

# How Do You Feel?

**An Experience Sampling Method Pilot Study for Adolescent Behaviour, Emotion and Technology Using Smartphones**

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**February, 2015**

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**YOUNGANDWELL**  
Cooperative Research Centre



**Murdoch**  
UNIVERSITY



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## Young and Well Cooperative Research Centre

The Young and Well Cooperative Research Centre is an Australian-based, international research centre that unites young people with researchers, practitioners, innovators and policy-makers from over 75 partner organisations. Together, we explore the role of technology in young people's lives, and how it can be used to improve the mental health and wellbeing of young people aged 12 to 25. The Young and Well CRC is established under the Australian Government's Cooperative Research Centres Program.

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# Executive summary

## EXPERIENCES SAMPLING METHOD

The aim of the current research was to pilot a well-known data collection method; the Experience Sampling Method (ESM) using an innovative and engaging platform – the smartphone. ESM is a data collection technique that involves collecting data from participants at different time points during the day over a period of several days. Collecting data using this technique has previously been completed using beepers and time use diaries, and more recently via mobile phone text messaging. The current study expands on previous methods by integrating the smartphone into the collection of ESM data. This platform enables participants to respond to text messages immediately using a web-based URL via the smartphone's mobile internet connection capabilities. This allowed for real “in the moment” responses from participants to be collected and tracked across a seven-day period.

Piloting the ESM methodology using smartphones was a two-step process resulting in two separate studies: a focus group study and a pilot ESM study. For the first step, a focus group study was conducted in order to include young people in the research design and gain an in-depth understanding into their current behaviour around technology. The second step involved a pilot ESM study that was designed around the responses that were obtained from the young people during our focus groups. Each study was conducted in different samples of young people who were recruited from a partner high school located in an economically disadvantaged area.

Before conducting the ESM pilot, researchers engaged a group of sixteen (nine males and seven females) young people (aged 12 to 13 years;  $M = 12.06$  years) in two focus groups. The groups (one all girls and one all boys) participated in discussions around how they perceive technology as a part of their lives, and how it makes them feel. The conversations ranged from access and parental controls, through to social and emotional drivers associated with feelings of isolation when not online. In addition to consulting with young people about the research process, our focus groups enabled us to discuss openly with young people how they were using, and how they felt when using, technology.

The majority of the discussion was centred on social networking, with males including online games into the discussion. Overall, it was identified that young people often used technology, such as Facebook and online games to cope with stress and as a way to calm down. In addition, young people expressed that they often felt lonely and excluded if they were not using social media such as Facebook (e.g. if their parents did not allow it, or they didn't have a smartphone). Young people's responses to our focus group questions were highly informative and many ideas were incorporated into our Pilot Experience Sampling Survey, specifically in relation to the emotions measured.

The next phase of the study was to pilot the ESM methodology within a sample of young people from a partner high school located in an economically disadvantaged area. Forty young people (20 male and 20 female) aged 13 to 14 years were surveyed via iPhones for seven days. All participants were sent a text message five times each day, which contained a link to the survey instrument. Text messages were sent during the following periods: morning (7.00am – 10.45am); lunchtime (1.00pm – 2.00pm); after school (3.00pm – 4.30pm); dinner (7.00pm – 8.30 pm); and night (9.00pm – 10.00pm). Each time participants were surveyed, they were asked what they were doing, who they were with, and also how they were feeling at the time they received the text message.

## MAIN FINDINGS

Young people at our partner high school were more likely to be engaged in non-technology based activities at each survey time point. The most common time for young people to be engaged in technology-based activities was at night, followed by dinner time and after school. Young people were least likely to be using technology in the morning or during lunchtime. The most common technology-based activities young people were engaged with were using the internet and texting on the mobile phone. For those using the internet, the vast majority of young people were doing so to access social networking websites.

When we asked young people who they were with throughout the day, their responses varied across each time point. Young people were more likely to be alone during the night, they were more likely to be among family members in the morning, after school, and at dinner time, and they were more likely to be among friends or school mates at lunch time. In relation to their technology use, young people were more likely to be alone whilst engaged

in technology, and friends were more likely to be present during technology use during the weekends rather than during the weekday.

Young peoples' emotion levels were also measured across each time point in the day. Based upon the focus group findings, several emotions were measured including: happy; excited; satisfied; bored; tired; lonely; stressed; jealous; angry; and sad. Overall, young people reported higher levels of happiness throughout the day than all other emotions measured. The next most prevalent emotion was tiredness, with young people reporting being the most tired in the morning and at night. Positive emotions such as happiness, excitement and satisfaction were highest during the afternoon time periods (1.00pm – 2.00pm and 3.00pm – 4.30pm). It was also during the afternoon time periods that young people reported lower levels of negative emotion such as: anger, loneliness, stress and sadness.

Young peoples' emotions were then connected to their engagement with technology and these connections were compared between a typical weekday and weekend day. During the week, young people who were engaged in technology-based activities reported higher levels of loneliness and jealousy than young people who were not engaged in technology-based activities. However during the weekend, young people who were involved in technology-based activities at the time of the survey, reported lower levels of loneliness and jealousy than young people not engaged in such activities.

The emotions of happiness and loneliness were then examined during young peoples' engagement with various internet-based activities. During the weekend, young people reported feeling the loneliest while using instant messenger. However, when the weekday was examined, young people felt the happiest while using instant messenger. Young people also reported feeling loneliest during their weekday social networking use than during their weekend social networking use. Young people also reported feeling happier during their weekend social networking use, video watching and internet browsing than during their weekday engagement in these activities.

Young peoples' participation and experiences of cyberbullying were also examined. Overall, young people were more likely to report being a victim of cyberbullying than being a perpetrator. Although the levels of cyberbullying reported by participants were higher than the national average, it is suggested that these higher prevalence rates support the silent nature of cyberbullying. That is, online forms of bullying are often underreported and the rates reported by young people in this sample may represent a more accurate prevalence rate due to the method of the data collection (anonymous, and the manner in which cyberbullying was defined).

Overall, young people who were involved in the ESM pilot study not only provided the research team with invaluable information about their wellbeing and technology use, they also provided the team with a good foundation upon which future research using ESM on smartphones can be based. For instance, it became clear that young people required unlimited social networking data during the data collection period. We also learned we needed to shorten the ESM survey by reducing redundant items and omitting emotions with which youth were unable to identify, namely feeling "proud". Overall, conducting an ESM study with young people using smartphones was identified to not only be feasible, but also engaging to the participants involved. In particular, the research team learned that our daily presence at the school appeared to positively benefit young people. The information gained extends far beyond the responses young people provided in their surveys, and highlights ways in which the methodology could be improved and utilised in an informative manner in a larger sample.



# Introduction

Young people today can be impacted by many different adversities and vulnerabilities. The 2007 National Survey of Mental Health and Wellbeing (Slade et al., 2009) found that young people (aged 16 to 24 years) experience a greater prevalence of mental illness than people in older age groups, with just over one in four young people experiencing mental illness. Although the National Youth Survey conducted by Mission Australia (2013), found that 66% of young people reported feeling happy or positive about their lives as a whole, the remaining 33% felt indifferent, sad or very sad about their lives. These statistics highlight a need to focus on wellbeing in young people. That is, there is not only a need to identify ways to enhance wellbeing in young people who are experiencing difficulty, but also explore those who are experiencing positive wellbeing and the positive aspects of these young peoples' lives.

The National Survey is informative regarding the general picture of the mental health of young people; however it does not provide insight into how quickly wellbeing can change. Emotions are transient, that is, they not only shift from day to day, but can also change quickly from moment to moment. As result, when examining the wellbeing and emotions of young people, it is important that methodologies have the ability to capture this transiency. The Experience Sampling Method is a data collection technique that has the ability to do just this.

## THE EXPERIENCE SAMPLING METHOD (ESM)

The Experience Sampling Method (ESM) is an innovative technique that provides fine-grained, in-the-moment tracking of specific phenomena in relation to activity, location/setting and companions, over a specified timeframe. ESM data is said to be 'nested'; that is, an individual's moment-to-moment responses on constructs that are expected to vary throughout the day (e.g. emotion) are nested within their trait level variables. Thus, the method allows an examination of both within-person and between-persons differences, as well an examination of how stable trait like variables influence an individual's daily experience.

ESM is not new to social research; in previous years participants have been given time use diaries to complete at specific times each day, along with beepers to alert them to complete them. More recently, mobile phones and text messages have replaced beepers due to their pervasive nature in everyday life, with the majority of people owning a mobile phone and carrying one on their person at all times. The introduction of the smartphone has provided a new avenue through which ESM data can be collected. Smartphones have greater capabilities than the traditional mobile phone, enabling a direct link with the internet and more advanced recording capabilities (such as GPS data, photos, note taking and record keeping). Smartphones also offer researchers the ability to connect with participants immediately, and provide participants with a direct link to ESM surveys via the internet. This direct link allows that "in-the-moment" response to be captured more accurately.

## THE SMARTPHONE

In recent years the internet has become "mobile"; use no longer requires a fixed device such as a home computer or laptop. Through mobile phones and smart devices, we have become hyper-connected (Dutta & Bilbao-Orsorio, 2012), able to maintain cyber access as we move throughout the day, unrestricted by fixed connections. Not only has a rise in the use and ownership of mobile phones been identified, (see ABS 1998; 2008/9), but an increase in the ownership of the smart device is also noted. Specifically, smartphone ownership has increased from 50% in 2011 to 70% in 2013 (Nielsen, 2013), while the ownership of tablets (such as the iPad) has increased from 18% in 2011 to 50% in 2013 (Nielsen, 2013).

Access to the internet via mobile phones has increased, with 38% of Australians reportedly accessing the internet via a smartphone, and 19% via a tablet (Nielsen, 2013). Although accessing the internet via PC or laptop is the most popular method, the use of the smartphones or tablets to access the internet is increasing (Nielsen, 2013). According to the ABS (2013), 19.6 million Australians were subscribed to mobile internet in 2013, which is a 13% increase from 2012. The Australian Communications and Media Authority (ACMA, 2012-2013) also reported a 33% increase in mobile internet access from 2012-2013. Overall, it is clear that mobile phones are becoming a fundamental pathway to the internet.



The smartphone is estimated to be the future of internet access (Dutta & Bilbao-Orsorio, 2012). With computing and full web-browsing capabilities, GPS technologies, access to social media sites, video game capabilities and high definition video, the smartphone is not only a pervasive information and communications technology (ICT) device that is always switched on and connected, but it is also a personal device that is often kept on our person as we move through the day. This has made the smartphone a target for researchers who are motivated to use innovative research methods to not only collect data, but also engage young people in their research.

## WHY YOUNG PEOPLE AND TECHNOLOGY?

Young people today have a plethora of activity choices to fill in their leisure time and, as technology advances boom, many of these choices are involving digital technologies. The Australian Bureau of Statistics (2012) suggest that 85% of Australian young people are using screen-based media (such as internet use, computer gaming) an average of 10 hours per week during their leisure time—highlighting digital media as a popular activity in the lives of young Australians. Technology has previously been viewed to negatively impact wellbeing (through TV, violent video games, promotion of sedentary behaviour), however technologies such as the internet have opened up new opportunities for young people to not only connect with new and like-minded peers, but to also have the chance to express their identities, be creative, educate themselves, (Amichai-Hamburger, McKenna & Tal, 2008; Arnett, 1995; Bonetti, Campbell & Gilmore, 2010) and gain access to services and information (Mission Australia, 2012).

The internet has become a major factor in lives of today's young people and much of this can be related to increases in its availability and affordability. According to the Australian Bureau of Statistics (ABS) Household Use of Technology survey (8146.0), technology use and household internet access has shown a dramatic increase over the past 15 years (ABS, 1998; 2005; 2009; 2011). In 1998, 45% of households had a computer and only 16% had access to the internet (ABS, 1998). Both showed a dramatic increase in 2004/5, with household computer ownership increasing to 67%, and access to the internet quadrupling to 56% (ABS, 2005). In 2008/9, computer ownership had increased to 78%, and the internet was accessed by 72% of Australian households and by 92% of households that owned a computer (ABS, 2009). The most recent results from the survey identifies that in 2010/11, 83% of Australian households have a computer, and 79% had access to the internet, with the majority of homes using the broadband network (ABS, 2011). The Australian component of the World Internet Project also found similar results, with 86.8% of Australians having used the internet and less than one in ten Australians having never used the internet (Ewing & Thomas, 2012). These statistics suggest that the internet is an important context to include in the study of young peoples' wellbeing.

A consistent finding throughout these household surveys is the lack of computer ownership and internet use by households in rural areas and also those in the lower income quartile (ABS, 2005; 2009; 2011; Ewing & Thomas, 2012). Among young Australians, parental employment status has a negative relationship with their internet access, with 87.8% of those with only one parent employed and 77.8% of those with both parents' unemployed reporting internet access compared to 93.5% of young people with both parents employed (ABS, 2012). For young people in single parent families, parental employment continues to impact on their internet access, with 79.7% of young people with an unemployed single parent accessing the internet compared to 90.2% if their parent was employed. As a result of this lack of access, young people from economically disadvantaged backgrounds are at risk of being digitally excluded from the benefits that new technologies and the internet can potentially provide.

The way young people are using the internet is also changing. In 2012, The Young and Well CRC interviewed 1,400 young people and identified that between 2008 and 2012 there was an increase in the use of the internet for communication and entertainment, with increases in activities such as: email (13% in 2008 to 94% in 2012); accessing videos (7% to 86%); accessing social networking sites (32% to 93%); accessing music (11% to 79%); playing games with others (7% to 33%); viewing or posting photos (1% to 54%); and writing/reading blogs or online diaries (2% to 66%; Burns et al., 2013). Using social media sites has also become the primary avenue that young people use to contact their peers via the internet, with 93% of them using a social networking service (SNS) for this purpose (Burns et al., 2013). Around one in five young Australians report using a SNS at least 20 hours each week (Mission Australia, 2013).

## THE CURRENT PROJECT

What research is telling us is that a large proportion of young people are using technology, the internet, and more specifically online social media sites; and that their usage is mobile. However, most research is focused on those young people who have access to technology, and those with the monetary funds and digital literacy to evolve their use with ongoing changing technologies. The current research takes the alternate path and examines technology use in young people who may be at an economic, and in turn, digital disadvantage. The Mapping of Digital Inclusion and Exclusion team is interested on the role that technology plays in vulnerable young people, by focusing on digital inclusion, that is, who is digitally included and what are the consequences of being included or excluded? The team is also interested in identifying digital exclusion; how young people with limited resources or access are impacted by their digital exclusion in the hyper-connected environment.

An important aim of the project is to use innovative research methodologies to engage young people in research. Acknowledging the increased use of technology among young people, and the growth of smartphone technology and mobile internet use, the current project aims to connect technology and research to involve young people in the research process using an engaging research method. It is hoped that in doing so, we will be able to enhance our understanding of their daily experiences. The ESM pilot study was used to gain more information about using smartphones to collect in the moment data with young people. Piloting the methodology in a smaller group of young people has enabled the research team to not only identify the strengths of the technique, but also identify and address its challenges. In doing so, this knowledge can be shared and incorporated into other research projects. The lessons learned throughout the pilot study informed the development of a larger ESM study, which was conducted in 2013-2014 using a sample of over 100 young people and was an integral piece of the final study's foundation.

# About the pilot project

During 2012, the How Do You Feel? project has examined the ways in which young people in Western Australia are using technology. The National Mental Health Plan 2008 to 2011 recognises that for a variety of social, economic and physical reasons, some young people are more vulnerable to mental health difficulties than others. As such, we have had a particular interest in examining how vulnerable young people are using technology to express themselves, enable social connectedness and general wellbeing. We have also examined ways in which technology itself can help connect vulnerable young people with researchers to help provide them a voice in decisions made around their health and wellbeing. A catalyst for our research has been discussions with the broader Mapping Digital Inclusion and Exclusion Project at Murdoch University, funded by the Young and Well Cooperative Research Centre (CRC).

We began our journey by involving young people at our partner high school in focus groups, to generate discussion around their technology use and how they felt while engaging with technology. We found that many young people were using technology to help themselves feel better and to cope. Informed by these discussions, we then trialled an innovative research method using smartphones to ask young people about where they were, who they were with, their technology use and current mood; five times a day for seven days. We piloted this method with 40 young people from the partner high school in December, 2012 over a two-week period.

Our pilot project using ESM focused on the links between young peoples' technology use and 'in-the-moment' emotions, as well as their current activity and social context throughout the day. We have also examined how individual differences (e.g. emotion regulation capacity, self-esteem, peer satisfaction) influence youths' moment-to-moment emotion. Acknowledging the risks inherent in technology use, we also examined the rates and impact of cyber aggression and victimisation in young people. Most importantly, we found that young people engaged well with using smartphones to take part in our research, and participant feedback was overwhelmingly positive.

## The How Do You Feel? pilot study schedule

<b><u>PHASE ONE</u></b>  Ethical Approval	<ul style="list-style-type: none"> <li>▪ Murdoch University Human Ethics Committee</li> <li>▪ Department of Education and Training Ethics</li> <li>▪ All staff require a Working with Children Check</li> <li>▪ All participants require informed parental consent</li> </ul>
<b><u>PHASE TWO</u></b>  Recruit Partner High School & Participants	<b><u>School</u></b> <ul style="list-style-type: none"> <li>▪ Economically disadvantaged according to ICSEA score</li> </ul> <b><u>Participants</u></b> <ul style="list-style-type: none"> <li>▪ Parental information and consent letters</li> <li>▪ Informed participant consent</li> <li>▪ 20 males and 20 females</li> </ul>
<b><u>PHASE THREE</u></b>  Focus Groups	<ul style="list-style-type: none"> <li>▪ Two sessions run, one for males and one for females</li> <li>▪ How are young people using digital media?</li> <li>▪ How is social media used to manage mood?</li> <li>▪ What are their ideas about the ESM study?</li> </ul>
<b><u>PHASE FOUR</u></b>  ESM Pilot Study	<ul style="list-style-type: none"> <li>▪ Participants allocated a smartphone</li> <li>▪ Pre-tests completed on wellbeing and technology use</li> <li>▪ Participants sent an SMS five times a day (Morning, Lunch, After School, Dinner, Night) each day for seven days.</li> <li>▪ Post-test completed</li> </ul>

Given that we conducted a pilot study, our results are preliminary and predominantly descriptive. Results of the pilot study have informed our ongoing research into young peoples' technology use and emotions, and have highlighted ESM via smartphones as a feasible and engaging research methodology for young people. Most importantly, preliminary findings from the pilot study indicated that many young people displayed emotional wellbeing across the week. These findings pushed us toward re-orienting our research question to include a focus on youth resilience, and factors that may promote, as well as impede, young people's wellbeing.

## PHASE ONE: ETHICS

Before any research could be conducted within the partner high school, the ESM team were required to gain ethical approval from both the Murdoch University Human Research Ethics Committee (approval number 2012 – 203) and the Department of Education and Training (approval number D12/0848651). Gaining ethical approval from both committees was time consuming, as one could not be sought without the other. The researchers were deeply involved in the process for both committees, which was a necessary in meeting strict conditions and gaining final approval.

One of the ethical conditions the team was required to meet was the use of both parental and participant informed consent as the participants in the study were under the age of 18 and considered minors according to The National Statement on Ethical Conduct in Human Research (Australian Government, 2007). The ESM team distributed parental consent forms to young people during an information session that outlined the focus group and ESM studies, their scope and the participants' contribution and responsibilities. Only young people who gained parental consent were given the opportunity to join each study. Participants were also provided with an information sheet and consent form to read and sign before being included in the sample. In addition, all staff involved in the project and the collection of data were required to obtain a Working with Children check.

## PHASE TWO: PARTNER SCHOOL RECRUITMENT

The initial goal of the ESM study was to investigate technology use among economically disadvantaged young people. As a result, the partner high school was targeted for the ESM study as the school was considered to represent this population. The partner high school is located in a low socioeconomic area with an *Index of Community Socio-educational Advantage* (ICSEA) score of 918. ICSEA values range from around 500 (representing extremely educationally disadvantaged backgrounds) to about 1300 (representing schools with young people with very educationally advantaged backgrounds), with a standard deviation of 100, and an average of 1000 (Australian Curriculum Assessment and Reporting Authority, 2012). Educational advantage is measured using young people's parents' occupation and their level of education. In our partner high school;

1. 56% of students enrolled fell into the bottom quartile of educational advantage (parental occupation and education), 40% in the middle quartile, and 4% in the top quartile.
2. 18% of students attend university post high school, while the majority follow vocational/trade education (39%), or move into the workforce (20%).
3. 12% of students have an indigenous ethnic background.

The partner high school was initially contacted by one of the ESM researchers to discuss their potential participation in the ESM survey. The research leaders held workshops with the Senior School Coordinator and other school staff to showcase the study, and address any queries or concerns held by the staff. In addition to the staff workshop, the research team also provided a workshop to young students outlining safe social networking use practises.

### PARTICIPANT INCENTIVES

In order to engage young people in the research process, the ESM team followed the following incentives to potential participants;

- Participants would be given a smartphone for seven days, which provided them free access to phone calls, texting, social media and mobile phone applications (games, Instagram, social media).
- Participants would be able to request five free mobile phone applications for each day they used the phone.

## CHALLENGES TO CONSIDER

Tailoring the ESM methodology to the smartphone required a great deal of research into possible data collection mobile phone applications and the logistical requirements needed to undertake data collections within a large number of young people simultaneously. In addition to the time spent conducting this research, the ESM team faced several challenges throughout the pilot study. Each challenge has been a learning curve and has contributed to the improvement of this methodology using smartphones for future projects, including the final ESM study conducted in 2013-2014 in a larger sample of young people.

### SCHOOL MOBILE PHONE POLICY

The partner high school employed a strict “No Mobile Phone” policy amongst its students; this meant that students were not permitted to carry mobile phones on their person whilst engaged in school activities. As a result the research team implemented a “pick-up/drop-off” system to allow participants to complete the ESM study during school hours. A consistent ESM team researcher was placed in the school each day the survey was implemented. This meant that young people could:

1. Drop their phone off to the researcher in the morning after completing the morning survey.
2. Pick their phone up at both recess and lunchtime breaks to complete the survey and for personal use of the phone (Apps, Facebook, texting, internet) until school activities recommenced.
3. Pick up their phone at the end of the school day for use overnight and over the weekend.

Although initially implemented to uphold the “No Mobile Phone” policy, the emersion of a researcher within the school throughout the duration of the study resulted in a great deal of informal verbal feedback being provided to the researcher by young people (both participants and non-participants wanting to join the study). This informal feedback also allowed the researcher to engage with young people about the study and highlight the importance of research and young peoples’ participation within it.

### WEB-BASED URL LINKS FOR SURVEYS

One of the largest issues faced during the pilot study arose when the same survey link was used for all surveys. This became a particular issue when participants missed a survey at a particular time point in the day (for example, they did not answer the lunchtime survey). Although the survey was missed, the message would still stay in the participants’ message inbox and the link would also stay active. As a result, many young people would use the incorrect survey link when they received their next survey text reminder, that is, they would complete the dinner survey using the lunchtime link. Essentially, it became difficult to identify if young people completed the survey at the correct time. The majority of these inconsistencies were identified during the data cleaning process, which to ensure accuracy, took several months of data screening.

To address this challenge for the main ESM study, the team developed a new link for each survey, which closed after a specified time (one hour). Therefore, in the final ESM study, if participants failed to respond to each survey link within one hour of its delivery, the link would close to prevent responses being recorded under the incorrect time point.

### MOBILE PHONE SIM CARDS

In order to conduct the study in a large group of participants, the team purchased twenty smartphones. This meant that to run the study using all twenty phones simultaneously, twenty separate SIM cards needed to be purchased. A major challenge the team faced was the purchasing of the SIMS from a single distributor, as many mobile phone outlets apply restrictions on SIM card purchases for a single non-business customer. In addition, the activation of the SIM cards could not be completed in unison. Instead, each SIM had to be activated via telephone, during separate calls.

These challenges were overcome in the preparation for the final ESM study, by contacting the service provider before the purchase of multiple SIM cards. It was suggested the team provided the research ethics approval and a letter from the university (confirming the research) to the distributor to accompany their purchase of multiple SIM cards. By purchasing all the SIM cards in this manner, the activation of them could be completed in unison (however this would need to be signed off in person at the mobile distributor store). For future researchers, it is recommended that an appointment be made with the store manager to ascertain the availability of multiple non-business SIM purchases and the restrictions applied to this.

## DATA QUOTA

As with many mobile phone plans, the SIM cards the team purchased came with data quotas and restrictions, which were found to interfere with the collection of data. Many participants used the study phones for social networking and playing music and videos. Although the team encouraged participants to use the phone as they would their own, many participants would use up their data quotas during the day. This would result in these participants being unable to complete the evening time point surveys, due to a lack of internet data, and hence gave rise to missing data. To address this challenge, the research team chose a different mobile phone carrier for the final ESM study, purchasing plans that included free social networking. In addition, prior to being given their study smartphone in the final ESM study, participants would be educated on the data quotas and excessive data usage, and also be encouraged to use WiFi where possible for their data downloads.

# Phase Three: Focus groups and insights from young people

## FOCUS GROUPS

In order to gain an insight into young peoples' use of technology, the ESM team initiated two focus groups with 16 young people (nine males and seven females) aged 12 to 13 years ( $M = 12.06$  years) from our partner high school involved in the ESM pilot. These focus groups were designed to gain insight into young peoples' emotions and technology use. Focus groups were also used to gain feedback from young people about the reception the ESM study would receive from both themselves and their peers. In addition, the discussions with young people also allowed the team to review the scope of the ESM survey, and adjust survey items to incorporate the constructs that young people had talked about. The following section presents the overall themes identified by the focus groups and discusses how these were incorporated into the research design of the ESM study<sup>1</sup>.

## METHODOLOGY

Focus groups were run separately for males and females, and ran for approximately 40 minutes. Each focus group was facilitated by two Murdoch University postgraduate young people who used a set of guiding questions to direct the group discussion (Appendix A), a third researcher was also present during focus groups to take notes using a note taking sheet (Appendix B). Only participants who returned parent consent forms and were available on the day (no school commitments such as tests or assessments) were invited to participate in the focus groups.

## SOCIAL NETWORKING, EMOTION AND MOOD MANAGEMENT

The main aim of the focus groups was to gain insight into young peoples' use of technology and its impact on emotion and mood management. Example questions used to guide this aspect of the group discussion were as follows:

*"What time of day are you most likely to use Facebook/SNS/Technology?"*

*"What feelings are generally associated with checking Facebook statuses and comments?"*

*"Do you ever use technology as a way of distraction from unpleasant moods/negative feelings?"*

## SOCIAL NETWORKING AS A MOOD TRIGGER

Two themes emerged from the discussions with young people around mood and technology use. First, young people talked about social networking as an unintentional "trigger" for both positive and negative moods. Jealousy was a consistent emotion that young people associated with their social networking use. The excerpt below is an

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<sup>1</sup> The focus group data was analysed by an honours student and contributed to the following thesis;

Naumoska, A. (2012). What Hidden Beneath the Cyberworld? Adolescents' Experience of the Relation between Mood and Technology. Unpublished honours thesis presented to the School of Psychology and Exercise Science, Murdoch University, Perth, Western Australia.



example of the young peoples' discussion around social networking site (SNS) use as a trigger of jealousy and negative mood.

#### **Extract 1**

- Tamara:** *"We were going to the movies and we didn't invite one of our friends and they got jealous and mad at us"*
- Facilitator:** *"And they found out from Facebook?"*
- Tamara:** *"Yeah"*
- Cassie:** *"That's exactly the same thing where me and my friend went to the beach and took photos and we put them on Facebook and then one of my friends got jealous, and had a go."*
- Facilitator:** *"Had a go on Facebook? Or somewhere else?"*
- Tamara:** *"Usually on Facebook and they post it on the wall or on photos or something"*
- Cassie:** *"And then they try and make you jealous with another friend"*
- Facilitator:** *"Aah ok. How often does this kind of stuff happen?"*
- Cassie:** *"Always [laughs], like sometimes"*

However, young people suggested that SNS use was also a trigger for positive moods, which was often the result of the social connections they made via SNS. The use of SNS was also viewed as a cost effective way of staying socially connected to friends and family, particularly those who do not live close by or those who had moved high schools.

#### **Extract 2**

- Tamara:** *"Yeah, because instead of being home and bored or something, when I'm in like, a sad mood or something I can talk to my friends, or family that lives somewhere else. It makes me feel happier"*

#### **Extract 3**

- Anne-Maries:** *"I go on there to talk to my big sister who lives over east because I can only message other phones for free when I don't have credit and so I will message her on Facebook when I've got no credit to talk to her instead of having to buy credit and then messaging her"*
- Facilitator:** *"Who else is like that? With the credit affecting?"*
- Tamara:** *"I don't care about my credit"*
- Facilitator:** *"Do you use Facebook more on your phones or do you message more?"*
- Tamara:** *"Aah probably Facebook"*
- Sherry:** *"Yeah Facebook"*
- Cassie:** *"Yeah"*
- Facilitator:** *"And is it because it doesn't cost anything? You can still contact your friends for free?"*
- All:** *"Yeah"*

### **SOCIAL NETWORKING AS MOOD MANAGEMENT**

The second theme to emerge from the focus groups around young peoples' technology use and mood was the use of SNS to "manage" moods. Young people talked about SNS and other forms of social networking (such as online gaming) as an effective means to reduce negative emotion. The team learned that young people often use technology such, as SNS and online games, as a way to "calm down" or relieve themselves from stress.

#### **Extract 4**

- Sherry:** *"If my mum, my dad or my brother are annoying me I just go on Facebook and talk to people and it makes me feel calm instead of listening to them"*
- Facilitator:** *"Ok. So it distracts you? Do you talk to them about what's annoying you or something else just to get your mind away?"*
- Sherry:** *"I talk to people about what they're doing on the weekend or something and then we hang out that weekend"*
- Facilitator:** *"So when you feel a certain way then you get on Facebook to change how you feel?"*
- Sherry:** *"Yes"*
- Facilitator:** *"Ok. How often is that, what Facebook is for?"*
- Sherry:** *"I'm like that sometimes."*



### **Extract 5**

**Matthew:** *"I play Minecraft to distract myself"*  
**Daniel:** *"I play Minecraft everyday"*  
**Facilitator:** *"What are we distracting ourselves from?"*  
**Daniel:** *"I just get annoyed from my brothers, and sit in my room, pinch mums laptop for a couple of hours"*

## **WHAT DID WHAT DID YOUNG PEOPLE THINK ABOUT THE ESM STUDY?**

A secondary aim of the focus group was to gather feedback from young people on the ESM pilot. The focus groups were used to describe the proposed study to young people, and investigate whether young people thought the study was interesting, and whether it would be a study they would like to be involved in. The following guiding questions were used during the focus groups to gain feedback from young people:

*"Now we are interested in your thoughts on a project we are planning. It would involve being loaned a smartphone to be used for research for five days, Monday-Sunday."*

*"Do you think that kids your age would be willing to carry around a second phone if it were a smartphone? What about if they could surf the internet on it? What about if they could buy up to 5 apps for it?"*

*"The project would contact kids your age about 3-4 times a day. Each contact would ask them to respond to a series of questions electronically, and would take about 5 minutes. Do you think kids would do this? The contacts would happen during lunch, right after school, and then around 6 and then 10 at night. Do you think those would be okay times to respond to a quick survey on a smart phone?"*

Overall, the response from young people was overwhelmingly positive. Most participants felt the study would be interesting, and expressed their desire to be involved. The use of smartphones seemed to interest the majority of the young people involved in the focus group, and young people expressed that merely having access to a smartphone would be motivation to complete the ESM study. The type of smartphone used in the study also generated a vigorous discussion among young people.

### **Extract 6**

**Facilitator:** *"...[J]ust another question. We're going to do another study next term where we give the young people that are involved a smartphone so it might be like a Samsung or iPhone or something like that. And the plan is that they carry it around for seven days (so five school days and two weekend days). We buzz you five times a day and ask you to complete some questions about how you're feeling right in that moment. Do you reckon that sounds like an annoying thing or a cool thing, or?"*  
**All:** *"Yeah"*  
**Cassie:** *"(Sounds pretty cool)"*  
**Tamara:** *"That's pretty cool, so we all get like a phone?"*

### **Extract 7**

**Facilitator:** *"...Do you think that sounds like an interesting study, not interesting?"*  
**Matthew:** *"Mhhmm"*  
**James:** *"Mmm"*  
**Tyson:** *"Yes, interesting"*  
**Justin:** *"That's interesting"*  
**Daniel:** *"We will all do it"*  
**Facilitator:** *"Yeah, why is it interesting?"*  
**James:** *"Because it involves a smartphone"*  
**Matthew:** *"Yeah, just get a smartphone and then add heaps of apps to it"*

#### **Extract 8**

**Cassie:** *"What sort of phone is it?"*  
**Facilitator:** *"We don't know, but it will have to be a smartphone. We need to work out what would be most interesting with the smartphones?"*  
**Sherry:** *"iPhone"*  
**Tamara:** *"Yeah iPhone"*  
**Anne-Marie:** *"Or Samsung Galaxy"*  
**Angela:** *"Yeah Samsung Galaxy"*

#### **INSIGHT INTO ACTION**

The findings from the focus group study were used to inform the ESM pilot study, specifically in regards to the type of smartphone used, the applications made available to participants and the types of questions they were asked throughout the study. Young people talked about the mobile phone applications as a motivator for completing the ESM study. As a result, the ESM team offered participants five free mobile phone applications each day (\$3.00 limit per day), which the team would download onto their research smartphone.

#### **Extract 9**

**Facilitator:** *"Are there any questions you think we really should ask?"*  
**Sherry:** *"How we're feeling"*

The young people in our focus groups were extremely insightful around their technology use and mood management. Focus groups participants were open in their responses and were forward in their discussions around SNS use and their emotions. Extract 9 highlights the desire of young people to share their emotional experiences, and an openness to discuss this with the research team, and is represented by the title of the ESM study; **How Do You Feel?**

Young peoples' insights around the positive and negative moods instigated by SNS use, highlighted several specific emotions to the ESM team that were previously not under discussion for inclusion into the ESM study. Young people talked about loneliness and jealousy in relation to their SNS/technology use, and as a result the ESM incorporated these emotions into the pilot ESM survey. The focus groups were viewed as an invaluable step in creating a study that was engaging to young people and informative to the ESM team.

# Phase Four: ESM Pilot data collection

## METHODOLOGY

Following on from the focus groups, the ESM team initiated a pilot study with young people from our partner high school. The following section outlines the methods and procedures the ESM team followed to conduct this study. A complete ESM toolkit outlining more detailed procedural information is available in Appendix C. The ESM toolkit also highlights the risks and benefits of conducting ESM research using smartphones, and how difficulties were managed and overcome.

### PARTICIPANTS

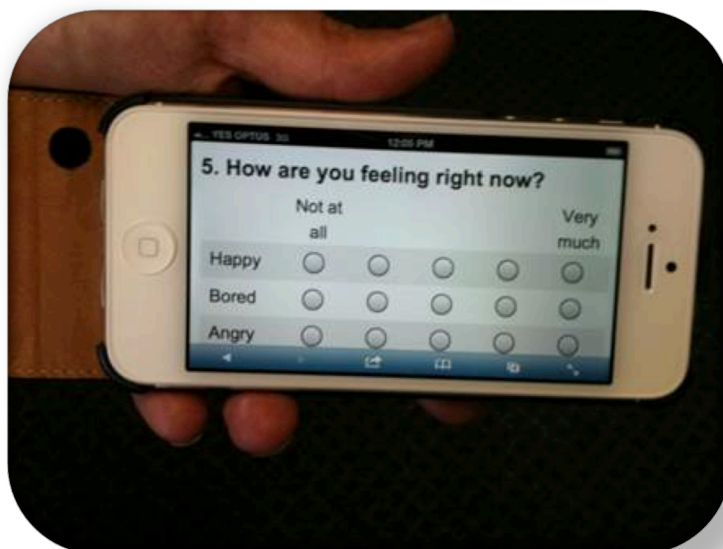
The ESM pilot was open to all grade 10 students at the partner high school. This meant that some students might have participated in both the focus group and the pilot study. However, as participation was confidential, this data was not collected. Overall, 40 young people were recruited from the partner high school to participate in the ESM pilot study. Of these young people, 20 were male and 20 were female. The average age of participants was 15.7 years. The majority of participants (78%) were born in Australia; the remaining participants were born in New Zealand (5%), the Philippines (5%), England (2%), and America (2%). Seven percent of the sample did not answer this question.

### PROCEDURE

Participants were sent a link to the ESM survey (hosted by SurveyMonkey) via text message, and were asked to complete the survey five times a day for seven days. Data was collected at five time points: morning, lunchtime, after school, dinner and night time. Each survey took 2-3 minutes to complete. Please see Appendix D for a detailed description of the survey procedure, software/hardware requirements, staffing needs and survey set up procedures.

Text messages were sent at random times (to ensure participants did not habituate to the message being sent at an exact time) between the time points of;

- 7.30am - 8.00am / 9.00am - 9.30 am on weekends (morning survey)
- 1.00pm - 1.30pm (lunchtime survey)
- 3.30pm - 4.00pm (after school survey)
- 7.00pm - 7.30pm (dinner survey)
- 9.00pm - 9.30pm (night survey)



## MEASURES

### EMOTION

To measure the range of young peoples' daily emotions, participants were asked during each survey to report on their current emotion using the question "*How are you feeling right now?*" Participants were presented a list of ten different emotions: happy, excited, satisfied, bored, tired, lonely, stressed, jealous, angry and sad. Participants were asked to rate their current emotion on a 5-point scale (1 = not at all to 5 = very much). The scale was adapted from the positive and negative affect scale (Watson, Clark & Tellegen, 1988).

### TECHNOLOGY USE

To measure the technology use among young people at each time point, the current study asked participants "*Just then when you were messaged, what were you doing?*" Participants were given a list of technology-based activities that required participants to be actively engaged with technology (e.g. Facebook/SNS, Texting/instant messaging, watching YouTube, or gaming). Participants were also given a list that did not involve engagement with technology (or where technology was being consumed passively; e.g. eating/drinking, watching TV, personal care, commuting/travelling, schoolwork, chores, talking/hanging out or 'other'). Participants were asked to select the activity they were engaged in when they received their text message (at each data time point). Activities were classified as either technology-based, or not technology-based.

Participants' internet use was also examined at each time point by asking what types of activities they were engaged in if they were using the internet. Participants who reported using the internet when they received their survey text message were also asked "*If you are using the Internet, what are you doing on it?*" Participants were given a list of internet activities to select from which included: SNS, instant messaging, schoolwork, emailing, gaming, videos, or browsing, such as social networking sites, text messaging or YouTube. Participants were also asked to report how many times they had logged onto the internet in addition to the amount of minutes they had spent on the internet since the last survey message. Finally, participants were also asked whether they had posted anything on SNS such as Facebook or Twitter in the period between survey text messages (for example; status updates, Instagram picture, liked something). If participants selected yes, they were asked to specify their posting.

### WHO ARE YOUNG PEOPLE WITH?

Participants were also asked to report who they were with at each survey time point. Participants were asked "*Who is with you?*" and were given nine options: no one, a friend, a number of friends, Mum, Dad, brother/sister, school mate, boyfriend/girlfriend, or teacher.

For young people engaged with the internet at the time of the survey, they were asked to report whether they were interacting with anyone during their engagement. Participants were presented with the question "*Are you interacting with anyone on the internet? If yes, who?*" and were given the following options to select from; friends I see in person, someone I met online, girlfriend/boyfriend, brother/sister, parents, other family, and an "other" option with the ability to specify.

### WHERE ARE YOUNG PEOPLE THROUGHOUT THE DAY?

At each survey time point, participants were asked "*Where are you?*" and were given nine options to select from: at home, at school, at a friend's house, at a family member's house (not home), in a public place (café, shops), going somewhere (in a car, bus, walking), at work, at sport and an "other" option which enabled them to specify their location.

### CYBERBULLYING

Young peoples' daily experiences with cyberbullying were measured using two questions that were presented to participants in the night time survey time point of each day. The first question measured whether participants had been victims of cyberbullying by asking "*Today, did anyone tell lies, make fun of you in a hurtful way, or do something else mean to you using the internet?*" The second question measured whether participants had been the perpetrator of cyberbullying by asking "*Today, did you tell lies, make fun of someone in a hurtful way, or do something else mean to someone using the internet?*" Both questions were answered using a yes/no response.

### POSITIVE EXPERIENCES

The research team was also interested in young peoples' positive experiences. At the end of each day, during the night survey period, participants were asked "*Today, what is the best thing that happened to you?*" The responses to this question were thematically analysed and coded into several categories; romantic relationships, accomplishments, friends and family, ESM study, leisure activities, relaxation, food, school and other.

## DATA ANALYSES

The main aim of the pilot study was to test the ESM method using smartphones among adolescents. The pilot study was used to evaluate the feasibility of the method, the logistical requirements of using smartphones, and usability and validity of the data once it had been collected. As a result, the sample of participants is relatively small ( $N = 40$ , 20 males and 20 females) and insufficient to conduct complex comparative analyses. ESM data may be analysed using a variety of different methods (Hektner, Schmidt & Csikszentmihalyi, 2007). Data may be examined qualitatively by analysing responses to open ended questions or by creating a detailed description of single cases. Data may also be analysed using quantitative methods such as descriptive data to more complex multi-level modelling techniques.

More complex techniques require large samples (a minimum of 90 participants) to obtain adequate validity. Thus, the current report is focused on qualitative and descriptive data only, and has been prepared to provide a snapshot of the emotions and technology use of young people. A person-level analysis will also be provided to highlight the way ESM data can capture and illustrate the moment-to-moment emotions and activities of a single young person over a seven-day period. As a result, generalisations of the current findings to specific populations of young people should be made with caution. The results reported in the current study are preliminary and have been analysed primarily to inform the wider ESM project being undertaken by the Mapping of Digital Inclusion and Exclusion research team.

# Findings from the ESM study

## WHAT ARE YOUNG PEOPLE DOING THROUGHOUT THE DAY?

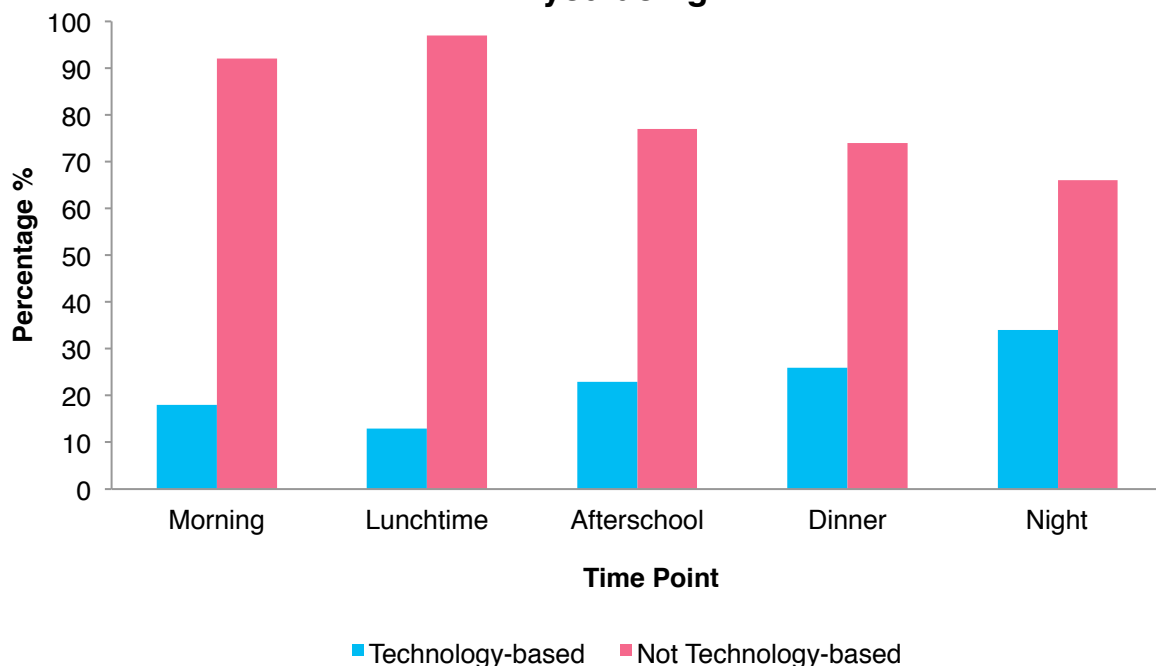
At each survey time point, young people were asked what activities they were involved in at the time they received their survey text ("*Just then when you were messaged, what were you doing?*"). The activities were then categorised as either:

- Technology-based: involves actively engaging with technology and includes Facebook/SNS, texting/instant messaging, watching YouTube, or gaming.
- Non-technology based: does not involve technology or involves passive consumption of technology (eating/drinking, watching TV, personal care, commuting/travelling, schoolwork, chores, talking/hanging out or 'other').

Figure 1 below outlines the average percentage of young people who were participating in technology-based or non-technology-based activities when they responded to the survey for each time period. Young people at our partner high school were more likely to be engaged in non-technology based activities when we messaged them at each time point. However, the amount of young people engaged in technology-based activities compared to non-technology based activities differed depending on what time of day the young people were messaged. The most common time for young people to be engaged in technology-based activities was at night (9.00pm – 10.00pm), followed by dinner time (7.00pm – 8.30pm) and after school (3.00 – 4.30pm). Young people were least likely to be using technology in the morning or during lunchtime.

The lower rate of technology use during the lunchtime period may be explained by the "no mobile phone" policy adopted by the partner high school.

**Figure 1. "Just then when you were messaged, what were you doing?"**

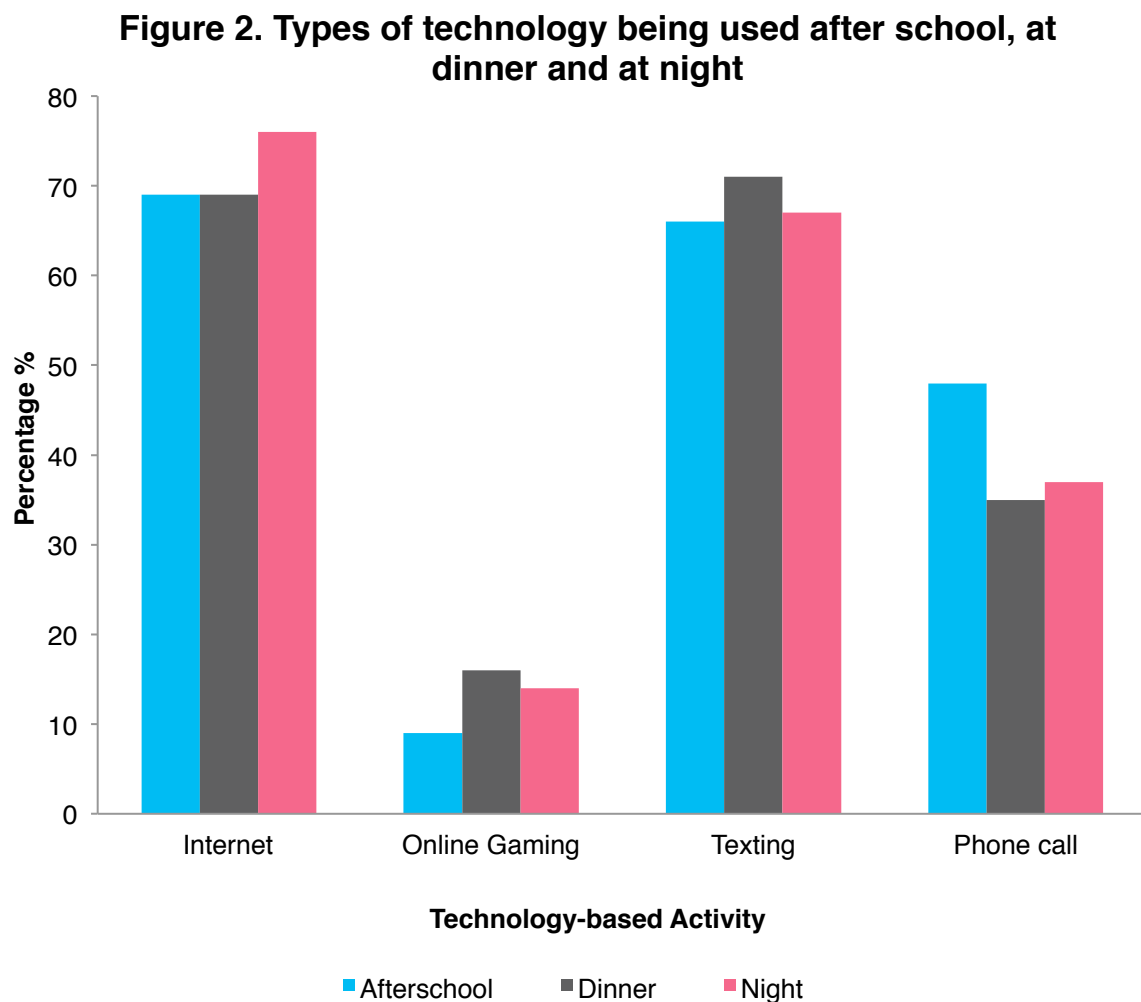


## HOW ARE YOUNG PEOPLE USING TECHNOLOGY?

As highlighted by Figure 1, young people report using technology to a greater extent after school and during the evening (dinner time and at night). The following section examines what types of technology young people at our partner high school are using most often during these time periods.

Figure 2 presents the percentage of young people engaged in different types of technology-based activities during the after school, dinner and night time periods. The figure illustrates that the most common technology-based activities young people are engaging with in the evening are the internet and texting/SMS messaging via their mobile phones.

Young people were more likely to be engaged with the internet during the night time period (76%) than after school (69%) or during the dinner time period (69%). Young people were more likely to make a phone call after school (48%), than in the evening (35% dinner, 37% night). Participating in online gaming was an activity that was more common in the evening (dinner 16%, night 14%) than after school (9%) among young people.





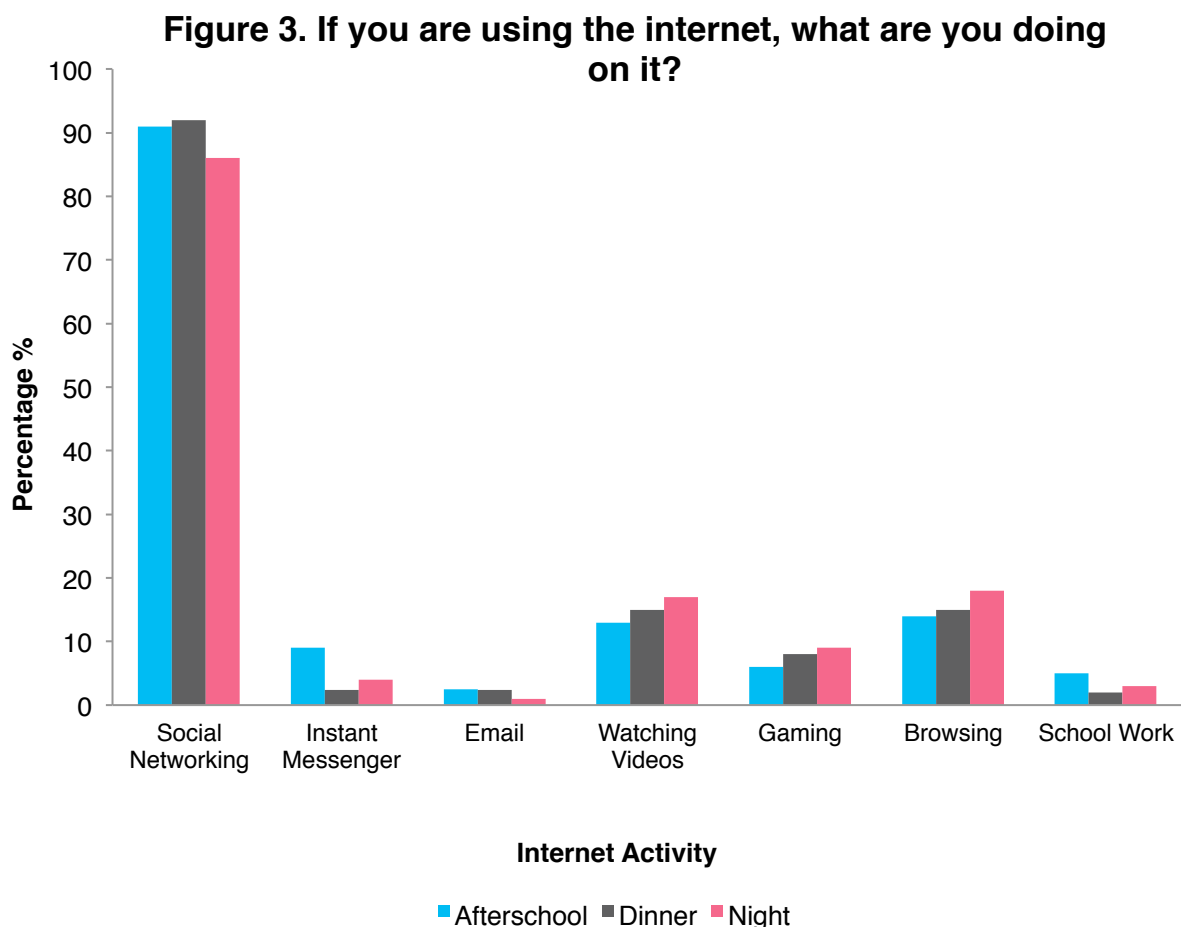
## HOW ARE YOUNG PEOPLE USING THE INTERNET?

Overall, the most popular technology-based activity was using the internet, with 71% of young people using the internet after school, at dinner time and at night. Young people were asked about their internet usage, specifically what types of activities they were engaging with while on the internet (*"If you are using the internet, what are you doing on it?"*). For example: SNS, instant messaging, schoolwork, emailing, gaming, videos, browsing, text messaging or YouTube).

Figure 3 represents the breakdown of these activities between the after school, dinner and night time periods. Participants were able to select multiple activity types and as a result the cumulative responses exceed 100%.

Using social networking sites such as Facebook, MySpace, and Tumblr was by far the most popular activity young people were participating in on the internet after school and in the evening. Social networking was used more often after school and at dinner time than during the night. When asked who they were communicating with on SNS, the majority of young people (>90%) reported communicating with someone they knew face-to-face (friends I see in-person, e.g. school or work friends, team mates, etc).

Young people were also engaged in watching videos (such as YouTube) and using the internet to browse, however both of these activities were used more at night time compared to dinner time and after school. After school, young people were more likely to use the internet for instant messaging or for completing school work than during the evening.



## WHO ARE YOUNG PEOPLE SPENDING THEIR TIME WITH?

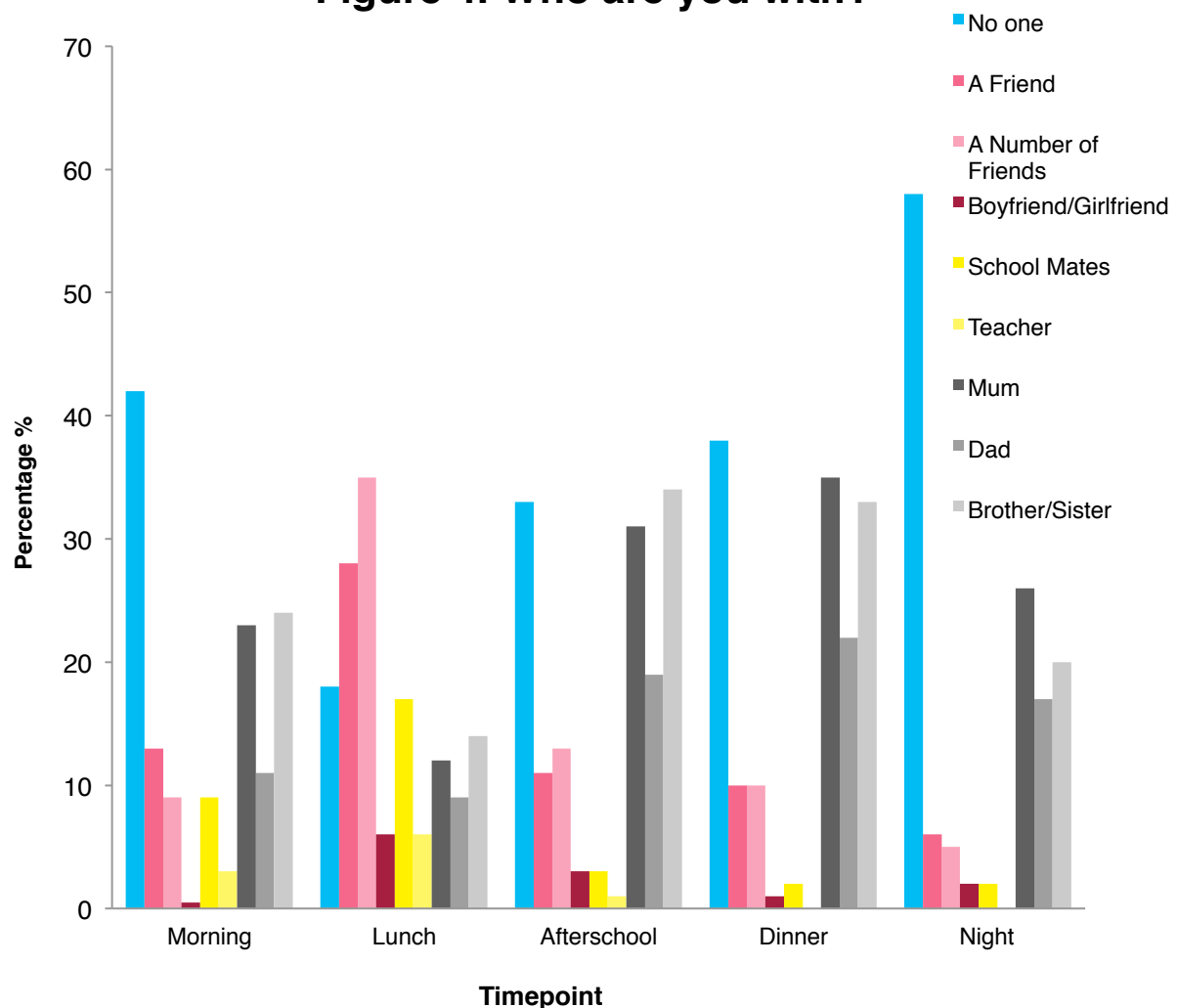
Each time young people were surveyed, they were asked “*Who is with you?*” Young people were given nine options (no one, a friend, a number of friends, Mum, Dad, brother/sister, school mate, boyfriend/girlfriend, or teacher).

Figure 4 represents the young people’s responses to this question at each time point. Participants were able to select multiple responses and as a result cumulative responses may exceed 100%.

Young people were more likely to be alone during the night time period than any other time period throughout the day. In the morning, after school, and at dinner time, they were more likely to be among family members, whereas they were more likely to be among friends or school mates at lunch time.

In regards to family, it is interesting to note that during each time period, young people were more likely to either be in the company of their mum or siblings than with their dad.

**Figure 4. Who are you with?**

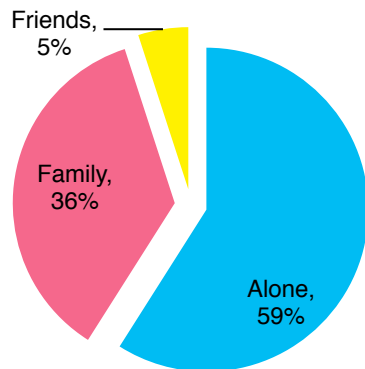


## WHO ARE YOUNG PEOPLE USING TECHNOLOGY WITH?

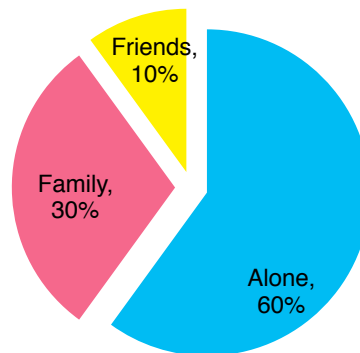
The preceding results have told us that young people are more likely to use technology during the evening, particularly during the night time period between the hours of 9.00pm - 10.00pm. The following section is focused on this time period and makes comparisons between young people's reports during a typical weekday and weekend. When young people were messaged at each time point, they were asked who they were with and what they were doing. These responses were used to assess whether young people were more likely to be alone, in the company of friends or with family during their engagement in technology-based activities.

During both weekdays and weekends the majority of young people were using the internet and playing online games while they were alone (see Figure 5.1 - 5.4). During the weekend, young people were more likely to be using the internet in the company of their friends than during the week, with twice any young people reporting being among friends on a weekend (see Figures 5.1 and 5.2). In regards to online gaming, young people reported being around family whilst engaged in this activity on a weekday, whereas during the weekend they played with friends (see Figures 5.3 and 5.4).

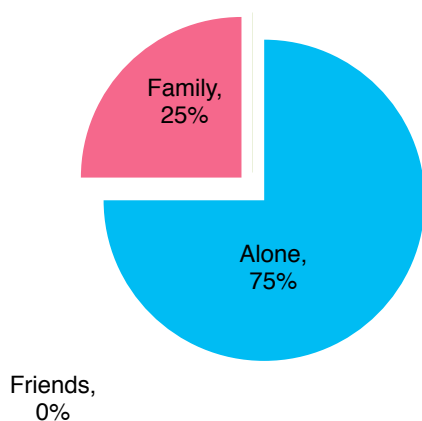
**5.1 Internet Weekday**



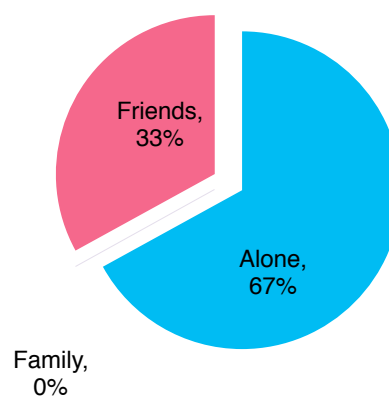
**5.2 Internet Weekend**



**5.3 Online Gaming Weekday**

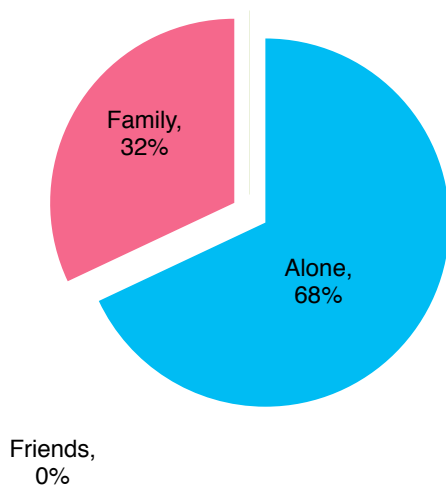


**5.4 Online Gaming Weekend**

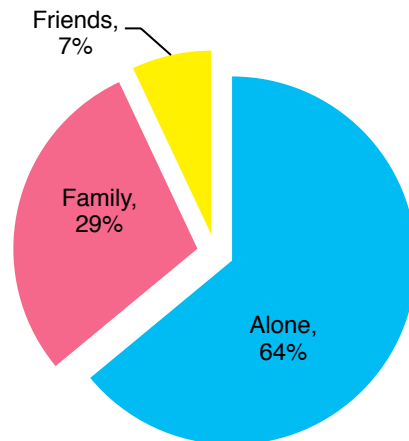


When young people reported using technology to either make a phone call or send a text message, regardless of the time of week, they were alone for the majority of the time during these activities (see Figures 5.5 - 5.8). During the week, young people did not report being in the company of their friends while texting or making a phone call (see Figures 5.5 and 5.7). However, young people did report being in the company of their friends during these activities on the weekend (see Figures 5.6 and 5.8).

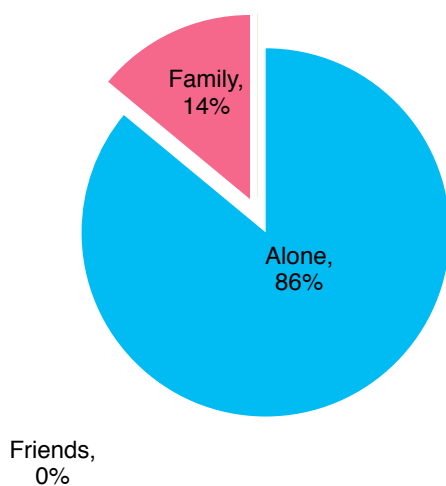
**5.5 Texting Weekday**



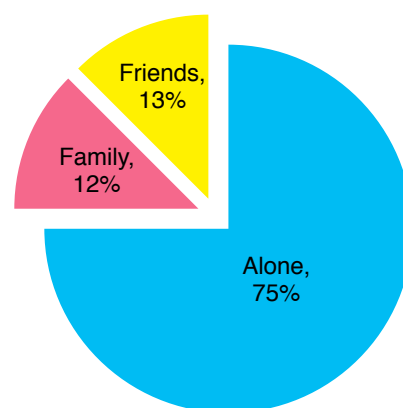
**5.6 Texting Weekend**



**5.7 Phonecall Weekday**



**5.8 Phonecall Weekend**



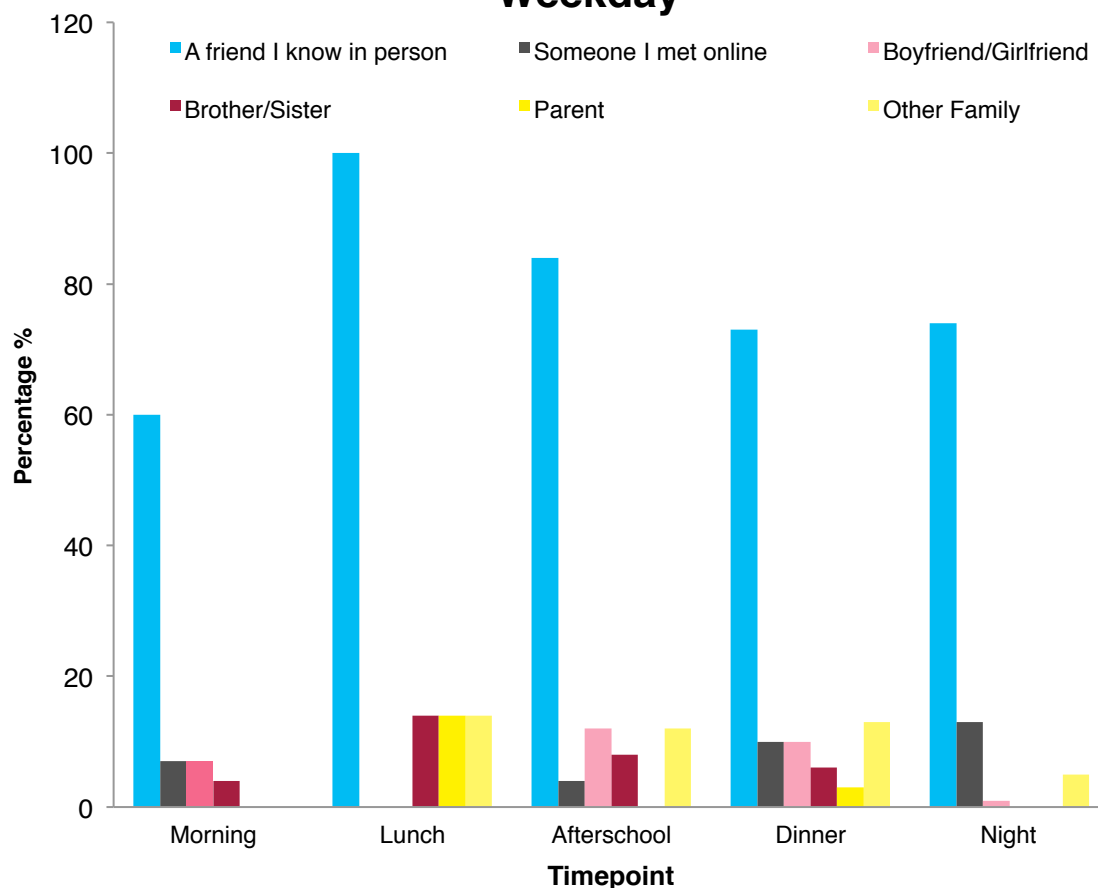
## IF YOU ARE ON THE INTERNET, WHO ARE YOU INTERACTING WITH?

Young people who reported using the internet at the time of the survey were also asked who they were interacting with while they were online. Young people were asked to select from a list of the following options: friends I see in person, someone I met online, boyfriend/girlfriend, brother/sister, parents, other family.

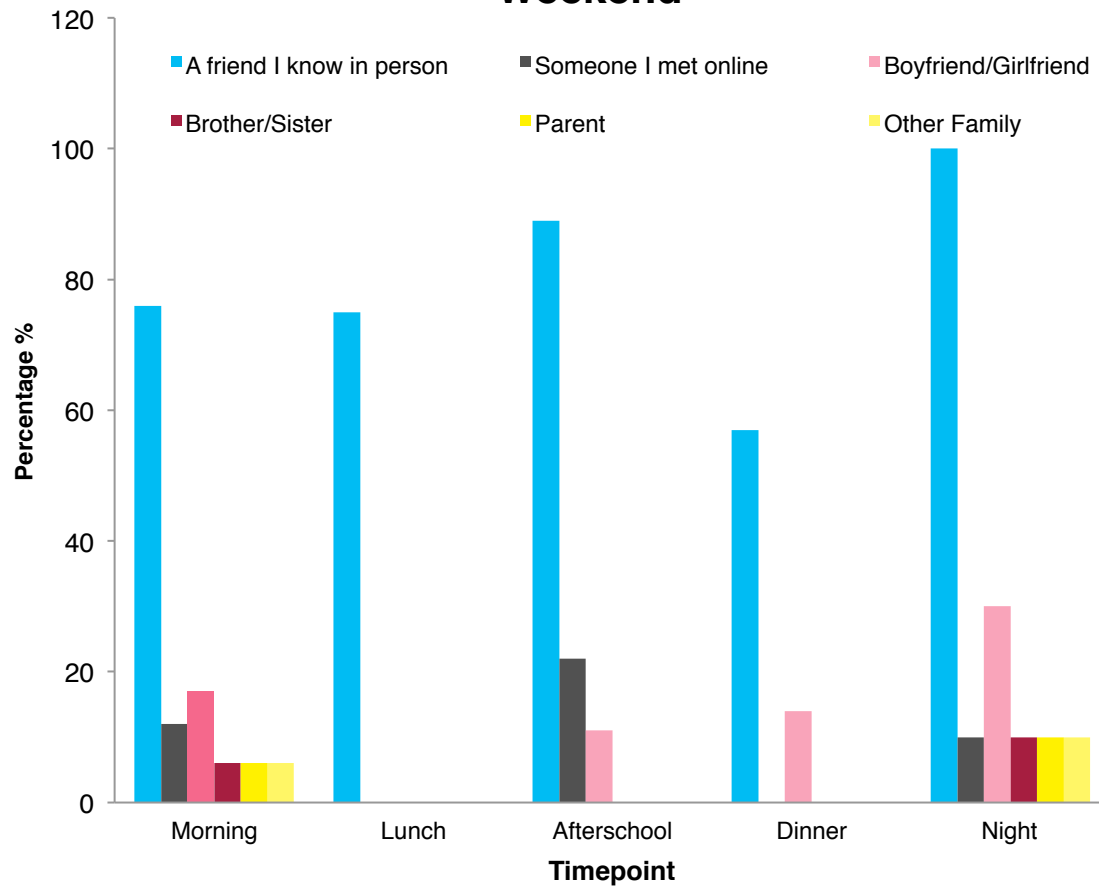
The following graphs represent the internet interactions of young people on a weekday (Figure 6.1) and on a weekend day (Figure 6.2). Young people were able to select multiple responses and as a result the cumulative percentages presented in each graph exceed the value of 100%.

Overall, the majority of young people using the internet were interacting with friends they knew in person (including romantic partners) and this finding was consistent across both weekdays and weekends. Young people also spent time interacting with their immediate and extended family; however family interactions were more likely to occur during a weekday than on the weekend. Only a small portion of young people reporting interacting with someone they had met online, with the majority of these interactions reported during the night time period or on the weekend.

**Figure 6.1 Who are you interacting with?  
Weekday**

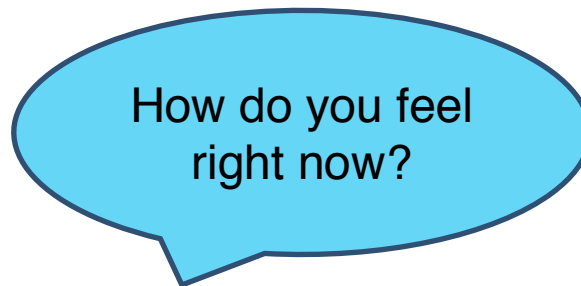


**Figure 6.1 Who are you interacting with?  
Weekend**



## HOW DO YOUNG PEOPLE FEEL THROUGHOUT THE DAY?

Each time young people were surveyed, we measured their mood levels. Young people were asked “*How do you feel right now?*” and were given an option of ten different emotions: happy, excited, satisfied, bored, tired, lonely, stressed, jealous, angry and sad. Young people were asked to rate their mood on a 5-point scale (1 = not at all to 5 = very much). Young peoples’ responses were averaged across the week for each time point and are represented in Figure 7 on the following page.



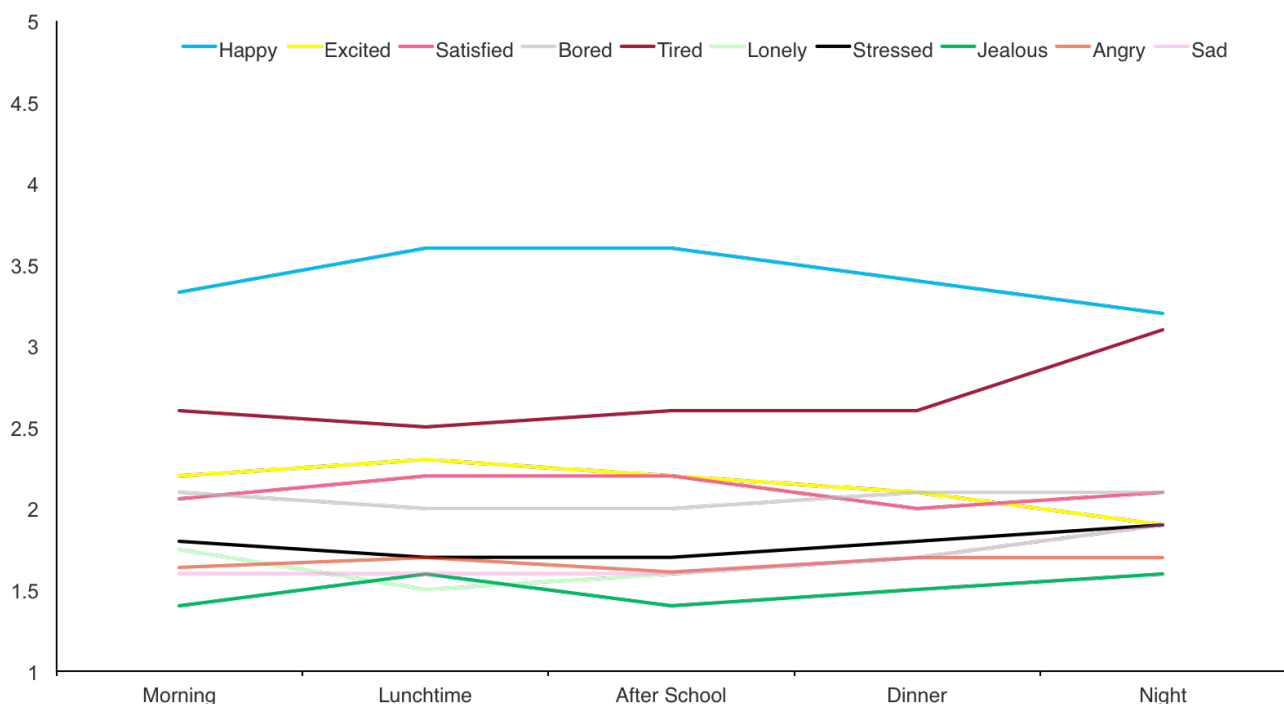
Overall, young people reported higher levels of happiness during each time period compared to all other emotions measured. Young people also reported moderate levels of tiredness throughout the day, which peaked in the morning and again at night.

Positive emotions such as happiness, excitement and satisfaction were highest during the lunch (1.00pm – 2.00pm) and after school time periods (3.00pm – 4.30pm). It was also during lunchtime and after school that student’s reported lower levels of negative emotion such as: anger, loneliness, stress and sadness. They also reported the least amount of boredom during these time periods.

Student’s negative emotions were highest in the evening, specifically at night between the hours of 9.00pm and 10.00pm. During this time, young people reported the least amount of happiness or excitement, and the highest levels of sadness, loneliness and stress.

Overall, the hours between 1.00pm – 4.30pm were associated with positive emotions, with negative emotions increasing in the evening periods.

**Figure 7. Young Peoples' Mood Patterns throughout the Day**





## POSITIVE EXPERIENCES OF YOUNG PEOPLE

At the end of each day, young people were asked “*Today, what is the best thing that happened to you?*” Participants were able to type in their own personal response to this question. Fourteen percent of the young people who answered this question reported that nothing good had happened in their day.

The responses of those who reported a positive experience each day (127 responses over seven days) were coded into the following categories: romantic relationships, accomplishments, being with friends and family, ESM study, Leisure activities, relaxation, food, school activities and other (See Table 1 for example responses). Figure 8 outlines the proportion of responses for each of the positive experience categories.

**Table 1. Positive Experiences of Young People: Categories, Inclusions and Examples**

Category	Inclusions	Example
<b>Romantic relationships</b>	Spending time with boyfriend/girlfriend; seeing a person they had a crush on; feeling in love	“I completely fell for my boyfriend!!” “Seeing my girlfriend”
<b>Accomplishments</b>	Mastering a skill; winning something; experiencing something new	“I landed a sk8 boarding trick i have been trying to master...” “Nailed a song on the drums”
<b>Being with friends and family</b>	Spending time or communicating with friends and family	“Water fight with my friends” “Talking to my friend and making her happy”
<b>ESM study</b>	Getting the iPhone, being involved in the ESM study	“Got an iPhone for a week” “Receiving this phone”
<b>Leisure activities</b>	Structured extracurricular activity involvement such as sports; unstructured leisure activities such as shopping	“Playing dodge ball” “Going shopping!”
<b>Relaxation</b>	Having no commitments, being able to relax or sleep	“I got home from school” “I got to go to bed” “To finally be able to relax”
<b>Food</b>	Eating something in particular	“I had a chocolate ice cream sundae” “I got candy canes”
<b>School activities</b>	Being at school and participating in school activities	“School” “During society class”
<b>Other</b>	Responses that did not correspond with an identified theme.	“I woke up” “Kic” “Lots of things”

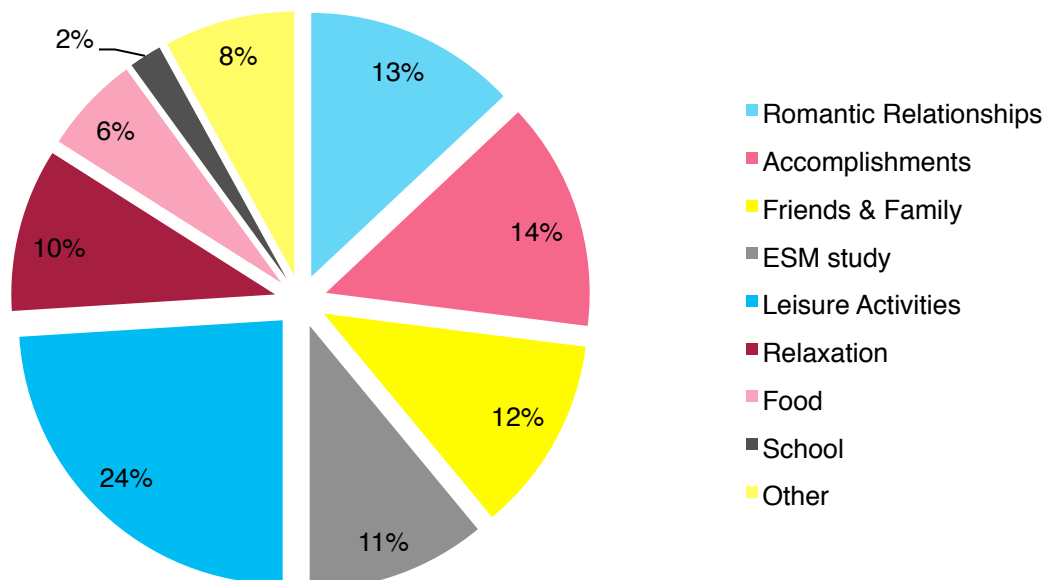
*“Today, what is the best thing that happened to you?”*

Overall, the majority of young people reported having their most positive daily experience during their leisure time. Twenty four percent of the responses related to young peoples participation in both structured (extra curricular activities) and unstructured (shopping, unstructured physical activity) leisure. Positive experiences were also associated with being around friends, family and romantic partners. A quarter of participant responses related to activities or experiences that involved being with, communicating with, or sharing an experience with a friend, family member or romantic partner.

Young people also reported feelings of accomplishment as the most positive experience of their day. Participants outlined achieving goals in their leisure pursuits (such as kicking a goal, mastering a skill), finishing a task, or being complimented or rewarded for their behaviour or efforts as their most positive daily experiences.

Participants reported the ESM study as a positive experience, with 11% of the responses relating to the study. On day one of the study, 50% of the daily positive experiences responses were related to the ESM study. The responses of participants were directed towards receiving the iPhone 4, citing it as the best thing that had happened to them that day. This highlights the positive impact that the research process itself can have on the wellbeing of young people, particularly when the research methodology is engaging and rewarding for them.

**Figure 8. Positive experiences of young people**



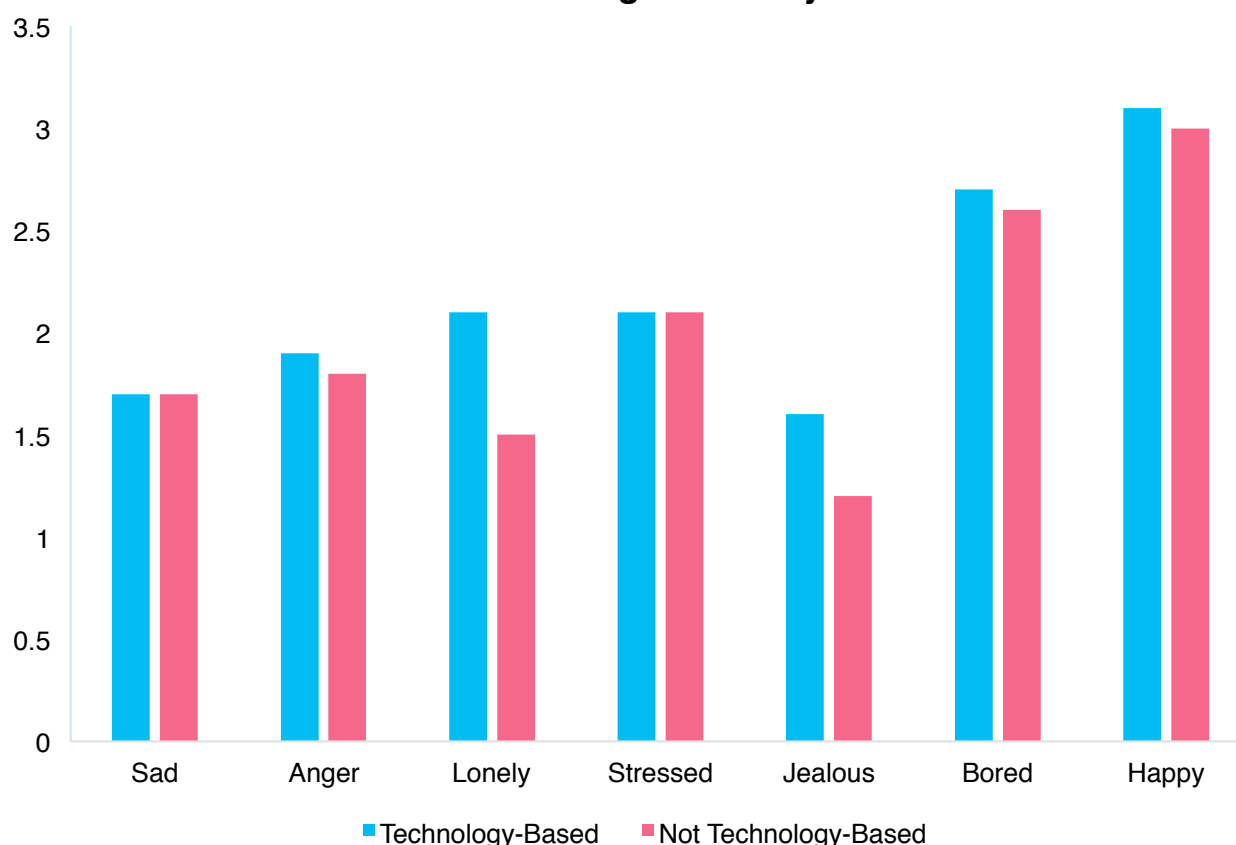
## TECHNOLOGY AND THE WELLBEING OF YOUNG PEOPLE

In observing the current data, a pattern has emerged in regards to technology use and emotion. Specifically, young people report the highest level of technology use in the evening, they also report more negative emotions during this time. In this section we explore whether young peoples' technology use at night (9.00pm – 10.00pm) was associated with the reported negative emotion (sadness, stress, loneliness, anger, jealousy) and boredom levels.

Figures 9.1 and 9.2 illustrate young peoples' emotions on a typical weekday or weekend depending on their involvement on activities that are or are not technology-based. During the weekday, young people who were engaged in technology-based activities reported higher levels of negative emotion. However, it is important to note that the differences being discussed are relatively small.

During the weekday, the most notable differences in mood by activity type can be seen when we measure young peoples' loneliness and jealousy. Young people who were engaged in technology-based activities reported higher loneliness and jealousy than young people who were not engaged in technology-based activities. These findings also support the moods that young people themselves identified as being associated with their technology use during the focus groups.

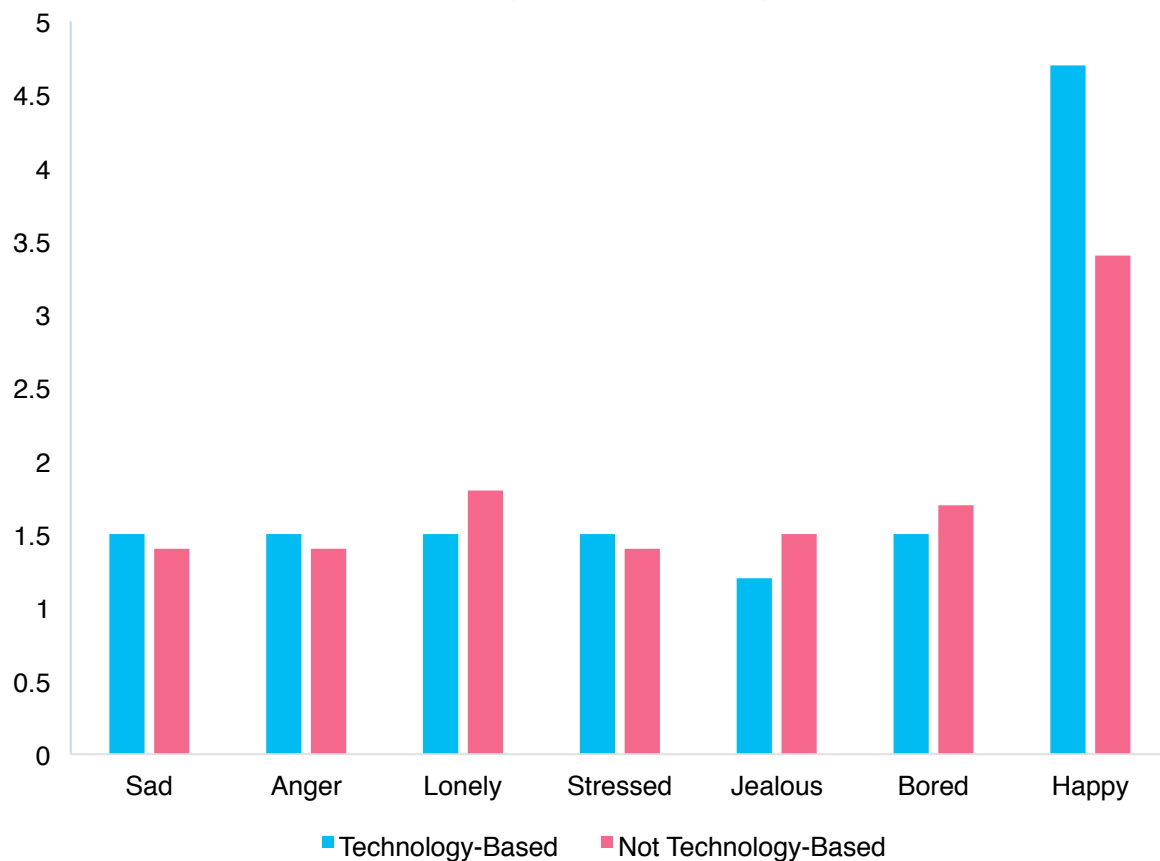
**Figure 9.1 Young peoples' emotions by technology use during a weekday**



However, when we examine mood by technology engagement on the weekend, a contrary pattern emerges for loneliness and jealousy. During the weekend, young people who were involved in technology-based activities at the time of the survey reported lower levels of loneliness and jealousy than young people not engaged in such activities.

On both weekday and weekends, young people involved in technology-based activities reported higher level of happiness than those not involved in technology. However, this difference was more marked on the weekend.

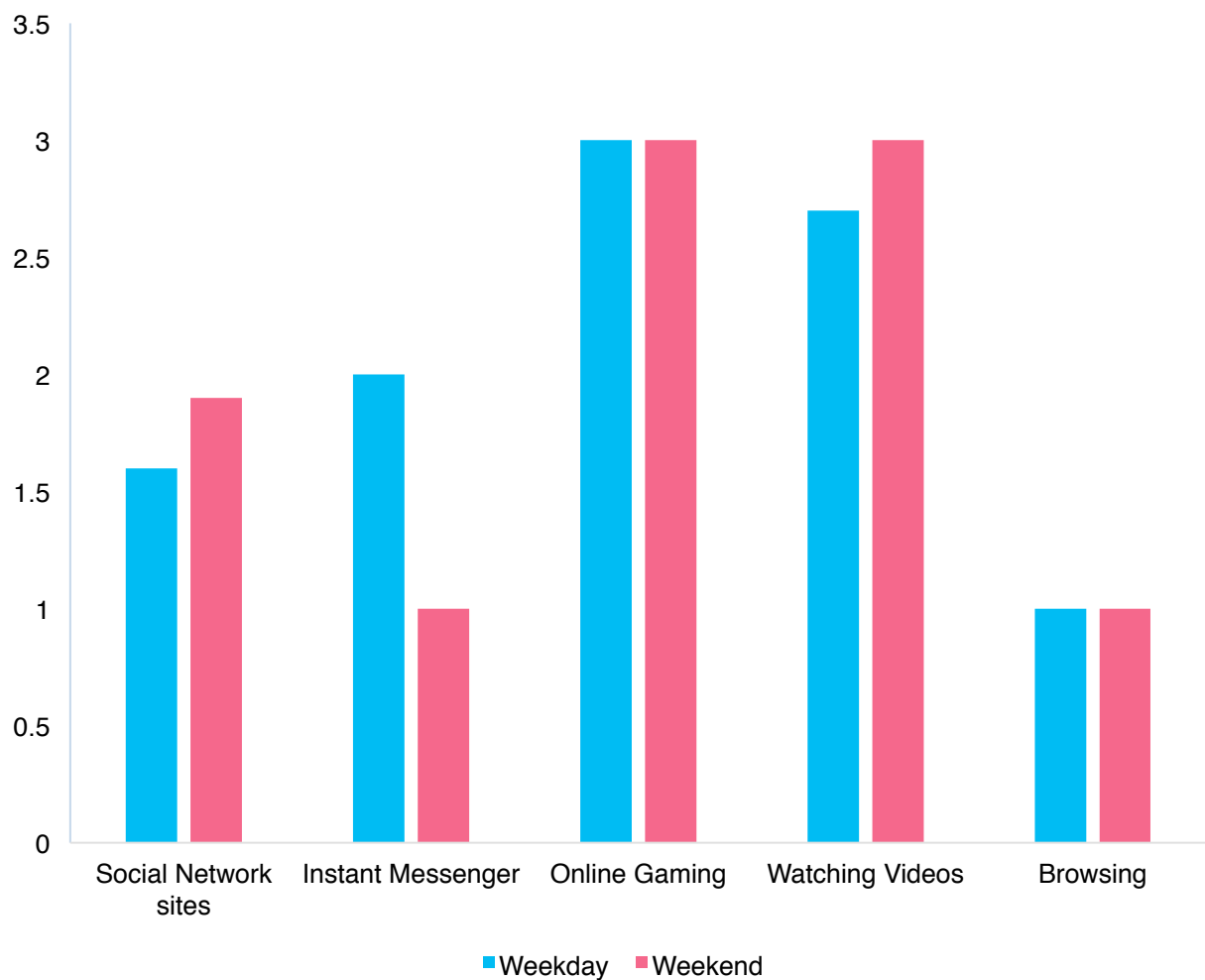
**Figure 9.2 Young peoples' emotions by technology use during a weekend day**



Young peoples' loneliness and happiness levels were then examined and were compared across the various activities they engaged with while on the internet. Figures 10.1 and 10.2 illustrate these emotions on a typical weekday and also a typical day on the weekend.

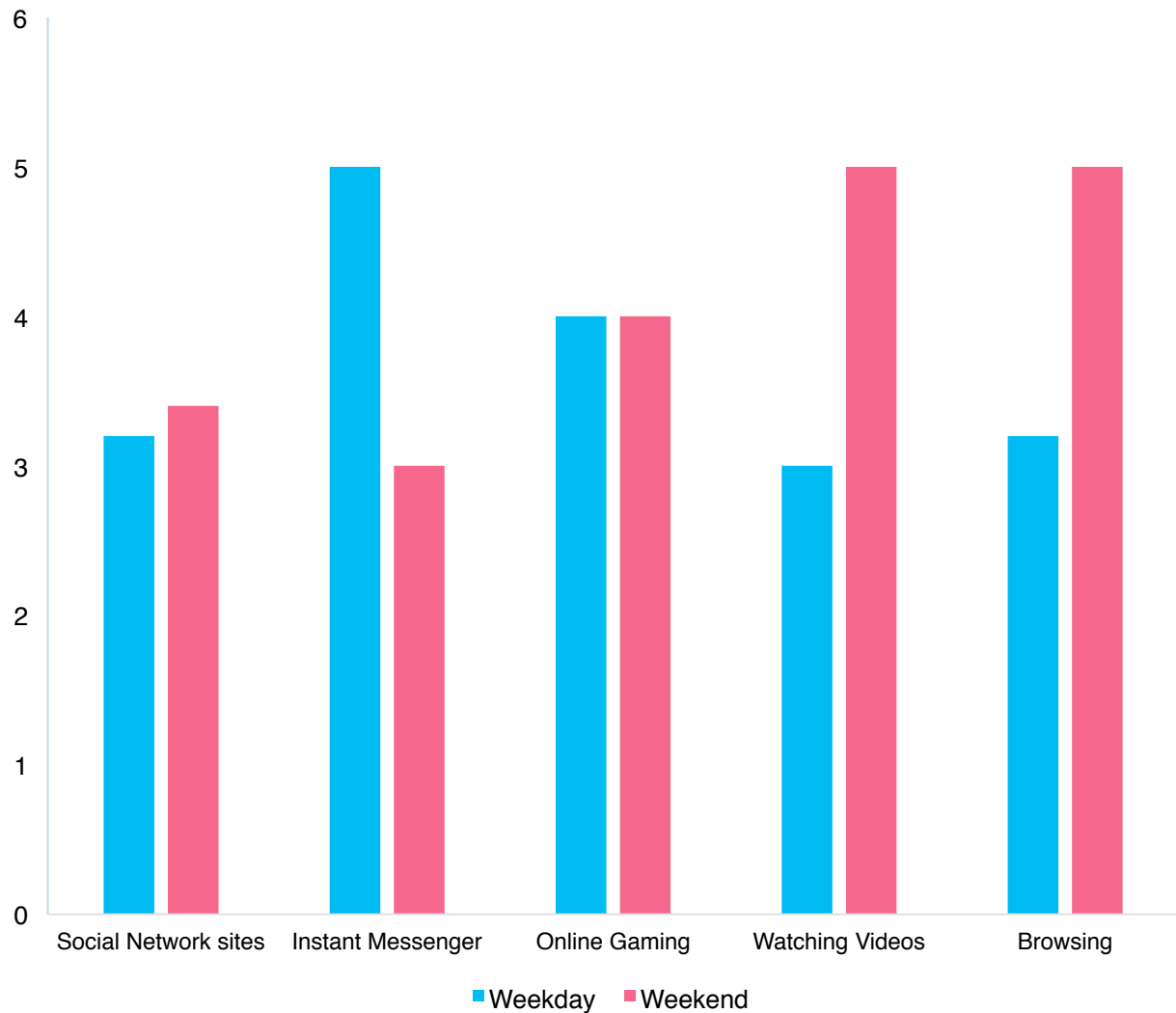
In summary, young people reported being the loneliest on the weekend while using instant messenger. Young people also reported being lonelier during their weekday social networking use than during their weekend social networking use.

**Figure 10.1 Young people' loneliness levels while on the internet**



Overall, young people reported higher levels of happiness than loneliness. Young people were the happiest while using instant messenger during the week. Young people also reported being happier during weekend social networking use, video watching and internet browsing than during weekday engagement in these activities. Regardless of the day of the week, young people' engagement in online gaming did not relate to any notable differences in their happiness or loneliness levels.

**Figure 10.2 Young people' happiness levels while on the internet**



# Case Study: A week in the life of a young person

Up until this point, the data has been analysed and presented in terms of the means and frequencies of the ESM sample as a whole. However ESM allows researchers to delve deeper into the day-to-day and moment-to-moment experiences of young people. This enables the transient nature of constructs like emotion to be examined more thoroughly and in real time. The nature of ESM enables person-level data to be analysed across all data collection points. That is, a quantitative and qualitative landscape can be generated from data at the individual level (or case-study), which represents the responses from a single young person for each time point over the survey period. The following case study is presented to highlight how ESM data may be used on an individual level.

Figure 11 represents the data of a single young person involved in the ESM pilot study, who will be referred to as “Sam” for the purpose of this analysis. The graph illustrates Sam’s mood at each time point over a seven day period (35 data points in total), while the text outlines the responses to other variables measured (e.g. What time did you wake up? Where are you? What are you doing? Who are you with? What technology is being used?). One morning data point was missed, in addition to two dinner points and one night point. Overall, Sam responded to the survey 31 out of 35 times, resulting in a response rate of 89%.

## MOOD

Sam’s average happiness score over the seven-day period was 3.8, with scores ranging from one to five; this may be viewed as moderately high. Sam’s average jealousy and loneliness scores over the seven-day period were 1.5, and 1.7 respectively; both are considered to be low. Sam also reported an average tiredness score of 2.5; which is moderate. If the average mood scores were used to generate an understanding of Sam’s mood levels, we would conclude that Sam is generally happy, moderately tired, and is rarely jealous or lonely. However, Figure 11 provides a much richer mood landscape that illustrates the transient nature of Sam’s mood, and the moment-to-moment changes that occur throughout a single day, and across the week.

Figure 11 illustrates that Sam is generally a happy person, with his/her happiness levels being fairly stable over the survey period. Sam’s happiness was lowest on Wednesday in the after school time period, while waiting for a bus. In the time leading up to this point, Sam had sent/received text messages and had used the internet for SNS use, and to listen to (or download) music.

While Sam’s happiness was generally stable, greater fluctuations in jealousy, loneliness and tiredness were visible across the week. The pattern of mood variation for jealousy was not consistent, that is, Sam did not consistently report feeling jealous at specific times of the day. On the majority of occasions (24 out of 31), Sam did not report feeling jealous (1= not at all), however on 11 occasions, Sam reported low to moderate levels of jealousy. Compared to all other time points, Sam’s feelings of jealousy were the least likely during the dinner time period. Sam was more likely to report feeling low levels of loneliness and tiredness than jealousy, reporting low to moderate levels of both moods on 19 out of the 31 occasions. Sam’s tiredness showed the most change throughout the day, and across the week. Although Sam’s loneliness and tiredness followed a similar prevalence pattern, the level at which each mood was reported did vary. Specifically, Sam reported higher levels of tiredness than loneliness.

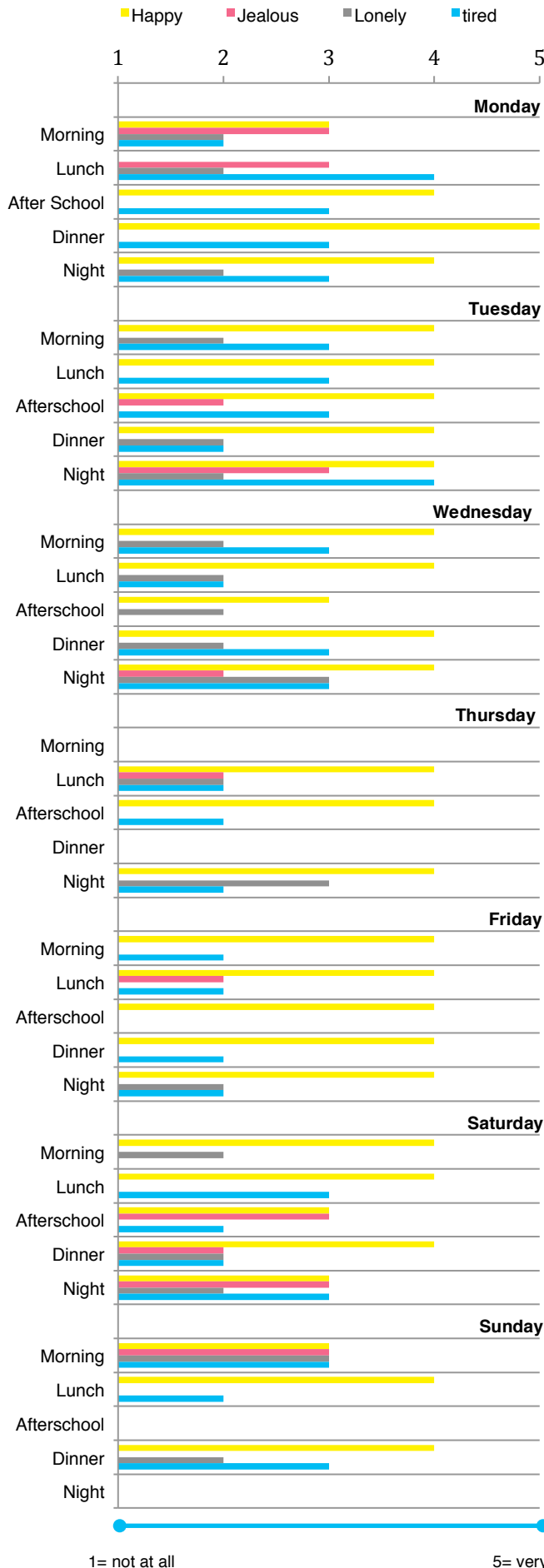
## ACTIVITIES

Figure 11 also outlines the moment-to-moment activities that Sam reported at each time period, which identifies where Sam was at each time point, who he/she was with, what he/she was doing, and how technology had been used in the time prior to receiving the survey text message. The data shows that Sam was an avid user of SNS, using SNS on 29 out of 31 occasions. Future studies could examine self-reported SNS use against ESM data to test the accuracy of self-reported SNS use in addition to other technology-based activities.

Overall, ESM data can provide rich descriptive data on specific individuals, and behaviours and moods may be examined to establish how day-to-day activities can impact on adolescent emotions. The findings from this analysis provoked the ESM team to include questions relating to good and bad daily events in the final ESM study. It is hoped that these may be used to identify triggers to specific emotional changes in young people.



**Figure 11. A Week in the Life of a Young Person: Person-Level Data**



**Time awake (morning only); Where are you? What are you doing?  
Who are you with? What technology has been used since last  
message? Time asleep previous night (morning only).**

- Awake at 5.46am; At Home; with Mum & sibling; used SNS, text msg; Asleep at 10.00pm
- At school playing volleyball; with friends, school mates & teacher; used SNS
- Going somewhere; with Mum & sibling; used SNS, text msg, phone call, music, internet for instant messenger & school work
- At home doing dishes; with Mum & sibling; used SNS, text msg, music, internet for school work
- At home watching TV; with Mum & sibling, used SNS

- Awake at 5.00am; At School; with Mum; Dad & sibling; has used SNS, phone call, TV, music; Asleep at 9.00pm
- At school cooking; with friends; used SNS,
- Waiting for the bus; with sibling; used SNS, text msg, phone call
- At home on Facebook; with no one; used SNS, text msg
- At home helping Mum; with Mum & sibling; used SNS, text msg, phone call,

- Awake at 5.00am; At School; with Mum; Dad & sibling; has used SNS, phone call; Asleep at 9.00pm
- At school watching movie; with friends; used SNS & internet for school work
- Waiting for the bus; with Mum & sibling; used SNS, text msg, music
- At home on Facebook; with Mum & sibling; used SNS, text msg, internet for school work
- At home doing dishes; with no one; used SNS, music

- No data
- At school singing in music; with friends;
- Going somewhere & eating; with Mum
- No data
- At home practising singing; with no one; used SNS, music

- Awake at 4.25am; Going somewhere; with Mum, Dad & sibling; has used SNS, phone call; Asleep at 10.00pm
- At school singing practise; with friends; used SNS
- Going somewhere; with Mum & sibling; used SNS, text msg, music
- At home doing dishes; with no one; used SNS, text msg
- At home watching TV, with Mum, Dad & sibling; used SNS, text msg

- Awake at 5.00am; At Home; with Mum & sibling; has used SNS & YouTube, TV, music; Asleep at 10.00pm
- At home sleeping; with no one; used SNS
- In a public place singing in school concert; with Mum, Dad, used SNS
- At home on Facebook; with no one; used SNS, music
- At home watching TV, with Mum, Dad & sibling; used SNS, text msg, music

- Awake at 7.00am; At Home; with Mum & sibling; has used SNS; Asleep at 10.00pm
- At home sleeping; with no one; used SNS
- No data
- At home making Christmas cards; with Mum, Dad & sibling; used SNS
- No Data

# Internet use and the wellbeing of young people: cyberbullying

## HOW PREVALENT IS CYBERBULLYING AND CYBER-VICTIMISATION?

The Australian Covert Bullying Prevalence Study reported rates of cyberbullying and aggression as being between 5.2% and 7.7% in grade 4 to 9. Another Australian study (Sakellariou, Carroll & Houghton, 2012) conducted in primary and secondary schools suggested that the prevalence rate was higher at 11.5%.

What makes these figures particularly concerning is the report by Dooley et al., (2010) where only 42% of girls and 19% of boys reported asking for help, or reported cyber aggression to others, compared to traditional bullying. This suggests that the reported statistics may in fact be under-estimated and therefore a higher number of young people may be at increased risk of the effects of cyber aggression.

Although cyberbullying appears to be less prevalent than traditional bullying, it has the potential to increase in prevalence due to the use of social networking, and mobile phones. Unlike traditional bullying, cyberbullying acts can be:

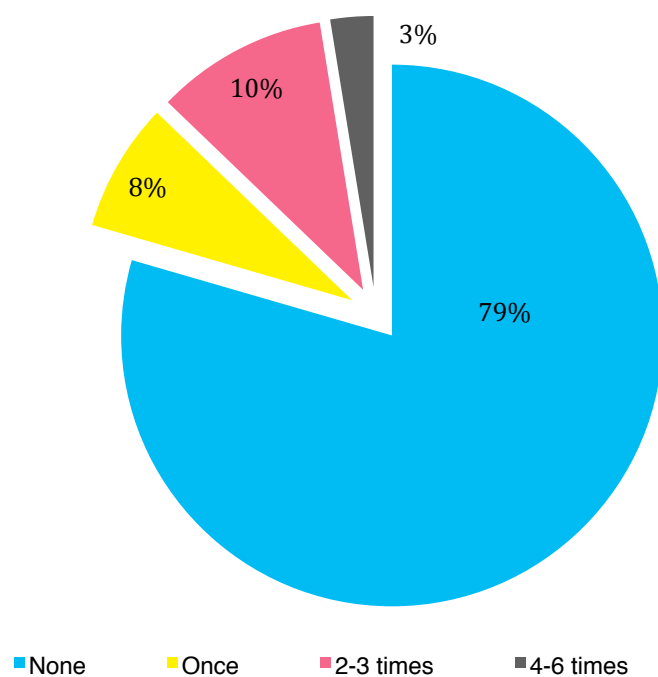
- Perpetrated 24 hours a day;
- Anonymous, which makes repetition and perpetration easier and may also reduce empathy experienced by perpetrators;
- More likely to be experienced outside of school which means that home is no longer a safe haven; and
- Repetitive, which differs from traditional bullying as material placed in cyberspace can be shared long after the initial event.

Mindful of the risks inherent in young peoples' engagement in online technology, we also examined the rates of cyber aggression and cyber victimization among young people. We asked young people:

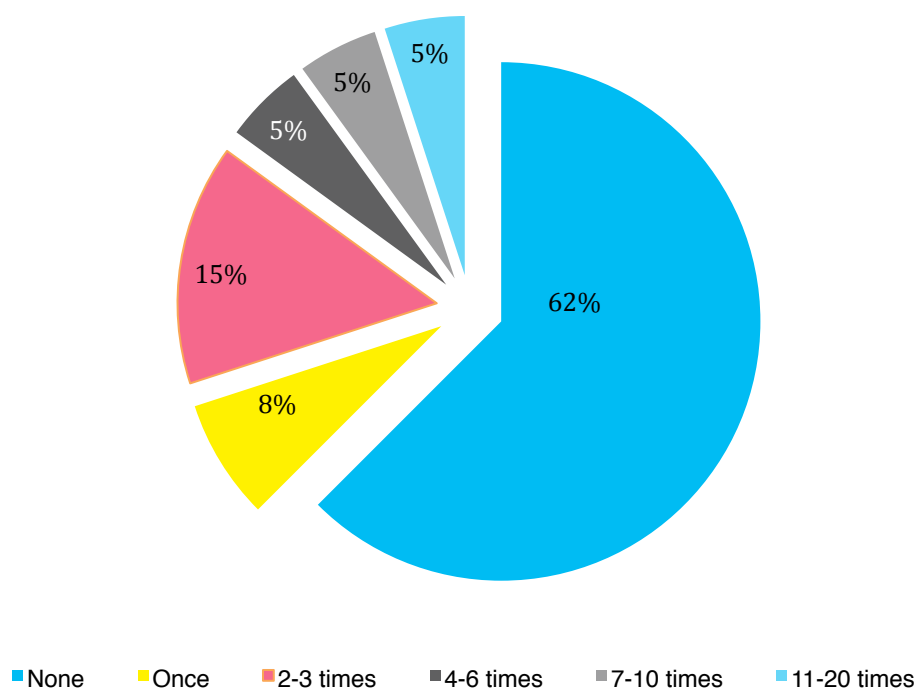
- *"How often in the last six months have you told lies or made fun of some young people using the internet?"*
- *"How often in the last six months has a student/group of young people told lies or made fun of you using the internet?"*

The results indicate that the majority of young people are not involved in cyberbullying or cyber-victimisation. As indicated in Figures 9.1 and 9.2, 21% of young people reported participating in cyberbullying (Figure 11.1) and approximately 38% of young people reported being a victim of cyberbullying (Figure 11.2). Although these prevalence rates are higher than the reported national averages mentioned previously, it is important to remember that cyberbullying is largely underreported (Dooley et al., 2010). It may be that the method of survey implementation allowed young people to be more forthcoming with their cyberbullying behaviour and experiences. Therefore, the higher rates may be a reflection of the anonymous nature of the survey and young people uncensored responses.

**Figure 12.1 Frequency of Cyberbullying BY Young People**



**Figure 12.2 Frequency of Cyberbullying TOWARDS Young People**



## The next step

The ESM pilot study has been instrumental in the planning and development of the wider ESM project, being conducted by the Mapping of Digital Inclusion and Exclusion research team. A new partner school has been recruited to participate in the ESM study on a larger scale in 2013-2014. Roughly 100 young people will be recruited for this study, and a portion of the sample will also participate in a 12 month longitudinal study.

Overall, the use of smartphones to conduct ESM research has demonstrated to be an innovative method that is engaging to young people, and also allows for rich, in-the-moment data to be collected. The pilot study has enabled the research team to develop a best practise model or ESM toolkit that may be used as a point of reference for researchers interested in using smartphones to collect ESM data within a high school context (see Appendix C).

Young people informed the research team, via informal verbal feedback, throughout the research process, with many young people seeking out the researchers who were embedded in the partner school to gain the consent forms and information required to become a participant. The groups of young people the research team have engaged with, during both the focus groups and ESM pilot, have shown a genuine curiosity for the research process, and have asked insightful questions into the purpose and outcomes of their involvement. The insight and engagement of these young people has been essential to the success of the pilot study.

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# Appendixes

## A. FOCUS GROUPS: GUIDING QUESTIONS

Prior to introducing questions for the participants to discuss, an interactive setting will be opened by asking participants: How often do you use your mobile phone? Facebook?

- Does anyone use MySpace anymore?
- Is there anything better than Facebook? Twitter? Which one is your favourite? Why?
- What do you think about the new timeline on Facebook?
- Do you think that your mood changes when you use technology?
- Do you think that you ever use technology to change your mood on purpose?

Using emotion cards:

- How do you feel when you are talking to your friends on the phone? Texting?
- What about when you're on the internet? Posting on Facebook? Privately through email?
- Think about the last time you spoke to someone on the phone, messaged or even on Facebook? The time when this happens?
- Do you ever go on SNS sad and finish off happy? What are some of the things that made you happy?
- What about if you were talking to your best friend on the phone, instant message/publicly through Facebook? Is it different?
- What feelings are generally associated with checking Facebook statuses and comments?
- When you post a status on Facebook, does it make you feel better when you post it? Others respond to this?
- On an average day, how often do you use technology or login to SNS (Facebook) to check posts and status?
- Do you go on to change your mood? Or does it just change on its own?
- Or doesn't even change?
- What sorts of things change your mood?
- Time of day when most likely to use Facebook/ other SNS/technology?
- Are you in a certain mood before you logon to SNS? Mood after?
- How do you feel if you log in to Facebook and you have not got any messages or comments? What do you do to make yourself feel better? Do you use another form of technology after?
- Do you ever use technology as a way of distraction from unpleasant moods/negative feelings?
- Do you think that your friends can influence you differently in person than when you are talking to them over the internet?
- If a friend was encouraging you to make fun of someone else, do you think that you are more or less likely listen to their negative suggestions- if the idea came over the email vs. face to face? What about if idea came over text? What about if you got the idea publicly through social networking? Over the phone?
- Now we are interested in your thoughts on a project we are planning. It would involve being loaned a smartphone to be used for research for seven days, Monday-Sunday.
- Do you think that kids your age would be willing to carry around a second phone if it were a smartphone? What about if they could surf the internet on it? What about if they could buy up to five apps for it?

- The project would contact kids your age about three to four times a day. Each contact would ask them to respond to a series of questions electronically, and would take about five minutes. Do you think kids would do this? The contacts would happen during lunch, right after school, and then around 6.00pm and then 10.00pm at night. Do you think those would be okay times to respond to a quick survey on a smart phone?
- The project is going to ask kids about who they've been in touch with since the last contact over phone, text, email, social networking, and SMS, how they felt, and whether they experienced any kind of peer-pressure during those contacts. Do you think they'd answer truthfully? Any ideas about what we might find? Do you think there are differences in the way friends influence you using those different technologies?
- Is there anything else you want to mention about technology, mood, or peers?



## B. FOCUS GROUP NOTE TAKING SHEET

### 1A:

- Yes** - ever technology to change mood
- No** - ever technology to change mood
- Yes** - ever mood changed by technology
- No** - ever mood changed by technology
- No Response**

Notes:

### 2A:

- Yes** - ever technology to change mood
- No** - ever technology to change mood
- Yes** - ever mood changed by technology
- No** - ever mood changed by technology
- No Response**

Notes:

### 3A:

- Yes** - ever technology to change mood
- No** - ever technology to change mood
- Yes** - ever mood changed by technology
- No** - ever mood changed by technology
- No Response**

Notes:

### 4A:

- Yes** - ever technology to change mood
- No** - ever technology to change mood
- Yes** - ever mood changed by technology
- No** - ever mood changed by technology
- No Response**

Notes:

## C. EXPERIENCE SAMPLING METHOD USING IPHONES: BEST PRACTISE MODEL

### DESIGN

**Experience Sampling Method (ESM)** - A method to capture and describe the individual's *moment-to-moment* variations in thought, emotion, behaviour and/or social context.

- Examines both between-persons and within-person differences.
- Repeated measures data 'nested' within individual subjects (Hox, 1998).
- Data has previously been collected using experience sampling paper forms, and pagers. More recently the mobile phone has become an innovative method to collect ESM data (Scollon, Kim-Prieto & Diener, 2003).

*What can be measured?*

- Events in real-world environments.
- The individual's current (or very recent) emotional state and behaviours.
- Multiple assessments of a construct over time (e.g. the day, week), which results in large amount of repeated measures data.

*What are the benefits?*

- Reduced retrospective recall bias of events, behaviour and emotion states (Myen-Girmeys, Oorschot, Collip, Lastaster, & Delespaul, 2009)
- Improved ecological validity.
- Capture the "mundane" (i.e. the 'daily grind', minor events which may otherwise be forgotten in traditional survey methods).

*Why use a smartphone?*

- Engaging for youth, and in line with their daily practises.
- Makes collecting ESM data more convenient for participants and the researcher & more manageable.
- Innovative way of collecting data that needs to be piloted and tested in Australian young people.
- Smartphones can be connected to the internet, allowing for online survey administration.

### Ethical considerations specific to ESM and smartphones

*Adult or Illegal content*

- In our parent consent letters we stress that it is ultimately the parents'/guardians' responsibility to ensure that young people do not access illegal content with their phone. We consider it best practice to encourage parents to discuss this with their child before providing consent for the study. Researchers may also consider providing an information letter to parents on how to restrict access to adult content on iPhones.
- Many parents and school staffs are concerned that young people will access illegal or 18+ content via the smartphone. Although access to illegal content cannot be 100% restricted, there are steps that can be taken to restrict young people's ability to access adult content. These include, restricting access to Adult sites, and turning 'off' explicit language on 'Siri' (voice activation), which can be done through the smartphone settings.
- If using an Apple iPhone, the researcher can set up a 'Profile' (using iPhone Configuration Utility for Windows or Apple iPhone Configurator). The configurator can be downloaded from the web, free of charge, and installed on the researcher's computer, from which they will be working.
- Note; it is important when using Apple products that the computer the phones are synced on, is the same computer that the researcher will be using in the field. The profile that we set up prevents;
  - Multiplayer games or adding of game centre friends; this prevents young people from adding people they have met over the internet as friends.
  - Access to explicit music and erotic content in the iBooks store.

*Participant confidentiality*

- Each participant is allocated a unique ID number; this number is matched to their name and date of birth in a separate (password protected) data file.
- All pre and post tests are labelled with the unique ID numbers; participants names do not appear on the surveys or the data that is downloaded.

- Each online survey is linked to ID numbers by creating a unique URL for each survey.
- If using an Apple iPhone, when registering multiple smartphones to one Apple ID, researchers must ensure that participants' personal information they put on the phone is not shared across the phones. This is done by going into the iPhone settings, turning 'off' contacts, calendars, reminders, and Safari, preventing information to be shared across multiple phones. We consider it best practice to inform participants and their parents that we will not look at any of the personal information that young people have stored on their smartphone (for example, pictures, and contact information and text messages).

#### *Lost /Stolen Phones/Equipment*

- The loss or theft of phones and accessories can result in undue distress in the affected participant. Processes and procedures for theft or loss need to be in place before the commencement of the survey. We have mechanisms in place to prevent phone theft including informing participants and their parents that should the phone become lost, it will be tracked by GPS signal and located.
- In the event that a phone is lost, we can locate it for the student.
- In the event that a phone is stolen, we can locate the phone via GPS using the 'Find My iPhone' application\*. Note: this GPS is never used to track the participant or their whereabouts.
- Using the 'Find My iPhone' application, we can remotely disable the phone meaning that the phone will shut down and no longer be useable. Thus, any personal information that the participant had stored on the phone will not be accessible.
- A stolen phone can also be disabled by calling the service provider and having the SIM number and handset blocked. This prevents anyone from using the phone or making phone calls from the SIM. Researchers will need to provide the phone number, SIM card serial number and the phone's IMEI number to their service provider. Therefore, it is a good idea to have a database containing this information.
- A police report is made by the student's parent if a phone is stolen, although researchers are encouraged to discuss best practice around reporting stolen goods with their ethics committee.

\*Only applicable if using an Apple iPhone. iPhones must have IOS 7 or above software installed, to prevent participants from logging themselves out of their iCloud account. If phones are logged out of the iCloud account they will no longer be traceable or able to be remotely disabled.

## **EQUIPMENT REQUIRED**

### **SurveyMonkey**

1. SurveyMonkey is a program that allows the user to create an online survey for administration over the internet.
2. Survey data can be downloaded using SurveyMonkey, or it can be downloaded to suit data analyses software such as SPSS.
3. Available at <https://www.surveymonkey.com/>

### **Essendex**

1. Essendex is an online text messaging service that allows you to upload text messages from Excel and send them in bulk, at any time during the day or night. Messages can be pre-loaded and cued for sending at later time points.
2. Available at [www.essendex.com](http://www.essendex.com)

### **Mobile Phones and accessories**

- All participants receive a phone pack containing the smartphone, charger and phone case.
- The iPhone 5 was chosen for use in the ESM study due to its cost effectiveness and popularity among the focus group young people; however other smartphone brands are also an option.
- The smartphone needs to have internet connectivity capabilities and also be easy for young people to use and carry around with them.
- All participants are given a smartphone that is protected by a phone case (to protect the phone from damage and unnecessary wear and tear), a compatible charger and a carry case (this ensures the phone and accessories can be collected and returned together).
- SIM cards are already installed in each smartphone.

- The phone number for each individual phone is listed in the 'contacts' application of the phone (participant phone only), along with additional phone numbers for the researcher (for troubleshooting and attendance notifications) as well as youth resources such as Lifeline, and Beyond Blue.
- Each phone requires its own SIM card. Each SIM card has a phone number attached to it, which is used to send participants links to the experience sampling survey.
- SIM cards are taken out of the smartphone and destroyed following the participant's completion of the study. SIM cards are never re-used.
- Researchers may also consider pre-loading popular applications onto the smartphone for young people to use.

### Staffing requirements

- Working with Children Check:
  - All staff who will be in contact with participants under the age of 18 are required to have a Working with Children Check (WWC; <http://www.checkwwwc.wa.gov.au/checkwwwc>). A WWC is only valid for use in the state that it is issued, therefore if surveys are to be conducted across several states team members will be required to apply for a WWC for each state involved in the study.
- Staff numbers:
  - It is recommended that a minimum of four to six staff are present at the commencement of the survey (20-30 participants) and also during the final survey session (phone handover and post-test administration). During this time, young people are filling out personal details, additional pre and post-test surveys are being administered (where applicable), iPhones are being distributed and recorded, young people queries are being addressed, and the logistics of the survey are being explained to participants. Having a strong presence at the commencement of the survey also helps to maintain order among participants.
  - For the remainder of the survey process, a minimum of two staff is recommended to address participant enquiries, install applications on phones, and follow-up participants who have not returned their phones by the allocated time each day.
  - It is recommended that a school staff member is also present during the initial phone allocation session.
  - Staff are required to ensure that the iPhones are distributed to the correct young people and are recorded accurately.
  - Staff need to have a good knowledge base of iPhones and the ability to troubleshoot any problems that arise with the phones during the survey.
  - Some high schools have specific procedures set in place that visitors to the school must adhere to. For the partner high school involved in the ESM pilot, all visitors were required to move in pairs, which resulted in a minimum of two staff being out in the field each time.

# PROCEDURAL INFORMATION: SURVEY PROGRAMMING

## Using SurveyMonkey to Program the ESM Survey

- We use SurveyMonkey (<http://www.surveymonkey.com>) to host our ESM survey. If the researcher does not have an account with SurveyMonkey they will have to set one up.
- We have 35 sampling moments in total (five per day for seven days). We allow young people to respond to the survey up to an hour of it being sent, as to reduce memory recall bias effects.
- 35 copies of the ESM survey are created with Survey Monkey. Each survey has its own unique URL and unique time restriction. We do this because we want each survey to close down within an hour of it being sent and given an ESM design this means staggered closing times for each survey.
- Participants are sent a link to the online ESM the survey using Essendex.

## How to customize URLs

- Make seven copies of each survey (morning, lunch, after school, dinner, night), so that each survey will have a unique URL. SurveyMonkey will automatically generate the URLs. Paste URLs into an Excel spread sheet. The spread sheet should also contain the participants' phone numbers and unique ID.
- Assign each participant a unique ID in a separate column in an excel spread sheet.
- Combine the survey's unique URL with the person's ID by adding ?c=[ID] to the end of the URL.

## How to send ESM surveys to iPhones: Step by step

1. Program the survey on SurveyMonkey.
2. Click 'collect responses'
3. Click on 'web' link. Will give you the URL for that specific survey.
4. Create an Excel spread sheet for each survey. Have columns 'name', 'number', 'URL' and 'ID'. Populate the name, number (mobile phone number) and ID columns yourself.
5. Copy paste SurveyMonkey URL into the 'URL' into the column on the Excel spread sheet.
6. Customize each URL for each unique ID you have; to do this, add ?c=ID to the end of each URL (each ID will represent a separate participant\*). For those familiar with Excel, the CONCATENATE function does this effectively.
7. Login to Essendex using your login details.
8. Click on the 'Echo' tab at the top right hand corner of the page.
9. Click on the 'bulk' tab, as you want to send bulk messages.
10. Click 'browse' and upload the excel file you created. Check the box marked 'first row headings'.
11. Click 'upload' file.
12. Click the pull down menu under 'which column contains phone numbers' and select 'number'
13. Add your greeting message in the text box "Hello, please select the link below to do the survey. Thank you, Experience Sampling Team". Add the URL you want to send (for example, Morning 1) to the text box. Click 'preview'
14. Click 'send now'.

\*If you are sending 35 surveys (one survey for each time point) do the following→ create an Excel spread sheet for Day 1 surveys only → the spread sheet should only be for URLs associated with the first day of survey( i.e. the first day of the study). A second spread sheet should only be for URLs associated with second day's surveys etc.

→ Repeat for remaining days of the study.

## How to keep data confidential

- To ensure surveys remain anonymous but so we can track participants' responses over time each student is allocated a unique ID number. Their ID number is attached to the end of survey links.

Example of Excel spread sheet format for Essendex.

	A	B	C	D	E	F
1	ID	Number	add to URL	L1LINK	L1URL	A1LINK
2	001	xxxxxxxxxx	?c=001	https://www.surveymonkey.com/s/Example	https://www.surveymonkey.com/s/Example?c=001	
3	002	xxxxxxxxxx	?c=002	https://www.surveymonkey.com/s/Example	https://www.surveymonkey.com/s/Example?c=002	
4	003	xxxxxxxxxx	?c=003	https://www.surveymonkey.com/s/Example	https://www.surveymonkey.com/s/Example?c=003	
5	004	xxxxxxxxxx	?c=004	https://www.surveymonkey.com/s/Example	https://www.surveymonkey.com/s/Example?c=004	
6						
7						
8						
9						
10						
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12						
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15						
16						
17						
18						
19						
20						
21						
22						

Example Essendex message

esendex

Logged in as S. Watson@murdoch.edu.au My details Help Log out

Echo Echo for Email Developer Tools

Send Sent items Contacts & groups Settings

Simple Build Templates

Create a personalised message

From: Send > Build > Create a personalised message

Sender: [dropdown]

Which column contains phone numbers: [dropdown]

Fields (click to add to template):

[Number] [Add to URL] [L1LINK] [L1URL]

Help! Click on the following link to complete your survey: [L1LINK]

Preview

For example

A file is uploaded that contains 2 columns called "title" and "surname". To produce "Hello Mr Smith", type "Hello" and then click the title field followed by the surname field. Don't forget to add spaces!

Here is the finished template: "Hello [title] [surname]"

Newspaper (2300000000)

57 messages available

Buy messages

©2014 Esendex Limited. Echo v 14.3.13.3236.9

## PROCEDURAL INFORMATION – STUDENT ADMINISTRATION

- All staff working with participants under the age of 18 years are required to hold a WWC for the state of data collection, only staff with a valid WWC are able to supervise or administer surveys.
- All participants under the age of 18 years must gain parental consent before being included in the study.
- All participants must give personal consent to be involved in the study.

### ESM Survey time points

- Time points: 7.30am, 1.00pm, 3.30pm, 7.00pm, 9.00pm.
- Participants given 30 minutes to respond to survey.
- Participant takes iPhone home to complete after-hours surveys and weekend surveys

### Data collection procedure

#### Day 1 – Commencing at 12:00pm

- Pre-test (4-6 staff members)
  - Open SurveyMonkey link on computers to ID page
  - Participants are given their unique ID number (young people' ID number identified by their name and DOB).
  - Instruct participants on how to complete the baseline survey using their unique ID.
  - Time: one survey takes 30 minutes to complete.
  - Participants are instructed on the iPhone procedure/ESM survey
  - Participants are assigned an iPhone according to their ID number. It is recommended that phones are assigned to young people after the instruction takes place otherwise participants become distracted by the phone and miss information.
  - Participants complete their first lunchtime survey on the phones (first survey has to be programmed to send at the correct time).
- Participants hand their phones back to researchers for the duration of school activities.
- After school: participants collect and sign out their phones for the night.

#### Day 2-7

- Participants drop their phones off to researchers every morning before school starts.
- Participants can collect their phone during recess time for personal use and return at the end of the recess period.
- Participants meet researchers during the lunch period to complete their lunchtime survey and use their phone for personal use, returning the phone to researchers at the end of the lunch period.
- Participants collect their phones at the end of each school day.

#### Day 8

- 8.00am: Participants drop their phones off to researchers in the morning, before class (all participants would have completed their last morning survey that morning).
- 8.30am-1.00pm phone change over (four staff members)
- Meanwhile: at 12.15pm the first cohort of young people come to do their post-test survey (three staff members to distribute IDs and supervise).
- 1.30pm: second cohort of young people come to do their Time 1 survey (three staff members hand out IDs/supervise/troubleshoot)
- 2.10pm: young people bring their IDs up to researchers and collect their phone.
- 2.15pm - 2.40pm: Team leader runs through iPhone procedure/ESM survey and students complete their first lunchtime survey on the phones. Then leave phones with researchers.
- After school: young people collect and sign out their phones.

#### Days 8 - 12

- Young people drop their phones off to researchers every morning before school starts.
- Young people come to researchers to do their lunchtime survey every lunch time.
- Young people collect their phones at the end of each school day.

#### Day 14

- Second cohort of young people drop their phones off at morning (or lunch maybe).
- 12.15pm: second cohort of young people complete their Time 2 survey - staff to hand out IDs/supervise/troubleshoot.

# CHECKLISTS

## SURVEY PROGRAM CHECKLIST

- Program survey onto SurveyMonkey
- Make copies of the survey on SurveyMonkey (one for each sampling moment)
- Set specific time restrictions for each survey
- Attach participants unique IDs to each surveys URL.
- Program each text message to be sent by Essendex (best to work off an Excel spread sheet)

## SURVEY ADMINISTRATION CHECKLIST

### PRE-ADMINISTRATION

- Parent and participant consents are compiled and a survey list created
- Participant allocated an ID number (recorded on a separate Excel spread sheet)
- All phones numbered, labelled (numerically numbered and serial number recorded) and recorded in an Excel file/spread sheet
- SIM cards inserted into each phone
- SIM card number and corresponding phone number recorded in Excel spread sheet
- Phone access is restricted on each phone and phone numbers inserted into contacts
- Phone packs prepared
- Phones are charged
- Phones allocated to each ID

### PARTICIPANT ADMINISTRATION

- Allocate at least one hour for the pre-test survey and phone handover
- Upon arrival, participants are checked against a survey list (to ensure consent has been received) and given their ID number
- Participants complete the pre-test (either online via PC/Laptop, or using an equivalent paper/pencil survey)
- Participants are instructed on their use of the iPhone, including restrictions, and loss or theft procedures.
- Participants are allocated a phone based on their ID number
- The ESM survey texts begin
- Participants are sent a text message for each survey time point, each text contains a unique survey link to the SurveyMonkey survey. Participants need to be connected to the internet to complete the survey
- Example text message to student: "Hello! Please click on the following link to complete the survey [www.....](#)"
- Participants are sent a reminder text to complete the survey at each time point
- At the end of the survey period (seven days), participants return their phone pack to the researcher
- Participants complete their post-tests using their ID number
- Phones are checked off the phone register list
- Absent participants need to be followed up by the staff to organise phone return
- SIM cards are removed from all phones and destroyed (can be scratched out or kept in a locked draw- researchers should consider best practice in line with their university ethics committee).
- Phone is returned to factory settings and prepped for the next round of participants

### School Days Only

- AM: Participants drop their phone off to the researchers before the commencement of school classes, they can request mobile applications to be added to the phone at this time
- Recess & Lunchtime: Participants can pick up their phone during scheduled recess and lunch breaks to use the phone and complete the lunchtime survey
- After school: Participants collect their phone from the researchers and take home with them for personal use and after school, dinner and night time survey completion



## **FAQ'S, TIPS AND TROUBLESHOOTING**

### ***How do the phones connect to the internet?***

Phones use pre-paid data, loaded on the phone by the researchers. We provide young people with 250MB of data. Note: we have found this amount to be sufficient for most young people; however, young people will rapidly exceed their data limit if they do the following;

- Download high definition photos and videos. Note: viewing photos and videos from Facebook is data intensive.
- Go on YouTube
- Stream music (250MB allows for 1 hour of streamed music)
- Do not turn off mobile data while using gaming apps.

Because of these reasons we have chosen a data plan that allows FREE social networking. This means that anytime young people use SNS like Facebook, they will not be charged any data so it is unlimited. We also encourage young people to use WiFi when possible.

### ***Are the smartphones reused? If so, how do you protect participant data?***

- All smartphones are returned to factory settings when they have been returned to the researcher and are reused for the next round of participants.
- At no times do researchers look at participants' personal information they put on their phone.
- Survey data will never be stored on the phone as it is stored on the SurveyMonkey server.
- Young people are encouraged to put a passcode lock on their phone, to protect their privacy. They may however have to take this passcode off if the researcher needs to troubleshoot the phone, and indeed when the phone is returned.
- Phones can be automatically locked remotely if lost/stolen so a stranger cannot access participants' personal data.

### ***How do we prevent young people' spending money on the phones?***

- Each phone is synced to the same iTunes account that is tied to the researchers credit card information. For this reason, the profile descriptions discussed above also include;
  - No in-app purchasing
  - No FaceTime; this uses too much data
  - No access to the iTunes store
- All 25 iPhones are synced to the same iTunes account, owned and operated by the researcher off their field laptop. The reasons for having one iTunes account;
  - If the phone becomes lost or stolen, the researcher can locate the phone using the Find My iPhone App.
  - Apps can be stored on the iTunes library, so that an app can be downloaded once but deployed to multiple phones (saves downloading an app multiple times).
  - Survey links are sent to the phone via text message. Participants are instructed to click on the link to access the online survey. Young people are provided with internet data on their phones so that they are able to access the online survey. We also ask young people to connect to their home WiFi network to complete the surveys (if available) to limit the amount of data used on the pre-paid credit.

### ***If the Phones are synced to a single account, how do you stop information from being shared across all the phones and participants?***

Yes the phones are synced, but information sharing can be prevented by stopping;

- Contact , mail, calendar, reminders, safari, notes and KeyChain sharing. Go into Settings → iCloud and manually switch them off.
- iMessage sharing

***What happens if the phone is lost or stolen?***

**Loss and theft procedures**

- Find My iPhone application. Phone is located on a map using GPS and remotely disabled. Phone must be logged into iCloud for the application to work. Phone will show up as 'offline' if switched off or has not internet access, but can still be disabled.
- Police report (see above). Ethical considerations around giving a participants name to the Police and possibly implicating them in illegal activity. Therefore, best to have the parent make the police report.