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Social validation of an online tool to support transitions to primary school for children with autism

Rhylee Sulek[a,*], David Trembath[a], Jessica Paynter[a], Deb Keen[b]

[a] Menzies Health Institute Queensland, Griffith University, Australia
[b] Autism Centre of Excellence, Griffith University, Australia

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ABSTRACT

Background: Successful transitions into primary school for children with autism relies on both the readiness of children to attend school and the readiness of schools and teachers to support students with additional needs. There is evidence that (a) connections between education settings, (b) teachers' access to quality resources, and (c) support from other professionals, have the potential to contribute to successful transitions (see Hess et al., 2008; Jackson & Bruegmann, 2009; Pianta & Kraft-Sayre, 2003), however, the extent to which they are present is varied. This study examined the views of parents, teachers, heads of special education, and inclusive support staff regarding the social validity of harnessing these three factors in an online tool to support transitions to primary school.

Method: Using a qualitative approach, 21 stakeholders participated in interviews in which they (a) shared their views regarding the relevance of the three factors and (b) considered the application of these factors within a prototype online tool.

Results: The 'Potential Value' of the factors was explored, highlighting opportunities for the prototype online tool to increase the capacity of teachers working with students with autism while providing access to information and professional support. While the combination of factors, packaged as an online tool, was 'Acceptable and Appropriate' participants also emphasized that in development of any new tool there is a need to be conscious of, and not undermine, existing processes and systems.

Conclusions: These findings highlight the potential value and appropriateness of combining and presenting the identified factors in tools to support transitions to primary school for students with autism.

1. Introduction

The transition from early childhood learning environments to formalized schooling is an important juncture in the lives of all children and their families (Eckert et al., 2008; Hirst, Jervis, Visagie, Sojo, & Cavanagh, 2011). Although the transition into primary school brings opportunities for growth and independence, children are faced with more formalized academic demands and multiple transitional periods throughout their day, with support for families often reduced (McIntyre, Blacher, & Baker, 2006; Pianta & Kraft-Sayre, 2003). While this period of change can be difficult for all children, children with additional needs have been identified as an "at risk" group in reviews of the literature (Fane, MacDougall, Redmond, Jovanovic, & Ward, 2016, p. 133). Accordingly, children

* Corresponding author at: Menzies Health Institute Queensland, Griffith University, Brisbane, Australia.
E-mail address: r.sulek@griffith.edu.au (R. Sulek).

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with autism spectrum disorder (herein referred to as autism), who are the focus of the present study, face challenges during this transition that are compounded due to social-communication and behavioral difficulties inherent to the disorder (Denkyirah & Agbeke, 2010; Forest, Horner, Lewis-Palmer, & Todd, 2004; Marsh & Eapen, 2017; McIntyre et al., 2006). With agreement in the literature that the 'success' of a child's transition to school, and their experience in the early school years play an important role in later school engagement and outcomes (Hirst et al., 2011; Melhuish & Barnes, 2012), there is a need for focused efforts ensuring successful transitions into primary school for children with autism.

There is evidence to suggest that the readiness of children to attend school is a critical factor that deserves consideration during transitions (Welchons & McIntyre, 2017). Although school readiness is a heavily debated topic (see Graue, 2006), there is some shared understanding that school readiness incorporates a range of key skills, including the ability to follow instructions, work independently, attend to tasks, communicate with others, which assist all children in preparing for, and making the transition to, their next learning environment (Janus & Duku, 2007; Welchons & McIntyre, 2017). While the acquisition of these skills prior to school entry is not always achieved for children with autism, research has demonstrated their importance in successful transitions. For example, Marsh and Eapen (2017) found that skills such as attending, communication, and adaptive skills were associated with classroom participation in new school environments for children with autism. Looking beyond the child, however, frameworks such as the Ecological Systems Theory (Bronfenbrenner, 1992) and the Ecological and Dynamic Model of Transition (Rimm-Kaufman & Pianta, 2000), recognize the connectedness and influence of external contexts (such as the school and early learning environment) and relationships (e.g., peers, teachers, and parents) on child development. For children with autism who may require additional support during this period of change, it is important that attempts to improve the transition into primary school settings consider these complex contextual and relationship factors when designing approaches (Britto, 2012; Bronfenbrenner, 1992; Marsh & Eapen, 2017; Welchons & McIntyre, 2015). Three factors, (a) establishing connections between education settings, (b) accessing quality resources, and (c) peer to peer knowledge sharing (see Hess, Morrier, Heflin, & Ivey, 2008; Jackson & Bruegmann, 2009; Pianta & Kraft-Sayre, 2003), established in the research literature, have the potential to impact aspects of the transition to school and will be discussed.

1.1. Connections between settings

Across the literature for both typically developing children and children with disabilities, it is recommended that transition to school preparations begin in the child's pre-school setting and continue into the early months of formal schooling (i.e., kindergarten or prep), with several key activities recommended (Pianta & Kraft-Sayre, 2003). Among these activities is the promotion of collaboration between, and involvement of, multiple key stakeholders (e.g., parents, previous service teachers, and prospective teachers) in order to establish relationships and provide opportunities for information exchange to occur (Denkyirah & Agbeke, 2010; Marsh & Eapen, 2017; Pianta & Kraft-Sayre, 2003; Quintero & McIntyre, 2011; Welchons & McIntyre, 2015). Despite agreement regarding the importance of establishing connections between settings, this is not always achieved in practice (Forest et al., 2004). To illustrate, Quintero and McIntyre (2011) highlighted that 10% of preschool and kindergarten teachers of students with autism and developmental disabilities surveyed reported difficulties in establishing collaboration between settings.

Welchons and McIntyre (2015), in their study comparing perspectives of caregivers, preschool teachers, and kindergarten teachers during the transition to school for typically developing and children with developmental delays, further found that approximately 80% of early education teachers surveyed reported that no contact (e.g., phone calls, curriculum planning) was made with the child's future teacher. The current authors (citation withheld for review) also found that teachers of students with autism, who had recently transitioned into primary school, reported that a lack of communication with the child's previous service, including inadequate information sharing procedures, impacted the extent to which they felt prepared to support these students in the classroom. As children with autism may require additional support as they start primary schooling, providing opportunities for collaboration and information sharing during the transition process can reduce potential challenges faced by students and teachers.

1.2. Access to intervention resources

Ensuring teachers have access to relevant, high-quality resources which support the implementation of empirically supported treatments (ESTs), in addition to establishing connections between settings, might also assist in improving transitions to primary school for children with autism. With an emphasis on clinicians and educators engaging in evidence-based decision making when working with individuals with autism (Australian Government Department of Education & Training, 2018; "Individuals with Disabilities Education Act of 2004," 2004Individuals with Disabilities Education Act, 2004"Individuals with Disabilities Education Act of 2004," 2004), the utilization of ESTs, established through rigorous research, is recommended. Fortunately, two large systematic reviews have identified autism specific ESTs (National Autism Center, 2015; Wong et al., 2015), with further work by Fleury, Thompson, and Wong (2015) highlighting a subset of these most relevant to supporting school readiness skills in school-aged children with autism.

The use of ESTs (e.g., visual supports, reinforcement, antecedent interventions) hinges on teachers' knowledge of these treatments, with research into the uptake of ESTs in mainstream classrooms (Hess et al., 2008), special education settings (Carter, Stephenson, & Strnadova, 2011), and early intervention services (Paynter et al., 2017; Stahmer, Collings, & Palinkas, 2005), suggesting that educators continue to use a combination of both ESTs and unsupported strategies. Limitations in skills and knowledge of teaching staff, time available for teachers to access resources, and the culture of the school towards providing support and resources to both teachers and students, are suggested as factors likely to influence the use of ESTs (Kucharczyk et al., 2015). Supporting the

selection and implementation of ESTs alone is unlikely to be sufficient for supporting successful transitions. For ESTs to be effective for students with autism, it is important that teachers select, implement, and assess the success of ESTs with reference to the available knowledge about the child, highlighting the importance of fostering connections between settings, as per the EBP framework (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000). Additionally, the use of professional judgment can greatly assist in understanding which ESTs will work in teachers' current context and can be facilitated through discussions with other professionals.

1.3. Peer to peer knowledge sharing

Educators frequently engage in knowledge sharing amongst their professional peers, with peer learning a preferred method for improving practice (Jackson & Bruegmann, 2009). Sharing within peer networks, whether in formally established learning groups or informal spaces (e.g., staff break rooms) also serves the purpose of meeting teachers' immediate needs and fosters feelings of trust and safety with colleagues (Cook & Cook, 2013; Hew & Hara, 2007; Mawhinney, 2010). Engaging in peer networks has also been found to increase problem solving and confidence when working with students with disabilities (see Mortier, Hunt, Leroy, Van de Putte, & Van Hove, 2010), and increased motivation of teachers to share their own experiences in order to improve their own practice, and the practice of others (Hew & Hara, 2007; Tseng & Kuo, 2014). Informal knowledge sharing is, however, not without limitations. Where the quality and content of information shared is not monitored, the potential for misinformation to be spread is increased. The spread of misinformation is often accidental in nature, and more likely to be accepted where high levels of trust are placed in the source of that information, for example, when this information is shared among colleagues (Lewandowsky, Ecker, Seifert, Schwarz, & Cook, 2012). Further, in the absence of established processes to reach the broader professional network, informal knowledge sharing with the goal of improving practice relies on the quality (e.g., knowledge and experience) of teachers' peers themselves (Jackson & Bruegmann, 2009). While peer to peer sharing provides opportunities for teachers working with students with autism to feel supported and share their experiences, it is not clear to what extent peer to peer connections alone contribute to improving transitions to school. When coupled with improved connections between settings and access to quality resources however, opportunities to develop a holistic approach to the transition to school for children with autism are recognized.

1.4. Existing transition supports

The connection between settings, access to resources, and peer to peer knowledge sharing, have been identified as having the potential to impact the transition to school for children with autism. To date, however, there have been few attempts to apply these factors in supporting the transition to school for children with autism. Marsh and Eapen (2017) in their report on the transition to school for students with autism provide a comprehensive review of activities likely to assist transitions, including collaboration between stakeholders and the active preparation of the child for school. While these activities provide a general context for assisting transition, there are no clear guidelines on achieving these in practice. In the local context in which this study was conducted, an online transition resource package was developed in conjunction with early intervention service providers (Queensland Government Department of Education, 2016). While the package provides information and advice for families and educators around transition planning, individual use of the resource varies, which ultimately fails to overcome issues with connecting stakeholders. A further example is the PrEPIC program (Trembath & Starr, 2017), a pre-school program for children with social communication and other learning disabilities which focused on active preparation of children for transition and the establishment of a positive relationship between families and educators (as suggested in Marsh & Eapen, 2017). Children involved in PrEPIC attended a class, four days per week, in the year prior to their commencement of school in which they engaged in a range of modified activities of a similar nature to those children experience in their first year of school (e.g., group story time, drawing, free play). While PrEPIC (Trembath & Starr, 2017) is an example of how multiple elements of transition can be drawn together in a single approach, highlighting the importance of connectivity across stakeholders and preparing children, this program may lack sustainability, requiring an extensive time commitment of teachers and families involved.

1.5. The potential of information communications technology

The barriers that inhibit achieving connection between settings, teacher access to resources, and peer to peer knowledge sharing, persist despite advances in information and communications technology (ICT). For example, digital alternatives to face to face communication, such as Blackboard Learn (Blackboard Inc., 2018) and Moodle (Moodle Pty Ltd., 2018), are frequently adopted in tertiary education settings. These platforms provide an alternative means to connect teaching staff with students enrolled in courses and have the potential to be relevant in primary education settings. Online resources, including the Autism Focused Intervention Resources and Modules (AFIRM) (National Professional Development Center, 2018), Autism Internet Modules (OCALI, 2018), and easy to understand websites (Raising Children Network, 2017), have also been developed to provide accessible and zero cost information and/or training relevant to teachers of students with autism. Finally, the increasing use of online social networking (e.g., discussion boards and online mailing lists) highlights opportunities to not only extend peer networks but provides the capacity to monitor, and prevent, the potential spread of misinformation.

A shift towards digital records management, curriculum planning, and reporting is occurring in some settings, for example, the use of OneSchool (Queensland Government Department of Education, 2018) across public schools in Queensland, Australia. OneSchool is currently used in all public schools in Queensland by approximately 90% of school staff, with an evaluation undertaken in 2013 highlighting the convenience and ease for users of entering and accessing information through the program (State of

Queensland Department of Education Training & Employment, 2013). Further, digital learning communities or mailing lists for teachers have been established, with higher rates of engagement linked with improvements in teacher skill and knowledge (see Matzat, 2013). With increasing capabilities of ICT for easier and more immediate access to information and a wider scope for connecting individuals, future attempts may do well to capitalize on these features when considering their potential for contributing to successful transitions to primary school for children with autism.

1.6. Study purpose

This study was part of a broader project to help understand and address the need to support the transition to primary school for children with autism. The overall project was guided by the Knowledge to Action (KTA) framework developed by Graham et al. (2006), which highlights two distinct but interactive processes: knowledge creation, and application of knowledge (action cycle). The first phase of this research sought to adapt current knowledge to local contexts, investigating general education teacher knowledge, use, and perceived social validity of a set of autism-specific ESTs (Sulek, Trembath, Paynter, & Keen, 2018), with the second phase investigating barriers and facilitators to use of ESTs, and existing support arrangements for general education teachers (Sulek, Trembath, Paynter, & Keen, 2018). Drawing on these findings the current study sought to address the next step in the action cycle, selecting and tailoring interventions for implementation. Specifically, this study sought to explore stakeholders' views regarding the social validity, or potential importance and acceptability in real-world settings (Foster & Mash, 1999; Kazdin, 1977; Wolf, 1978), of combining the three factors identified above in a prototype online tool to support transitions to primary school for children with autism.

2. Method

2.1. Design

A qualitative design was used, involving a series of participant interviews and the Framework Method of analysis, to explore participants' views on the identified factors (i.e., the connection between settings, access to resources, and peer to peer connection) and the perceived social validity of presenting these within an online based tool. The Framework Method, which sits within the broader family of thematic analysis (Gale, Heath, Cameron, Rashid, & Redwood, 2013), is designed to support researchers to systematically reduce data while comparing across codes and participants. This is achieved through the use of a matrix format that is ideally suited to examining different stakeholder views regarding the same broad construct.

2.2. Participants

Ethics approval was obtained from the authors' research institute [2018/180] and the state education department. The authors utilized purposive sampling to recruit participants, identifying individuals who were in a strong position to provide insight into the transition to school for children with autism. This included targeting parents, teachers, Heads of Special Education Services (HOSES), and other classroom support staff, to ensure diverse views from all relevant stakeholders. For school-based staff to be eligible for participation, they were required to have experience working with children with autism in a school setting (including in a support-based capacity). As we were seeking a diverse range of views, no other eligibility criteria were set. Of the 26 individuals approached, 21 agreed to be involved in the research. Potential participants were first contacted via email in terms one and two of the 2018 school year and provided with the information and consent forms for the study. Those who consented were then contacted to arrange a time for face to face interviews, with one participant opting for an online interview using video conferencing software. Participants were not offered incentives from the research team, or their schools (where applicable), for their involvement in the research.

Participants were five parents, seven foundation year (also known as prep or kindergarten) teachers, five Heads of Special Education Services (HOSES), and four inclusion support staff who are largely involved in the transition to school for children with autism. The participants were all Caucasian females, aged between 27 and 56 years (M = 43.30, SD = 8.87), with the majority (57.8%) indicating their highest academic qualification was a Bachelor's degree. Parents indicated that their child had a confirmed diagnosis of autism and had transitioned to school in the previous two years. All children had received early intervention, the majority receiving group center-based early intervention. All school-based participants currently, or had previously, supported students with autism, and ranged in their years' experience in the industry. For more details, please see Table 1.

2.3. Prototype online tool

Each factor (i.e., the connection between settings, access to resources, peer networks) was operationalized for inclusion in a prototype online tool (see Appendix A). The prototype online tool was developed using the Blackboard Learn software due to its availability and capacity to incorporate the desired features. It was proposed that for children with autism transitioning to school, the tool would be made accessible to their parents, teachers from their previous setting (e.g., early intervention service or childcare) and their current teacher, including support staff as needed.

2.3.1. Feature: the connection between settings

To facilitate connections between settings, one feature of the prototype online tool was a closed group available to the child's

Table 1
Participant demographics split by group.

	Parent n = 5	Classroom Teacher n = 7	Head of Special Education n = 5	Inclusion Support Teacher n = 4
Highest Academic Qualification				
Cert 3 or 4 (Tafe)	2 (40%)			
Bachelor Degree	1 (20%)	6 (85.7%)	2 (40%)	3 (75%)
Postgraduate Degree	2 (40%)	1 (14.3%)	3 (60%)	1 (25%)
Education Setting*				
Public School	4 (80%)	7 (100%)	5 (100%)	4 (100%)
Catholic School	1 (20%)			
Age (years)				
Mean (SD)	39.00 (5.05)	46.71 (9.12)	42.60 (12.91)	41.75 (5.62)
Min-Max	35 - 45	33 - 55	27 - 56	36 - 49
Time in role (years)				
Mean (SD)		17.00 (8.79)	12.80 (4.86)	19.25 (7.14)
Min-Max		3 - 30	7 - 20	13 - 29

Note: * For parents, education setting indicates setting at which child was enrolled.

current and previous teacher. The closed group provided functionality for group members to 'chat' via a discussion board, with the capacity for child-specific reports (e.g., transition reports, therapy reports) to be uploaded for access by current teachers.

2.3.2. Feature: access to intervention resources

To facilitate access to relevant, quality resources which support the use of autism specific ESTs, an open access page would be available for all members enrolled in the prototype online tool. This page would host resources, including details of ESTs, where to access training (e.g., AFIRM), and links to suggested websites. Resources, where copyright/permissions permit, would be downloadable.

2.3.3. Feature: peer to peer sharing

To facilitate professional learning through peer networks, the final feature involved the establishment of a discussion board. The discussion board would be available to primary school teachers only. To ensure posts met community guidelines (e.g., no identifying information of children/school shared, posts in line with emphasis on EST, no discriminatory or inappropriate language), and to reduce the spread of misinformation, the discussion board would be moderated by a member of the research team with experience in providing intervention and support to teachers of students with autism.

It is important to note that the online tool was not 'active' and was created to assist in presenting the identified factors as a comprehensive package, aimed at targeting the transition to primary school for children with autism, to participants for feedback.

2.4. Procedure

Interviews were conducted between terms two and three of 2018 by the first author. Prior to the interview, participants were provided with a copy of the semi-structured interview guide, developed by the authors (see Appendix B) to allow them time to reflect on the questions. At the start of the interviews, participants were reminded of the information contained in the Participant Information Sheet, specifically that all information provided would remain confidential and that they were free to withdraw from the research at any time. The interview guide covered (a) an explanation of each factor and its potential to contribute to successful transitions; (b) a description of how the factor was integrated into the prototype online tool; (c) questions around the usefulness of the factor in transitions to school; (d) barriers that might impede engagement with an online tool; and (e) any further feedback participants had regarding the tool or factors described. Participants were then guided through the prototype online tool, hosted on Blackboard Learning, by the first author. Throughout interviews, participants were able to ask questions about the prototype tool and were invited to suggest any changes, or improvements that might contribute to more successful uptake should the tool be implemented. Interviews took between 30 min and one hour to complete, including the 'tour' of the tool, and were audio recorded. Recordings were transcribed by an external transcription service, with transcriptions provided in a word.doc format. Transcriptions were sent to participants, who were invited to comment on the accuracy of statements made during the interview. One participant made changes to her transcript to remove discontinuities in speech. Following data analysis, participants and schools involved in the research were sent a summary of the preliminary findings and were invited to comment on theme development. No feedback was received from the participants.

2.5. Data analysis

Participant interviews were analyzed using the seven stages of the Framework Method of analysis as described by Gale et al. (2013). Following transcription of participant interviews (Stage One), all transcripts were read, and re-read, in full by the first author

Table 2
Themes, sub-themes, and associated quotes.

Themes and Sub-Themes	Associated Quotes
Theme 1: Potential Value	
Usefulness	"I think, if you provided them with lots of good resources and strategies and then they can then think about that in relation to specific children, that would be very useful" (Paula, HOSES) "I would see the real benefit is being I've got a problem, this is impacting me now, this is making my life difficult now, how can I easily get the information I need to make my life easier? That's how I would see they would use it" (Gloria, parent)
Motivation to engage	"If they know there's a resource there they might just go on a Thursday night on the lounge and tap into their laptop and have a little look around and go, "I didn't know that, I didn't know that," and that might fuel their fire to keep looking" (Karina, support teacher) "You know teachers are time poor and they want to know, is this worth me investing my time in? Am I going to get the outcome I need? And if you can say to them, yeah you will, that could be helpful" (Isabelle, parent)
Theme 2: Acceptable and Appropriate	
Online approach	"It has to be very easy, or they will just walk away" (Anita, support teacher) "If someone was monitoring it [discussion boards], that's fine. Sometimes the Facebook sites I know get a little bit unprofessional but if it is monitored … then that would be a bit different" (Jennifer, teacher)
Where it fits	"Emails are so often misinterpreted because it's the written language. Whereas when you're face to face you pick up on those hand gestures" (Julie, support teacher) "Maybe where you do have a bit of inexperience at least you can access something else and then come together as a group" (Heather, teacher)

(Stage Two). Any journal notes made following interviews were also reviewed during this stage. Line by line, open coding was then conducted independently by the first and second author on three transcripts, one each from a parent, HOSES, and teacher (Stage Three). Following independent coding, the first and second author met to discuss the coding schemes used. Any differences in coding, differences in interpretations of the data, or overlap between codes, were discussed until the authors reached a consensus. Similar codes were then grouped into categories, with the first and second author creating brief descriptions of each code, which formed the analytical framework (Stage Four). A total of 29 codes, across six categories, formed the final analytical framework. The first author then applied the analytical framework to the remaining transcripts, creating new codes where necessary (Stage Five). The computer-assisted qualitative data analysis software NVivo was used to code all transcripts. Using NVivo, participant data was charted into a series of matrices, with each participant its own row, and each code its own column (Stage Six). A copy of these matrices can be made available upon request to the corresponding author. After reviewing the matrices, the first and second author met again to generate themes, making connections across participants and categories (Stage Seven). This process was guided by the research questions, with themes and associated subthemes reflective of the components of social validity. Rather than providing descriptions of participants responses, or indicating the percentage of agreement across participants, the development of themes aimed to provide more abstract explanations of the data collected. This resulted in the development of two themes, with associated subthemes as indicated in the results, as seen in Table 2. Note that pseudonyms are used throughout the reporting of results.

2.6. Credibility

Four approaches were used to ensure credibility and trustworthiness of interpretation and reporting of the data (Patton, 2015). First, as noted above, participants were invited to complete member checks following transcriptions of interviews. This was completed in addition to requests for further information to clarify any statements during the interview itself. Second, the first author utilized triangulation when analyzing the data, considering data gathered during interviews, journal notes made following interviews, and the wider research literature. Third, the first and second authors met to review interview transcripts, and the first author's analysis, identifying and addressing errors or disagreements in the coding framework. Finally, an audit trail was created through the use of written meeting notes and NVivo memos, enabling review of the analysis process by the third and fourth authors. As the researcher is closely involved with the production of research and its outputs, the credibility of findings and accuracy of the research can be enhanced by sharing the experiences, perspectives, and any potentials for bias they might bring to the analysis (Patton, 2015). The first author is a PhD candidate, with experience in early intervention, who completed this project in partial fulfilment of her candidature requirements. The first author was supervised by the remaining authors who have experiences and expertise in education, psychology, and speech pathology. The authors advocate that all children with autism have the right to participate in inclusive education, which starts with a positive transition into formal schooling.

3. Results

3.1. Theme 1: potential value

3.1.1. Usefulness

Across participants, there were consistent reports that the prototype online tool could provide a valuable contribution to existing

systems, processes, and knowledge building for individuals involved. The feature proposing alternatives methods for establishing connections between

education settings was supported across participants, with teachers and parents alike noting the power of information when working with children with autism: “Rather than taking steps backwards you can just continue through with what’s worked, and what’s appropriate for those individual students” (Becky, teacher), “Even if it’s just two basic recommendations to make their [the teacher’s] life better and make that child be more relaxed so they have a better experience and learn more” (Gloria, parent).

Across participants it became apparent that the prototype tool could potentially offer opportunities for building capacity in teachers and teams supporting children with autism, simultaneously reducing pressures on support staff within the school. By knowing where to access resources, support and information on children in their classroom, the prototype online tool could not only assist teachers in being “more prepared” (Amelia, teacher), it could also “allay some fears” for teachers who were unfamiliar working with students with autism (Melissa, HOSES). Anita (support teacher) also noted that:

> A lot of teachers are overwhelmed when they come in and to have students with disabilities in their class and they don’t really know where to go, so this is a place that they can [go], so I think it's really beneficial.

Karina (head support teacher) expressed that providing teachers with access to an online tool, as suggested, could “give them [teachers] a bit more initiative to go and help themselves rather than go ‘that’s your job,’” however, was conscious that an online tool should not “take away from that human resource [accessing support within school].” Parents also agreed that providing teachers with centralized access to information about their child could reduce their need to “reiterate everything. Every single thing…every week,” (Hannah, parent) relieving some of the pressures felt by parents to relive their, sometimes, challenging experiences of being a parent of a child with autism.

With a lack of time reported to be a barrier to the use of “best practice interventions” (Gloria, parent), the capacity for the online tool to provide relevant, easy to access, and high-quality information was therefore highlighted, as Amelia (teacher) notes: “having something that I can go and go, ‘oh I know that this source is recommended, that’s come from somewhere [reputable]”. While Isabelle (parent) expressed that training and access to support for teachers should be facilitated within school settings, she reported that this was not always achieved in practice, “In an ideal world you shouldn’t have to go to a platform [prototype online tool] for that, but it doesn’t happen,” acknowledging the value of providing teachers alternative sources of communication, connection, and access to resources.

3.1.2. Motivation to engage

Despite generally supportive views of the potential for the prototype online tool to contribute value to transitions, participants highlighted a number of factors which might contribute to the use of the tool. Parents noted that the culture within schools towards supporting best practice and preparing teachers to work with students with autism could impact the uptake of the proposed tool. As Gloria (parent) stated, the “culture of expectation of adherence to best practice is really set by the principal,” highlighting that schools which lack this culture might not display interest in using the online tool. Danica (Parent) further expressed that even where teachers strived to provide quality support for children with autism, “if the rest of the school is not supportive… and there is that not whole school approach,” this could come undone, ultimately undermine potential engagement with the online tool. Participants also suggested that the ‘rewards’ for engaging in an online tool be clearly communicated, as Danica (parent) stated, “what incentive apart from having harmony in the classroom, and having it be successful, is there for [using the online tool]?” The need to clearly communicate the value of engaging in an online tool was also expressed by Peta (HOSES) “it’s got to be enticing enough for them [teachers] to want to go, I am actually going to get something out of this. It is not just something extra that I have to do.”

Participants also reported that the capacity of the tool to meet the “real life need[s]” (Ariana, HOSES) of teachers, identified during transitions would impact engagement, as Kristy (teacher) notes, “if there was a concern there, I’d definitely be looking for something to help with the management of the children with autism, for sure.” With the comment that teachers were frequently under immense pressures and “struggling to keep on top of everything that’s part of their role” (Lesley, HOSES), increasing demands on teachers time, such as to engage in the online tool, might result in teachers who are “willing but not always able to engage,” (Paula, HOSES). Tanya (teacher) also expressed that while “it would be good to have access [to the online tool] … I don't know if I'd use it all the time,” with Becky (teacher) suggesting that motivation to improve practice and engage with an online tool would be “an individual thing.”

3.2. Theme 2: acceptable and appropriate?

3.2.1. Online approach

Overwhelmingly participants agreed that packaging the identified factors as an online tool to support transitions was appropriate, as reflected in the statement “it's the way that everything is going to go anyway, everything is online” (Tanya, teacher). The online approach also offered some advantages over traditional approaches to providing support during transitions, with teachers highlighting the benefit of being able to access the tool in “their own time” (Julie, support teacher), and reducing difficulties in establishing connections with a child’s previous teacher, “it’d probably be easier [communicating] through online because we don’t always see them” (Cristy, teacher). Teachers and HOSES were also careful to highlight the logistical considerations that would need to be made when considering the uptake of a new tool. The need for the tool “to be very easy” (Anita, support teacher) to access, was a common theme across the participants working within schools, highlighting that “some time and energy” (Becky, teacher) should be devoted to ensuring that logging in to an online tool, and navigating the various components, was easily achieved. This was thought

to be particularly salient for teachers who might not be "as competent around the online world," (Jennifer, teacher) a factor which might inhibit their desire to use the prototype online tool.

Across participants, however, concerns were raised regarding data security of the online tool, particularly as child reports could be uploaded for access by authorized users, "I mean you have to be careful about the constraints that you put around it, and it would be obviously a locked, you'd have to have a password to get in, type thing" (Karina, head support teacher). Participants further suggested the need for moderation of discussions held within the online tool, with Sally (support teacher) emphasizing the need for any online discussion forum to "be a professional space", a sentiment reflected in Isabelle's (parent) comment surrounding the need for "some sensitivity" by teachers when discussing experiences with children with autism within the proposed tool.

3.2.2. Where it fits

Participants expressed that while the online tool could provide an acceptable and appropriate means for teachers to access information and make connections overall, there was a need to consider how the tool would co-exist with existing transition processes. This was particularly salient for HOSES interviewed, who are largely responsible for overseeing transitions into primary school for children with autism. Concerns around doubling up of information between the suggested tool and the existing OneSchool system in place were raised by Peta, "if the documents [transition reports] were given to us we could just upload them straight to OneSchool, otherwise it's having two databases." HOSES were also cognizant that teachers do not rely solely on resources and discussions provided within the online tool, as Melissa noted, "They've [teachers] got access to staff, and we have, we have meetings set up in the school to give teachers a weekly opportunity to discuss students. So, it would be an add-on to what's already happening" (Melissa, HOSES). Instead, the online tool, when "paired with the face to face processes that already go on" (Peta, HOSES), could provide added value to these processes. Other participants, however, recognized that additional support provided through the online tool would be an acceptable means of complementing the processes that occur within schools, "we've got our school support, which is amazing. But to be able to feed off other schools as well and have some ideas ready there, [that's] definitely the way to go" (Sally, support teacher).

4. Discussion

The transition to school has been highlighted as a potentially challenging period of change for children with autism, their families, and their future classroom teachers. However, few attempts to provide a comprehensive approach to supporting teachers and students during this period have been developed. After identifying factors which have potential to offer positive contributions to supporting the transition into primary school, the purpose of the current study was to determine whether combining these factors in an online based tool would be perceived as a socially valid method for providing support.

The first theme captured the perceived value of the prototype online tool in supporting the transition to school for students with autism. Participants highlighted the potential for the prototype online tool to act as an alternate means for teachers to access both information about the child, and relevant resources that might assist the child during transition. With research indicating that communication breakdowns can occur during the transition to school (Quintero & McIntyre, 2011; Welchons & McIntyre, 2015), a sentiment reflected in the current study, providing access to child-specific information, particularly where children have a diagnosis that might impact transition is imperative. Participants further noted that providing an avenue for teachers to access support, including both relevant resources and other education professionals, had the potential to increase the capacity of teachers working with students with autism, reducing reliance and pressures on other support staff. This finding is consistent with previous research which suggests that improving knowledge and skills is both a motivating factor to engage in (Hew & Hara, 2007), and positive outcome of (Matzat, 2013), teacher engagement in online professional communities. These findings highlight that providing connections between settings, access to quality resources, and sharing with other professionals are important factors during the transition to school. Further, the integration of these factors into an online tool has the potential to contribute value to this period of change, emphasizing the need for comprehensive approaches to transition.

Ensuring engagement in the prototype online tool was also highlighted as being critical to its success, with participants suggesting that the culture of schools towards supporting best practice could influence uptake. This finding echoes the results of Kucharczyk et al. (2015), who found that the school environment impacted the uptake of empirically supported treatments for adolescents with autism. Additionally, with limited spare time and increasing demands in the classroom, a finding often cited as a barrier to teacher engagement in transition activities (Quintero & McIntyre, 2011) and reflected in the current study, participants noted the importance of clearly communicating the potential rewards to be gained by engaging in the online tool. Such factors include flexibility in how teachers access resources and connect with peers, in addition to the knowledge building described above, findings consistent Smith's (2016) investigation of the perceived benefits of ICT use in learning and teaching. Being clear to communicate the expected benefits of engagement in any future attempts to support transition is, therefore, a critical step in ensuring uptake and engagement in these approaches.

The second theme concerned the appropriateness and acceptability of providing transition support through the suggested online tool. The various stakeholders agreed that providing transition support for children with autism in a digital context was not only appropriate but consistent with shifts towards digital storage and access to information within the school context, including the use of OneSchool (Queensland Government Department of Education, 2018) in the local context. However, stakeholders reported that all information stored within the suggested tool should be secure, with access being granted to relevant users only. The need for any discussions contained within the online tool to be monitored and moderated, ideally by a third party with knowledge of both the education context and autism literature, ensuring adherence to best or evidence supported practice was also thought to impact

acceptability. This finding is consistent with that of Smith (2016) who found that concerns around the credibility of information shared through social media were a potential hindrance to use of online learning tools. Moving forward, these results provide valuable insight into the acceptability of utilizing ICT in providing transition support and highlight the need to consider these technologies when developing new approaches.

An important finding when considering how an online tool of this nature would be implemented in schools, was the need to consider existing systems and transition supports, ensuring its promotion within schools as a tool to be used in conjunction with, and not superseding, these. While continuing to rely on existing support pathways could be seen as impeding engagement in the online tool, research by Matzat (2013) instead proposes that embedding the use of online communities of professional learning with existing offline professional networks (i.e., one's within school colleagues) can be to the benefit of teachers, leading to increased discussion and knowledge sharing. Although a universal approach to providing transition support to teachers of students with autism is appealing, these findings suggest that adapting to the local school context is likely to increase acceptance of, and engagement in the prototype online tool.

4.1. Limitations

Several limitations must be considered when interpreting the results of the present study. The authors employed purposive sampling when selecting participants. While the methodological strength of this approach lay in the ability to ensure that key stakeholder perspectives were gathered when seeking feedback on the proposed approach to supporting transitions, it may nonetheless reduce the generalizability of findings. It is also important to note that all parents interviewed had children who had transitioned from early intervention services into the first year of primary school, and it may be the case that the transition experience for these families is not representative of children who transition from early childhood settings (without specific autism intervention), or who are not diagnosed until school entry. Despite the nature of the sampling method, we were able to capture feedback from a diverse group of individuals, each with varying roles in supporting children with autism as they transition to school, providing a comprehensive evaluation of the prototype online tool.

4.2. Future research directions

Feedback from key stakeholders supported the need for connections between settings, access to high-quality relevant resources, and peer to peer knowledge sharing, during the transition to school for children with autism. Taking into consideration feedback received, further refinement of the online tool is needed and should be guided by the KTA framework. As Graham et al. (2006) suggest, working through both the knowledge creation and action cycles is a dynamic process. It is suggested that moving forward, the information gathered in the current study move through the action cycle, looking at how this can be adapted to the local context (see Graham et al., 2006). This will include calculated decisions regarding the application, or software, used to host this tool. Blackboard was used in the current study, as it was both available to the research team, and had the capacity to achieve desired functions. However, future research will need to consider the accessibility of this software within schools. Additionally, considerations should be made regarding strategies to incentivize the use of the tool, which may take the form of contributing to the professional learning requirements of teachers. Following refinement of the online tool through the early action cycle phases, piloting the implementation of the online tool, with a cohort of children transitioning into primary school is then suggested, with engagement and experiences of users monitored and evaluated. Despite the appeal of providing a comprehensive approach to supporting transitions, considering the varying needs of teachers, students, and the contexts in which they operate was flagged as having the potential to impact the success of the prototype online tool. Therefore, future research might alternatively utilize these findings to inform future development of more localized solutions, including selection and integration of the factor/s most relevant to the needs of the school into existing systems, such as OneSchool (Queensland Government Department of Education, 2018).

5. Conclusions

In this study, we investigated the social validity of a prototype online tool which seeks to provide a comprehensive approach to supporting the transition to school for children with autism. Through our interviews with parents of children with autism, teachers, and other support staff in schools (e.g., HOSES) it was highlighted that the prototype online tool to support transition had to the potential to contribute value to users and was an acceptable and appropriate means of accessing information and other professionals. Incorporation of the identified factors will provide a strong foundation for the success of future attempts to support transitions. Further, the feedback gathered in the current study provides clear guidance around the need to consider the context in which any future attempts will be implemented, identifying the need for integration with existing systems if successful engagement of users is to be achieved.

Declaration of Competing Interest

The authors have no conflicts of interest to declare.

Author note

Rhylee Sulek, Menzies Health Institute Queensland, Griffith University, Brisbane, Australia; David Trembath, Menzies Health Institute Queensland, Griffith University, Brisbane, Australia; Jessica Paynter, Menzies Health Institute Queensland, Griffith University, Brisbane, Australia; Deb Keen, Autism Centre of Excellence, Griffith University, Brisbane, Australia.

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Appendix A. Supplementary data

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