SOUTH AUSTRALIAN
DIGITAL YOUTH SURVEY

RESEARCH REPORT:
YEAR 4 RESULTS

Report Authors:
Katie Logos, Rachael Ashwood, Russell Brewer, Tyson Whitten, Jesse Cale, Thomas Holt and Andrew Goldsmith

Please cite this report as follows:
Logos, K, Ashwood, R, Brewer, R, Whitten, T, Cale, J, Holt, T and Goldsmith, A (2022). *South Australian Digital Youth Survey Research Report: Year 4 Results*. Adelaide: University of Adelaide.

Website: https://digitalyouthresearch.org/survey
Email: digital.research@adelaide.edu.au
Telephone: +61 8 8313 5633

TABLE OF CONTENTS

INTRODUCTION

The South Australian Digital Youth Survey (DYS) is a world-first longitudinal project exploring how adolescents use digital technology, and how this use changes over the course of adolescence. The project examines the links between how adolescents use technology and pathways into cyber risk-taking. In studying these links, this project seeks to identify the *technical*, *social*, and *individual* circumstances by which adolescents get drawn into cyber risk-taking. Understanding more about these circumstances will inform the development of prevention measures to mitigate such risk.

To accomplish this task, the DYS involved a longitudinal paper-based survey of a cohort of South Australian Year 8 students commencing in 2018. A total of 18 government schools from the Adelaide Metropolitan Region (i.e. located within 100 kilometres of the CBD) have participated in the project, with 1,887 participants completing Wave 1 in 2018, 1,251 participants completing Wave 2 in 2019, 1,193 participants completing Wave 3 in 2020, and 970 participants completing Wave 4 in 2021. Data collection for the project has now been finalised, and this research report presents results from all four waves of the survey, when participants were in Year 8 to Year 11. For a valid comparison of changes in technology use and risk-taking across the years, we report on only those participants who completed all four waves of the survey (N = 618[1]).

[1] Note: Sample sizes per analysis vary due to missing responses for select questions.

Snapshot of the DYS findings:

- Participants demonstrated considerable variation in the types of devices they used, as well as the time spent using them.

- Most participants possessed basic to intermediate technical skills.

- Participants frequently engaged in routine tasks online such as using social media and sharing images, and spent less time engaging in specialised tasks such as coding.

- Almost 90% of participants engaged in at least one form of cyber risk-taking activity, the most common being viewing violent or hateful content online, and digital piracy.

- Engagement in most forms of cyber risk-taking activities increased as participants aged, with this often peaking at Wave 3 when they were in Year 10. Changes in engagement varied over the waves depending on the type of activity – with the greatest acceleration in activities such as sexting and viewing violent content as participants aged.

- The key variables associated with cyber risk-taking were: engagement in physical risk-taking (e.g., violence, substance use, theft), the frequency of engagement in routine (e.g., emailing, watching videos) and specialised tasks (e.g., coding) while online, spending increased amounts of time online and spending that time communicating with others or being physically alone, being male, low self-control, and compulsive internet use.

PROJECT SAMPLE CHARACTERISTICS
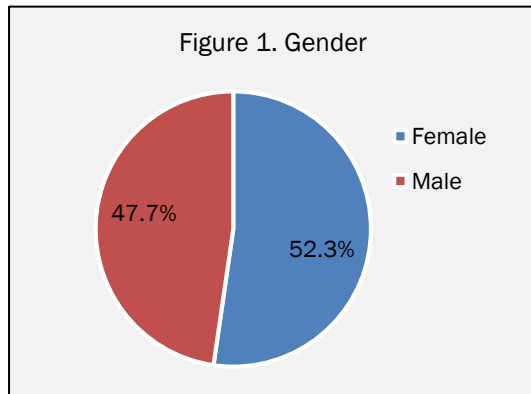

Figure 1. Gender

Gender

Figure 1 shows that the sample of participants who completed all four waves of the survey was evenly distributed, with males constituting 47.7% and females constituting 52.3% of the sample.

Ethnicity

Figure 2 shows that over two thirds of participants reported Caucasian ethnicity (73%), 17.2% reported Asian ethnicity, while the remainder of the sample reported Mediterranean (3.3%), Middle Eastern/Arab (2%), African (1.6%), Aboriginal and/or Torres Strait Islander (1.6%), Latino/Hispanic (1%) or Pacific Islander (0.3%) backgrounds.

Figure 2. Ethnicity
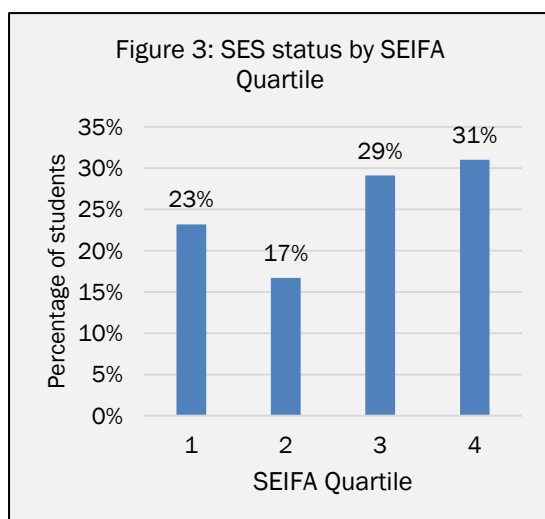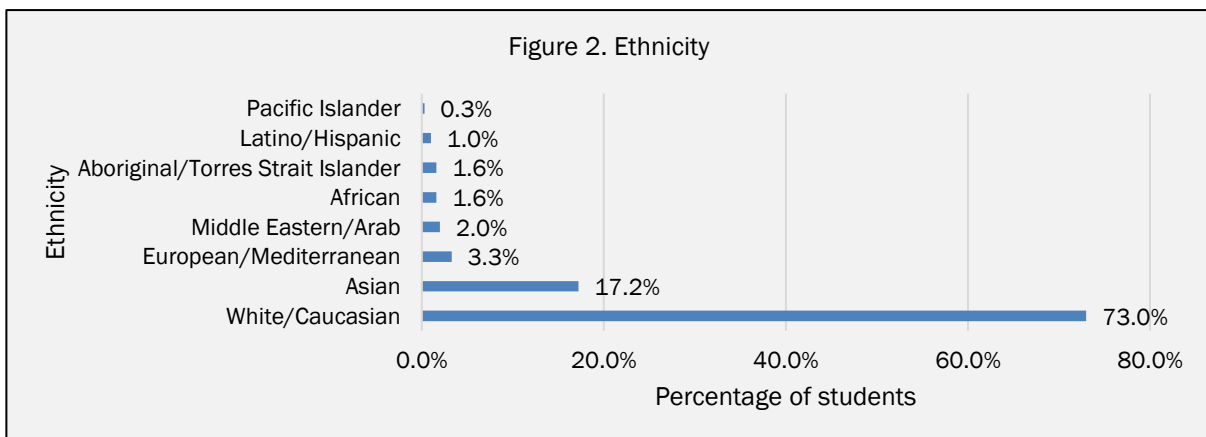
Socioeconomic Status

Figure 3: SES status by SEIFA Quartile

Figure 3 represents the participants' socio-economic status as determined by data from the Australian Bureau of Statistics' *Socioeconomic Indexes for Areas* (SEIFA). SEIFA indexes the average income and employment status of individuals living within geographical areas defined by postcode. SEIFA quartiles were derived from the 2016 Australian Census, and range from most disadvantaged (Quartile 1) to least disadvantaged (Quartile 4). While the results demonstrate full coverage of SES distribution, it is skewed slightly left toward Quartiles 3 (29%) and 4 (31%) compared to Quartiles 1 (23%) and 2 (17%).

KEY RESULTS FROM THE FOUR YEARS OF SURVEY DATA

Understanding how adolescents use digital technologies

Figure 4 shows the proportion of participants reporting daily usage of digital devices from Wave 2 (when students were in Year 9) to Wave 4 (when students were in Year 11)[1]. The majority reported using a laptop or tablet, almost all participants used a smart phone by Wave 4, and a smaller proportion used a desktop computer and gaming console. Thus, participants were quite well connected to internet-enabled devices on a daily basis, and this is supported by an average time of approximately 6-8 hours that participants reported spending on the internet each day (Wave 2 = 6.46 hours, SD = 3.03; Wave 3 = 7.50 hours, SD =

Figure 4. Device Use

3.20; Wave 4 = 7.73 hours, SD = 3.18). There was an increase in reported hours spent online as participants aged from Year 9 to Year 10, but no difference in the types of devices used – which remained consistent from Years 9 to 11.[2]
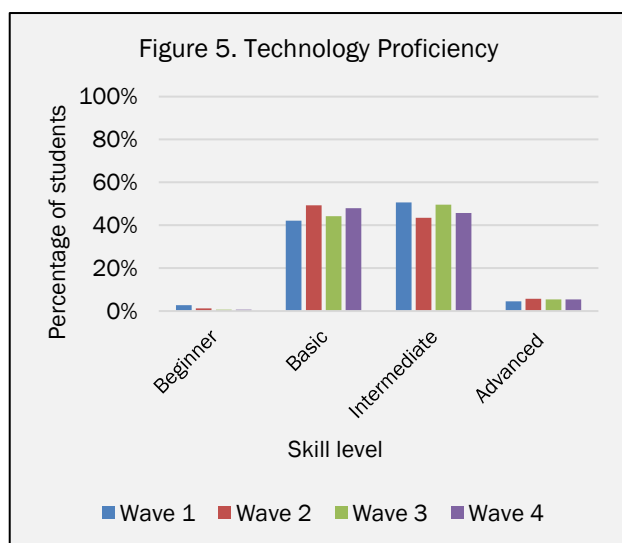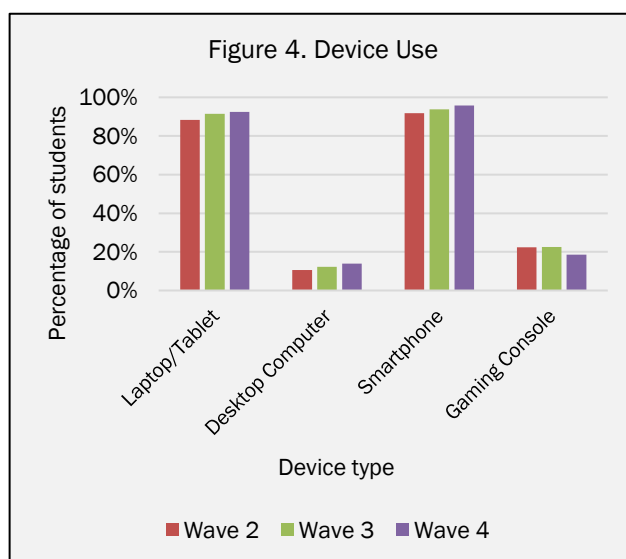
Figure 5. Technology Proficiency

Figure 5 depicts the technical skills of participants, who were asked to rank their level of comfort and ability to perform various technical functions using software and hardware. Participant responses were categorised into four options. A participant was listed as a 'Beginner' if they indicated they did not use computers or mobile devices unless they absolutely had to. Participants with 'Basic' proficiency used the internet and common software but did not feel comfortable fixing their own device. 'Intermediate' users were participants who indicated that they could use a variety of software and could also fix *some* computer/device problems they run into. Finally, 'Advanced' participants felt comfortable undertaking particularly complex tasks such as using operating systems like Linux and other advanced software in addition to fixing most computer/device issues they run into. Overall, technical proficiency remained consistent across all waves as participants aged. Figure 5 shows that the majority of participants reported having basic to intermediate skills, a very small proportion reported only beginner skills (<3%), and a small proportion reported advanced skills (~5%).

---

[1] Wave 1 data were excluded for device use as the question was structured differently for that wave and was therefore not valid to compare those results with subsequent waves where the question was revised.
[2] The changes in hours online from Wave 2 to 3 was statistically significant at an alpha level of 0.05

Understanding adolescent online engagements

Figure 6 shows the average amount of time that participants spent engaging in two broad types of online activities. These activities were categorised into: (1) *routine tasks* (e.g. sending and receiving emails, instant messaging, browsing social media such as Facebook, watching videos and movies, viewing images outside of social media, using cameras to take photos or record videos, sharing photos and videos on social media websites and listening to music); and, (2) *specialised tasks* (e.g. creating websites, file sharing, coding, posting on online forums, banking, using anonymisation software, online gaming). Frequency of engagement in the tasks was measured on a five-point Likert scale ranging from 0 = Never to 5 = Several times a day. The results show that participants reported spending significantly more time engaging in routine tasks compared to specialised tasks across all waves. Engagement in routine tasks was quite frequent (occurring several times a week to once a day), whereas specialised tasks occurred, on average, less than weekly. The frequency of engagement across both types of tasks increased from when participants were in Year 8 to Year 9, but then remained consistent across subsequent waves.[3]

Figure 6. Frequency of Online Activities
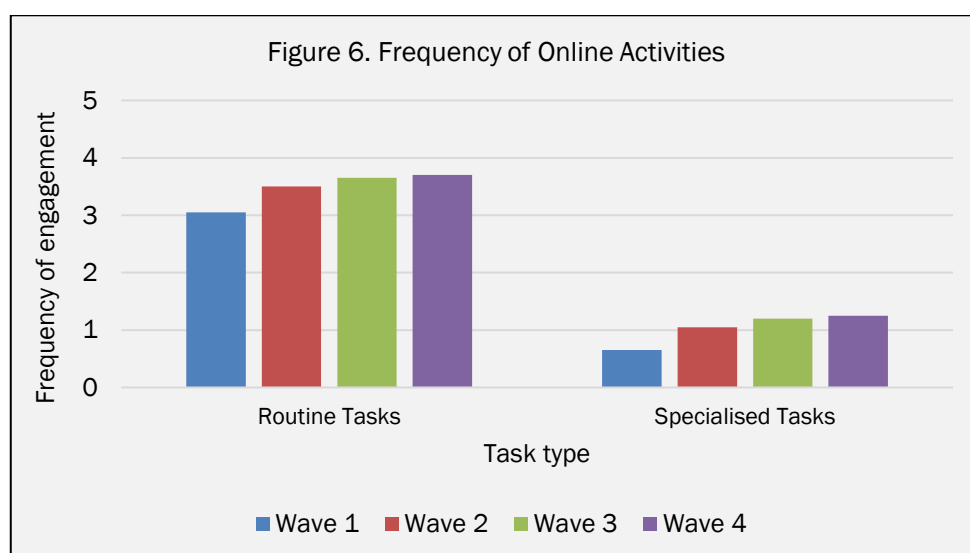
Understanding adolescent cyber risk-taking

Figure 7 shows the proportion of participants who reported engaging in different types of cyber risk-taking across each wave. The labels on the x-axis represent a range of cyber risk-taking activities. Overall, there was an increase in engagement across the majority of cyber risk-taking activities as participants aged, often peaking at Wave 3 when they were in Year 10. Looking broadly at the proportion of participants engaging in *any* form of cyber risk-taking activity, this has consistently increased from 80.8% at Wave 1 to 84.7% at Wave 2, 90.3% at Wave 3, and then flattening out at 89.6% at Wave 4. For each specific type of cyber risk-taking activity there was variation in the degree to which engagement increased across the waves, and how that related to previous engagement – this is examined further below.

---

[3] Increase task frequency from Wave 1 to 2 was statistically significant at an alpha level of 0.05

Figure 7. Engagement in Cyber Risk-Taking by Type
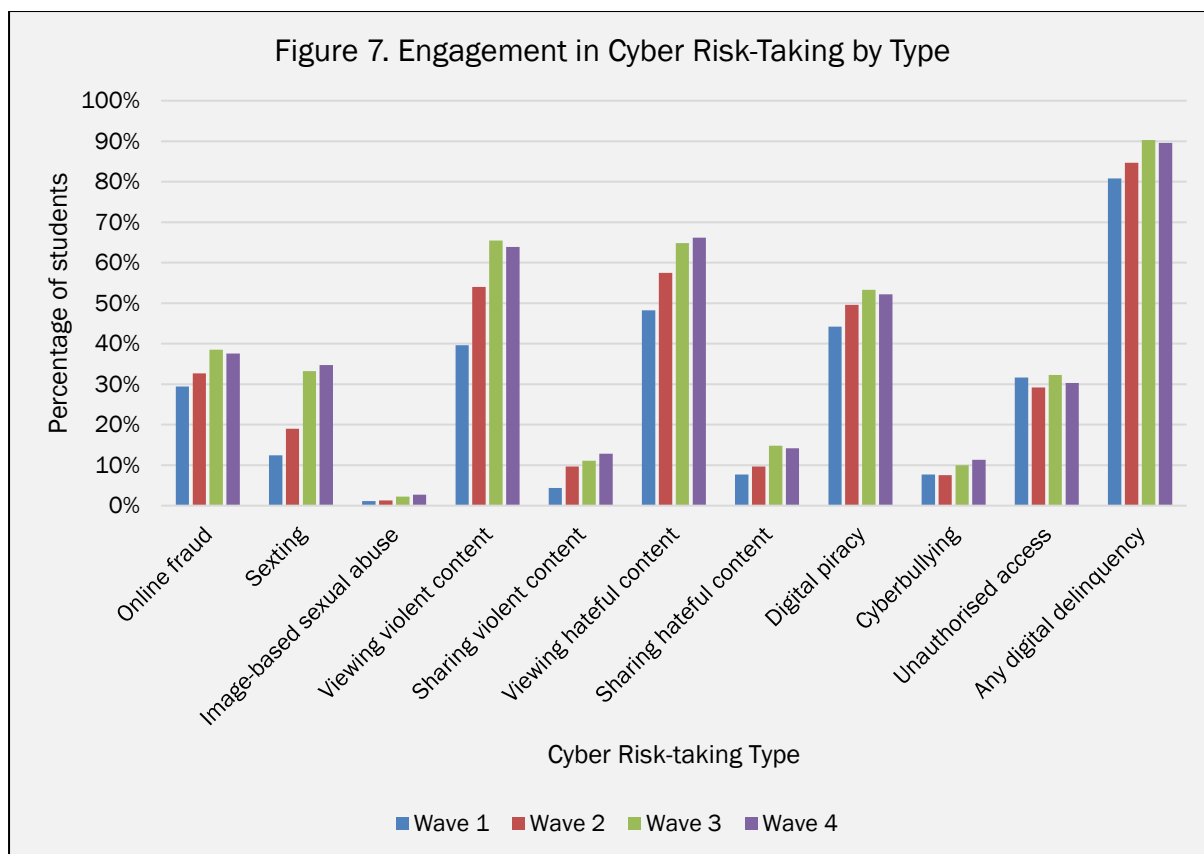
Online fraud refers to behaviours such as lying about one's identity, buying and selling items illegally, and tricking another person or business into providing money, goods or services. Approximately 30-40% of the sample were engaged in this behaviour, with a significant increase in engagement from Wave 2 to Wave 3. An odds ratio analysis revealed participants were up to 7 times more likely to engage in this behaviour at Wave 4 if they had engaged in it previously.

Sexting refers to participants' experiences with seeing sexual content of someone they know, as well as sharing sexual content of themselves. The proportion of participants engaging in this behaviour increased from 12.4% at Wave 1 to 19.0% at Wave 2, then escalated to 33.2% in Wave 3 which remained consistent with 34.7% at Wave 4. Participants were approximately 6 times more likely to engage in this behaviour at Wave 4 given previous engagement.

Image based sexual abuse refers to sharing sexual content of someone else without their consent. The prevalence of this behaviour was low, with consistent rates of engagement across all waves (ranging from approximately 1-3%). Participants who engaged in this behaviour previously were up to 16 times more likely to engage in this behaviour again at Wave 4.

Viewing violent content refers to viewing text, images or videos online that involve violence against individuals, as well as groups of people. The proportion of participants engaging in this behaviour consistently escalated from 39.6% in Wave 1, to 54.0% in Wave 2, and 65.5% in Wave 3, where engagement then remained stable at 63.9% in Wave 4.

5

Participants who engaged in this behaviour previously were up to 7 times more likely to engage in this behaviour again at Wave 4.

Sharing violent content refers to sharing violent text, images or videos online. The proportion of participants engaging in this behaviour was low, with 4.4% in Wave 1 increasing to 9.7% in Wave 2, where engagement then remained stable across subsequent waves. Participants were approximately 5 times more likely to engage in this behaviour at Wave 4 if they had engaged in it previously.

Viewing hateful content refers to viewing text, images or videos online that make fun of, or discriminate against, an individual or group of people because they are different. Similar to the viewing of violent content, the proportion of participants who engaged in this behaviour escalated across the first three waves, where engagement then remained consistent across Waves 3 and 4 – where approximately 65% of participants engaged in this behaviour. Participants were up to 5 times more likely to engage in this behaviour at Wave 4 if they had engaged in it previously.

Sharing hateful content refers to the sharing of discriminatory text, images or videos online. The proportion of participants engaging in this behaviour was consistent from 7.7% in Wave 1 to 9.7% in Wave 2, it then escalated to 14.8% in Wave 3, and remained stable at 14.2% in Wave 4. Participants were approximately 5 times more likely to have viewed or shared this discriminatory content at Wave 4 if they had done so previously.

Digital piracy refers to the downloading and sharing of copyrighted materials such as music, videos and software. There was an increase in the proportion of participants engaging in this behaviour from Wave 1 to Wave 2, with engagement then remaining fairly consistent. Approximately 50% of all participants engaged in this form of cyber risk-taking by Wave 4. Participants who engaged in this behaviour previously were approximately 9 times more likely to engage in it at Wave 4.

Cyberbullying and harassment refers to searching for and/or sharing harmful content to make others feel bad or scared. Approximately 10% of participants engaged in this behaviour across all waves, with those who reported previous engagement being up to 8 times more likely to engage again at Wave 4.

Unauthorised access refers to accessing other people's devices or accounts without their permission. There was no significant change in engagement in this behaviour across the waves, with approximately 30% of participants engaging in this behaviour. Participants who engaged in this behaviour previously were approximately 7 times more likely to engage in this behaviour at Wave 4.

In short, the results suggest a large degree of continuity in cyber risk-taking behaviour among a small cohort of participants.[4] However, it is important to note that while these overall prevalence rates may appear quite high, the frequency of engagement was usually quite low and episodic. That is, on average, most cyber risk-taking activities were occurring less than weekly.

---

[4] The increases in cyber risk-taking at the waves indicated within the text were statistically significant across all online activities at an alpha level of 0.05.

Identifying factors associated with cyber risk-taking

Across each wave, there were various key factors associated with the likelihood of engagement in cyber risk-taking. The most significant factor, consistently across all waves, was engagement in risk-taking behaviours in the real world (e.g. physical violence, substance abuse, theft). As shown by the odds ratios in Figure 8, at Wave 1 and Wave 2 those who engaged in physical risk-taking were approximately 6-7 times more likely to also engage in cyber risk-taking. These odds doubled at Wave 3, with those engaging in physical risk-taking 13 times more likely to also engage in cyber risk-taking, with this then decreasing in Wave 4 to a likelihood consistent with the first two waves.

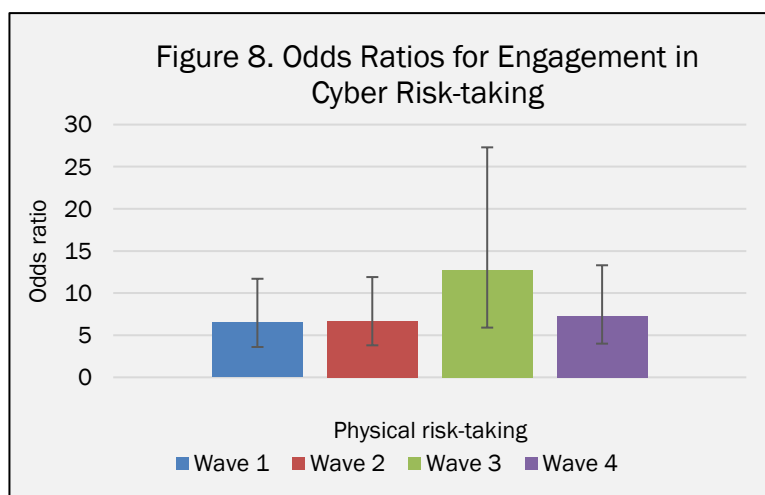Figure 8. Odds Ratios for Engagement in Cyber Risk-taking

Figure 9 highlights the great prevalence of engagement in physical and cyber risk-taking activities within the sample across the waves, and the overlap between the two behaviours. A very small proportion of students reported engaging in *only* physical risk-taking activities (1-3%), whereas the vast majority of students who reported engaging in physical risk-taking *also* reported engaging in cyber risk-taking, with this engagement in both forms increasing over the waves (from 36% to 65% of all participants). In comparison, a number of participants reported engagement in cyber risk-taking alone, without engagement in physical risk-taking (from 45% of all participants in Wave 1 to 25% in Wave 4). Approximately 7 to 17% of students did not engage in either form of risk-taking activities.
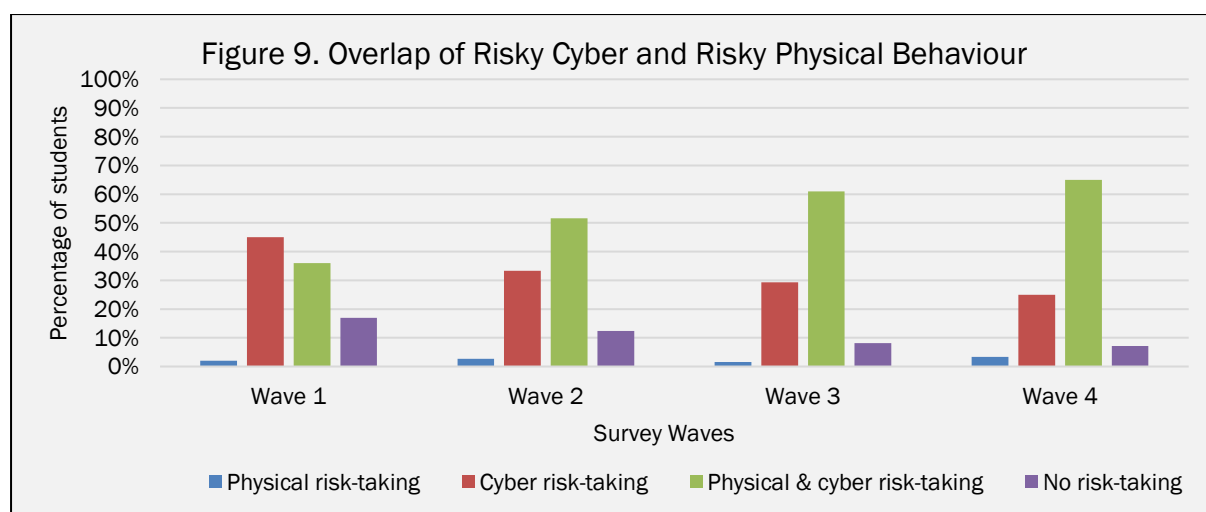

Figure 9. Overlap of Risky Cyber and Risky Physical Behaviour

Figure 10 presents the likelihood of participant engagement in *any* cyber risk-taking activity across each wave, as related to a number of key factors, for those participants who completed all four waves of the survey. There were five key factors (in addition to physical risk-taking) that were consistently significantly associated with engagement in cyber risk-taking. Specifically, across all waves, the likelihood of engagement in cyber risk-taking increased by approximately 1 to 4 times when participants more frequently engaged in: (1) routine tasks, (2) specialised tasks, and (3) communication with others online, (4) had lower self-control, and (5) used the internet compulsively. Over the waves there were fluctuations in the likelihood of engagement in cyber risk-taking as related to each of the key factors. In particular, the pattern of odds ratios presented in Figure 10 suggest that routine and specialised task engagement were particularly pertinent in Wave 1 compared to subsequent waves. Additionally, there were several key factors that were associated with engagement in cyber risk-taking at only some waves. For example, at Waves 1, 2 and 4, being male and spending more time physically alone while online were associated with a higher likelihood of engagement in cyber-risk taking, and at Waves 1 and 2, spending more time online was also a significant factor. Across all waves, socio-economic status, ethnicity and technical skill level did not significantly relate to engagement in cyber risk-taking.

Figure 10. Odds Ratios for Engagement in Cyber Risk-taking

Note. * = a significant key factor   Wave 1   Wave 2   Wave 3   Wave 4
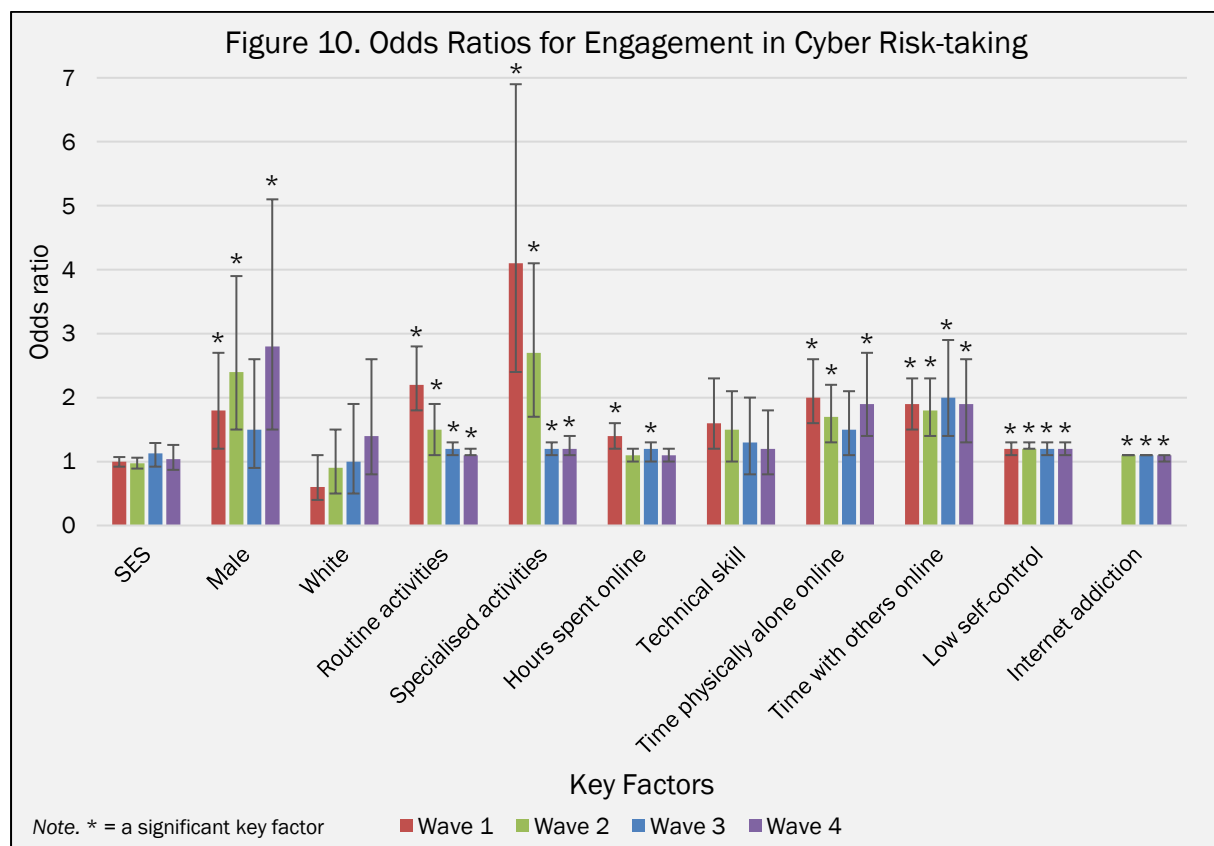
FUTURE DIRECTIONS FOR THIS PROJECT

The DYS provides a useful snapshot of the emergence and development of cyber risk-taking behaviour by South Australian adolescents from Years 8 to 11. Our research demonstrates quite prevalent and accelerating rates of engagement across various forms of cyber risk-taking activities from Year 8, but with the frequency of engagement often episodic and involving less serious forms of behaviour. Additionally, the findings highlight several time-stable risk factors that were associated with the likelihood of engagement across a range of different forms of cyber risk-taking activities. The efficacy of cyber risk-taking interventions is reliant on the identification of factors which have been empirically shown to correlate with the problematic behaviour. Therefore, rather than the implementation of universal prevention strategies, the outcomes of this research provide a valuable evidence base for the design of strategies that target specific groups of young people who are potentially at a greater risk of engaging in cyber risk-taking. For example, our results highlight this may be achieved through identifying those students who are engaging in certain patterns of digital engagements (i.e., spending more time online, physically alone and connecting with others online, engaging in certain routine or specialised activities), have certain personal characteristics (i.e., male, lower self-control, addiction to the internet), or engage in physical risk-taking.

To provide a stronger evidence base for the development of targeted interventions, we aim to build upon this research through examining other individual and psycho-social factors that may contribute to engagement in cyber risk-taking, and examine how these factors may differ depending on the different forms of cyber risk-taking activities. For example, the DYS also measured students' psychological strengths and difficulties, their integration within the community, and their association with other risk-taking peers. To stay up-to-date with our current research being carried out to examine these factors, please visit our website: https://digitalyouthresearch.org/survey

We have several upcoming DYS research outputs for 2022 on the following topics:
- Examining the relationship between mental health and cyber risk-taking
- Exploring the relationship between physical risk-taking and cyber risk-taking
- Understanding how autistic traits may relate to cyber risk-taking
- Investigating how technological opportunities and social factors may shape adolescent cyber risk-taking
- Identifying risk factors that drive different trajectories of cyber risk-taking

Learn more about other current projects being carried out by the Digital Youth Lab:
https://digitalyouthresearch.org/survey
- *Enhancing Tolerance and Diversity Online.* This research project explores young people's encounters with offensive and discriminatory content online. The project is particularly interested in the types of encounters young people have, how young people make sense of this content and the individual, social and technological factors which influence their response.
- *Youth Cybersafety and Digital Citizenship Project.* This research project will examine how young people use technology to engage in cyberbullying online. The project is particularly interested in how beliefs and attitudes held by young people shape the nature and extent of engagement in cyberbullying. An examination will also be

conducted into youth awareness of, and exposure to, previous cybersafety education and social media design features which discourage harmful behaviours online.

- *Adolescent Misrepresentation Online.* This research project examines how and why adolescents misrepresent themselves online. In particular, this project considers adolescent experiences of circumventing and accessing online 'adult-based platforms' (e.g. a platform which requires users to be of, or above, the age of 18-years-old, including online adult dating sites and subscription-based accounts).