The subtle peer-to-peer interactions of young children when engaging with digital technologies

Many children experience a childhood where digital technologies are commonplace in the home, the community and in educational settings (Chaudron et al., 2018). From a very early age, children engage with digital technologies using them to interact and consume digital content, play games, engage with apps, and video conference with family and friends (Gray & Palaiologou, 2019). These technologies may include internet access, easy-to-use devices (e.g. touchscreens, phones and tablets), conversational agents (e.g. Siri), and generative artificial intelligence (AI), e.g. ChatGPT (Holmarsdottir et al., 2024).

The *Queensland kindergarten learning guideline* (QKLG) recognises this lived experience and promotes a range of interactions. There are opportunities in QKLG learning and development to use technologies, including digital technologies, for learning and communication and to make intentional decisions about teaching strategies and the use of technologies, such as:

- encouraging children's collaboration in their use of technology to investigate or solve a problem (p. 46)

- promoting active learning through engagement with real or pretend technologies for learning and communication (p. 42)

- supporting children to be producers of digital content to represent their thinking and knowledge (p. 5, p. 46)

- building children's understandings of how technologies can be used in different ways for different purposes (p. 46).

Children have the right to access and use digital technologies safely and purposefully to support their learning and agency (UN, 2021). However, many early childhood teachers, educators and families have expressed concern that children's digital engagement is detrimental to their social development, with some teachers making a conscious decision not to include experiences that involve digital technologies into their programs. This piqued our curiosity, and we began exploring ways that interacting with digital technologies could encourage young children's social development to support practice. Researching alongside educators working with very young children over a period of three-years provided us the opportunity to see what happened when the educators were invited and supported to incorporate experiences involving digital technologies into their programs. Educators included both non-working technologies (old mobile phones or cardboard boxes made into iPads) and working digital technologies (iPads, iPhones, keyboards) into their educational planning. Our focus was on understanding how relationships and social and emotional development were evident when learning through the use of digital technologies.

From a very close and detailed analysis of the video footage of these educators' everyday practices, we noted the presence of children's peer culture. Within this culture there were rules the children had created, interpreted and reproduced for their own peer interactions to achieve

autonomy and a sense of belonging to their 'group' (Corsaro, 2005; Corsaro, 2020). This usually occurred away from adult gaze, with the children's constructed 'moral order' in turn taking not always witnessed nor understood by adults. The QKLG positions respectful relationships as an important principle where children are acknowledged as builders of respectful and reciprocal relationships through positive interactions. These interactions support children to develop confidence, feel respected and valued, and appreciate learning with and from others.

Our research illustrates many examples of children showing acceptance, tolerance (to a point), enjoyment with, and understanding of others while engaging with technologies (both real and pretend). These children were not socially isolated but actively building relationships with each other in ways determined by their own peer culture 'rules'.

This highlights the need for teachers to broaden what is usually thought of as peer-to-peer interactions to take account of more subtle relationship building behaviours that can easily go unnoticed. These behaviours include:

- body positioning, such as peers sitting side-by-side with bodies slightly touching

- gentle hand and arm movements to guide the behaviour of others

- expressions of delight in the situation including vocalisations and body movements

- awareness of others through body positioning and social looking, with limited eye contact

- the use of vocal sounds that may or may not be decipherable.

Teachers are therefore encouraged to look further than children's eye gaze, head turning to face each other, and explicit vocalisations as indicators of social interactions between young children. To assist observations, we offer the following behaviours, interactions and dispositions to be aware of:

- **Social looking and engagement** that could encompass behaviours such as, the child

  - visually scanning the environment

  - observing and listening to peers

  - jointly attending to or engaging with an object — in this case, either non-working technology or working technology, such as an iPad

  - communicative gestures that may be very subtle

  - attention following in an attempt to determine what the other is focusing on, potentially as a precursor to joining in

  - imitative learning

  - using referential language, such as labelling things or objects to assist communication.

- **Emotional communication** also needs considering when observing children, including

  - social referencing as another form of social looking, with heightened emotional communication that includes an observation of an event or object followed by a feeling of uncertainty, followed by a look with an intention to seek information

  - recognising and expressing feelings through facial expressions, gestures and vocalisations

  - exaggerated performance encompassing emotionally evocative ways of using exaggerated facial expressions, gestures, vocalisations

  - caring acts initiated by child/children, such as sharing, hugging, patting, acknowledging feelings, fetching things for others.

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In the QKLG, an important practice is how teachers interact with and respond to children, to ensure children's learning is enhanced (p. 12). These interactions need to be responsive. As such, we draw attention to what may currently sit outside of a teacher's gaze, such as the social and emotional behaviours that we observed when the children were engaging in experiences involving digital technologies. Our research (Nolan et al, 2021; Nolan & Moore, 2024; Nolan & Moore, 2025) and the research of others (Edwards & Straker, 2025; Moore et al., 2021; Moore, 2015) has shown that children's behaviours may not always be what adults expect. Understanding this may assist teachers and educators to build their awareness of the subtle nuances of children's peer to peer interactions.

Current policy documents in Australia, such as the QKLG, position children as capable and confident actors in their worlds, and this research adds evidence to this sentiment by raising awareness of the subtle social and emotional learning children can demonstrate when using digital technologies. The expanded definition offered of young children's peer-to-peer interactions when engaging with digital technologies helps teachers appreciate the richness of peer cultures along with the social and emotional behaviours of children, as subtle as they may be, to reposition relationships in a new, more holistic way. This supports teachers to plan experiences involving digital technologies in their programs, knowing that such experiences can support children's social development, learning and communication. This information is important in planning and strengthening the social and emotional learning of young children.

Given this research and its findings, we propose the following provocations to support teacher reflections on the topic:

- Considering the intentional use of digital technology in early childhood education as an opportunity for social development, what will I do differently?

- What will I look for to observe the subtle and indirect social and emotional behaviours of young children when using digital technologies?

- How will I communicate the purpose, use and benefits of digital technology use in my program to families and the community?

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References

Chaudron, S., Di Gioia, R., & Gemo, M. (2018). *Young children (0–8) and digital technology, a qualitative study across Europe*. Publications Office of the European Union. https://dx.doi.org/10.2760/294383

Corsaro, W. A. (2005). *The sociology of childhood*. (2nd Ed.). Pine Forge Press.

Corsaro, W. A. (2020). Big ideas from little people: What research with children contributes to social psychology. *Social Psychology Quarterly, 83*(1), 5–25. https://doi.org/10.1177/0190272520906412

Edwards, S., & Straker, L. (Eds.). (2025). *Young children in digital society: Now and into the future*. Routledge. https://doi.org/10.4324/9781003460930

Gray, C., & Palaiologou, I. (Eds.). (2019). *Early learning in the digital age*. Sage. https://doi.org/10.4135/9781526463173

Holmarsdottir, H., Seland, I., Hyggen, C., & Roth, M. (2024). *Understanding the everyday digital lives of children and young people*. SpringerLink. https://doi.org/10.1007/978-3-031-46929-9

Moore, D., Morrissey, A. M., & Robertson, N. (2021). '*I feel like I'm getting sad there*': early childhood outdoor playspaces as places for children's wellbeing. *Early Child Development and Care*, *191*(6), 933–951. https://doi.org/10.1080/03004430.2019.1651306

Moore, D. (2015). 'The teacher doesn't know what it is, but she knows where we are': young children's secret places in early childhood outdoor environments. *International Journal of Play*, *4*(1), 20–31. https://doi.org/10.1080/21594937.2014.925292

Nolan, A., Edwards, S., Salamon, A., Straker, L., Grieshaber, S., Skouteris, H., Henderson, M., Highfield, K., & Bartlett, J. (2021). Young children's agency with digital technologies. *Children and Society, 36*(4), 541–563. https://doi.org/10.1111/chso.12512

Nolan, A., & Moore, D. (2024). Broadening the notion of peer-to-peer interactions when young children engage with digital technology. *Early Childhood Education Journal*, *53*, 1341–1353. https://doi.org/10.1007/s10643-024-01662-4

Nolan, A., & Moore, D. (2025). Tuning in to young children's peer-to-peer interactions when engaging with digital technologies: developing a fit-for-purpose framework. *The Australian Educational Researcher, 52*, 3611–3630. https://doi.org/10.1007/s13384-025-00869-7

Queensland Curriculum and Assessment Authority. (2024). *Queensland kindergarten learning guideline*. https://www.qcaa.qld.edu.au/kindergarten/qklg

United Nations. (2021). *General comment on children's rights in relation to the digital environment*. UN Committee on the Rights of the Child. https://www.childrens-rights.digital/fileadmin/kinderrechte.digital/Hintergrundmaterial/Englische_Downloads_pdf/General_comment_No.25.pdf

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