affordance can service to help young people have a secure base from which to venture out online.

The third necessary step is autonomy support – Conveying meaningful choice helps young people make effective and proactive decisions in their offline and online lives. This doesn't mean letting adolescents do whatever they would like (i.e. permissiveness), but rather integrating what is learned from perspective taking and understanding rationales into decision points for young people. By providing limited, relevant, and flexible options, parents and caregivers may help children develop the capacity to make effective choices for themselves once they are their own online.

CONCLUSION

This research explored how children and young people can be supported to become resilient users of the internet. That is, able to adapt to changing and sometimes stressful environments and to feel empowered to act in the face of both novel and threatening challenges.

By using self-determination theory as a framework, our research held that young people's ability to effectively self-regulate their media use increased their resilience and skillset when encountering potentially harmful or inappropriate content online. Our findings indicated that resilient self-regulation online, in turn, was robustly linked to positive and active online engagement. Indeed, young people that self-regulated their internet and social media use were more likely to seek out opportunities online, such as learning new skills, building and maintaining social ties and expressing and developing their identities. Taken together, these results cement the importance of nurturing resilience in young people, as it is vital for their development and constructive online engagement in the long term.

Our study also found that supportive and enabling parenting was the main predictor of online resilience. That is to say, good parenting played a key role in determining how young people approach digital contexts. Children who felt their parents showed them unconditional love and support, were involved in their lives and respected their choices and opinions are most likely to be resilient online, and thus more likely to benefit from positive outcomes online.

By contrast, while parenting strategies of restriction and monitoring may be useful in directly shielding young people from potential harms, they were seen to have the unintended negative consequence of undermining children's resilience and constructive engagement online.

Our findings also suggested that building young people's digital skills could have unexpected yet positive effects on fostering their resilience and constructive engagement online. Equally, we saw that young people who believed that the internet and digital technology benefit society were more likely to be resilient self-regulators online. This necessitates that we, as a society, shift away from a singular focus on potential online risks and harm to one where we also recognise the opportunities and benefits of the online world.

Taken together, these conclusions demonstrate the importance of resilience online – and that this is best reached through supportive and enabling parenting, encouraging the development of digital skills and allowing children to take risks and develop coping strategies in the online world, just as we would in the offline world.

In identifying the benefits of resilience and the contributing factors to self-regulation online, this study addresses a gap in existing research and should inform our approach to building resilience amongst young people in the years to come.

What is clear is that the UK's response to building resilience in children must be a multifaceted one – combining the efforts of families, teachers, policymakers, industry and academia alike. This will support children's exploration of what the online world has to offer and help them manage any risks they may encounter along the way.

REFERENCES

Banaji, S., & Buckingham, D. (2010). Young people, the Internet, and civic participation: An overview of key findings from the CivicWeb project. International Journal of Learning and Media, 2(1), 15–24.

Byron, T. (2008). Safer children in a digital world: the report of the Byron Review: be safe, be aware, have fun.

Clark, L. S. (2005). The Constant Contact Generation: Exploring Teen Friendship Networks Online.

Cohen, P. & Livingston J. (2013) More than half of U.S. public schools don't have adequate wireless access. The Atlantic. Retrieved from: http://www.theatlantic.com/education/archive/2013/11/more-than-half-of-us-public- schools-dont-have-adequate-wireless-access/281410/

Deci, E, & Ryan, R. (2000). "What" and "why" of goal pursuits: human needs and the self-determination of behavior. Psychological Inquiry, 11(4), 227-268.

Deci, E. & Ryan, R. (Eds.). (2002). Handbook of self-determination research. University Rochester Press.

Deci, E. L., Eghari, H., Patrick, P. C., & Leone, D. R. (1994). Facilitating internalization: The self-determination theory perspective. Journal of Personality, 62, 119-142.

Dornbusch, S. M., Ritter, P. L., Leiderman, P. H., Roberts, D. F., & Fraleigh, M. J. (1987). The relation of parenting style to adolescent school performance.Child development, 1244-1257.

Feng, Y. & Xie, W. (2014), Teen's concern for privacy when using social networking sites: an analysis of socialization agents and relationships with privacy-protecting behaviours. Computers in Human Behavior, 33, 153-162

Fisch, S. M. (2014). Children's learning from educational television: Sesame Street and beyond. Routledge.

Grolnick, W. S. (2009). The role of parents in facilitating autonomous self-regulation for education. Theory and Research in Education, 7(2), 164-173.

Grolnick, W. S., & Ryan, R. M. (1989). Parent styles associated with children's self-regulation and competence in school. Journal of educational psychology,81(2), 143.

Grolnick, W. S., & Ryan, R. M. (1989). Parent styles associated with children's self-regulation and competence in school. Journal of educational psychology,81(2), 143.

Grolnick, W. S., Deci, E. L., & Ryan, R. M. (1997). Internalization within the family: The self-determination theory perspective. In J. E. Grusec & L. Kuczynski (Eds.), Parenting and children's internalization of values: A handbook of contemporary theory (pp. 135-161). New York: Wiley.

Grolnick, W. S., Ryan, R. M., & Deci, E. L. (1991). The inner resources for school performance: Motivational mediators of children's perceptions of their parents. Journal of Educational Psychology, 83, 508-517.

Hasebrink, U., Livingstone, S., & Haddon, L. (2008). Comparing children's online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online.

Hughes-Hassell, S., & Miller, E. T. (2003). Public library Web sites for young adults: Meeting the needs of today's teens online. Library & Information Science Research, 25(2), 143-156.

Ito, M., Horst, H., Bittanti, M., Boyd, D., Herr-Stephenson, B., Lange, P. G., ... & Robinson, L. (2008). Living and Learning with New Media: Summary of Findings from the Digital Youth Project. John D. and Catherine T. MacArthur Foundation.

Kirwil, L. (2009). Parental Mediation Of Children's Internet Use In Different European Countries. Journal of Children and Media, 3(4), 394–409.

Lenhart, A., Purcell, K., Smith, A., & Zickuhr, K. (2010). Social Media & Mobile Internet Use among Teens and Young Adults. Millennials. Pew Internet & American Life Project.

Livingstone, S. & Helsper, E. (2008) Parental mediation and children's Internet use. Journal of broadcasting & electronic media, 52 (4). pp. 581-599. ISSN 0883-8151

Livingstone, S., Bober, M., & Helsper, E. J. (2005). Active participation or just more information? Information, Communication & Society, 8(3), 287–314. doi:10.1080/13691180500259103

Livingstone, S., Haddon, L., Görzig, A., & Ólafsson, K. (2010). Risks and safety for children on the internet: the UK report. Politics, 6(2010), 1.

Lobe, B., Livingstone, S., Ólafsson, K., & Vodeb, H. (2011). Cross-National Comparison of Risks and Safety on the Internet: Initial analysis from the EU Kids Online survey of European children.

Lwin, M., Stanaland, A., & Miyazaki, A. (2008). Protecting children's privacy online: How parental mediation strategies affect website safeguard effectiveness. Journal of Retailing, 84(2), 205–217.

Nathanson, A. (2001). "Mediation of children's television viewing: Working toward conceptual clarity and common understanding." Communication yearbook 25: 115-152.

Prensky, M. (2008). Students as designers and creators of educational computer games: Who else? British Journal of Educational Technology, 39(6), 1004–1019. doi:10.1111/j.1467-8535.2008.00823_2.x

Przybylski, A. K. Weinstein N, Rigby, C. S., & Ryan, R. M. (2009). Background and Consequences of Harmonious versus Obsessive Engagement in Videogames, CyberPsychology & Behavior, 12, 485-492.

Przybylski, A. K., Weinstein, N., Ryan, R. M., & Rigby, C. S. (2009). Having to versus wanting to play: Background and consequences of harmonious versus obsessive engagement in video games. CyberPsychology & Behavior, 12(5), 485-492.

Rheingold, H. (2008). Using participatory media and public voice to encourage civic engagement. Civic life online: Learning how digital media can engage youth, 97-118.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist, 55, 68-78.

Ryan, R. M., Stiller, J. D., & Lynch, J. H. (1994). Representations of relationships to teachers, parents, and friends as predictors of academic motivation and self-esteem. The Journal of Early Adolescence, 14(2), 226-249.

Smith, P., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008) Cyberbullying: its nature and impact in secondary school pupils. The Journal of Child Psychology and Psychiatry, 49(4), 376-385.

Sonck, N., Nikken, P., & de Haan, J. (2013). Determinants of internet mediation: a comparison of the reports by Dutch parents and children. Journal of Children and Media, 7(1), 96-113.

Sonck, N., Livingstone, S., Kuiper, E., & de Haan, J.(2011) Digital Literacy & Safety Skills. EU Kids Online, Retrieved from: http://www.lse.ac.uk/media@lse/research/EUKidsOnline/EU%20Kids%20II%20(2009-11)/EUKidsOnlineIIReports/DigitalSkillsShortReport.pdf

Sorbring, E. (2014), Parents' Concerns About Their Teenage Children's Internet Use, Journal of Family Issues, 35 (1), 75-98.

Teruelle, R. (2011). "The Kids are Alright: Online Resources and Youth Activism." Social Media: Usage and Impact, 201-217. Hana S. Noor Al-Deen and John Allen Hendricks, eds. Lanham, MD: Lexington Books.

Valkenburg, P. M., & Peter, J. (2011). Online communication among adolescents: an integrated model of its attraction, opportunities, and risks. The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine, 48(2), 121–127. doi:10.1016/j.jadohealth.2010.08.020

Valenzuela, S., Park, N., & Kee, K. F. (2009). Is there social capital in a social net-work site?: Facebook use and college students' life satisfaction, trust, and participa-tion. Journal of Computer-Mediated Communication, 14 (4), 875–901

TABLES & FIGURES

Figure 1
Continuum of Resilient Self-Regulation

	Nonself-Determined					Self-Determined
Motivation	Amotivation			Extrinsic Motivation		Intrinsic Motivation
Regulatory Styles	Non	External	Introjected	Identified	Integrated	Intrinsic
Received Locus of Causality	Impersonal	External	Somewhat External	Somewhat Internal	Internal	Internal
Relevant Regulatory Process	Nonintentional, Nonvaluing, Incompetence, Lack of Control	Compliance, External Rewards & Punishments	Self-control, Ego-Involvment, Internal Rewards & Punishment	Personal Importance, Conscious Valuing	Congruence, Awareness, Synthesis With Self	Interest, Enjoyment, Inherent Satisfaction

Table 1
Geographic Distribution of Participants

Geographic Region	Overall Frequency
Scotland	8.5%
North East	4.2%
North West	11.7%
Yorkshire and the Humber	8.7%
East Midlands	7.5%
West Midlands	9.6%
Wales	5.0%
East of England	9.7%
London	12.4%
South East	14.3%
South West	8.5%

Table 2
Social Grade Distribution of Participants

Social Grade	Overall Frequency
A	10.0%
B	20.0%
C1	23.1%
C2	12.7%
D	8.5%
E	7.1%
Prefer not to say	18.5%