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Co-designing COMPASS, a practice-ready framework for conversations about problematic screen use and anxiety: a practitioner-only feasibility and acceptability study

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Additional Declarations: The authors declare potential competing interests as follows: The research team is involved in co-designing the COMPASS conversation guide, which may create a perceived professional or intellectual interest in its evaluation. COMPASS is not commercialised. This interest has been formally disclosed through QUT's Conflicts of Interest and Disclosures system (#DOI-260708004). QUT manages it in accordance with its Conflicts of Interest Policy and Code for Responsible Conduct of Research, including institutional oversight, documentation, and ongoing review.

Abstract

Background. Anxiety is highly prevalent among young Australians. Digital environments are embedded in everyday life, but the clinically relevant issue is not just screen use; it is when patterns such as repeated checking, reassurance seeking, difficulty disengaging, avoidance, social comparison, or sleep disruption become problematic and may contribute to anxiety or interfere with daily functioning. Once practitioners and families notice these warning signs, they need practical guidance to understand what is happening, start a safe conversation, and decide what to do next. COMPASS is a mechanism-informed conversation guide designed for this practice gap.

Objective. To examine the feasibility, acceptability, safety and role-appropriateness of an early COMPASS conversation guide for practitioners responding when screen use may be becoming problematic or causing anxiety, and to identify changes required before co-design with children, young people and families.

Methods. This mixed-methods, practitioner-only co-design study was conducted online in Australia. Practitioners reviewed and contributed to the development of COMPASS, a three-step conversation guide: CONNECT to open the conversation, NOTICE to explore the function, context and impact of digital use and anxiety, and RESPOND to guide next steps. Participants completed a structured survey, with optional interviews and a co-design workshop. We summarised quantitative data descriptively and analysed qualitative data using reflexive thematic analysis. We integrated findings into a co-design change matrix. QUT granted ethics approval (#11344).

Results. Thirty-eight eligible practitioners completed the online survey, and eight practitioners contributed to recorded co-design qualitative interviews. The common concerns included difficulty disengaging from screens (69%), anxiety or worry (61%), avoidance (50%), and social comparison or reassurance seeking (50%). The key barriers included concern about sounding judgmental or anti-technology (58%), blaming young people or families (47%). The qualitative findings highlighted the importance of first establishing connection and trust, and of using appropriate timing and non-judgemental language when raising concerns. Practitioners also stressed that screen use needed to be considered in the context of the young person's circumstances. They wanted clear language, practical guidance applicable across professional roles, attention to cultural safety, and brief training with opportunities to practise using the guide. Overall, 78% considered the COMPASS Conversation Guide feasible and acceptable for use in their role with brief training, and 96% supported further development and preliminary testing.

Conclusions. This study provides a first step in co-designing and developing a shared, practical approach to recognising and responding when screen use may be interacting with anxiety. Further co-design with children, young people and families will inform refinement and future implementation.

1. Introduction

Anxiety is a common and growing health concern in Australia. In 2020–2022, 17.2% of Australians aged 16–85 experienced a 12-month anxiety disorder, representing approximately 3.4 million people (1, 2). The burden was substantially higher among young people and some population groups, affecting 31.8% of 16–24-year-olds, 40.4% of females aged 16–24, and 50.3% of LGB+ Australians (1, 2). At the same time, digital environments are now embedded in childhood and young adulthood, and a growing body of evidence links problematic patterns of digital use with anxiety and poorer mental health (3–6). These trends make it increasingly important to identify modifiable processes that may contribute to anxiety and to provide practical support for the adults who respond to them.

Problematic patterns of digital use, including difficulty disengaging, repeated checking, reassurance seeking, social comparison, avoidance, sleep disruption and distress linked to online interactions, have been associated with anxiety, stress and poorer mental health (3, 7–13). At the same time, virtual connection can meet needs for companionship and provide networked support (13, 14). Digital use can also shape identity, with risks arising when a young person's sense of self becomes contingent on online reactions. These identity processes appear to shift with age, with a greater focus on comparing abilities in younger adolescents and comparing opinions in older adolescents (15). This highlights the need to consider the function, impact and context of digital use, rather than focusing on exposure alone. Total screen time alone cannot explain why a particular pattern is distressing, what function it serves, or whether it is maintaining anxiety.

For young people who are prone to anxiety, digital behaviour may become part of familiar anxiety-maintaining cycles. Repeated checking or reassurance seeking can act as a safety behaviour, providing short-term comfort while reinforcing difficulty tolerating uncertainty (9, 16). Online visibility, feedback and comparison can intensify fear of negative evaluation and negative self-appraisal (13, 17). Avoidance and continuous access can reduce distress in the moment through distraction while increasing reliance on the behaviour over time(16). These mechanisms are individual- and context-dependent, so the same amount of screen time may have very different meanings for young people.

This creates a practical gap for families, educators, wellbeing staff, youth workers and clinicians. Warning signs may be visible, but recognising a concern does not tell an adult how to raise it without blame, how to ask questions that uncover the behaviour's function, how to decide whether anxiety is being maintained, or when further support, referral, safeguarding, or clinical assessment is warranted. Existing guidance is often dominated by broad screen-time messages or by resources focused on specific online risks. Practitioners have reported that digital technology is important to young people's mental health but is not consistently discussed in consultations and that specific training and guidance are limited (18).

Several expert recommendations exist for conversations with young people about the harms of device use. For example, the American Academy of Pediatrics provides a conversational guide organised by topic (e.g. 'Media and technology interfering with sleep' and 'Checking in on unwanted content'), including a downloadable set of conversation starter cards (19). Pre-existing interviews are planned for LachetonPhone, designed to discuss screen habits and health impacts with adolescents in a French primary care population (20). There is no shared pathway for the point at which problematic screen use

may be interacting with anxiety, and someone must decide what the behaviour means, how to discuss it and what to do next. Existing resources address important but different parts of this landscape. Orygen's ScrollSafe (21) supports recognition and management of problematic social media use; Headspace (22) and Beyond Blue (23) provide digital wellbeing and mental-health guidance; Black Dog Institute's Teens & Screens (24) provides evidence on how different patterns of adolescent screen use relate to mental health; the eSafety Commissioner provides professional learning and parent resources for online safety (25). Butterfly Foundation's BodyKind (26) addresses body image and social-media literacy; and #chatsafe (27) supports safe communication about suicide and self-harm.

Experience with routine growth assessment (RGA) in NSW provides a useful implementation precedent. RGA demonstrated that identifying a sensitive health concern and having the conversation that follows are different tasks. Although most clinicians reported confidence measuring height and weight, confidence was lower when discussing findings with children and families, particularly where the conversation could cause offence or affect the working relationship(28–30).

The barriers identified in RGA included uncertainty about how to communicate sensitively, professional scope, referral pathways and how to respond after a concern was identified (28–30). Implementation experience also highlighted the value of practical communication support and rehearsal. The relevant lesson for problematic digital use is specific: recognition needs to be accompanied by language, skills, role clarity and response pathways that help practitioners move from noticing a concern to understanding and acting on it. Problematic digital use presents an additional challenge because no single threshold matches a growth reference range. A behaviour can only be understood in relation to its context, function and impact. A young person who repeatedly checks messages may be seeking reassurance, trying to reduce uncertainty, maintaining social connection, or several of these at once. A mechanism-informed conversation is therefore needed to determine whether and how the behaviour is interacting with anxiety rather than treating frequency or duration as the problem.

On reviewing this literature, no conversational guides focused on the mechanisms that may exacerbate and prolong anxiety, nor do they appear to be co-designed with both practitioners and young people. COMPASS was developed to address this gap. It is a brief, mechanism-informed conversation-and-response guide organised around three steps. NOTICE supports adults to recognise warning signs that digital use may be contributing to anxiety or interfering with everyday life. CONNECT provides a calm, non-judgemental way to explore the context, function and impact of the behaviour and the anxiety processes that may be involved. RESPOND clarifies what the adult can do within their role, including support, family involvement, handover, safeguarding, referral or clinical escalation where required. COMPASS does not diagnose problematic digital use, set screen-time limits or provide treatment.

Because these conversations occur across education, community and clinical settings, COMPASS requires co-design rather than development by researchers alone. Language that appears neutral may feel blaming to a young person; a response pathway that works in a clinical service may not fit a school or community setting; and a narrow anti-technology framing may obscure why a young person continues a behaviour despite its costs. Consistent with the team's co-design previous research (11, 31), the first

phase of worked with practitioners as co-design partners who could identify practical, relational, and implementation risks before testing the guide with children, young people, and families.

This study reports the first practitioner-and-clinician co-design phase and provides preliminary evidence for subsequent implementation research. We examined how often practitioners encounter warning signs relevant to problematic digital use and anxiety; the barriers they experience when raising these concerns; the clarity, usefulness, safety and role-appropriateness of the early NOTICE, CONNECT and RESPOND framework; and the training, cultural, safeguarding, referral and implementation requirements that should be addressed before real-world testing. The study aimed to assess the practice gap practitioners experience when discussing problematic screen use and anxiety with young people, determine the acceptability and feasibility of the COMPASS conversation guide for use in practice, and identify refinements needed before the next phase of development and testing.

2. Methods

2.1 Design and reporting

This exploratory mixed-methods co-design study was conducted online with Australian practitioners and professional stakeholders. It combined a structured online survey with optional qualitative follow-up through semi-structured interviews and a small-group co-design workshop. The study focused on the practice problem that arises after an adult notices signs that digital use may be becoming problematic or contributing to anxiety, distress or interference with everyday functioning.

The methods addressed different aspects of the research question rather than comparing individual-level responses. The survey examined practitioners' experiences of problematic screen use and anxiety in practice, including how often these concerns arose, the signs they observed, barriers to discussing them, and their views on the clarity, usefulness, relevance and safety of the draft COMPASS Conversation Guide. The interviews and workshop provided more detailed insight into practitioners' experiences and the reasons behind their views, and helped identify changes needed to improve the guide. This was a formative co-design study focused on developing and refining the COMPASS Conversation Guide. The study assessed practitioner needs, acceptability and feasibility, and was not intended to evaluate clinical effectiveness or changes in anxiety or digital behaviour.

2.2 Participants

Participants were eligible if they were aged 18 years or older and worked with, or supported, children, young people, families, practitioners or relevant organisations. They also needed to be able to complete the study in English, have internet access and agree to provide feedback on the draft COMPASS Conversation Guide. The participants included early childhood and early-years professionals; teachers and school wellbeing or student-support staff; counsellors, psychologists, psychiatrists and medical practitioners; youth workers and family or community-service practitioners; university counselling staff;

and people working in workforce development, research, policy or advocacy. No children, young people, students, clients, patients or family members were recruited during this phase.

2.3 Materials

2.3.1 Draft COMPASS Conversation Guide

The study evaluated a two-page draft of the COMPASS Conversation Guide (Fig. 1). The guide was developed for situations in which an adult had already noticed signs that screen use might be contributing to anxiety, distress or interference with everyday functioning. It was not presented as a routine screen-time assessment, diagnostic instrument or clinical treatment protocol.

The draft comprised three components: NOTICE, CONNECT and RESPOND. NOTICE described potential warning signs and anxiety-related patterns that might indicate a need for further conversation. CONNECT provided prompts intended to help practitioners explore the context, function and impact of digital behaviour in a curious and non-judgemental way. RESPOND addressed possible next steps, including role boundaries, family involvement, handover, referral, safeguarding and escalation.

The guide was explicitly presented as an early prototype rather than a finished guide. Participants were therefore asked not only whether the content was understandable and potentially useful, but also what to retain, change, simplify, remove, rename, or add. They were also asked to consider what training, and cultural or developmental adaptation would be required before the guide could be used in practice.

2.3.2 Online survey

The online survey was developed specifically for this formative co-design study rather than as a psychometrically validated instrument. The survey was designed around the study aims and the intended functions of NOTICE, CONNECT and RESPOND. It also assessed key implementation outcomes relevant to an early-stage practice innovation, including acceptability, appropriateness and feasibility. These constructs were drawn from implementation science, which treats them as related but distinct aspects of whether a new approach is likely to be usable in practice(32, 33). The COMPASS survey did not administer the validated Acceptability of Intervention Measure, Intervention Appropriateness Measure, or Feasibility of Intervention Measure developed by (33); rather, these constructs informed the domains considered relevant to evaluating an early prototype.

We developed question wording and response formats using established principles for self-administered questionnaire design, including clear, concise wording; avoiding double-barrelled questions; aligning the construct being assessed with the response options; and reducing unnecessary respondent burden (34). Where participants were asked to make graded judgements, such as the extent to which the guide was useful, clear, or appropriate to their role, we used verbally anchored, ordered response categories. Where appropriate, we used five-category response scales to provide meaningful differentiation between levels of endorsement while remaining straightforward for respondents to interpret and complete.

When the question concerned a specific practical decision rather than a graded underlying construct, we tailored response options to that decision. For example, participants were asked whether handover and safety guidance was appropriate as written, appropriate with some changes, or required substantial revision. The resulting ratings were intended to support formative assessment and identify priorities for refinement. They were not treated as validated psychometric measures or combined into a composite scale.

The survey assessed participants' professional background and practice setting; how frequently screens, online activities or digital environments arose in relation to children's and young people's emotional wellbeing in their setting or practice; warning signs and concerns observed in practice; confidence initiating conversations when a concern arose; and perceived barriers to these conversations.

Participants then reviewed the draft COMPASS Conversation Guide and rated the clarity, usefulness, role-appropriateness, and safety of NOTICE, CONNECT and RESPOND. Closed-response items were complemented by open-text questions so that participants could explain their ratings and recommend changes to wording, anxiety-related patterns, role boundaries, handover, referral, safeguarding, training requirements, cultural safety and potential implementation risks. Participants were also asked whether COMPASS development should continue.

2.3.3 Semi-structured interview and workshop topic guide

A semi-structured topic guide was developed to explore participants' reasoning and practice experiences in greater depth than the survey allowed. The COMPASS conversation guide was organised around three domains: NOTICE; CONNECT; RESPOND; and training, safety and implementation.

Within NOTICE, participants were asked whether the proposed patterns reflected warning signs of problematic digital use and anxiety encountered in their work and whether the proposed anxiety-related mechanisms were understandable and recognisable. CONNECT questions explored whether the proposed prompts could help practitioners understand what the digital behaviour might be doing for a young person, including its context, function and impact, without introducing judgement, blame or an anti-technology stance. RESPOND questions explored what practitioners could appropriately do within their role once a concern had been identified, including family involvement, handover, referral, safeguarding and escalation. The final domain examined training requirements, cultural and developmental adaptation, implementation support, missing concepts and emerging digital practices, including AI-enabled tools.

The conversation guide used open-ended questions and follow-up prompts so that facilitators could explore issues raised by participants and discuss examples from different professional settings. Participants were encouraged to comment freely on the prototype, including what should be retained, changed, removed, renamed, simplified or added. The semi-structured interviews and co-design workshop covered the same core areas, allowing common themes to be examined across the qualitative data while still giving participants scope to raise issues they considered important.

2.4 Procedure

2.4.1 Recruitment and consent

Participants were recruited between 20 July and 31 August 2026 through the research team's professional networks, QUT mailing lists and direct email invitations. No payment or other incentive was offered. Participants could choose to receive a plain-language summary of the findings. The study was accessed through an online Qualtrics link. Before beginning the survey, participants viewed the participant information sheet, completed eligibility screening and provided electronic consent. IP address and geolocation data were not collected. Participants were also asked not to include names or other identifying information about children, young people, families, colleagues, workplaces or services in their responses.

2.4.2 Survey procedure

After providing consent, participants completed questions about their professional background and work setting, followed by questions about their experience of screens, online activities and digital environments in relation to the emotional wellbeing of children and young people. They were also asked about warning signs they had observed in practice, how confident they felt starting conversations when concerns arose, and what made these conversations difficult. Participants subsequently viewed the two-page draft COMPASS Conversation Guide within the survey. They then completed the closed-response ratings and open-text questions relating to NOTICE, CONNECT and RESPOND, including questions concerning clarity, usefulness, role-appropriateness, safety, referral and handover, training, cultural safety and implementation. Participants were then asked whether COMPASS development should continue.

The survey took approximately 10 to 15 minutes to complete. At the end, participants could indicate whether they were interested in a follow-up interview or co-design activity. We collected contact details for follow-up through a separate form and did not link them to individual survey responses.

2.4.3 Semi-structured interview procedure

Participants who expressed interest in the qualitative follow-up were invited to take part in a recorded semi-structured interview or co-design workshop. Eight practitioners took part in semi-structured interviews. The interviews were conducted online using a QUT-approved videoconferencing platform, lasted approximately 40 to 60 minutes and were audio-recorded with consent. At the start of each session, the facilitator confirmed consent to participate and record the discussion and reminded participants not to identify children, young people, families, colleagues, workplaces or services. Participants reviewed the draft COMPASS Conversation Guide and discussed four areas: NOTICE; CONNECT; RESPOND; and training, safety and implementation. Facilitators used follow-up questions where further detail or clarification was needed. The paired format allowed participants to discuss the same core questions while drawing on similarities and differences in their professional experience.

2.5 Outcomes

The primary outcomes were practitioners' views on the usefulness, clarity, safety and relevance of the draft COMPASS Conversation Guide for their role when problematic screen use or anxiety-related

interference was suspected. We also examined suggested changes to the NOTICE, CONNECT, and RESPOND sections, along with requirements for training, professional scope, handover, safeguarding, and referral. Secondary outcomes included survey completion, time taken to complete the survey, participation in optional follow-up activities and the range of professional roles represented. We developed the rating items for this formative study and did not intend them to function as validated psychometric measures.

2.6 Analysis

We analysed the survey data descriptively using SPSS. We reported categorical data as frequencies and percentages, with percentages calculated from the number of participants who responded to each item. For questions where participants could select more than one response, we reported the proportion selecting each option; therefore, percentages do not add to 100%. Given the exploratory nature of the study and the small sample, we did not undertake hypothesis testing or use the findings to estimate prevalence across the broader workforce. We analysed the qualitative data using Braun and Clarke's reflexive thematic analysis (35). The dataset comprised open-text survey responses and transcripts from eight interviews. We transcribed the audio recordings, checked them against the recordings, and de-identified them before analysis. Analysis involved repeated familiarisation with the dataset, initial coding, developing candidate patterns of shared meaning, iterative review against the full dataset, and refining themes and their boundaries.

The analysis followed the proposed COMPASS framework while remaining open to issues that emerged from participants' accounts. NOTICE, CONNECT, RESPOND, professional scope, safety, training and implementation were used as sensitising concepts rather than as fixed coding categories. We retained differing and contradictory perspectives, including instances where participants did not identify the proposed barrier or disagreed about wording, framing or implementation. We refined themes based on how well they captured patterns of shared meaning across the dataset and how clearly they contributed to understanding the safety, feasibility, acceptability, and further development of COMPASS. The team, S.E.B and D.E, led the qualitative analysis and extracted the main themes and exemplar quotations, and this was reviewed/refined with the wider investigator team.

The team agreed on the results from the integrated survey and qualitative findings at the level of concepts and implementation decisions. Because contact details for follow-up participation were collected through a separate form that was not linked to survey responses, individual survey ratings could not be compared with that same participant's later interview or workshop account. Integration therefore focused on convergence, complementarity and tension between the methods rather than within-person change.

2.7 Ethics, privacy and data management

The Queensland University of Technology Human Research Ethics Committee granted ethical approval (#11344). Participation was voluntary. Participants could skip questions, take a break, or withdraw without consequence, and were informed that participation would not affect employment, professional or

organisational relationships, service access, or future collaboration. Research data were stored on QUT's secure Research Data Storage Service with access restricted to authorised investigators. We separated identifiable information from research data and stored any re-identification key in a restricted location. The study did not collect private digital content, social media accounts, passwords, device data, home addresses, income or personal health information unrelated to the research question.

3. Results

3.1 Study participation and qualitative follow-up

Thirty-eight eligible practitioners recorded data in the survey, and eight from this sample took part in recorded qualitative follow-up. The qualitative sample included perspectives from psychology, allied health, education, community services and lived-experience or family-carer peer practice. Because we collected follow-up contact details separately from survey data, we could not link qualitative participants to their individual survey responses.

3.2 Participant characteristics

Respondents represented a broad cross-section of practitioners and professional stakeholders working with children, young people and families. Participants came from six professional groups spanning education and school wellbeing, clinical and mental health practice, youth and community services, and early-years education. Respondents were drawn from four Australian states and included practitioners across early-, mid- and later-career stages. This breadth mattered because COMPASS is intended as a shared starting point for conversations across different professional roles and service settings, rather than as a profession-specific clinical tool.

3.3 Frequency of warning signs, confidence in starting conversations, and barriers to discussion

Participants frequently raised screen use in practice as relevant to young people's emotional wellbeing. Of 38 respondents, 24 (63%) reported that screens, online activities or digital environments arose often or very often in relation to emotional wellbeing, 11 (29%) reported sometimes, and 1 (2.6%) rarely. No respondent selected never. This item describes how often screen use concerns entered practice; it should not be interpreted as an estimate of the prevalence of problematic screen use.

Practitioners also reported warning signs that can be relevant when screen use becomes problematic. The most commonly observed concerns were difficulty stopping or moving away from screens (25/36, 69%), anxiety or worry (22/36, 61%), avoidance of school, tasks, sleep or social situations (18/36, 50%), social comparison, inadequacy, frequent checking or reassurance seeking (18/36, 50%), sleep disruption (17/36, 47%), exposure to distressing content, online conflict or safety concerns (16/36, 44%), and family conflict (14/36, 39%). Five respondents (14%) identified additional concerns, including body image, cyberbullying, gaming, online child exploitation, prolonged dissociation and parents' need for skills to support their children. These reports identify practice concerns rather than diagnostic indicators. Most

respondents reported feeling confident about starting a conversation when they thought a young person's screen use might be contributing to anxiety or affecting their emotional wellbeing. Of the 36 respondents, 18 (50%) were very confident, 16 (44%) were moderately confident and 2 (5%) were not confident.

The main barriers were how to raise a suspected problem without making the conversation itself harmful. Twenty-one respondents (58%) were concerned about sounding judgemental or anti-technology, and 17 (47%) were concerned about blaming the young person or family. Eleven (30%) identified a lack of training or resources, 5 (14%) unclear role boundaries or referral pathways, and 3 each (8%) lack of time or not knowing how to start. Free-text responses also raised concerns about damaging rapport, keeping the young person engaged, managing parental fear or lack of involvement, adults' own digital behaviour, and conversations occurring only after a situation had escalated. These findings suggest that the practice gap begins after warning signs are noticed. Most practitioners felt at least moderately confident initiating discussion. Still, they were more concerned about how to explore potentially problematic use without blame, how to protect trust, and what to do if the conversation identified anxiety, impairment or a safety concern.

3.4 Practitioner evaluation of the draft COMPASS Conversation Guide.

Table 1

Ratings of the draft COMPASS guide. Percentages are of those answering each item.

Item	n	Not	Slightly	Moderately	Very	Extremely
Overall usefulness in setting	28	2 (7%)	7 (25%)	10 (36%)	7 (25%)	2 (7%)
Clarity of the three NOTICE patterns	28	1 (4%)	4 (14%)	6 (21%)	14 (50%)	3 (10%)
Clarity of within-role response guidance	30	2 (7%)	4 (13%)	9 (30%)	13 (43%)	2 (7%)
Clarity of when to hand off a concern	30	2 (7%)	5 (17%)	6 (20%)	13 (43%)	4 (13%)
Role-appropriateness assuming brief training	28	2 (7%)	4 (14%)	11 (39%)	8 (28%)	3 (11%)

Overall ratings of the draft guide were mixed, consistent with its status as an early co-design prototype (Table 1). Nine of 28 respondents (32%) rated COMPASS as very or extremely useful in their setting, while an equal number rated it not or slightly useful. Role-appropriateness was rated more favourably: 22 of 28 respondents (79%) considered the guide at least moderately appropriate for their role if brief training were provided. The three NOTICE patterns were rated very clear by 17 of 28 respondents (61%), compared with 15 of 30 (50%) for within-role response guidance.

Handover and safety guidance was considered appropriate as written by 15 of 30 respondents (50%), appropriate with some changes by 12 (40%), and in need of substantial revision by 3 (10%). When asked

where RESPOND required more guidance, the most common needs were clarification of what practitioners could do within their role and how concerns should be handed over with the young person's knowledge and agreement (11/30, 37% for each), followed by guidance for self-harm, safeguarding or immediate safety concerns (9/30, 30%). Participants also raised situations where the practitioner or service might be the young person's main source of support. They noted the difficulty of involving parents without creating blame, limited referral options, and presentations that extended beyond anxiety, including mania, persistent sadness, agitation and violence. Comments on RESPOND highlighted the need for clearer referral and handover pathways, including specific services and contact points. Participants also wanted clearer guidance on scope of practice, confidentiality, parent involvement, autonomy and consent, while allowing enough flexibility for different professional roles and service settings.

Views on NOTICE were mixed. Eight of 28 respondents (29%) thought none of the three draft patterns needed refinement, while 6 (21%) thought all three required further work. Free-text comments indicated that the anxiety-related pattern required clearer explanation and that category labels should describe recognisable processes rather than imply that screen use itself was the problem. Participants also raised risks such as grooming and radicalisation. These comments highlighted the importance of distinguishing anxiety that is being maintained by processes such as reassurance seeking, avoidance, checking or rumination from anxiety that may signal active engagement with a credible external threat. In these situations, the response should focus not only on anxiety-maintaining patterns, but also on identifying the source of risk and taking proportionate action, including safeguarding or escalation where needed. The feedback indicated that COMPASS should recognise broader online risks where relevant to engagement and duty of care, while maintaining its main focus on the relationship between digital experiences and anxiety and on identifying when reflective support, practical action or a formal safety response is required.

Although COMPASS is intended for situations in which a concern has already been noticed, respondents still preferred a curious opening rather than immediately labelling the behaviour as problematic. The most selected opening question was "What do you like doing online?" (10/28, 36%). Eight respondents (29%) preferred their own wording, and 4 (14%) selected "Is it hard to put your phone or game down sometimes?" Suggested alternatives asked how the young person experiences being online, what happens before and after behaviours, or started with an observation and a check-in. The common preference was to explore the behaviour before interpreting it.

Participants also identified what they would need before using COMPASS. Cultural safety and inclusion guidance was selected most often (15/28, 53%), followed by clearer role boundaries (14/28, 50%), support for conversations with families (13/28, 46%), a short explanation of the three patterns (12/28, 43%), practice starting conversations (11/28, 39%), and referral and safeguarding guidance (10/28, 36%). Other suggestions included helping adults reflect on their own views about technology, guidance for re-engaging when a young person closes the conversation, resources for lived-experience workers, guidance for disabled and neurodivergent young people, and clearer information about the intended age range.

Participants also identified possible implementation risks. These included disagreement with parents or carers, family conflict, limits in professional role or referral options, negative framing of digital use, time pressures, safety and organisational requirements, oversimplifying complex situations, and using COMPASS without appropriate training or support. Three respondents did not identify any specific risks. Despite these reservations, support for continued development was strong. Of the 28 respondents, 16 (57%) supported continued development through co-design interviews and workshops and 11 (39%) supported continuation with changes. One respondent (3%) was unsure, and none opposed further development. Qualitative explanations emphasised the value of continued co-design and broader stakeholder involvement, the potential usefulness of COMPASS, greater involvement of young people and people with lived experience, adaptation across roles and settings, refinement of language and usability, and a more nuanced representation of digital use and young people's experiences.

3.5 Qualitative findings

Reflexive thematic analysis identified seven themes. Across the qualitative sessions, the central issue was not general screen use, but what should happen once an adult notices signs that digital behaviour may contribute to anxiety or interfere with everyday life. Participants described the need to understand the function of the behaviour, raise the concern without blame, identify anxiety-maintaining processes where relevant, and respond safely within role. Importantly, the qualitative sessions also supported the underlying need for COMPASS and its continued development. Participants did not treat the early draft as a finished intervention; instead, they described how to refine it to be practical, safe, and usable across settings. Because these issues cut across NOTICE, CONNECT and RESPOND, the findings are presented as broader practice themes rather than as a section-by-section evaluation of the draft guide.

Support for continued development was evident within the qualitative accounts themselves. One practitioner said, "I like the framework", while another felt that the NOTICE, CONNECT and RESPOND components "work really well together". When asked about further development, participants focused on strengthening COMPASS through clearer language, training, practical resources, developmental and cultural adaptation, and more explicit response pathways. This indicated support for the need for COMPASS and for progressing its development, alongside recognition that the prototype required further co-design before implementation.

Table 2

Themes, analytic interpretation and illustrative quotations. Quotations were lightly edited to remove fillers and false starts without changing meaning. To reduce re-identification risk, participants are described only by broad professional category.

Theme	Analytic interpretation/subthemes	Illustrative quotations
1. Trust, timing and relational safety shape conversations about problematic use	Readiness and rapport; timing outside acute stress; avoiding correction or judgement; ensuring the adult can respond if anxiety, impairment or safety concerns emerge.	Psychologist: "Being able to talk to it at a time where there's not high levels of acute stress are really important... it's about discovery and exploring together." Practitioner: "It's just another thing that I'm doing wrong, another reason I'm different."
2. Problematic digital use must be understood by function and context, not screen time alone	A concerning pattern may involve reassurance, uncertainty, avoidance, comparison, sleep disruption or loss of control while also providing connection or short-term relief; the task is to understand what maintains the problem.	Education practitioner: "It's not about blaming or shame, and it's not an anti-technology thing. In fact, technology can be good."
3. Curiosity helps uncover what is maintaining the problem	Open questions; adult as learner; motivational-interviewing stance; exploring triggers, relief, benefits, costs and impact without turning CONNECT into an interrogation.	Lived experience / peer practitioner: "What do you like doing online?... What's good about it?... It's a little bit motivational interviewing, really." Education practitioner: "One of my favourite ones that I use all the time is, 'Tell me more.'"
4. The anxiety-related NOTICE mechanisms were recognisable but needed clearer language	Repeated checking and reassurance; short-term relief and longer-term anxiety; interference with sleep or daily activities; urgency, self-esteem and developmental or literal interpretation.	Allied health practitioner: "I do see these patterns in practice... [but] the wording 'winds anxiety up' felt a bit weird." Lived experience / peer practitioner: "It's almost like expecting a reply quickly or becoming distressed... that kind of sense of urgency."
5. AI is an emerging context for reassurance seeking and emotional checking	AI chatbots may be used for emotional checking, reassurance and external validation; mechanism-based guidance is needed as platforms change.	Allied health practitioner: "I've had kids using AI bots as... emotional checking devices... using it as a tool to confirm what they're feeling." Psychologist: "Self-esteem is a word that comes to mind... they're relying on

Theme	Analytic interpretation/subthemes	Illustrative quotations
		online material to almost answer their every question."
6. Response depends on role, risk, family context and available support	Severity and functional impact; professional scope; family involvement; consent and confidentiality; safeguarding, referral and continuity of information.	Education practitioner: "Sometimes it is making the parent aware..." Lived experience / peer practitioner: "Families having to tell their stories over and over is also harmful."
7. Implementation requires a brief guide supported by rehearsal and adaptation	Concise core resource; scripts and role-play; culturally led co-design; developmentally appropriate language; disability and neurodiversity adaptation; clear response and referral pathways.	Education practitioner: "People just like to have scripts... we do a lot of role play... having opportunities to practise a script, people feel safe with the script." Education practitioner: "It should probably come from someone who is a First Nations representative... or people from other cultures and language backgrounds."

Theme 1: Trust, timing and relational safety shape conversations about problematic use

Participants emphasised that noticing a possible problem does not automatically mean raising the concern immediately. The usefulness of the conversation depends on the existing relationship, the young person's emotional state, the timing of the discussion and whether the adult can respond if anxiety, impairment or a safety issue emerges. Participants were particularly wary of language that could make a young person feel corrected, judged or treated as though their digital behaviour were simply another thing they were doing wrong.

A psychologist described these conversations as highly contextual and recommended avoiding periods of acute stress and approaching the discussion as "discovery and exploring together". Other participants similarly emphasised listening, emotional intent and preserving openness. These accounts suggest that COMPASS should include a brief readiness check before CONNECT: Is this the right time, relationship and setting to explore the concern, and can the adult respond appropriately if the conversation identifies a more serious problem?

Theme 2: Problematic digital use must be understood by function and context, not screen time alone

Participants described how the same pattern of digital behaviour could have different meanings. Repeated checking, prolonged use or difficulty disengaging could reflect reassurance seeking, uncertainty, avoidance, social comparison, sleep disruption or loss of control. At the same time, digital activity could also provide connection, information or support. The key issue was therefore not whether digital

engagement was inherently helpful or harmful, but whether the pattern was contributing to anxiety or impairment and what factors were maintaining it. This distinction shaped how participants wanted COMPASS to frame the discussion. They were concerned that an anti-technology stance could create defensiveness and obscure the mechanism of interest. One education practitioner emphasised that "it's not about blame or shame, and it's not an anti-technology thing". The implication is that COMPASS should be triggered by warning signs of possible problematic use, then use contextual questions to determine what the behaviour is doing and whether short-term benefits, such as reassurance or connection, may also be maintaining the pattern.

Theme 3: Curiosity helps uncover what is maintaining the problem

Participants preferred open questions that helped them understand why a young person was using screens in a particular way before making assumptions. Questions such as “What do you like doing online?”, “What do you get from it?” and “How does it make you feel?” were seen as useful starting points. These questions helped practitioners understand the young person’s perspective before exploring possible triggers, benefits and negative effects. One lived-experience practitioner compared this approach with motivational interviewing, where the conversation begins with the young person’s own experience.

Participants also emphasised that CONNECT should not become an interrogation or a fixed list of screening questions. An education practitioner recommended the simple response "Tell me more", highlighting the importance of keeping the invitation open. The purpose of curiosity in COMPASS is therefore not to normalise every form of use; it is to obtain enough information to understand whether a warning sign reflects an anxiety-maintaining process, another problem, or a behaviour that requires a different response.

Theme 4: The anxiety-related NOTICE mechanisms were recognisable but needed clearer language

Participants generally recognised the experiences represented by the draft NOTICE domains, including anxiety amplification, repeated checking or reassurance seeking, interference with everyday activities and emotional reliance. However, recognising the underlying process did not mean the draft labels were clear. The phrase "winds anxiety up", for example, was described as awkward or unclear. Participants wanted the mechanism stated more directly: checking, reassurance or digital contact may reduce distress in the short term while increasing reliance, uncertainty or anxiety over time.

Participants also identified observable features that could make the anxiety mechanisms easier to recognise in practice, including urgency around replies, repeated reassurance seeking, sleep-related interference, self-esteem concerns and difficulty coping when a device or online source is unavailable. Developmental and neurodiversity considerations were also raised. Younger children may understand "worry" more readily than "anxiety", while figurative language may be interpreted literally. The implication was to retain the mechanism-informed approach but translate it into concrete, developmentally appropriate language.

Theme 5: AI is an emerging context for reassurance seeking and emotional checking

AI emerged as an important context that was not adequately represented in the original draft. Practitioners described young people using AI chatbots not only for information but also to check feelings, seek reassurance and confirm interpretations. One allied health practitioner described AI bots being used as "emotional checking devices". At the same time, another participant raised concerns about young people relying on online systems to answer questions they might otherwise work through independently.

Participants varied in how confident they felt discussing emerging AI tools, reflecting how quickly these technologies are changing. The data support treating AI as another environment in which established anxiety-maintaining processes - checking, reassurance seeking, avoidance and reliance on external validation - may occur, rather than as a separate diagnostic category. Future versions of COMPASS should therefore use mechanism-based examples broad enough to include chatbots, AI companions and emerging agents without becoming tied to a particular platform.

Theme 6: Response depends on role, risk, family context and available support

Participants said that the next step after identifying a concern depends on both the young person's situation and the practitioner's role. Important factors included age, family relationships, existing supports, confidentiality, level of risk and access to services. Participants felt that guidance based only on professional role would not be enough.

Parents or carers were often seen as an important source of support, particularly in education and allied health settings. However, participants noted that involving family may not always be appropriate or safe. They also raised issues around consent, confidentiality, mandatory reporting, referral and continuity of care. RESPOND therefore needs to help practitioners decide what level of concern is present, what support is already available, who can safely be involved, what is within their role and when referral, safeguarding or escalation is needed.

Theme 7: Implementation requires a brief guide supported by rehearsal and adaptation

Participants wanted COMPASS to be brief and easy to use, but felt a written guide alone would not be enough. They suggested including simple scripts, examples, role-play and opportunities to practise conversations about problematic screen use and anxiety. Training should also clarify what practitioners should avoid, such as lecturing, interrogating, promising confidentiality when they cannot guarantee it, diagnosing outside their role, or assuming that screen time alone means there is a problem.

Participants also treated cultural and developmental adaptation as a core implementation issue. Participants emphasised age, disability and neurodiversity, including the need to establish what terms such as "online", "screens", "anxiety" or "worry" mean to the young person. An education practitioner specifically recommended that First Nations guidance come from First Nations representatives and that people from other cultural and language backgrounds shape relevant adaptations. Cultural safety and inclusion were also the most frequently selected survey prerequisite for using COMPASS (53.6%), reinforcing the need for further co-design rather than generic wording changes.

Countervailing views

Participants had different levels of experience and confidence. Some experienced clinicians said that asking about digital use was already part of their usual practice, while others found the draft COMPASS labels acceptable as they were. This suggests that COMPASS may be most useful when a practitioner identifies warning signs and wants support to explore whether problematic screen use is contributing to anxiety. It should be used flexibly rather than as a routine conversation with every young person.

3.7 Changes made to the guide

Table 3
Co-design change matrix.

Component	Practitioner feedback	Source strand	Risk identified	Decision	Deferred to youth co-design
Preconditions (new)	Guide assumes a concern should always be raised immediately	Qualitative sessions	Poor timing may damage trust or identify a concern the adult cannot safely respond to	Add a brief readiness check covering timing, relationship, acute stress and capacity to respond	Wording tested with young people
Scope statement (new)	Need to distinguish targeted use from general screen-time guidance	Qualitative sessions; survey open text	Pathologising ordinary digital activity; diluting the anxiety-focused purpose	State explicitly that COMPASS is used when warning signs suggest digital behaviour may be contributing to anxiety or impairment	Test whether young people and families understand the intended trigger for use
NOTICE anxiety mechanism	Label confusing and potentially stigmatising; omits the short-term-relief/longer-term-anxiety cycle	Qualitative sessions	Concern may sound accusatory rather than explanatory	Change label; add a plain-language explanation of the anxiety-maintaining cycle	Label and explanation tested with young people
NOTICE interference pattern	Sleep and interference with everyday activities were recognisable entry points	Survey; qualitative sessions	Time alone could be mistaken for evidence of a problem	Retain functional interference focus and avoid fixed time thresholds	Examples tested across ages and settings
NOTICE reassurance/checking examples	AI chatbots and other digital systems can be used for emotional checking	Qualitative sessions	Framework may miss emerging forms of the same anxiety-maintaining mechanism	Add platform-neutral examples, including AI-enabled checking	Not applicable

Component	Practitioner feedback	Source strand	Risk identified	Decision	Deferred to youth co-design
	and reassurance.			and reassurance	
CONNECT function/context prompt	Participants wanted the conversation to establish what a concerning digital behaviour provides as well as its costs.	Qualitative sessions; survey open text	Anti-technology framing may obscure why the behaviour persists and close disclosure	Do not add a separate "protective use" NOTICE category; add prompts within CONNECT to explore function, short-term relief, connection and longer-term impact	Youth approval of wording
CONNECT opener	Neutral or positive opening requested even when a concern has already been noticed	Qualitative sessions; survey open text	Prematurely labelling the behaviour as problematic may increase defensiveness	Use a neutral exploratory opener before asking about anxiety-maintaining patterns	Youth approval of wording
CONNECT prompt menu	Eleven prompts excessive; 28.6% would use their own wording	Qualitative sessions; survey	Reads as interrogation	Reduce to four or five prompts focused on triggers, function, relief, costs and impact; add stance note	Which prompts are acceptable to young people
RESPOND destinations	Parent or carer absent as a hands-on destination	Qualitative sessions	Non-clinical adults may be directed to inappropriate pathways; family may be unsafe in some settings	Add parent or carer with explicit safety caveat and retain escalation options	Not applicable
RESPOND structure	Professional role alone did not determine the appropriate response; within-role	Qualitative sessions; survey	Same role can face different risks, family and service contexts	Add a situational layer covering severity, support, family safety and service	Not applicable

Component	Practitioner feedback	Source strand	Risk identified	Decision	Deferred to youth co-design
	guidance was a commonly nominated gap (36.7%)			access while retaining scope-of-role guidance	
Referral guidance	Named services and contact points requested rather than generic advice	Survey open text; qualitative sessions	Referral guidance may be unusable where services are absent or unavailable	Add a locally adaptable referral and safeguarding pathway rather than a fixed service list in the core guide	Not applicable
Cultural safety	Most frequently nominated prerequisite for use (53.6%)	Survey; qualitative sessions	Guide may be inappropriate or unsafe across cultural contexts	Make cultural safety a required co-design and training component, with adaptations led by relevant communities	Not applicable
Format and training	Brief guide preferred, but scripts and rehearsal were also requested	Qualitative sessions; survey	A stand-alone handout may be used without sufficient understanding of mechanisms, scope or response pathways	Retain a one-page core guide and pair it with brief training, simple scripts and rehearsal	Not applicable

The revised guide provides a side-by-side comparison of the NOTICE section before and after co-design (Fig. 2). The co-design findings did not support turning NOTICE into a general screen-use checklist. Instead, the revised guide should state explicitly that COMPASS is used when warning signs suggest that digital behaviour may be becoming problematic, contributing to anxiety or interfering with everyday life. CONNECT should then clarify what the behaviour does for the young person, including any short-term relief, reassurance, or connection that may help explain why the pattern persists. These contextual functions should inform understanding of the problem rather than become a separate NOTICE category. This preserves the mechanism-informed focus while reducing the risk of pathologising ordinary digital activity.

3.6 Safety

No adverse events were evident in the de-identified study materials reviewed for this manuscript revision. The qualitative sessions nevertheless identified prospective safety risks for future implementation, including damage to trust, misclassifying ordinary or adaptive digital behaviour as problematic, inappropriate promises about confidentiality, unclear mandatory-reporting obligations, unsafe family involvement and referral pathways that are unavailable in the local setting.

4. Discussion

This mixed-methods co-design study provides preliminary evidence of a specific practice gap: practitioners commonly encounter warning signs that screen use may contribute to anxiety or interfere with everyday life, but recognising those signs does not tell them how to understand the behaviour, have the conversation safely, or decide what should happen next. Practitioners generally felt able to start a discussion. Yet, they were more concerned about sounding judgemental or anti-technology, blaming the young person or family, damaging trust, working outside professional scope and lacking clear response or referral pathways.

Almost all participants supported continued development of COMPASS despite mixed ratings of the early prototype. The qualitative sessions reinforced this finding, with practitioners describing a clear need for the approach while also identifying substantial refinement required before implementation. Practitioners reported seeing difficulty disengaging, anxiety or worry, avoidance, social comparison, frequent checking or reassurance seeking, and sleep disruption in their work with young people. These observations align with literature linking problematic screen-use patterns to poorer mental health (3, 7–13).

A central finding was that problematic digital use cannot be understood from screen time alone. Participants did not suggest that COMPASS should assess all digital behaviour or weigh technology “harms” and “benefits” in the abstract. Rather, when a warning sign is present, practitioners wanted to understand what the behaviour is doing for the young person and how it may be interacting with anxiety. Digital behaviour may provide immediate relief, certainty, connection, or distraction while also reinforcing reassurance seeking, avoidance, social comparison, sleep disruption, or increased reliance on digital environments. This is consistent with anxiety models in which behaviours that reduce distress in the short term can maintain anxiety over time (9, 16). The practical implication is that NOTICE should identify a reason for concern, while CONNECT should help clarify the function, context and impact of the behaviour (see Figs. 1 and 2). In practice, NOTICE should identify a reason for concern, while CONNECT should clarify function, context, and impact.

The qualitative findings further showed that this assessment of function depends on how the conversation is conducted. Participants preferred curiosity over correction and emphasised timing, trust and keeping the young person engaged. An open question such as "What do you like doing online?" was not proposed because COMPASS is a general digital-wellbeing conversation; it was valued because a non-judgemental entry point can reveal what a concerning behaviour provides, what happens when it is

interrupted and where anxiety enters the cycle. This is particularly important when the young person may already expect adults to criticise their technology use.

Overall, practitioners supported further development of COMPASS as a targeted framework for situations in which problematic digital use or anxiety-related interference is suspected. They wanted clearer guidance for understanding the function of the behaviour, raising concerns without blame, staying within professional scope and deciding what should happen next. They also identified the need for clearer family, safeguarding and referral pathways, together with brief training and opportunities to practise difficult conversations.

Relationship between survey ratings and qualitative accounts

The survey ratings of the draft resource were more mixed than the qualitative accounts of the underlying practice need. Only 9 of 28 survey completers rated the draft COMPASS guide as very or extremely useful, yet 27 of 28 supported continued development either as proposed or with changes. In the interviews and workshop, practitioners described a clear need for a structured approach to help adults recognise when problematic digital use may be interacting with anxiety, raise the issue safely, understand what may be maintaining the behaviour and determine an appropriate next step. They also supported continued development of COMPASS while identifying specific changes needed before it would be ready for implementation.

The qualitative findings therefore helped distinguish support for COMPASS's purpose and continued development from endorsement of the initial two-page prototype. The survey captured participants' first impressions of a stand-alone draft. In contrast, the interviews and workshop gave participants more opportunity to explain why the underlying problem mattered, where the draft did not fit their setting and what additional support would be required in practice. This distinction is particularly important in formative co-design, where critical feedback on an early prototype is intended to improve the intervention rather than indicate that the underlying practice need is absent.

The difference between the survey and qualitative findings should not be interpreted as a change in individual participants' views because the follow-up contact form was not linked to survey responses; instead, the two methods provided complementary information. Fixed-response survey items efficiently measured participants' initial perceptions but necessarily compressed complex and conditional judgements into single ratings. Interviews and workshops allowed participants to explain the circumstances in which COMPASS might be useful, what would need to change and how it should be implemented. These qualitative accounts may also have been influenced by interviewer presence and the fact that those volunteering for follow-up may have had greater interest in the topic. Taken together, however, the findings suggest broad support for the need and purpose of COMPASS, with more conditional endorsement of the initial prototype.

The qualitative findings also showed that understanding problematic screen use depends on how the conversation is conducted. Participants preferred building connection and curiosity over correction, and

emphasised timing, trust, and maintaining engagement. Our pilot data also supported a more fundamental change to the CONNECT component of the conversation guide. Participants emphasised that difficult conversations about screen use may be unlikely to succeed if they begin with questions about the behaviour itself. Instead, trust may need to develop through repeated, small interactions in which a young person feels seen, listened to and respected. This aligns with relational practice literature showing that meaningful youth participation depends on rapport, consistency, voice and agency, rather than simply providing an opportunity to speak and with evidence that trusted relationships facilitate adolescent mental health help-seeking (26, 36, 37).

Accordingly, we revised CONNECT from an immediate conversation about screen use to an explicit first step of helping the young person feel seen before asking. The guide now encourages adults to build connection by showing genuine interest, remembering what the young person has shared, listening without judgement or immediately trying to fix the problem, following through on commitments, and giving the young person choice about when and how they talk. Only then does the guide suggest using one gentle, non-judgemental question, such as *"What do you like or find helpful about being online? and* following the young person's lead. In this way, the pilot data support the principle that connection is not simply part of the conversation; it is the first step that creates the conditions for difficult conversations to occur.

An opening question such as "What do you like doing online?" was not intended to turn COMPASS into a general digital-wellbeing conversation. Rather, it was seen as a non-judgemental way to understand what a concerning behaviour provides, what happens when access is interrupted and where anxiety may enter the cycle. This is particularly important when young people may already expect adults to criticise or restrict their technology use.

The findings also helped refine NOTICE. Participants recognised patterns such as repeated checking, reassurance seeking, disruption to daily activities and emotional reliance on digital use, but wanted clearer explanations of how these behaviours may be linked to anxiety. For example, checking or seeking reassurance may reduce distress in the short term but increase reliance on the behaviour over time. Participants also identified urgency around replies, sleep disruption, concerns about self-esteem and difficulty coping without access to a device or online source as useful warning signs. They stressed that these ideas need to be explained in clear language that is appropriate for different ages and for neurodiverse young people.

Participants also raised the use of AI chatbots for reassurance, emotional support and help interpreting thoughts or feelings. This does not mean that AI use is necessarily harmful. Rather, it shows that behaviours such as repeated checking, reassurance seeking and reliance on external validation can occur across different digital technologies. Focusing on these underlying patterns may therefore make COMPASS more useful as technologies and platforms continue to change.

RESPOND was the area in which context and professional role most clearly interacted. Once a concerning pattern has been explored, the appropriate next step depends on severity, functional impact, the young

person's age, family context, existing supports, service access and the adult's scope of practice. Parent or carer involvement may be appropriate in many settings but cannot always be assumed to be safe or sufficient. Participants wanted clearer guidance on consent, confidentiality, safeguarding, mandatory reporting, handover, referral and continuity of information. This reinforces that COMPASS must extend beyond recognition and conversation to an explicit response pathway.

Implementation will require more than a one-page guide. Participants wanted a brief core resource supported by practical scripts, role-play, opportunities to practise difficult conversations, cultural safety, age-appropriate adaptation and clear local referral pathways. Cultural safety and inclusion were the most commonly selected requirements in the survey. These findings suggest that COMPASS should be implemented as a supported practice approach, with a consistent core framework that can be adapted to different professional settings.

Implications for refinement and implementation of COMPASS

The practitioner co-design phase identified six changes for COMPASS. First, the guide's purpose should be clear. COMPASS should be used when there are signs that screen use may be contributing to anxiety or affecting daily life, rather than as a routine screen-use checklist. Second, practitioners should consider whether the timing is right, whether trust has been established, whether the young person is distressed, and whether they are able to respond if a more serious concern is raised. Third, NOTICE should describe anxiety-related patterns in clear, age-appropriate language rather than relying on broad labels or screen-time thresholds. Fourth, CONNECT should begin with rapport and trust, followed by a small number of open questions to understand what is happening, what triggers the behaviour, what relief it provides, and what impact it is having. Fifth, RESPOND should provide clearer guidance on professional role, family involvement, safeguarding, consent and referral. Sixth, AI chatbots and other emerging technologies should be included as examples of digital settings where repeated checking, reassurance seeking or emotional reliance may occur.

The next phase should include further co-design with children, young people and families to refine the language, developmental adaptations and experience of using COMPASS. The guide should then be tested in real-world settings with training suited to different professional roles and opportunities to practise the conversations. Evaluation should examine feasibility, acceptability, adoption, fidelity and practitioner capability (38). The updated Consolidated Framework for Implementation Research (CFIR) could help identify barriers and facilitators across settings and distinguish core components from context-specific adaptations and appropriateness (39). This would establish whether COMPASS is usable in practice and what is required before a larger effectiveness-implementation trial.

Implications for co-design with children, young people and families

The next phase should test COMPASS with the people who will experience the conversation. Practitioners can identify what is feasible within services. Still, children, young people and families are best placed to determine whether the language feels respectful, understandable and relevant when a concern about

problematic digital use or anxiety has been raised. Co-design should test how warning signs are described, whether the proposed NOTICE mechanisms make sense, which CONNECT questions help young people explain what is happening, and how adults should discuss family involvement, confidentiality, safeguarding and referral.

This work should intentionally include young people across developmental stages and forms of neurodivergence, First Nations young people and families, culturally and linguistically diverse communities, LGBTQ+ young people, geographically isolated communities and young people with limited family or service support. The present findings show why these matters: the meaning and function of a concerning screen use, the language used to discuss anxiety, and the safest next step can vary by context. Consistent with the team's co-design approach (11, 31), these differences should shape the next version rather than be treated as exceptions after implementation.

Strengths and limitations

A strength of the study was the mixed-methods design, which combined survey data with more detailed accounts from practitioners working in different settings. The survey identified common warning signs and barriers, while the qualitative sessions clarified what practitioners need after recognising a concern. This included understanding what may be driving the behaviour, discussing anxiety-related patterns without blame, working within professional boundaries and deciding what response is appropriate. Feedback that questioned or challenged parts of the draft guide also helped clarify COMPASS's purpose and limits.

Several limitations are important. The sample was small, so the survey findings should not be interpreted as representative workforce estimates. Practitioner reports of warning signs do not establish that a young person had problematic screen use or that digital behaviour caused anxiety. Only eight practitioners participated in recorded qualitative follow-up, and interaction between the interviewer and participant may have influenced what was raised or left unsaid. Researchers could not link qualitative participants to their individual survey responses because they collected contact details through a separate form, preventing within-person analysis. Children, young people and families were not included in this first phase and are essential to the next stage.

Participants reviewed an early draft rather than using COMPASS in practice. The findings therefore concern perceived feasibility, acceptability and design requirements rather than effectiveness, adoption, fidelity or outcomes. Facilitators necessarily introduced the purpose and proposed mechanisms of COMPASS during the qualitative sessions, which may have influenced participants' interpretations. The study also focused on anxiety-related problematic use rather than attempting to cover every form of online harm. Future implementation research will need to test whether the targeted scope is clear in practice and whether referral pathways appropriately identify concerns that fall outside COMPASS.

Conclusions

Practitioners in this study commonly encountered warning signs that screen use may be contributing to anxiety, distress or interference with everyday life. The principal challenge was not simply noticing the concern or knowing how to ask about screens. Practitioners needed a way to understand whether a digital behaviour was functioning as checking, reassurance, avoidance, comparison or another anxiety-related process; raise the issue without judgement or blame; preserve trust; stay within professional scope; and know what to do when a significant concern emerged.

The findings support further development of COMPASS as a targeted, mechanism-informed conversation-and-response framework for problematic digital use and anxiety. Its core task is to help adults move from a warning sign to a clearer understanding of context, function and impact, then to an appropriate response. The first draft requires clearer anxiety-mechanism language, a readiness check, concise exploratory prompts, AI-relevant examples, stronger family and referral guidance, cultural and developmental co-design, and training that includes rehearsal of difficult conversations.

Almost all survey completers supported continued development despite mixed ratings of the early prototype. These preliminary data justify the next step: co-design COMPASS with children, young people and families, then evaluate it in real-world education, counselling, youth mental health and clinical settings. The key implementation question is whether COMPASS can help practitioners recognise when digital use may be maintaining anxiety, understand what is happening without reducing the problem to screen time, have a safe and useful conversation, and support an appropriate next step.

Declarations

The research team is involved in co-designing the COMPASS conversation guide, which may create a perceived professional or intellectual interest in its evaluation. COMPASS is not commercialised. This interest has been formally disclosed through QUT's Conflicts of Interest and Disclosures system (#DOI-260708004). It is managed in accordance with QUT's Conflicts of Interest Policy and Code for Responsible Conduct of Research, including institutional oversight, documentation and ongoing review.

Generative AI statement. Generative AI and large language model tools were used to support drafting, editing, structure and clarity of the manuscript. The authors critically reviewed and revised all outputs and take full responsibility for the manuscript's accuracy, interpretation, and final content.

References

1. ABS. Australian Bureau of Statistics. (2020-2022). National Study of Mental Health and Wellbeing. 2023.
2. Teesson M, Whiteford H, Bower M, Smout S, Burgess P, Harris MG, et al. Policy implications of the 2020–22 Australian study of mental health and wellbeing. Australian & New Zealand Journal of Psychiatry. 2025;59(6):485-92.
3. Ahmed O, Walsh EI, Dawel A, Alateeq K, Espinoza Oyarce DA, Cherbuin N. Social media use, mental health and sleep: A systematic review with meta-analyses. Journal of Affective Disorders.

2024;367:701-12.
4. Du M, Zhao C, Hu H, Ding N, He J, Tian W, et al. Association between problematic social networking use and anxiety symptoms: a systematic review and meta-analysis. BMC Psychol. 2024;12(1):263.
5. Wu W, Huang L, Yang F. Social anxiety and problematic social media use: A systematic review and meta-analysis. Addictive Behaviors. 2024;153:107995.
6. Shannon H, Bush K, Villeneuve PJ, Hellemans KGC, Guimond S. Problematic Social Media Use in Adolescents and Young Adults: Systematic Review and Meta-analysis. JMIR Ment Health. 2022;9(4):e33450.
7. Ai Y, von Mühlenen A. An experimental online study on the impact of negative social media comments on anxiety and mood. Scientific Reports. 2025;15(1):26642.
8. Ali F, Ali A, Iqbal A, Zafar AU. How socially anxious people become compulsive social media users: The role of fear of negative evaluation and rejection. Telematics and Informatics. 2021;63:101658.
9. Einstein DA, McMaugh A, Rapee RM, McEvoy P, Fraser MI, Abbott M, et al. Intolerance of Uncertainty as a Central Influence on Social Media Use: A School-Based Program for Adolescents. Prevention Science. 2024;25(8):1238-49.
10. Gillespie KM, Branjerdporn G, Woerwag Mehta S, Glegg J, Porter M, Bartlett SE. The impact of screen time and social media on youth self-harm behaviour and suicide: A protocol for a systematic reviews. PLoS One. 2024;19(12):e0314621.
11. Lawn S, Gillespie KM, Sahu A, Tobin SJ, Shukla V, Burns R, et al. Co-Designing a Social Media and Anxiety Survey: Reflections on the Importance of Centring Mental Health Lived Experience Expertise. Health Expect. 2026;29(2):e70677.
12. McComb CA, Vanman EJ, Tobin SJ. A Meta-Analysis of the Effects of Social Media Exposure to Upward Comparison Targets on Self-Evaluations and Emotions. Media Psychology. 2023;26(5):612-35.
13. Mansell W, Mowle, A., Trouchet, L., Zemestani, M., Sharbanee, J., Gulrez, T., & Einstein, D. . The Conflict Device: A Control Theory Model of Problematic Digital Media Use. 2026.
14. Sala A, Porcaro L, Gómez E. Social Media Use and adolescents' mental health and well-being: An umbrella review. Computers in Human Behavior Reports. 2024;14:100404.
15. Avci H, Baams L, Kretschmer T. A Systematic Review of Social Media Use and Adolescent Identity Development. Adolescent Research Review. 2025;10(2):219-36.
16. Carleton RN, Desgagné G, Krakauer R, Hong RY. Increasing intolerance of uncertainty over time: the potential influence of increasing connectivity. Cognitive Behaviour Therapy. 2019;48(2):121-36.
17. Einstein DA, Dabb C, Fraser M. FoMO, but not self-compassion, moderates the link between social media use and anxiety in adolescence. Australian Journal of Psychology. 2023;75(1):2217961.
18. Rifkin-Zybutz R, Turner N, Derges J, Bould H, Sedgewick F, Gooberman-Hill R, et al. Digital Technology Use and Mental Health Consultations: Survey of the Views and Experiences of Clinicians and Young People. JMIR Ment Health. 2023;10:e44064.
19. Pediatrics AAo. 5 Cs of Media Use Resource Hub

20. LACHETONPHONE: Impact of a dedicated consultation using a structured interview guide on screen time among adolescents aged 12 to 17 in primary care: A multicenter randomized study. #NCT07685951. University Hospital Strasbourg. The trial is currently registered as not yet recruiting. [Internet]. 2026. Available from: https://ctv.veeva.com/t/nzNG6.
21. Orygen. The ScrollSafe Hub for information targeting students, parents, and teachers.
22. Headspace. Social media: Resources and information for young people and those supporting a young person's mental health. headspace.
23. Beyond Blue: Social media and mental health. [Available from: https://www.beyondblue.org.au/mental-health/Social-media.
24. Maston K, Brown,L., and Werner-Seidler, A. Adolescent screen use and mental health: Summary of findings from the Future Proofing Study. 2024.
25. eSafety Commissioner Australian Government. Parent resources. .
26. Aguirre Velasco A, Cruz ISS, Billings J, Jimenez M, Rowe S. What are the barriers, facilitators and interventions targeting help-seeking behaviours for common mental health problems in adolescents? A systematic review. BMC Psychiatry. 2020;20(1):293.
27. Orygen. #chatsafe for educators and wellbeing staff.
28. Krstic S, Dennis S, Southcombe F, Denney-Wilson E. Implementing routine paediatric height/length and weight screening and weight management advice by clinicians: an evaluation. BMC Health Services Research. 2024;24(1):380.
29. Schwartzkoff E, Burrows T, Bailey A, Sneddon E, Duncanson K. What are health professionals' perceptions of conducting routine growth assessments and lifestyle interventions? A qualitative study involving allied health professionals, nurses and doctors in rural and regional New South Wales. Australian Journal of Primary Health. 2023;29(6):596-605.
30. Talumaa B, Brown A, Batterham RL, Kalea AZ. Effective strategies in ending weight stigma in healthcare. Obes Rev. 2022;23(10):e13494.
31. Wrightson-Hester A-R, Anderson G, Dunstan J, McEvoy PM, Sutton CJ, Myers B, et al. An Artificial Therapist (Manage Your Life Online) to Support the Mental Health of Youth: Co-Design and Case Series. JMIR Hum Factors. 2023;10:e46849.
32. Proctor E, Silmere H, Raghavan R, Hovmand P, Aarons G, Bunger A, et al. Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. Adm Policy Ment Health. 2011;38(2):65-76.
33. Weiner BJ, Lewis CC, Stanick C, Powell BJ, Dorsey CN, Clary AS, et al. Psychometric assessment of three newly developed implementation outcome measures. Implement Sci. 2017;12(1):108.
34. Artino AR, Jr., La Rochelle JS, Dezee KJ, Gehlbach H. Developing questionnaires for educational research: AMEE Guide No. 87. Med Teach. 2014;36(6):463-74.
35. Braun V, Clarke V. One size fits all? What counts as quality practice in (reflexive) thematic analysis? Qualitative Research in Psychology. 2021;18(3):328-52.

36. Lundy L. ‘Voice’ is not enough: conceptualising Article 12 of the United Nations Convention on the Rights of the Child. British Educational Research Journal. 2007;33(6):927-42.
37. McPherson L, Canosa A, Gilligan R, Moore T, Gatwiri K, Day K, et al. Young people’s lived experience of relational practices in therapeutic residential care in Australia. Children and Youth Services Review. 2025;170:108129.
38. Tyack Z, McPhail S, Aarons GA, McGrath K, Barron A, Carter H, et al. Evaluating the tailored implementation of a multisite care navigation service for mental health in rural and remote Australia (The Bridging Study): protocol for a community-engaged hybrid effectiveness-implementation study. Implementation Science. 2024;19(1):62.
39. Damschroder LJ, Reardon CM, Widerquist MAO, Lowery J. The updated Consolidated Framework for Implementation Research based on user feedback. Implementation Science. 2022;17(1):75.

Figures

Figure 1

COMPASS - Screen Conversation Guide

COMPASS is the name of a screen conversation guide being co-designed with adults who support young people, including educators, wellbeing staff, youth workers, family support workers and health professionals. It is intended to provide a shared starting point for calm, non-judgemental conversations about screens, online spaces and worry.

The guide is designed to help adults **NOTICE** what may be happening, **CONNECT** with the young person, and **RESPOND** in a safe and appropriate way. This is an early working draft. We want your feedback on what is clear, useful and safe, and what should be changed, simplified, removed or added. COMPASS is not a diagnostic tool, treatment manual or risk assessment. It does not replace usual safeguarding, mandatory reporting, referral, clinical escalation or crisis pathways.

1. NOTICE. Is being online making anxiety worse or getting in the way? *Do not count hours. Notice the pattern. A young person may show more than one pattern.*

Draft pattern	What it might look like
1. Winds anxiety up	Checking/re-checking for replies likes or views, comparing themselves to others, upsetting content; feeling worse afterwards but finding it hard to stop earlier, urge to get control of a situation or worry quickly.
2. Screen use that pulls them away from offline activities	Using screens to avoid schoolwork, sleep, hard feelings or people; reaching for a device whenever bored or uncomfortable; pulling away from routines, activities or face to face relationships, doom-scrolling.
3. Screen use that fosters emotional dependence	Contact used to obtain reassurance frequently. Finding they are no longer able to manage worries any time they occur. Repeated messaging, calling, checking or searching to feel better right away; finding waiting for a reply or outcome very hard; feeling distressed when away from a phone or Wi-Fi.

2. CONNECT. Start with connection, ask one gentle question. Listen and show you understand. Pick one small next step.

1. Start with connection "What do you like doing online?"	**2. Ask one gentle question** Choose one, not all: Has anything online made you feel sad or worried? Do you feel any pressure to stay in the loop? Do you notice if you lose much time online? Do you stay up pretty late on a device or game? Do you pick up your phone in the middle of the night much? Is there something that's happened online that keeps popping into your head? Is it hard to put your phone or game down sometimes? Has someone online been unkind or made you feel bad?
	Has someone online made you feel as though your life is going to be terrible or that they have all the answers to being happy/successful? Is there anything you wish grown-ups understood about being online? When you are worried, do you feel like you need to message, check or look something up straight away?
3. Listen and show you understand Thanks for telling me. That sounds tough. You are not in trouble. I just want to help.	**4. Pick one small next step** What would help right now? What is one small thing we could try? Would you like help talking to someone else?

Remember: do not lecture, diagnose or rush to take the device away. Be curious, listen and know when to seek further support.

3. RESPOND The conversation is shared. What happens next depends on your role.

Your role	Your part in the response	Hand on when...
Any caring adult (teacher, youth worker, coach, parent, educator)	Listen without judging or lecturing. Take the worry seriously. Agree on one small change they choose, where appropriate. Keep the door open and encourage support from trusted adults.	The pattern persists or worsens; it is affecting sleep, mood, school, study, work, friends or family; they cannot cut back; or it is beyond your role. → Wellbeing lead, counsellor or GP.
Wellbeing, social work, counselling or community staff	Explore the pattern, how long it has been happening and its impact. Support a first small step and review it. Involve family or carers where appropriate and safe.	Anxiety is significant or persistent; risk is present; or clinical assessment is needed. → GP, psychologist or youth mental health service.
Clinicians (GP, psychologist or mental health clinician)	Use the same opening conversation, then assess and formulate the anxiety process. Offer or arrange evidence-based care or refer onwards where needed.	Specialist or higher-level care is needed. Usual onward referral pathways.

HANDOVER

With the young person's knowledge and agreement, pass on the pattern you noticed and what has already been tried so the next person can continue the conversation rather than start again. Share without agreement only where safety or legal obligations require it.

SAFETY

If a young person mentions self-harm, feeling unsafe, or you are worried about immediate safety, follow your usual safeguarding and escalation pathway straight away. COMPASS never replaces urgent help.

Figure 1

See image above for figure legend.

Figure 2

COMPASS CONVERSATION GUIDE

Pilot-revised practitioner guide

WHEN TO USE COMPASS Use COMPASS when you are worried that being online may be making a young person more anxious, upset, or getting in the way of everyday life.

BEFORE YOU START | Ask yourself: **Is this a good time to talk?** Think about privacy, how upset the young person is, your relationship with them, their family and cultural context, and whether you know where to get more help if it is needed.

1. CONNECT Help them feel seen before you ask. Trust takes time and grows through many small moments of connection.

1. Build connection by:
- showing genuine interest in what matters to them
- remembering things they have told you
- listening without judging or trying to fix everything
- doing what you say you will do
- giving them choice about when and how they talk

2. Find a way to ask one gentle question.
"What do you like or find helpful about being online?"
Or "How is being online going for you at the moment?"
If they want to keep talking, you might ask:
- "Is anything online making you worried or upset?"
- "Are there times when it is hard to stop checking, scrolling, messaging or gaming?"
- "When you feel worried, do you find yourself wanting to check, message or look something up?"
- "Does being online ever get in the way of sleep or things you want or need to do?"

3. Listen and show you understand
"Thanks for telling me." "That sounds hard." "You're not in trouble." "I want to understand."

4. Pick one small next step
What would help right now?
What is one small thing we could try?
Would you like help talking to someone else?

Remember: *: do not lecture, diagnose or rush to take the device away. Be curious, listen and know when to seek further support.*

2. NOTICE: Look for what is happening, not just how much time they spend online. Is being online making anxiety worse or getting in the way? *Do not count hours. Notice the pattern. A young person may show more than one pattern.*

Draft pattern	What it might look like
1. Checking/reassurance cycle	Re-checking replies, likes or views; repeated messaging or searching; or using AI/chatbots to seek reassurance, comfort or control. It may bring brief relief but worry returns and the checking repeats.
2. Screen use that pulls them away from offline activities.	Scrolling, gaming, messaging or reaching for a device whenever bored or uncomfortable; using screens to avoid schoolwork, sleep, worry, hard feelings, sleep or people; pulling away from routines, activities or face to face relationships. It helps in the moment, but the underlying worry or task remains or grows.
3. Screen use that fosters emotional dependence	Contact used to obtain reassurance frequently. Finding they are no longer able to manage worries any time they occur. Repeated messaging, calling, checking or searching to feel better right away; finding waiting for a reply or outcome very hard; feeling distressed when away from a phone or Wi-Fi.

Remember: *focus on anxiety, function, flexibility and impact - not screen time alone.*

3. RESPOND: The conversation is shared. What happens next depends on your role. Match the next step to the situation.

No immediate safety concern	Ongoing or significant impact	Immediate safety concern
Agree on one small, realistic step with the young person. Preserve helpful or connecting uses where possible. Review what happens next.	Involve appropriate support. Consider a parent/carer when safe and appropriate. Use local wellbeing, primary care or mental health pathways according to severity, access and your scope.	Follow your usual safeguarding and urgent escalation pathway straight away. COMPASS never replaces urgent help.

Your role	Your part in the response	Hand on when...
Any caring adult (teacher, youth worker, coach, parent, educator)	Listen without judging or lecturing. Take the worry seriously. Agree on one small change they choose, where appropriate. Keep the door open and encourage support from trusted adults.	The pattern persists or worsens; it is affecting sleep, mood, school, study, work, friends or family; they cannot cut back; or it is beyond your role. → Wellbeing lead, counsellor or GP.
Wellbeing, social work, counselling or community staff	Explore the pattern, how long it has been happening and its impact. Support a first small step and review it. Involve family or carers where appropriate and safe.	Anxiety is significant or persistent; risk is present; or clinical assessment is needed. → GP, psychologist or youth mental health service.
Clinicians (GP, psychologist or mental health clinician)	Use the same opening conversation, then assess and formulate the anxiety process. Offer or arrange evidence-based care, or refer onwards where needed.	Specialist or higher-level care is needed. Usual onward referral pathways.

HANDOVER
With the young person's knowledge and agreement, pass on the pattern you noticed and what has already been tried so the next person can continue the conversation rather than start again. Share without agreement only where safety or legal obligations require it.

SAFETY
If a young person mentions self-harm, feeling unsafe, or you are worried about immediate safety, follow your usual safeguarding and escalation pathway straight away. COMPASS never replaces urgent help.

Knowing your local support, referral and safeguarding pathways before a concern arises helps you respond quickly, safely and with confidence.

FIND YOUR LOCAL REFERRAL & SAFEGUARDING PATHWAY
Wellbeing / school contact: _____
GP / primary care: _____
Youth mental health service: _____
Crisis / safeguarding contact: _____
Culturally specific or community support:

CULTURAL SAFETY COMPASS should be adapted with relevant communities rather than assumed to be universally appropriate. Use culturally safe language and locally appropriate pathways, and do not assume that involving family or carers is always safe or preferred.

Figure 2

See image above for figure legend.