APPENDICES
The communicative behaviour of students with MSD tends to be characterised by pre-symptomatic, pre-intentional, non-conventional and often subtle and idiosyncratic forms that may include gross body movements, facial expressions and vocalisations [6,12,13,16]. Despite difficulties with communication, involvement in communicative interactions has been shown to have a positive effect on the ability of students with MSD to engage with activities in the classroom [17,18]. Conversely, the absence of communicative interaction is likely to result in passivity in students with MSD [17]. Thus, lack of communicative interactions in the classroom potentially reduces the participation and educational opportunities for these students [11,17,19]. Teachers play a crucial role in fostering communicative interactions in the classroom for students with MSD to facilitate their social inclusion and participation in school life [11].

Best practice in communicative intervention for students with MSD is considered to include facilitation of functional communication within natural contexts, such as regular activities within the classroom [5,10,12,13,20,21]. This highlights the important role of teachers in facilitating communication for students with MSD. Teachers have responsibility for interpreting and assigning meaning to the behaviour of their students and responding to these situations as if they were communicative [11,14,22,23]. Teachers can create opportunities for their students to communicate, including providing choices, or engineering activities to facilitate students' participation [6-8,16,18,20,22,23].

As a consequence of their communicative difficulties, students with MSD can make additional demands on teachers in terms of the time and skills required to: (a) interpret communicative behaviour and (b) create opportunities for effective communication to occur [8,14]. Yet researchers have observed that teachers can be effective at promoting communication with students with MSD [24], and that there is a strong relationship between the opportunities for communication provided by teachers and the quantity of communicative behaviours displayed by their students [15,18,25].

Given the crucial role of teachers in promoting the educational participation of students with MSD through fostering communicative interaction, the purposes of this article are as follows: (a) to examine what has been documented in the research literature about the nature of communication between teachers and their students with MSD in the classroom, (b) to explore factors that may influence teachers' communication with their students with MSD, including professional development about communication and (c) to propose a systematic research agenda that will provide an understanding of the broad range of factors that may impact upon the ability of teachers to communicate with their students with MSD in the classroom.

Method

Criteria for the studies to be reviewed included all of the following: (a) the studies were published between 1987 and 2009; (b) studies reported frequency of communicative interactions data for students with MSD at school; (c) studies reported communication education provided to teachers of students with MSD; (d) studies reported data from teachers about their perceptions, experiences and support needs with respect to communicating with students with MSD and others with little or no functional speech. Studies were excluded that: (a) reported direct intervention with students with MSD; (b) were not school-based; (c) included as participants parents and people with MSD who did not attend school; (d) focused on general curriculum or specific issues such as challenging behaviour.

Search procedures

To locate all studies that met the selection criteria, electronic searches were conducted in the following databases: DIALOG, Informat, Ingenta, Proquest, psychINFO, ERIC, CINAHL, psycARTICLES, psycLIT, Medline/Ovid and Cochrane Library, PubMed and Scopus. Searches were conducted using key-words such as: severe disability, multiple disabilities; students; teachers; communication; augmentative and alternative communication; training; profound disability; high support needs; special needs; interaction; special schools; special education teachers; in-service and teacher education. Manual searches were also conducted of references cited in the studies that met the review's inclusion criteria. The authors acknowledge that a relevant study may have been missed, as can occur with any literature search. Unpublished research, including doctoral dissertations was not included.

Coding procedures

Studies were coded and analysed in terms of the: (a) goals of the study, (b) participants (i.e. students and/or teachers) and their educational setting, for example special school, (c) methodology, (d) results, for example frequencies of communicative interaction, teacher reports about skills and knowledge,
themes identified by teachers and (c) outcomes and recommendations.

From the initial search 103 abstracts were obtained and screened by the first author for: (a) participants, (b) educational setting and (c) focus on communication or communication education for teachers. Sixty-two studies were eliminated at this stage for the following reasons: (a) participants were not school aged, (b) studies were not school-based, (c) while including aspects of communication, studies focused on a specific issue such as challenging behaviour, (d) studies focused on interpretation or characteristics of communication with students with MSD, (e) teacher education studies were not targeted at students with MSD or (f) full length articles were inaccessible.

Forty-one full length articles were reviewed by the first author for: (a) inclusion of frequency data for communication between teachers and students with MSD, (b) attempts to collect data from teachers directly about communicating with students with MSD or others with little or no functional speech, (c) results of communication training for teachers of students with MSD. Eighteen articles were eliminated for the following reasons: (a) they were discussion papers and therefore did not report data or (b) teacher participants were not fully qualified but in undergraduate education.

Inter-judge agreement for inclusion and exclusion of studies was based on discussion between the first two authors until consensus was reached. Data were extracted by the first author by searching for and documenting the following information: (a) participants, including age of students, experience of teachers and educational setting, (b) methodology, for example observation intervals, questionnaires, interviews, structure of teacher education, (c) results in terms of frequency data, survey results, themes arising from interviews, and outcomes of teacher education, (d) outcomes and recommendations, for example communication education for teachers and further research.

The quality of studies was assessed by review of methodology. Validity of studies was reviewed in terms of the instrumentation, sample size, statistical analyses of data and verification by participants. Reliability was reviewed in terms of inter-observer and inter-rater agreement and internal factor reliability. No studies were eliminated at this stage.

Results

Twenty-three studies met the criteria for inclusion and were classified into four categories: (a) observational studies, (b) studies using surveys/questionnaires, (c) other qualitative studies using methods such as focus groups and interviews and (d) teacher education studies. Five studies were included in more than one category. These studies are summarized in Table 1.

Observational studies of communicative interactions between teachers and students with MSD

In nine studies researchers explored communicative interactions between teachers and their students with MSD through classroom observations and reported various estimates of frequency [11,15-17,19,26-29]. In the majority of these studies, instances of communicative behaviour were recorded during brief observation intervals across a total of 103 school days [11,16,17,19,26]. A total of 135 students ranging in ages from 4 to 19 years were observed predominantly in segregated settings with some in inclusive classes. Researchers have reported adequate inter-observer agreement and statistically significant results despite small sample sizes.

The reported frequencies of communicative interaction between teachers and students with MSD ranged from 4.7 to 21.8% of the time observed and were interpreted by the researchers to be low [15,16,19,28]. The results of early studies using observation methods (e.g. [15,28]) indicated that teachers attempted to communicate with students 7-15% of the time observed. More recently, Arthur [19] and Foreman et al. [11] reported minimal changes in this low frequency of interaction. Recently reported frequencies of communicative interaction ranged from 4.7 [19] to 20.7% [11] and 21.8% [27] of the time observed. Differences in reported frequencies may be due in some part to the code definitions employed.

In Arthur's [17,19] studies of teacher-student interactions, there was no communication by teachers with the students for an average 70% of the time they were observed. The teaching staff made few attempts to engage in communication, including initiating and responding to communicative acts. The students attempted to initiate communication 13.4% of the time observed, but this was met with no partner response. Consequently, Arthur [19] concluded that the teaching staff observed provided few opportunities for the students to communicate and displayed limited responsiveness when the students attempted to communicate. An additional concern noted by Arthur [19] and Foreman et al. [11] was that students with MSD were not engaged in activities or opportunities for learning for large amounts of time in the classroom.

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<th>Procedures/studies</th>
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<td>Counted frequency of C.I.s in 10 s intervals</td>
<td>C.I.s occurred 4.7% of time observed</td>
<td>Rec. teacher education</td>
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<td>C.I.s occurred 4.7% of time observed</td>
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<td>4-18</td>
<td>HSN</td>
<td>Counted frequency of C.I.s in 10 s intervals</td>
<td>C.I.s occurred 21-38% of time observed</td>
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<td>7-17</td>
<td>SID</td>
<td>Coded communicative functions</td>
<td>Students participated in C.I.s or communication level</td>
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<td>16</td>
<td>6-11</td>
<td>MSD</td>
<td>Counted frequency of C.I.s in 10 s intervals</td>
<td>Teachers communicated with students 20.7% of time, no communication occurred</td>
<td>Rec. investigating impact of teacher on students</td>
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<td>Houghton et al. (1997)</td>
<td>37</td>
<td>5-19</td>
<td>MSD</td>
<td>Counted frequency and coded type of C.I.s</td>
<td>Teachers responded to students 7-15% of time observed</td>
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<td>Iacovino et al. (1998)</td>
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<td>5-8</td>
<td>MSD</td>
<td>Counted number of communicative acts in 1 min intervals</td>
<td>More than 20 communicative acts in 30 min sessions</td>
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<td>14</td>
<td>8-15</td>
<td>DSI</td>
<td>Counted frequency of C.I.s in 30 s intervals</td>
<td>C.I.s occurred 9-12% of time observed</td>
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<td>37</td>
<td>MSD</td>
<td>Sp.Ed</td>
<td>Counted frequency of C.I.s in 10 s intervals</td>
<td>Teachers initiated communication 14% of time observed</td>
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<td>Arthur and Butterfield (1993)</td>
<td>241</td>
<td>Sp.Ed</td>
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<td>Questionnaire about students' communication: Likert scale 30% response rate</td>
<td>Teachers reported less certainty communicating with students with S.I.D., thus students with moderate intellectual disabilities</td>
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<td>Sp.Ed</td>
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<td>Questionnaire about skills and knowledge in communication programming: 5-point Likert scale</td>
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<td>In-service program for teachers</td>
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<td>HSN</td>
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<td>Results of survey were not published in this paper</td>
<td>Rec. investigating teachers' support needs</td>
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<td>Delivery of training manual (Butterfield et al. 1992) and in-service program</td>
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<td>Challinors et al. (1998)</td>
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<td>High level support needed to include students in MSD in general classrooms</td>
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<td>Sore (1997)</td>
<td>190</td>
<td>Sp.Ed</td>
<td>R Questionnaire about attitudes and communication education needs, Likert scale</td>
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<td>Rec. teacher education including practice and feedback</td>
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<td>Evaluation questionnaire for in-service programs, 5-point Likert scale</td>
<td>Teachers reported increased skills and knowledge</td>
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<td>Bruce (2002)</td>
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<td>2</td>
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<td>5-6 In-service, 2 sessions with follow up, pre- and post-in-service analysis</td>
<td>Teachers reported intent to change practices</td>
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<td>Foreman et al. (2007)</td>
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<td>Staff training three sessions; pre- and post-training questionnaires; classroom observations</td>
<td>Teachers reported increased skills and knowledge; No change in frequency of C.I.s</td>
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<td>McGarrah and Pennington (1997)</td>
<td>9</td>
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<td>9</td>
<td>Teacher training: five sessions, 5-6 months post training</td>
<td>Teachers showed no improvement in C.I. 1 month post training, less than half followed up</td>
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<td>Kem-Walsh and Light (2003)</td>
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<td>6-17 Range</td>
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<td>Qualitative interviews: semi-structured, narrative analysis</td>
<td>Identified range of barriers and supports to inclusion</td>
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MSD, multiple and severe disabilities; HSN, high support needs; SLD, severe intellectual disability; DSU, dual sensory impairment; C.I., communicative interaction; Rec., recommended; Sp.Ed., special education trained; Gen., general classroom trained; R, range; AAC, augmentative and alternative communication.
(in special schools) and in general classrooms in mainstream schools. They found that the students in mainstream, inclusive classrooms spent significantly more time engaged in communicative interactions (48.7%) than did students in segregated classrooms (27%). In the inclusive classrooms, the teacher was not the main communication partner. The full-time teachers’ aide and more than 20 peers without disabilities were potential communication partners providing many naturally occurring opportunities for communication [11]. In contrast, in the segregated classrooms, the teacher spent significantly more time as communication partner than teachers in general classrooms. Despite the greater involvement of the teacher, students in segregated classrooms still spent more time with no communication partner present (54.7%) than did the students in general classrooms (33%).

There is consensus among researchers that low frequencies of communicative interaction are a cause for concern for the educators of students with MSD [17,19] and that this situation requires remediation [11,15–17,19,26,28]. The consistent recommendation across these studies was that teachers be provided with enhanced opportunities for professional development about communication.

Studies using survey methodology

In eight studies researchers used survey methodology to obtain information from teachers about: (a) characteristics of their students’ communication [22,26], (b) their communication programming skills and knowledge and professional development needs [22,23,26,30–33] and (c) their attitudes towards communicating with their students [34]. A total of approximately 770 teachers in special schools, support classes and inclusive settings participated in these studies. Arthur et al. [22,23,26,30] used a mail survey to question more than 200 teachers of students with moderate to severe disability across NSW in Australia about their knowledge and skills and their concerns regarding communication programming. The teachers reported that they were less certain about interpreting the communicative behaviour of students with more severe disability who used informal systems than that of students with moderate intellectual disability. In Izen and Brown’s [32] study, 98.3% of teachers reported teaching communication skills despite this being one of the areas in which they felt least prepared by teacher training. In the two open-ended questions in Chalmers et al.’s study [31], teachers listed barriers to creating opportunities for communication for students with MSD, including inadequate staffing, lack of funding, insufficient access to therapy services, lack of support from the executive and staff attitudes. In addition, Soto [34] found that teachers’ attitudes and beliefs affected their intentions to communicate with their students.

The recommendation from most studies involved teacher education [22,31–34]. The outcome of Arthur’s studies was the development of both a training manual and in-service programme for teachers [23,30]. Arthur et al. [26] also recommended further research be conducted into the perspectives and needs of teachers of students with MSD. Chalmers et al. [31] further recommended addressing teachers’ perceived barriers to communicative programming for students with MSD.

Teacher education studies

In the seven teacher education studies reviewed researchers focussed on increasing teachers’ knowledge and skills in facilitating the communicative interaction of students with severe intellectual disability [23,39,36] and dual sensory impairments [37]. Some studies also sought to determine whether communication education for teachers would result in changes in communicative interaction for students with MSD [27,30,38]. A total of 158 special education teachers working in special schools and support units participated in these studies. Arthur et al. [23,26,30] used both their education manual Creating Communicative Contacts [30] and an in-service education programme [23,30] to assist approximately 150 teachers to develop their knowledge and skills in communication programming for students with MSD. Large-scale training group sessions were conducted in 10 centres around the state of NSW Australia, and focused on informing teachers about how to implement the manual [32]. Almost a decade later, Foreman et al. [27] replicated these protocols in three half-day sessions with six teachers and six teachers’ aides at the University of Newcastle, NSW in a study designed to see whether training led to changes in teacher behaviour.

In their evaluation of the training programme, Arthur et al. [30] acknowledged that they did not include any measures of changes in teachers’ practice in the classroom. Teachers reported that the in-service programme was effective in increasing their knowledge and skills and reducing their concerns about gaining access to needed, relevant knowledge [30]. In their study, Foreman et al. [27] conducted post-training classroom observations and found that the teachers’ reported increases in knowledge and skills were not reflected in frequencies of communicative interactions in the classroom. They found no significant increases in communicative interaction for students with MSD following communication
training for their teachers and teachers' aides. Consequently, they concluded that there was little evidence that the training had resulted in lasting changes in teachers' communication with their students with MSD [19,27].

Similarly, teachers participating in small studies showed no significant improvement in their observed interaction skills after training [35] and reported intentions to make changes were not confirmed by post-training observations [27]. It was not possible to conclude that the studies had made any changes in communicative interactions for the teachers and students in North et al.'s [38] study due to the absence of pre-training information.

Morfillian [36] reported increased use of speech generating devices (SGD) among students following up to 52 sessions of support and feedback with individual teachers in the classroom. The small number of students in this study, however, was described as having moderate disabilities as well as severe intellectual disabilities.

Studies using other methods: Qualitative research

In four studies, researchers used qualitative methods to obtain information from teachers. In one study [18], three teachers reported that students with severe intellectual disability participated in communicative interactions with them. The 29 teachers in the other three studies taught students in general classrooms that used augmentative and alternative communication systems (AAC) but did not necessarily have MSD [34,40,41]. The factors raised by these studies include teachers' attitudes, perceptions, and beliefs and broader contextual factors, as outlined in the following sections.

Teachers' attitudes, perceptions and beliefs. Soto et al. [34,40,42] using both survey and focus group methodology, identified a relationship between teachers' attitudes, perceptions and beliefs and their intent to communicate with their students who use AAC in general classrooms. Important among these were teachers' (a) perceptions of students' abilities to learn to communicate, (b) perceptions of their own skills and responsibilities, (c) attitudes towards communication education for students who use AAC and (d) perceptions of the speech pathologist's role [34]. Adequate reliability for coding of themes and verification by participants were both also reported for these studies.

Broader contextual factors. The 11 teachers who participated in Kent-Walsh and Light's [41] interviews talked about their experiences of the importance of: (a) the availability of time and resources for implementing communication programmes, (b) the availability of teachers' aides, (c) opportunities for collaboration with other teachers and speech pathologists, (d) the degree of support at an institutional level, (e) the attitudes of other staff and (f) access to appropriate education and practical skills [40,41,43]. Good inter-rater reliability and verification by participants were reported for these studies.

From the findings of these studies, the authors made several recommendations both for supporting students who use AAC in general classrooms and for the education and skill development for their teachers. These recommendations include: (a) adequate resources including funding for assistive communication technology such as speech generating devices, (b) adequate time for planning, preparation, collaboration and education, (c) collaboration with other teachers and professionals and (d) philosophical support at an institutional level [34,41,43].

Discussion

Nature of communication between teachers and students with MSD

Although observational studies have yielded important information about frequencies of communicative interaction, their purpose was not to explore potential reasons for these low frequencies. Nevertheless, the consistent recommendation across these studies has been for teachers to be provided with more communication education (e.g. [1,15-17,19,38]), indicating an assumption that low frequencies of communication are due to deficits in teachers' knowledge and skills. Little is understood, however, about the reasons for the persistence of low frequencies of communication between teachers and students with MSD despite some research that has attempted to ascertain the role of teachers' knowledge and skills in communicating with such students.

Current explanations for low frequencies of communication: teachers' knowledge and skills

While teachers may have gaps in their knowledge and skills, surveys provide only limited, inconclusive evidence that teachers experience difficulties communicating with their students with MSD, and that such difficulties are the cause of the reported low frequencies of communicative interaction. Nevertheless, the consistent recommendation has been for teachers to be provided with greater opportunity for communication education.
Limitations of focusing exclusively on teachers’ knowledge and skills

It appears, however, that teacher education to improve knowledge and skills in communication has had a limited impact on the frequency of communicative interactions for students with MSD [27], and little is understood about why this is the case. The outcomes of teacher education studies indicate that a focus on increasing teachers’ knowledge and skills alone is unlikely to be sufficient to increase the frequency of communicative interactions with students with MSD [15,17,19,23,27,33].

Even when teachers have reported increases in their skills and knowledge following communication education, Foreman et al. [27] found that there was no concomitant increase in observed frequencies of communication with their students with MSD in the classroom.

There are likely to be reasons other than, or in addition to, deficits in teachers’ knowledge and skills, for the low frequency of communicative interactions reported for students with MSD [34,40,41]. Consequently, there may also be mechanisms in addition to teacher education that may assist teachers to increase communicative interactions for their students in the classroom. It appears that before effective interventions that will impact on communication for students with MSD can be implemented, it is necessary to gain a deeper understanding of why communicative interactions in their classrooms remain infrequent.

The remainder of this article analyses the current research base and outlines an expanded research agenda for gaining a more holistic understanding of the influences on the communicative interactions of students with MSD.

Evidence for the influence of factors other than teachers’ knowledge and skills

The studies using qualitative methods have pointed to the potential role of other factors that may influence teachers’ communication with their students.

Teacher’s attitudes, perceptions and beliefs. The results of Soos et al.’s research [34,40,42] suggest that teachers’ inaccurate perceptions of their students’ abilities and negative attitudes towards communication intervention and collaboration with speech pathologists, for example [34], could be factors contributing to low frequencies of communicative interaction. Following the outcome of their teacher education study, Foreman et al. [27] recommended that future research address teachers’ beliefs and attributions about their role in supporting the communication of students with MSD. Little is known about the attitudes, perceptions and beliefs of teachers of students with MSD, and further research is required to explore these, especially given the role of attitudes in staff education [44-46]. Without an understanding of the issues that may influence teachers’ perceptions, attitudes and beliefs, communication education may not be effective in changing teachers’ practices in the classroom [42,44,47,48].

Broader contextual factors. Researchers recognise that the limited communication observed by students with MSD may be due to a range of issues [49], and that there may be interactions between the individual characteristics of students with MSD and factors in their environment [49,50], yet we have little understanding as present about these interactions and environmental factors. Foreman et al.’s [11] findings suggest, however, that the type of educational setting may be a factor that has an influence on the frequency of communicative interactions for students with MSD.

All of the frequency data cited earlier in this article were collected in segregated classrooms. Yet it appears that there are educational setting variables, operating beyond the level of the teacher’s knowledge and skills that may influence the participation of students with MSD in communicative interactions. Foreman et al. [11] concluded that segregated educational settings may offer limited opportunities for communicative interactions. Focusing exclusively on the knowledge and skills of teachers may therefore not yield a full picture of the influences on the communicative interactions of students with MSD. Studies conducted in inclusive settings with teachers of students who use AAC are also suggestive of the value of investigating the influence of other broad contextual factors on the communicative interactions of students with MSD.

Teachers who have participated in qualitative studies have identified a broad range of contextual issues, such as availability of time and resources and opportunities for collaboration, that have impacted upon their ability to include students who use AAC in general classrooms [34,40,41]. Researchers also recognise that broader contextual issues such as those that may mediate the teachers’ ability to implement knowledge and skills acquired in communication education as well as best practices [31,44,46,49,51].

One of the reasons that communication education for teachers has had limited impact on observed frequencies of communication in the classroom may be that these programmes have been conducted outside the context in which teachers communicate with their students. Researchers conducted observations in the classroom and later acknowledged the importance of the context of their observations.
Most teacher education studies to date, however, have been conducted outside the classroom and may therefore not have taken into account the potential impact of the educational context on the frequency of communication. There has been limited support for teachers to apply knowledge and skills in the classroom. Given the consensus in the literature [44] that the purpose of education is to effect change, education conducted outside the classroom may be limited in its effectiveness in bringing about changes in teachers' communication with their students.

Even more fundamentally, it has not been possible to support the application of teachers' knowledge and skills within the broader context in which communication takes place. This is because of our limited understanding of the influence of broader contextual issues on the ability of teachers to communicate with their students with MSD [31,44]. It is therefore, necessary to gain a deeper understanding of the broad range of contextual issues that may influence the communicative interactions of students with MSD, to work towards developing more effective ways to support their increased participation in communication.

Little is known about teachers' views of the contextual issues influencing their ability to communicate with students with MSD. There is a need to investigate whether teachers of these students also identify a broad range of factors as potential reasons for low frequencies of communication in their classrooms and whether implementing the resulting recommendations will lead to more positive communicative outcomes in the classroom than those resulting from teacher education alone [26,30,37].

The need for an expanded research agenda

The current research base is first analysed as a precursor to the discussion about the need for a new research agenda and further qualitative research.

The current research base. Even though there is recognition in the literature of the place of 'external variables' and 'contextual factors' in the communication of students with MSD [12,18,50,52], little has been explored beyond the role of the communication partner, and engineering the environment of the classroom. Existing conceptual frameworks of communication intervention for students with MSD recommend consideration of the context in which communicative interactions are embedded [12,18,50]. The individual characteristics of the student interact or are interdependent with other factors, the first of these being the communication partner with his or her attitudes, skills and knowledge. The individual student and communication partner in turn interact with other contextual factors in which their communicative interactions are embedded. Little is understood, however, about these other contextual factors. The current research agenda appears to be largely operating from a limited definition of contextual factors.

Taking a systemic approach to research on the communicative interactions of students with MSD. It appears that there may be a broader range of factors that influence the communicative interactions of students with MSD than is reflected in the definitions currently employed in research. The preliminary findings of the studies referred to above with students who use AAC in inclusive settings [34,40,41] and students with MSD in different educational settings [11] support the need to investigate the potential impact of broader contextual factors. These findings are consistent with taking a systemic approach to such an exploration. From a systemic perspective, a complex social phenomenon such as communication between individuals is embedded within a system which profoundly influences the individual's behaviour [53]. In one of the few communication studies that have explored the role of the broader social context, Packman and Kuhn [54] have recently argued for the application of 'complexity theory' to the management of stuttering.

According to this perspective, systems are multi-layered so that contextual factors operate at different levels [55]. Contextual factors therefore operate beyond the level of individual students and teachers. These individuals are embedded within the classroom which in turn is embedded within the school setting and workplace culture. Each government school is also embedded within a district or region and the organisational structure of the education department. Schools are also influenced by other agencies such as those that employ speech pathologists. Finally, schools are not isolated from policies and legislation of the government, broader societal institutions and social discourses about disability.

These contextual factors also interact and are inter-connected in complex ways [55]. A systemic approach therefore enables exploration of factors that influence the communicative interactions of students with MSD at different levels of the system as well as how these factors interact and influence each other. Two such factors: (a) teachers' attitudes and (b) collaboration between teachers and speech pathologists are examples of the potential value of taking a systemic approach to the communicative interactions of students with MSD.

Teachers' attitudes towards students with MSD can be viewed as emerging within particular discourses about disability and institutional structures such as the education system that continues to
provide segregated education. Other contextual factors, such as the workplace culture and departmental or school policies, may also mediate the relationship between teachers’ attitudes and their communication practices with students with MSD.

There are layers of contextual factors that may both influence teachers’ attitudes and determine whether or not they lead to behaviours that restrict or enable opportunities for communication. Little is known about the attitudes or the contextual factors that influence the communication practices of teachers of students with MSD.

Collaboration between teachers and speech pathologists is a recognised aspect of best practice in the education of students with severe disabilities [43,56-59] and complex communication needs [60]. It appears that the process of collaboration is embedded within organisational structures that mediate whether or not it will be successful, for example, through the degree of support provided for the professionals involved [61]. Little is known about how collaboration between teachers of students with MSD and speech pathologists actually takes place and the influence that this has on the communicative interactions of students with MSD. Further research taking a systemic approach would enable exploration of the influence of contextual factors, such as organisational support for collaboration and teachers’ attitudes, on the participation of students with MSD in communicative interactions.

The contribution of a social model of disability. Taking a systemic approach to the communicative interactions of students with MSD may be further refined by using the social model of disability [62,63]. According to this model, organisational support for collaboration and teachers’ attitudes are examples of socio-structural factors that may act as barriers to the participation of students with MSD. Segregated education is another example of a socio-structural factor that may place restrictions on the activities of students with MSD. Foreman et al.’s [11] findings that the educational setting influences the participation of students with MSD in communicative interactions, support this model. Inclusive educational settings are more likely to foster participation, whereas segregated settings may restrict opportunities for participation. According to this overall approach, low frequencies of communicative interaction can be viewed as evidence of systemic restrictions on opportunities for communication for students with MSD.

The need for an expanded research agenda. This article therefore recommends a research agenda that explores documented low frequencies of communicative interaction in terms of socio-structural or systemic factors. This agenda, while including the attitudes, skills and knowledge of communication partners, also moves beyond this level to explore what impacts upon teachers and their students with MSD as individuals within a system. This research agenda has the potential to identify socio-structural factors that may act as either barriers which restrict access to communication, or supports which enable access to communication. Finally, this research agenda also has implications for the nature of the methodology employed.

The need for further qualitative research. Valuable information about frequencies of communicative interaction occurring in different educational settings has been gathered by quantifying the observed behaviour of individuals, predominantly students with MSD and their teachers. However, this methodology may be limited in its effectiveness in uncovering the possible range of factors that influence an individual’s behaviour and potentially underpinning low frequencies of communicative interaction [34]. Surveys of teachers may also be limited in their ability to uncover the factors that influence communicative interactions with students with MSD.

Surveys have a narrow focus offering only a limited scope of questions and potential responses [32,64]. Specific survey questions about students’ communicative characteristics and teachers’ knowledge and skills [22,23,26,30] may have meant that other factors of concern to teachers did not emerge from the research. This may be one of the reasons that teacher education programmes based on survey responses have not had an impact on observed communicative interaction.

Educational programmes for teachers predetermined from the constrained responses to surveys and delivered outside the context in which communicative interactions occur may not meet teachers’ perceived needs. Education is more likely to be successful if participants have some sense of ownership of the educational programme including determining the need for and content of the programme, and the structure and timing of delivery [36,44]. As Foreman et al. [27] discovered, survey responses may not accurately reflect the reality of what is happening in the context. For this reason, McCarthy and Light [46] recommended that researchers use non-survey methods such as interviews to more fully explore teachers’ attitudes towards their students.

Qualitative methods, such as in-depth interviews, are appropriate for exploring an area about which little is known, such as factors potentially influencing low frequencies of communicative interaction [31,44,65]. As these factors are likely to be systemic, narrative inquiry methodology is appropriate because it is capable of yielding rich descriptions that reveal...
the complexity and multi-dimensional nature of systemic, socio-cultural factors [66,67]. The quantification of restricted aspects of individuals' behaviour, out of context, cannot portray this complexity [65,67,68].

According to several authors [64,66,67], narratives are capable of illustrating individuals' attitudes (such as teachers' attitudes towards communicating with students with MSD), as well as their perceptions of the intentions and behaviour of other people (such as teachers and classroom diagnosis). Narratives are capable of illustrating the dynamic interactions between individuals and the different socio-structural factors that make up their context [66,67]. By capturing sequences and consequences of events, narratives are also capable of representing how these processes change over time [68]. As a result, they can depict the impact of the school and broader educational system on the communicative behaviour of both teachers and students with MSD, as individuals within this system [66,67].

Teachers, as communication partners, experience the influences of these socio-structural factors on their communicative interactions with their students with MSD. Telling stories is a primary way that individuals make sense of their experiences within their socio-cultural contexts [66,68]. Teachers' narratives can therefore act as windows into socio-structural barriers [61] that may restrict communication access for students with MSD [65].

To date, however, no research has explored teachers' lived experiences of communicating with their students with MSD, nor have they been asked about their experiences of communication education or their support needs more broadly. Kent-Walsh and Light [41] claim that general education teachers have had few opportunities to talk about their experiences and needs in terms of communicating with students with MSD. This is also true for special education teachers in segregated or integrated settings. An important aspect of an expanded research agenda is therefore to 'give voice' to teachers of students with MSD.

The use of in-depth, unstructured interviews would enable teachers to tell their own stories and make sense of their experiences of communicating with their students [64,65]. Students with MSD are a heterogeneous group [4], who attend a variety of different educational settings [1]. At the same time, teachers both shape and are shaped by their particular school landscapes [69]. Individual teachers' narratives may reveal the nuances of communicating with students within their particular school setting. In-depth, unstructured interviews also enable teachers to explore their knowledge, practice, professional development needs and support needs more broadly [64,66,67]. In the studies conducted by Kent-Walsh and Light [41] and Soto et al. [34,40,42], giving teachers the opportunity to talk about their experiences and needs resulted in rich information, identifying a broad range of supports and obstacles and consequent broad set of recommendations for improving communication practices in the classroom.

Yet in giving voice to teachers, it must also be recognised that teachers are only half of the dyad in a communicative interaction. Despite the observation and quantification of the behaviour of students with MSD, their experiences of communicating are absent from the literature. The inability to 'get at' the experiences of students with MSD remains a weakness of this area of research and a limitation on the ability to produce emancipatory outcomes for students with MSD.

General conclusions and future research

Examining the interactions of students with MSD in classroom contexts indicates low frequencies of communicative behaviour. Despite teacher education initiatives to improve the frequency of communication, the current level of communicative interaction in classrooms remains similar to that reported almost two decades ago. Little is known about the reasons for the low frequencies of communication for students with MSD in the classroom or why teacher professional development programmes have made limited impact. Given the importance of communication in learning processes and social development, this article recommends taking a systemic approach to exploring this situation and working solutions.

Further research is therefore needed to explore the following areas:

(a) What is the broad range of socio-structural factors that influence the low frequency of communicative interactions of students with MSD?
(b) What impact do these factors have on the ability of teachers to communicate with their students with MSD?
(c) Which factors act as barriers that restrict students' access to communication and which support or enable students to access communication?
(d) What are teachers' attitudes, perceptions and beliefs about their students and about their role in supporting the communication of their students with MSD?
(e) What are teachers' perceptions and experiences of educational programmes in communication?
(f) What type of educational programme do teachers want and how do they want it delivered?

(g) What supports are needed to increase communication in the classroom?

(h) What factors in the school context or setting influence the frequency of communicative interactions for students with MSD?

(i) What is the nature of collaboration between teachers of students with MSD and speech pathologists?

(j) What impact does this collaboration have on the communicative interactions of students with MSD?

In summary, an exploration of the experiences of teachers in different educational settings may contribute to the development of a broad set of recommendations about how to help teachers to increase communication with their students with MSD [34,40,41]. These recommendations may consequently contribute to research outcomes that facilitate the improvement of access to communication for students with MSD.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

References


28. Houghton J, Brombacher GB, Goossen D. Opportunities to express preferences and make choices among students with severe
Dear Principal,

I would like to invite special education teachers at your school to participate in some research about communication. My name is Tania De Bortoli and I am undertaking this research in the fulfillment of a Masters Degree at the University of Sydney, School of Communication Sciences and Disorders. The research is being supervised by Associate Professor Susan Balandin and Dr. Leanne Togher. The project has been approved by the Human Research Ethics Committee of The University of Sydney (Ref No.: 12-2005/2/8771) and the Planning and Innovation section of the NSW Department of Education and Training (SERAP No.: 06.203).

The aim of the project is to explore the experiences and support needs of teachers in communicating with their students with severe and multiple disabilities. Research over the past 15 years has found low rates of communication between teachers and their students with severe and multiple disabilities. Ongoing recommendations that teachers need communication training have made no impact on these rates of communication. Researchers have not talked to teachers themselves about what it is like to communicate with students with severe and multiple disabilities and what teachers’ training and support needs are. The teachers who participate in this research will be given the opportunity to talk about:

- their experiences of communicating with their students with severe and multiple disabilities
- what supports or adversely impacts their communicative interactions with their students
- what training and support they would like
The information gathered will be used to expand our knowledge about how service providers may improve support of teachers in communicating with their students with severe and multiple disabilities. In order to minimize disruption to school programs, individual interviews will be conducted in Terms 2 and 3 at a time and place that is suitable to teachers. The interviews will last no longer than 2 hours with a break and will be tape recorded. They will later be transcribed and analysed to generate a narrative account. Confidentiality will be strictly maintained. It will not be possible to identify any participants, school or other person, such as students, in these accounts. Participants can withdraw from the study at any time without penalty. The results of the study will be submitted for publication in an appropriate peer-reviewed journal.

Should you agree to publicise this study in your school, please display the attached advertisement in a suitable location.

If you would like more information please contact Tania De Bortoli on 0424 046 271 or tania.debortoli@bigpond.com.au or Associate Professor Susan Balandin on 02 9351 9334.

Thank you for your consideration of this research project.

Yours sincerely,

Tania De Bortoli
Dear Principal,

I would like to invite teachers at your school to participate in some research about communication. My name is Tania De Bortoli and I am undertaking this research in the fulfillment of a PhD. Degree at the University of Newcastle, School of Education. The research is being supervised by Associate Professor Michael Arthur-Kelly, Dr. Bernice Mathisen and Professor Phil Foreman. The project has been approved by the Human Research Ethics Committee of The University of Newcastle (Ref No.: H-2008-0203) and the Planning and Innovation section of the NSW Department of Education and Training (SERAP No: 2008096).

The aim of the project is to explore the experiences and support needs of teachers who have a student with severe and multiple disabilities in their mainstream classroom. We are particularly interested in how teachers experience communicating with these students. Research over the past 20 years has found low rates of communication between teachers and their students with severe and multiple disabilities. Ongoing recommendations that teachers need communication training have made no impact on these rates of communication. Researchers have not talked to teachers themselves about what it is like to communicate with students with severe and multiple disabilities and what teachers’ training and support needs are.

In the first stage of this study teachers working in special schools and support classes were interviewed, however we know that in rural and remote areas in particular students with severe, multiple disabilities may be included in their local or regional comprehensive school. We are interested in the views of the teachers who are including these students in their mainstream classroom.

The teachers who participate in this research will be given the opportunity to talk about:

- their experiences of communicating with their student(s) with severe and multiple disabilities
- what supports or adversely impacts their ability to communicate with their student(s)
- what training and support they would like

The information gathered will be used to expand our knowledge about how service providers may improve support of teachers in communicating with their student(s) with severe and multiple disabilities in different educational
settings. We are cognizant of minimizing disruption to school programs. Individual interviews will be conducted in Terms 1 and 2 at a time and place that is suitable to teachers. The interviews will take approximately 45 minutes with a break if needed and will be tape recorded. They will later be transcribed and analysed to generate a narrative account. Confidentiality will be strictly maintained. It will not be possible to identify any participants, school or other person, such as students, in these accounts. Participants can withdraw from the study at any time without penalty. The results of the study will be submitted for publication in an appropriate peer-reviewed journal.

Should you agree to publicise this study in your school, please display the attached advertisement in a suitable location.

If you would like more information please contact Tania De Bortoli on 02 4782 9924 or tania.debortoli@studentmail.newcastle.edu.au or Associate Professor Michael Arthur-Kelly on 02 4921 6284
Thank you for your consideration of this research project.

Yours sincerely,

Tania De Bortoli
Michael Arthur-Kelly, PhD
Bernice Mathisen, PhD
Phil Foreman, PhD
APPENDIX C: Advertisement for schools (Stage 1)

The University of Sydney
Faculty of Health Sciences
SCHOOL OF COMMUNICATION SCIENCES AND DISORDERS

WOULD YOU LIKE TO PARTICIPATE IN SOME RESEARCH ABOUT COMMUNICATION?

Teachers of students with severe and multiple disabilities are invited to participate in a research project *Where are teachers' voices? The communicative interactions of students with severe and multiple disabilities at school*, that is being undertaken by Tania De Bortoli in the fulfillment of a Masters Degree at the University of Sydney, School of Communication Sciences and Disorders under the supervision of Associate Professor Susan Balandin and Dr Leanne Togher.

The aim of the project is to explore the experiences and support needs of teachers in communicating with their students with severe and multiple disabilities and to learn what teachers consider important when talking about communication in the classroom.

Teachers with varying years of experience who have worked in different settings including, special schools and inclusive classes are invited to participate. Participants will be asked to talk about their experiences of communicating with their students with severe and multiple disabilities. This will include consideration of what supports or adversely affects their communicative interactions with their students. Participants will also be encouraged to discuss what training and support they would like.

Individual interviews will be conducted in Terms 2 and 3 at a time and place that is suitable to participants. The interviews will last no longer than 2 hours with a break and will be tape recorded. Confidentiality will be strictly maintained and participants can withdraw from the study any time without penalty. Information gathered will be used to expand knowledge about how service providers may improve support of teachers in communicating with their students with severe and multiple disabilities.

This is an opportunity for teachers to have a say about communication and to give their views on how communication training is best managed. Anyone who is interested in participating or who would like more information about the project is asked to contact Tania De Bortoli on 0424 046 271 or tania.debortoli@bigpond.com.au or Associate Professor Susan Balandin on 02 9351 9334

School of Communication Sciences and Disorders, Cumberland Campus
PO Box 170 (East Street), Lidcombe NSW Australia 1825 - Phone (02) 9351 9334 - Fax (02) 9351 9173
International Phone: 61+ 2 + 9351 9334 International Fax: 61+ 2 + 9351 9173 email: s.balandin@fhs.usyd.edu.au

354
WOULD YOU LIKE TO PARTICIPATE IN SOME RESEARCH ABOUT COMMUNICATION?

Teachers of students with severe and multiple disabilities are invited to participate in a research project *Where are teachers' voices? The communicative interactions of students with severe and multiple disabilities at school*, that is being undertaken by Tania De Bortoli in the fulfilment of a PhD Degree at the University of Newcastle, School of Education under the supervision of Associate Professor Michael Arthur-Kelly, Dr Bernice Mathisen and Professor Phil Foreman.

The aim of the project is to explore the experiences and support needs of teachers in communicating with their students with severe and multiple disabilities and to learn what teachers consider important when talking about communication in the mainstream classroom.

Teachers with varying years of experience who include students with severe and multiple disabilities in mainstream classes are invited to participate. Participants will be asked to talk about their experiences of communicating with their student(s) with severe and multiple disabilities. This will include consideration of what supports or adversely affects their communicative interactions with their student(s). Participants will also be encouraged to discuss what training and support they would like to enhance their communicative interactions and interventions.

Individual interviews will be conducted in Terms 1 and 2 at a time and place that is suitable to participants. The interviews will last approximately 45 minutes with a break (if needed) and will be tape recorded. Confidentiality will be strictly maintained and participants can withdraw from the study at any time without penalty.

Information gathered will be used to expand knowledge about ways to improve support of teachers in communicating with their students with severe and multiple disabilities. In the first stage of this research teachers working in special schools and support classes were interviewed so this is an opportunity for teachers in inclusive classrooms to have a say about communication and to give their views on how communication training is best managed.

Anyone who is interested in participating or who would like more information about the project is asked to contact Tania De Bortoli on 02 4782 9924 or tenie.debortoli@studentmail.newcastle.edu.au or Associate Professor Michael Arthur-Kelly on 02 4921 8284.
APPENDIX D: Eligibility criteria for teachers (Stage 1)

The University of Sydney
Faculty of Health Sciences

SCHOOL OF COMMUNICATION SCIENCES AND DISORDERS

Criteria for inclusion in the research project “Where are teachers’ voices? The communicative interactions of students with severe, multiple disabilities at school”

The teachers who participate in this research project will work with students who have severe intellectual disabilities. In addition their students will have at least some of the following characteristics:

- Complex medical conditions or needs
- Dependence on others for activities of daily living such as eating and hygiene
- Sensory impairments such as vision and hearing impairments
- Limited ability to interact with their environment
- Physical disabilities or require assistance with mobility.

Reference:
Criteria for inclusion in the research project "Where are teachers' voices? The communicative interactions of students with severe, multiple disabilities at school”

The teachers who participate in this research project will work with students who have severe intellectual disabilities. In addition their students will have at least some of the following characteristics:

- Complex medical conditions or needs
- Dependence on others for activities of daily living such as eating and hygiene
- Sensory impairments such as vision and hearing impairments
- Limited ability to interact with their environment
- Physical disabilities or require assistance with mobility.

Reference:
APPENDIX E: Letter to DADHC managers

FACULTY OF EDUCATION AND ARTS

Dear Manager/ Senior Speech Pathologist,

I would like to invite speech pathologists on your team to participate in some research about communication. My name is Tania De Bortoli and I am undertaking this research in the fulfillment of a PhD. Degree at the University of Newcastle, School of Education. The research is being supervised by Associate Professor Michael Arthur-Kelly, Dr. Bernice Mathisen and Professor Phil Foreman. The project has been approved by the Human Research Ethics Committee of The University of Newcastle (Ref No.: H-2008-0203) and the Planning and Innovation section of the NSW Department of Education and Training (SERAP No.:2008096) and the NSW Department of Aging, Disability and Home Care (Ref: AH09/45860).

The aim of the project is to explore the experiences of speech pathologists who work with students with multiple and severe disabilities (MSD) in schools. We are particularly interested in how speech pathologists experience collaborating with the teachers of students with MSD. Research over the past 15 years has found low rates of communication between teachers and their students with MSD. Ongoing recommendations that teachers need communication training have made no impact on these rates of communication. Although there is a consensus in the literature that collaboration between teachers and speech pathologists is crucial for fostering communication for students with MSD, little is known about the actual experiences of speech pathologists collaborating with teachers particularly when they are not based at the schools. In the first stage of this study teachers working in special schools and support classes were interviewed. In this second stage of the study we are interested in the views of speech pathologists. The speech pathologists who participate in this research will be given the opportunity to talk about:

- their experiences of working with students with multiple and severe disabilities (MSD)
- their experiences of collaborating with the teachers of students with MSD
- what supports or adversely impacts their ability to effectively support the communication of students with MSD
their perceptions of training provided for teachers in communication.

The information gathered will be used to expand our knowledge about how service providers may improve support of teachers in communicating with their students MSD in different educational settings. Individual interviews will be conducted in Terms 3 and 4 at a time and place that is suitable to speech pathologists. The interviews will last approximately 45 minutes with a break if needed and will be tape recorded. They will later be transcribed and analysed to generate a narrative account. Confidentiality will be strictly maintained. It will not be possible to identify any participants, schools or other person, such as students, in these accounts. Participants can withdraw from the study at any time without penalty. The results of the study will be submitted for publication in an appropriate peer-reviewed journal.

Should you agree to publicise this study within your team, please display the attached advertisement in a suitable location and/ or present at a team meeting. If you would like more information please contact Tania De Bortoli on 4782 9924 or Tania.DeBortoli@studentmail.newcastle.edu.au or Associate Professor Michael Arthur-Kelly on 02 4921 6284

Thank you for your consideration of this research project.

Yours sincerely,

Tania De Bortoli
Michael Arthur-Kelly, PhD
Bernice Mathisen, Ph
Phil Foreman, PhD
APPENDIX F: Advertisement for speech-language pathologists

Speech pathologists working with students with multiple and severe disabilities (MSD) are invited to participate in a research project *Where are teachers’ voices? The communicative interactions of students with multiple and severe disabilities at school*, that is being undertaken by Tania De Bortoli in the fulfillment of a PhD Degree at the University of Newcastle, School of Education under the supervision of Associate Professor Michael Arthur-Kelly, Dr Bernice Mathisen and Professor Phil Foreman.

The aim of the project is to explore the experiences of speech pathologists supporting the communication of students with multiple and severe disabilities (MSD) in schools. Of particular interest is speech pathologists’ experiences of: (a) collaborating with teachers of students with MSD and (b) factors that both support and hinder teachers’ ability to promote communication with students with MSD.

Speech pathologists with varying years of experience working with students with MSD in schools are invited to participate. Participants will be asked to talk about their experiences of supporting the communication of student(s) with MSD in schools, in particular collaborating with their teacher(s). This will include consideration of what supports or adversely affects communicative interactions for these student(s).

Individual interviews will be conducted in Terms 3 and 4 at a time and place that is suitable to participants. The interviews will last approximately 45 minutes with a break (if needed) and will be tape recorded. Confidentiality will be strictly maintained and participants can withdraw from the study at any time without penalty.

Information gathered will be used to expand knowledge about ways to improve support of teachers in communicating with their students with MSD. In the first stage of this research teachers were interviewed so this is an opportunity for speech pathologists to give their views on how best to support communication for students with MSD in schools.

Anyone who is interested in participating or who would like more information about the project is asked to contact Tania De Bortoli on 4782 9924 or Tania.DeBortoli@studentmail.newcastle.edu.au or Associate Professor Michael Arthur-Kelly on 02 4921 6284.
APPENDIX G: Participant Information Sheet for speech-language pathologists

FACULTY OF EDUCATION AND ARTS

SCHOOL OF EDUCATION
SCHOOL OF HUMANITIES AND SOCIAL SCIENCE

Dr. Michael Arthur-Kelly
Special Education Centre
University Drive
Callaghan NSW 2308
AUSTRALIA

Telephone: (02) 4921 6264
Fax: (02) 4921 6369
Email: Michael.Arthur-Kelly@newcastle.edu.au

Participant Information Sheet for the research project:

Where are teachers' voices? The communicative interactions of students with multiple and severe disabilities at school.
Document Version [Number 2]; dated 19/06/08

What is the study about?
You are invited to take part in research into the experience of communicating with students who have multiple and severe disabilities (MSD). The aim of this study is to investigate teachers' and speech pathologists' perceptions and experiences of communicating with students who have MSD and severe communication impairments. The study also aims to explore factors that have an impact, both supportive and hindering, upon teachers' communicative interactions with their students. The study will explore collaboration between teachers and speech pathologists and the role this plays in improving communication for students with MSD.

Who can participate in the study?
The speech pathologists who participate in this research project will have worked within the last 3 years with students who have severe intellectual disabilities. In addition the students will have at least some of the following characteristics:

- Complex medical conditions or needs
- Dependence on others for activities of daily living such as eating and hygiene
- Sensory impairments such as vision and hearing impairments
- Limited ability to interact with their environment
- Physical disabilities or require assistance with mobility.

Speech pathologists will have worked with these students at their educational placement for at least part of the time.

Who is carrying out the study?
The study is being conducted by Tania De Bortoli and will form the basis for the degree of PhD at the School of Education, the University of Newcastle under the supervision of Associate Professor Michael Arthur-Kelly, Dr. Bernice Mathisen and Professor Phil Foreman.
Where are teachers' voices? The communicative interactions of students with severe and multiple disabilities at school.

What does the study involve?
If you agree to participate in this study you will be asked to take part in two informal, in depth interviews. In the first interview I will ask you to describe your experiences of communicating with student(s) with MSD so that I can begin to gain an understanding of your experiences. I will also ask you about: (1) your perceptions of supports and obstacles for teachers in communicating with these students; (2) your experiences of collaborating with the teachers of these students, and (3) your perceptions of communication training provided for the teachers. In the second interview I will check with you that I understood what you said and ask you whether you would like to elaborate further on your experiences. The interviews will be conducted at a time and place that is suitable to you. The interviews will be in the style of a conversation and I will ask you questions such as "What do you find supports communicative interactions with students with multiple and severe disabilities?", "What hinders or obstructs communicative interactions for students with multiple and severe disabilities?" and "What are your experiences of collaborating with teachers?". You are free to terminate the interview at any time. All the interviews will be audio-taped and transcribed at a later date. These transcripts will remain confidential. There will not be any information written on the tapes or transcripts that could be used to identify you or any other person or school that you mention. You may listen to the audiotape of your interview and remove any information that you do not want included. I will also give you the opportunity to change, add to or remove information in the transcripts.

When the study has been completed I will send you a copy of your own story and a copy of the overall story constructed from the analysis of all participants' transcripts. I will meet with you again, if it is convenient, to share the results of the project and discuss the outcomes.

How much time will the study take?
Interviews will take place in Terms 3 and 4, 2009. Each interview will take approximately 45 minutes.

Can I withdraw from the study?
Participation in this study is completely voluntary. You are not under any obligation to participate. If you do choose to participate you may withdraw from the study at any time without penalty.

Will anyone else know the results?
The results of this study will be reported at conferences and will be written up for publication. I will send you a copy of any papers that are published. All the results will be de-identified and it will not be possible to identify any participants, school or other person. All the information collected during the study will be stored in a locked filing cabinet at Associate Professor Michael Arthur-Kelly's office at The University of Newcastle.
Where are teachers' voices? The communicative interactions of students with severe and multiple disabilities at school

of Newcastle for 7 years following final publication of results. No identifying information such as your name, the name(s) of your student(s) or anyone else mentioned in the interviews or the school at which you work will be included in the analysis of the interviews or in any written or verbal publication of the findings of the study.

Will the study benefit me?
It is hoped that sharing your experiences of communicating with these student(s) and collaborating with their teachers will give you the opportunity to make sense of these experiences within your own professional and personal context. This project will further knowledge in the field of communication for students with MSD, and will potentially contribute to an understanding of how service providers may improve support for teachers in communicating with their students. We cannot guarantee, however that the project will be of direct benefit to you or the students you work with.

Can I tell other people about the study?
Yes.

What if I require further information?
When you have read this information, Tania De Bortoli will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact Tania De Bortoli on (02)4782 9924 or Associate Professor Michael Arthur-Kelly on (02) 4921 2864

Complaints about this research
This project has been approved by the University's Human Research Ethics Committee, Approval No. H- [2008-0203]. Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan NSW 2306, Australia, telephone (02) 49216333, email Human-Ethics@newcastle.edu.au.

Thank you for considering this project.
Tania De Bortoli
Michael Arthur-Kelly, PhD
Bernice Mathisen, PhD
Phil Foreman, PhD

This information sheet is for you to keep.
APPENDIX H: Eligibility criteria for speech-language pathologists

Criteria for inclusion in the research project “Where are teachers’ voices? The communicative interactions of students with severe, multiple disabilities at school”

The speech pathologists who participate in this research project will have worked within the last 3 years with students who have severe intellectual disabilities in schools. In addition to severe intellectual disability the students will have at least some of the following characteristics:
- Complex medical conditions or needs
- Dependence on others for activities of daily living such as eating and hygiene
- Sensory impairments such as vision and hearing impairments
- Limited ability to interact with their environment
- Physical disabilities or require assistance with mobility.

Reference:
APPENDIX I: Consent form (Stage 1)

The University of Sydney
Faculty of Health Sciences
SCHOOL OF COMMUNICATION SCIENCES AND DISORDERS

PARTICIPANT CONSENT FORM
Where are teachers’ voices? The communicative interactions of students with severe and multiple disabilities at school.

I .................................................................[name]
of.................................................................[address]

have read and understood the Participant Information Sheet for the research project: ‘Where are teachers’ voices? The communicative interactions of students with severe and multiple disabilities at school’

In giving my consent I acknowledge that:

1. The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.
2. I have read the Participant Information Sheet and have been given the opportunity to discuss the information and my involvement in the project with the researchers.
3. I freely choose to participate in this study and understand that I can withdraw without penalty at any time. I understand that withdrawal will not affect my relationship with the researchers now or in the future.
4. I understand that my involvement is strictly confidential and no information about me will be used in any way that reveals my identity.

I hereby give consent to participate in this research study.

Signature:............................................................................

Name:....................................................................................

Date:......................................................................................

Signature of Witness:..............................................................

Name of Witness:.................................................................

Any person with concerns or complaints about the conduct of a research study can contact the Manager, Ethics Administration, University of Sydney on (02) 9351 4118 or email gbriody@mail.usyd.edu.au

School of Communication Sciences and Disorders, Cumberland Campus
PO Box 170 (First Street), Lidcombe NSW Australia 1823 - Ph: 02 9351 9334 - Fax: 02 9351 9173
International Ph: 61+ 2 9351 9334 International Fax 61+ 2 9351 9173 email: S.Balanda@fax.usyd.edu.au

1 of 1
APPENDIX I: Consent form (Stages 2-4)

FACULTY OF EDUCATION AND ARTS

SCHOOL OF EDUCATION
SCHOOL OF HUMANITIES AND SOCIAL SCIENCE

Dr Michael Arthur-Kelly
Special Education Centre
University Drive
Callaghan NSW 2308
AUSTRALIA

Telephone: (02) 4921 6284
Fax: (02) 4921 6639
Email: Michael.Arthur-Kelly@newcastle.edu.au

Participant CONSENT FORM for the research project:

Where are teachers' voices? The communicative interactions of students with multiple and severe disabilities at school.

Document Version [Number 2]; dated 19/08/08

I .......................................................... [name]
of ......................................................... [address]

have read and understood the Participant Information Sheet for the above research project.

In giving my consent I acknowledge that:

1. The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

2. I have read the Participant Information Sheet and have been given the opportunity to discuss the information and my involvement in the project with the researchers.

3. I freely choose to participate in this study and understand that I can withdraw without penalty at any time. I understand that withdrawal will not affect my relationship with the researchers now or in the future.

4. I understand that my involvement is strictly confidential and no information about me will be used in any way that reveals my identity.

I hereby give consent to participate in this research study.

Signature: ..........................................................
Name: ..........................................................
Date: ..........................................................

1 of 2
Complaints about this research
This project has been approved by the University's Human Research Ethics Committee, Approval No. H- [2008-0203].
Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancery, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone (02) 49216333, email Human-Ethics@newcastle.edu.au.
APPENDIX J: Participant Information Sheet for teachers (Stage 1)

The University of Sydney
Faculty of Health Sciences
SCHOOL OF COMMUNICATION SCIENCES AND DISORDERS

Participant Information Sheet

Title: Where are teachers' voices? The communicative interactions of students with severe and multiple disabilities at school.

What is the study about?
You are invited to take part in research into the experience of communicating with students who have severe and multiple disabilities. The aim of this study is to investigate teachers' perceptions and experiences of communicating with students who have severe and multiple disabilities and severe communication impairments. The study also aims to explore factors that have an impact, both supportive and hindering, upon teachers' communicative interactions with their students.

Who is carrying out the study?
The study is being conducted by Tania De Bortoli and will form the basis for the degree of Masters at the School of Communication Sciences and Disorders, the University of Sydney under the supervision of Dr. Susan Balandin and Dr. Leanne Togher.

What does the study involve?
If you agree to participate in this study you will be asked to take part in two informal, in depth interviews. In the first interview I will ask you to describe your experiences of communicating with your student(s) with severe and multiple disabilities so that I can begin to gain an understanding of your experiences. In the second interview I will check with you that I understood what you said and ask you whether you would like to elaborate further on your experiences.

The interviews will be conducted at a time and place that is suitable to you. The interviews will be in the style of a conversation and I will ask you questions such as "What do you find supports your communicative interactions with your students?" and "What hinders or obstructs your communicative interactions with your students?" You are free to terminate the interview at any time. All the interviews will be audio-taped and transcribed at a later date.

These transcripts will remain confidential. There will not be any information written on the tapes or transcripts that could be used to identify you. You may listen to the audiotape of your interview and remove any information that you do not want included. I will also give you the opportunity to change, add to or remove information in the transcripts.

When the study has been completed I will send you a copy of your own story and a copy of the overall story constructed from the analysis of all participants' transcripts. I will meet with you again, if it is convenient, to share the results of the project and discuss the outcomes.
How much time will the study take?
Interviews will take place in Terms 2 and 3, 2006. Each interview will take approximately 45 minutes to 2 hours.
Where are teachers’ voices? The communicative interactions of students with severe and multiple disabilities at school.

Can I withdraw from the study?
Participation in this study is completely voluntary. You are not under any obligation to participate. If you do choose to participate you may withdraw from the study at any time without penalty.

Will anyone else know the results?
The results of this study will be reported at conferences and will be written up for publication. I will send you a copy of any papers that are published. All the results will be de-identified and it will not be possible to identify any participants, school or other person. All the information collected during the study will be stored in a locked filing cabinet at Dr. Balandin’s office at The University of Sydney. No identifying information such as your name, the name(s) of your student(s) or anyone else mentioned in the interviews or the school at which you work will be included in the analysis of the interviews or in any written or verbal publication of the findings of the study.

Will the study benefit me?
It is hoped that sharing your experiences of communicating with your student(s) will give you the opportunity to make sense of these experiences within your own professional and personal context.
This project will further knowledge in the field of communication for students with severe and multiple disabilities, and will potentially contribute to an understanding of how service providers may improve support for teachers in communicating with their students. We cannot guarantee, however that the project will be of direct benefit to you or the students you teach.

Can I tell other people about the study?
Yes.
What if I require further information?
When you have read this information, Tania De Bortoli will discuss it with further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact Tania De Bortoli on (02)4782 9924 or Dr. Susan Balandin on (02) 9351 9334.

What if I have a complaint or concerns?
Any person with concerns or complaints about the conduct of a research study can contact the Manager, Ethics Administration, University of Sydney on (02) 9351 4811 or email gbriody@mail.usyd.edu.au

Thank you for considering this project.
Tania De Bortoli
Susan Balandin, PhD
Leanne Togher, PhD

This information sheet is for you to keep.
APPENDIX K: Interview outlines for teachers and speech-language pathologists
(Stage 1)

The University of Sydney
Faculty of Health Sciences

SCHOOL OF COMMUNICATION SCIENCES AND DISORDERS

Proposed Interview Topic Areas

The following is the general interview format for the initial two-hour interview with teachers. The format of in-depth interviews has been chosen to allow participants to discuss openly and without interruption their experiences of communicating with their students with severe and multiple disabilities. The interviews will be conversational in style and the number of questions kept to a minimum. The following questions will be used as a guide only.

1. Demographic information
   o What type of setting do you work in?
   o How many years experience have you had working with students with severe and multiple disabilities?

You may find it helpful to think of particular students when answering these questions.

2. Communicating with students with severe, multiple disabilities
   o What is it like to communicate with your student(s)?
   o What do you think is important about communication for your students?

3. Supports
   o Can you tell me what supports or has a positive effect on your communication with your student(s)
   o What do you think could help make communication easier?

4. Training
   o Have you had any communication training? If so, how would you evaluate it?
   o What sort of communication training do you think would be valuable to you?

5. Obstacles
   o What factors have a negative impact on your communication with your student(s)?

Topic areas will be introduced with the natural flow of conversation. It may be unnecessary to introduce a topic or ask a question if the participant has already addressed it. Therefore, these topic areas are merely a guide and not a set interview regime.

1 of 1
APPENDIX K: Interview outlines for teachers and speech-language pathologists
(Stage 2)

FACULTY OF EDUCATION AND ARTS

Proposed Interview Topic Areas

The following is the general interview format for the initial interview with teachers. The format of in-depth interview has been chosen to allow participants to discuss openly and without interruption their experiences of communicating with their students with multiple and severe disabilities. The interviews will be conversational in style and the number of questions kept to a minimum. The following questions will be used as a guide only.

1. Demographic information
   o What type of setting do you work in?
   o How many years experience have you had working with students with severe and multiple disabilities?

You may find it helpful to think of particular students when answering these questions.

2. Communicating with students with severe, multiple disabilities
   o What is it like to communicate with your student(s)?
   o What do you think is important about communication for your students?

3. Supports
   o Can you tell me what supports or has a positive affect on your communication with your student(s)
   o What do you think could help make communication easier?

4. Training
   o Have you had any communication training? If so, how would you evaluate it?
   o What sort of communication training do you think would be valuable to you?

5. Obstacles
   o What factors have a negative impact on your communication with your student(s)?

Topic areas will be introduced with the natural flow of conversation. It may be unnecessary to introduce a topic or ask a question if the participant has already addressed it. Therefore, these topic areas are merely a guide and not a set interview regime.
APPENDIX K: Interview outlines for teachers and speech-language pathologists
(Stages 3 and 4)

FACULTY OF EDUCATION AND ARTS

Proposed Interview Topic Areas

The following is the general interview format for the initial interview with speech pathologists. The format of in-depth interview has been chosen to allow participants to discuss openly and without interruption their experiences of supporting the communication of students with multiple and severe disabilities (MSD). The interviews will be conversational in style and the number of questions kept to a minimum. The following questions will be used as a guide only.

1. Demographic information
   o What type of settings do you work in, that is where do you support students with MSD?
   o How many years experience have you had working with students with MSD?

You may find it helpful to think of particular students when answering these questions.

2. Supporting the communication of students with severe, multiple disabilities
   o What is it like working with students with multiple and severe disabilities?

3. Collaborating with teachers of students with multiple and severe disabilities
   o Can you tell me about your experiences of collaborating with teachers of students with multiple and severe disabilities?

4. Supports
   o Can you tell me what you think supports teachers to communicate with students with multiple and severe disabilities?
   o What supports you to work most effectively with students with multiple and severe disabilities and their teachers?

5. Obstacles
   o What do you think are potential barriers for teachers in terms of communicating effectively with students with multiple and severe disabilities?
   o What obstacles do you experience in working effectively with students with multiple and severe disabilities and their teachers?

6. Training
   o Can you tell me about your experiences of participating in or providing communication training for teachers?

Topic areas will be introduced with the natural flow of conversation. It may be unnecessary to introduce a topic or ask a question if the participant has already addressed it. Therefore, these topic areas are merely a guide and not a set interview regime.
APPENDIX L: Transcription Rules

Transcription rules

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>participant</td>
</tr>
<tr>
<td>R</td>
<td>researcher</td>
</tr>
<tr>
<td>Other identifying information</td>
<td></td>
</tr>
<tr>
<td>[student]</td>
<td>student’s name</td>
</tr>
<tr>
<td>[place]</td>
<td>place e.g. school or town</td>
</tr>
<tr>
<td>Phrases</td>
<td></td>
</tr>
<tr>
<td>.</td>
<td>1 second pause between utterances</td>
</tr>
<tr>
<td>/</td>
<td>boundaries of phrases</td>
</tr>
<tr>
<td>//</td>
<td>beginning and end of overlap in speaking turns</td>
</tr>
<tr>
<td>Intonation</td>
<td></td>
</tr>
<tr>
<td>CAPITAL LETTERS</td>
<td>marks increase in voice volume</td>
</tr>
<tr>
<td>or</td>
<td>decrease in speech rate when participant emphasizes a word or phrase</td>
</tr>
</tbody>
</table>

descriptions provided in brackets for non-verbal behaviour eg. (laughs)

Reference:
APPENDIX M: Excerpt from research journal: Notes about topics for development of coding categories in Stage 1.
It took 2 years to set up the physical environment of the classroom so that it was supportive to get a bit more formal communication going.

The need to change physical environment to meet all students' needs and make the classroom more conducive for communication because we've got a lot of high support kids coming and I want to prepare for the future. A big part of building up culture & resources of school is an issue of what happens when experienced staff leave.

These are some features of this story:

Time:
- General demands of class - dif. students' complex needs
- Students & SMD b/c they're quiet tend to get less input
- Acknowledges so much could be done that doesn't happen
- Interacts w/ lack of resources & lack of training

Lack of time for in-serviceing "cause everyone is just so flat out in their own areas" is this a systemic issue of workload?
Therapy services

- Appropriateness, in terms of age-appropriateness of materials, level of goals
- Lack of resources in regional school / Grundschule
- Lack of availability
- Lack of interaction setting: geography
- Continuity of practice: e.g., b/w primary and secondary school
- Collaborations with other professionals
  - Supportive; helping teachers make changes in context/practice
  - Need to be flexible to help deal with perennially harmful situations, e.g., substance use
  - Practical, hands-on input is most useful

Change
- Trying to make changes "met with a lot of resistance and opposition" from other staff
- Makes the point that TAs / interaction b/w staff / attitudes, perceptions
- Staff's beliefs, etc.
- Hard to change
- Need more research
- Hindrance of support
- Witnessing inappropriate practices of staff, e.g., not communicating w/ student while feeding
- Changes made by teacher to foster more appropriate communication could be undermined by other staff (T.A.)
- Critical on the other hand if T.A. works collaboratively with teacher to improve communication practices

Making changes has been a very difficult process...

"We're sort of chipping away..."
organisation

Class structure - mixed abilities
  • indep living skills & a lot of incidental communication so that teacher feels student's needs are being met.

• Interaction b/w context (phys. environ, staffing) & class str. - really imp. for being able to start implementing some
  • comm in strategies.

Discussion

Communicative interaction/strategies

- communication book - collab & home
  • "It's just made a completely different perception
  • so it's been really, really successful, and you know totally had integrated him more than anything else I've done

• Interaction b/w successful communication & attitudes, perceptions, beliefs & participation in school, inclusion

  • so you get the cyclic interaction / infl. of acc. to systems theory & vindicates infl. of comm on participation & working on change to create more opport.
  • physical proximity e.g. wheelchair next to peers
  • using Big Mack e.g. to respond at roll call
Technology & Equipment
- Computers + lack of resources
  "I broken computer in the whole unit
  absolutely nothing"
- Makes link b/w technology & school context
  attitudes, perceptions & beliefs
  "a unit compared to SSP"
- Talks about lack of understanding:
  "a support from "top" of school/"executive"
  "I think in a support unit you are very discriminated in that way"
  "battle" to get more computers
- Interaction & lack of skills & tech. know-how
  to use it; lack of training/support to use it
  "Department"
- Can be "unhelpful" - lack of support
  at District level

Training
- In-service, not the most effective way of learning - can come away with any practical knowledge; gives eg.
  specific need for support in terms of equipment & other resources
- Lack of availability; lack of access to training
  "In-school/area"; "geography - being in rural setting"
  "lack of opportunities to network"
APPENDIX N: Excerpt from research journal with examples of memos

describe the effect on the school setting
28/6/09 (cont) Thematic analysis of Jake’s transcript

(4) The change that resulted in loss of therapy services presented an enormous obstacle to communicative interactions for students with MSD and this section describes some of the impacts.

(Up to p. 8, Line 248)

(5) The focus of the department is not on the communication needs of individual students and is therefore seen as an obstacle.

↓

In contrast to the support provided by therapy services.

(16) [Metaphor:] the education system is viewed as a “machine churning along”.

(17) I’m not sure where this fits in - whether it fits into departmental focus or mainstream understanding of special ed. needs, I think b/c its about programming a KLA’s it beyond the level of the school so I’ll put it under departmental focus.

(18) Even though the support unit is in a mainstream school integration isn’t happening creating opportunities for interaction for students.

(19) [Metaphor:] “Common ground” - there is lack of common ground for students with MSD and peers in the mainstream. What does this say about the social
APPENDIX O: Example of memos noting the emergence of new categories

15/6/09 Thematic analysis: Version 2
P.G.’s transcript
  - track changes in red
  - have left comments from initial analysis & narrative analysis - these are in blue

1. There appears to be a theme here of school context: in a contrastive sense, she uses her experience of different school settings to make contrasts about a number of issues (categories).

2. She immediately makes a link between the school context as an aspect of her current context & an obstacle.

3. Resources, training, networking & an obstacle.

4. There’s a link between the teacher’s experience and the school setting.

5. New category of school context = Experience with students & Preparedness.

6. New categories:
   - Infrastructure/facilities
   - Staffing
   - Categories

7. Obstacles in the school context:
   - New subcategory
   - Staffing

8. Obstacle - Outside institutions/therapists:
   - New subcategory
   - Appropriate\neas...
APPENDIX P: Definitions of categories for analysing data

Table 1
Definitions of Categories for analysing data in Stage 1 (and Stages 2 to 4)

<table>
<thead>
<tr>
<th>Factors</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students’ characteristics</td>
<td>Include references to students’ health and medical conditions; cognitive, sensory or physical impairments; personal care needs; behaviour; and ways of communicating.</td>
</tr>
<tr>
<td>Teachers’ experiences</td>
<td>Include descriptive and emotions/feeling words referring to teachers’ experiences of communicating with students with MSD.</td>
</tr>
<tr>
<td>Teachers’ characteristics</td>
<td>Include references to teachers’ personalities, background, life experiences and other attributes. Also include states like exhaustion, burn out. Include references to teachers’ work experience and skills knowledge and skills for teaching and communicating with students with disability. Also include references to teachers’ attitudes, perceptions and beliefs about students, families and SLPs. Do not include references to beliefs about communication intervention or where students with MSD should be educated in this category.</td>
</tr>
<tr>
<td>Relationship with student</td>
<td>Include references to teachers’ or SLPs’ relationships with the students with disabilities they work with. Include references to rapport and getting to know students.</td>
</tr>
<tr>
<td>Communicative interactions</td>
<td>Include reference to teachers’ perceptions and experiences of the existence or frequency of communication opportunities for students with MSD. Include descriptions of successful or unsuccessful strategies for communicating with students with MSD.</td>
</tr>
<tr>
<td>Class structure</td>
<td>Include references to the social grouping/combinations of students in the class in which the student with MSD is placed. Include the number, characteristics and ability levels of the other students in the class.</td>
</tr>
<tr>
<td>Infrastructure/physical</td>
<td>Include references to the physical environment and how space is structured or organised in terms of meeting the needs of students with MSD, eg. the degree to which it is accessible for students with MSD. References may be to the classroom, school, home, and community contexts.</td>
</tr>
<tr>
<td>School context</td>
<td>Include references to the type of educational setting; special school (SSP), support unit (SU), mainstream. Also include descriptions of size, whether it is primary, secondary or a central school, and geographical location.</td>
</tr>
<tr>
<td>Factors</td>
<td>Definitions</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>School culture</td>
<td>Include references to the culture of a school. Include descriptions or discussions about the ability of a school to cater for the needs of students with MSD; whether a school understands and supports the educational and communication needs of students with MSD. Also include references to amount of support teachers at a school receive to meet needs of students with MSD.</td>
</tr>
<tr>
<td>Integration</td>
<td>Include discussions about integrating students with MSD with their peers; what this terms means to teachers, practices that support or hinder its achievement; and the relationships of integration with communication opportunities for students with MSD.</td>
</tr>
<tr>
<td>The Principal</td>
<td>Include references to the role of a school’s principal, in the culture of a school and supporting teachers.</td>
</tr>
<tr>
<td>Funding</td>
<td>Include references to the availability of funding in schools; what it is used for, how it is obtained, and its role in supporting or hindering communicative interactions for students with MSD.</td>
</tr>
<tr>
<td>Resources</td>
<td>Include references to the availability and use of resources, augmentative and alternative communication (AAC) systems, and assistive technology, such as computers, switches, Big Macks, resources for making communication systems, and their role in supporting or hindering communicative interactions for students with MSD. Also include discussions about support for implementation. NB. Do not include specific references to the role of AAC as there is a separate category for the role of AAC.</td>
</tr>
<tr>
<td>Staffing</td>
<td>Include references to ratios of staff to students or staffing levels, eg. adequacy of LSO time. Also include references to the experience and expertise of staff at a school.</td>
</tr>
<tr>
<td>Collegiality</td>
<td>Include references to opportunities for teachers at a school to meet, support each other, and learn and work together.</td>
</tr>
<tr>
<td>Learning Support Officers (LSOs)</td>
<td>Include reference to teachers’ aides (TAs); their roles, availability, and whether they support or hinder communicative interactions for students with MSD.</td>
</tr>
<tr>
<td>Practices</td>
<td>Include references to practices in schools for educating and supporting the communication of students with disabilities. Include references to restrictive or inappropriate practices that hinder communication opportunities for students with MSD.</td>
</tr>
<tr>
<td>Attitudes of other staff</td>
<td>Include references to the attitudes of other staff (teachers, LSOs, workers in other contexts) towards students with MSD; their ability to communicate, their educational and communication needs.</td>
</tr>
<tr>
<td>Factors</td>
<td>Definitions</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Professional development/communication</td>
<td>Include references to professional development for teachers, eg. access, availability, relevance, professional development needs. Include references to: (a) pre-service training; (b) continuing education; (c) external courses; (d) teacher attitudes towards content; (e) professional development needs; (f) working with others; (g) interactions with school culture; (h) mentoring; and (i) exchanges.</td>
</tr>
<tr>
<td>education for teachers</td>
<td></td>
</tr>
<tr>
<td>Geographical region or area</td>
<td>Include references to outside the school; to the district/area/region outside the school, defined by local government area, or defined by the state government for provision of services.</td>
</tr>
<tr>
<td>Home context</td>
<td>Include references to the home context of students with disabilities. Include references to teachers’ or speech-language pathologists’ involvement with the student’s home context and the role this plays in the communicative interactions of students with MSD. Include references to other pressures in the home context, cultural and socio-economic issues such as non-English speaking background and Aboriginality.</td>
</tr>
<tr>
<td>Networking with teachers in other schools</td>
<td>Include references to teachers having contact with other teachers in other schools, whether this is special education trained or mainstream teachers. Include references to the role this plays in supporting or hindering communication opportunities for students with MSD, access to such contact, and nature of the contact, eg. special education network.</td>
</tr>
<tr>
<td>Visiting specialist teachers</td>
<td>Include references to specialist teachers from outside the school who visit students with MSD and their teachers at school, eg. Itinerant Support Teachers for Hearing and Vision (ISTH and ISTV). Also include references to other visiting teachers to the school who provide specialist input. Include references to their role in supporting or hindering communication opportunities for students with MSD, what they do, and their availability.</td>
</tr>
<tr>
<td>Collaboration with speech-language pathologists</td>
<td>Include teachers’ references to ways they work with speech-language pathologists to support the communication opportunities of students with MSD. Include references to teachers’ experiences of collaborating with speech-language pathologists, eg whether these have been positive, negative, successful or unhelpful.</td>
</tr>
<tr>
<td>Communication intervention</td>
<td>Include specific references to the communication intervention that has or has not been provided for students with MSD at school, eg Johnny has received no communication intervention previously.</td>
</tr>
</tbody>
</table>

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Table 1 continued

<table>
<thead>
<tr>
<th>Factors</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government departments</td>
<td>Include general, non-specific references to the government, or government departments and their role in supporting or hindering communication opportunities for students with MSD. Do not include references to specific departments or services.</td>
</tr>
<tr>
<td>State education system</td>
<td>Include specific references to, or discussions about state education system: (a) culture of the organisation; (b) policies, procedures, regulations and district office staff; and how these support or do not support schools and teachers.</td>
</tr>
<tr>
<td>Department employing speech-language pathologists</td>
<td>Include specific references to the department employing speech-language pathologists, and the provision of speech-language pathology services, eg. the service delivery model, service requests, prioritizations systems, waiting lists, access to services.</td>
</tr>
<tr>
<td>Interagency co-operation</td>
<td>Include all references to communication, co-operation or co-ordination of personnel, knowledge, training or services between the state education system and department employing speech-language pathologists. Include comments about the extent to which this occurs.</td>
</tr>
<tr>
<td>Social inclusion</td>
<td>Include references to the involvement of students with MSD in social interactions with other students and social activities at school and in the community. This includes participation in recreational activities and employment.</td>
</tr>
<tr>
<td>Social discourses about disability</td>
<td>Include references to social discourses about disability, such as the medical model, social model, or biopsychosocial model. Also include references to philosophies or societal attitudes about people with disability and extent to which they do/can participate in mainstream education and society more broadly.</td>
</tr>
<tr>
<td>Community attitudes</td>
<td>Include references to attitudes, beliefs, values of general public in communities, particularly rural and remote towns.</td>
</tr>
<tr>
<td>Social change</td>
<td>Include references to change in society and its relationship to the participation and communication opportunities of students with disabilities; socio-structural change, the need for change, what it might involve.</td>
</tr>
</tbody>
</table>
Table 1 continued

<table>
<thead>
<tr>
<th>Factors</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Include all references to time: (a) time required to meet the communication and other needs of students with MSD; (b) time required to attend professional development, collaborate with others, implement communication strategies/systems, and all other references to time, eg. time required to travel to provide outreach services. Also include references to time constraints encountered: (a) in the school context and ways teachers are supported or not supported with time; (b) other time constraints encountered for other reasons.</td>
</tr>
<tr>
<td>Change</td>
<td>Include references to participants’ experiences of change; attempting to make changes themselves, possibilities for change, or having changes imposed from outside. Include descriptions of the role or outcomes of changes in supporting or hindering the communication opportunities of students with MSD.</td>
</tr>
</tbody>
</table>

Table 2

*Definitions for Additional Categories Used for Analysing Data in Stage 2*

<table>
<thead>
<tr>
<th>Factor</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mainstream classroom setting</td>
<td>Include specific references to mainstream classrooms and the supports and obstacles to communication opportunities for students with MSD associated with these/</td>
</tr>
<tr>
<td>Peers without disabilities</td>
<td>Include all references to students without disabilities who are in mainstream classes with students with MSD. Include references to the attitudes, perceptions and beliefs about the student with MSD, and their role in communication opportunities for students with MSD, and their support needs.</td>
</tr>
<tr>
<td>Class activities/curriculum and instructional practices</td>
<td>Include references to class lessons, delivery of curriculum and educational materials used. Include also references to style of teaching or delivering information.</td>
</tr>
<tr>
<td>Geographical location</td>
<td>Include general references to the geographical location (eg. of schools, communities) and the role/importance of the geographical location, particularly for rural and remote areas.</td>
</tr>
<tr>
<td>Families’ characteristics</td>
<td>Include references to families’ attitudes, perceptions and beliefs, motivation, priorities and personal characteristics/resources relevant to supporting the communication access of their child with MSD.</td>
</tr>
</tbody>
</table>
Table 3
Definitions for Additional Categories Used for Analysing Data in Stages 3 and 4

<table>
<thead>
<tr>
<th>Factor</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech-language pathologists’</td>
<td>Include references to speech-language pathologists’ experiences communicating with, or supporting the communication of students with MSD. Include descriptive and emotion/feeling words.</td>
</tr>
<tr>
<td>experiences</td>
<td></td>
</tr>
<tr>
<td>Speech-language pathologists’</td>
<td>Include references to speech-language pathologists’ personalities, background, life experiences. Include references to speech-language pathologists’ experience, knowledge and skills for working with students with MSD. Also include references to speech-language pathologists’ attitudes, perceptions and beliefs about students with MSD, teachers, families. Do not include references to beliefs about communication intervention or where students should be educated.</td>
</tr>
<tr>
<td>pathologists’ characteristics</td>
<td></td>
</tr>
<tr>
<td>Communication intervention paradigm</td>
<td>Include references to models that drive communication intervention practices, eg. the “new paradigm”, the traditional withdrawal model.</td>
</tr>
<tr>
<td>Augmentative and alternative</td>
<td>Include references to the role and use of augmentative and alternative communication with students with MSD.</td>
</tr>
<tr>
<td>communication</td>
<td></td>
</tr>
<tr>
<td>Collaboration with teachers</td>
<td>Include references to the importance of collaboration with teachers, and speech-language pathologists’ experiences of collaborating with teachers.</td>
</tr>
<tr>
<td>Collaboration with teachers and</td>
<td>Include references to importance of, and experiences collaborating with both teachers and families together, and the role of speech-language pathologists in this.</td>
</tr>
<tr>
<td>families</td>
<td></td>
</tr>
<tr>
<td>Professional development for</td>
<td>Include references to professional development for speech-language pathologists; access, availability, relevance.</td>
</tr>
<tr>
<td>speech-language pathologists</td>
<td></td>
</tr>
<tr>
<td>Speech-language pathologists’ offices</td>
<td>Include references to speech-language pathologists’ offices: (a) other speech-language pathologists, supervisors and multi-disciplinary team members in the office, and (b) resources in speech-language pathologists’ offices.</td>
</tr>
<tr>
<td>Recruitment and retention of</td>
<td>Include references to recruiting and retaining teachers, SLPs, and other health professionals.</td>
</tr>
<tr>
<td>professionals</td>
<td></td>
</tr>
<tr>
<td>Speech-language pathology</td>
<td>Include references to the speech-language pathology outreach service to rural and remote areas.</td>
</tr>
<tr>
<td>outreach service</td>
<td></td>
</tr>
<tr>
<td>Geographical location impacts on</td>
<td>Include references to the impacts on schools of geographical isolation.</td>
</tr>
<tr>
<td>schools</td>
<td></td>
</tr>
<tr>
<td>Geographical locations impacts on</td>
<td>Include references to the impacts on families of geographical isolation.</td>
</tr>
<tr>
<td>families</td>
<td></td>
</tr>
<tr>
<td>Geographical location – other</td>
<td>Include references to the nature of other services, eg. health services, in rural and remote areas.</td>
</tr>
<tr>
<td>services</td>
<td></td>
</tr>
</tbody>
</table>
Table 3 continued

<table>
<thead>
<tr>
<th>Factor</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other agencies/services</td>
<td>Include specific references to other services or agencies (other than the state education system and the department employing government departments), eg. hospitals, specialist clinics. Include references to the role of these services, the nature of these services and their availability.</td>
</tr>
<tr>
<td>The role of technology</td>
<td>Include references to the role of technology for professionals; information technology and technology for mass communication, eg. video-conferencing facilities.</td>
</tr>
<tr>
<td>Recommendations for service delivery</td>
<td>Include references to ways that specific government departments could improve their services to students with disabilities and their families.</td>
</tr>
<tr>
<td>Professional discourses</td>
<td>Include references to teachers’ and speech-language pathologists’ beliefs about where and how the educational and communication needs of students with disabilities can best be met.</td>
</tr>
</tbody>
</table>
APPENDIX Q: Copy of a printed out category folder from Stage 1 (first three transcripts only)

CATEGORY: Class structure

Penny (PG)
[but since then in the last year we’ve also has a few higher support students not in wheel chairs with cerebral palsy but we now have a couple with Down syndrome, a couple with autism so I’ve now got a class of higher support students which is the first time its happened]

[so I’ve taken um the little fellow in the wheelchair over to my room totally integrated into my room so he only now gets into that therapy area where he lies at lunchtime.[EVENT]

Penny (PG)
[we’re not run as an academic class its more independent living skills so he fits in beautifully there so I feel for the first time his needs are being taken care of]

Penny (PG)
[then its um finding the time to use them I have got quite a few switches and things now in my room but I am very guilty for not using them very much at all because just the general demands of the class um its really hard to do it]

Donna (DC)
[if you’ve got a group of children with um severe and multiple disabilities you shouldn’t have more than 6 if you have more than 6 it can be very difficult extremely difficult]

Donna (DC)
[its hard and often you’re preoccupied with other issues
So there is an interaction between the context of the class structure, the time required to communicate with individual students with MSD and staffing.]
We have one boy here who’s moved into the senior class. He has cerebral palsy and
he was in a special school in [PLACE] before he came here and he was in a class of
students who all had severe and multiple disabilities and that boy functions
intellectually somewhere between mild to moderate but when he came from the
school where he was at with all the children requiring feeding and had the same type
of disability that he had he was very dependent.

R: Do you think he might have been understimulated?
P: Yes I think so his parents realized that yes he was.

not through any fault of the teachers it’s just that they would have had 6 children that
required feeding, changing um attending to all the time and if there was only 1 or 2
people by the time you’ve fed that one and fed that one cleaned them up and then
done some academic work whatever they may have done it was time to begin again.

Donna (DC)
I have had plenty of students with severe and multiple disabilities and 6 at a time in
the room. I’ve had 3 beds in the room at one time and trying to deal with partitioning
off some space to give those students some privacy while other students are trying to
flap the doonas off all the time and thinking how will I keep my sanity in this room
because you’re trying to deal with a whole range of these very high support needs
ones who have to be protected because one might drag him off the bed which can
happen because they don’t understand so yes you’ve got a lot of issues there.

[630 R: and often those kids with high support needs can be medically fragile as well
P: osteoporosis, scoliosis yes you wouldn’t want to be banging any knees you’ll be
breaking legs yes lots of complex issues.]

which is sad especially in a small school which is what I’m working in

you’ve got a range of abilities

R: What’s the mix of your class that you have at the moment in range of abilities…
Donna (DC)
P: Well there’s a couple in there that have been assessed to be moderate but I think
that they could come within the mild range I’ve got age range 11 down to 4 and
ability level from mild but assessed as moderate down to severe and 9 students in the
class.
[R: So do you find that the students who are verbal are good for the students who have high support needs?]

**Donna (DC)**

[P: Yes, definitely, definitely it’s a good mix for the ones who have poor language skills because they’re actually getting others to model on and the ones who have language who have higher order thinking will actually play little games and the other ones will be encouraged to come in where usually people with severe intellectual disabilities and poor language skills can’t play games they don’t have those imaginative skills well these other children are actually stimulating them its like a reverse integration and it is working quite well]

[R: Do you think the mix of the class you have is better for those high support needs students than if there was a class of 6 students all with high support needs?]

**Donna (DC)**

[P: Yes I think it is. ]]

**Donna (DC)**

[since he’s come here and been with a cross section, one boy in the room he’s in now is 19, so he’s in with age range 19 to .. he’s just turned 11 he’s the youngest and he’s just come from my room he has actually blossomed and he’s using a communication device that um has voice on it with pictures and he can actually point to what he wants to say and the voice says what he wants to say but he’s actually learning to read now so he’ll be able to type out his own messages.]

[You’ve just got to find what they can use to communicate and this boy can’t speak orally but if you give him time he can tell you that he knows all his colours he knows all his numbers but you’ve got to give him time to point and he has picked that up just by being in the group]

**Donna (DC)**

[R: He didn’t come with those skills?]

[P: No, no]

**Donna (DC)**

[I mean if you’ve got a big mix in the class they can get a bit overlooked especially if they’re passive and they often are because you’ve got other children who are more demanding so consequently.. they’ll get the care they’ll get changed they’ll get fed but they can be overlooked and they might not get enough of their lesson time that they deserve because the other children are demanding more and especially if you’re having a bad day with behaviours yes so they can suffer by being overlooked because they’re not usually very demanding those severe, high support needs people they’ll just wait and you often think at the end of the day what wonderful patience they’ve had particularly this little chap next door and then I’d love to have half of his patience]]

**Jake (JD)**

[P: When I first started my appointment it was about 2002 and I was appointed to a very difficult class with high support needs and it was I found it particularly challenging ah to start with because I had a lot of kids that had I had 4 kids in the class and we had some severe problem behaviours]
APPENDIX R: Example of the thematic analysis summary table
<table>
<thead>
<tr>
<th>Obstacle</th>
<th>Funding</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initially the student with MSD was put into a class run on H.S. timetable with academic subjects with no effort made to involve him</td>
<td>She acknowledged that so much could be done that doesn't happen because of competing demands on time and funding lire. To use technology with general demand of class (3).</td>
<td>She described the district office as &quot;unhelpful&quot;, there was nothing really forthcoming from them. At the time that she was seeking funding for assistive technology.</td>
</tr>
<tr>
<td>She also talks about funding not being pushed for from the admin executive at the school. We didn't realize that the funding had been there. It had been on the paper, apparently, and I thought that...</td>
<td>- Lack of time for inserviceing &quot;cause everyone is just so flat in their own across&quot;. Change process. Takes a long time and effort. We're sort of chipping away.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support</th>
<th>Class structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the last year she formed a class with higher support needs students based on independent living skills into which he &quot;totally integrated&quot; so that by the first time his needs are being taken care of...</td>
<td>It hadn't been approved. It's taken 2 years of &quot;campaigning&quot;, &quot;to have a much better system.&quot; It's important to get a bit more formal communication going.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teacher characteristics</th>
<th>Home context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of skills &amp; knowledge in technology</td>
<td>Collaboration with parents supports the creation of opportunities &amp; communication at school. She describes the success of a news book, which both she and the parent worked on, for involving the student with peers.</td>
</tr>
</tbody>
</table>
INSTRUCTIONS FOR CODING TRANSCRIPTS
Thank you for agreeing to code the attached transcripts for thematic categories. This task provides cross checking for the researcher’s initial coding of transcripts to ensure reliability of this process.

Please find attached three transcripts for the research participants D.C., D.R. and P.G. Please also find attached a definition of the categories used to code the transcripts. These definitions will help to code segments of text.

It is anticipated that the coding of transcripts will require between 5 hours to a maximum of 7 hours per transcript. A total of around 20 hours should be required to code all transcripts

Procedure:
1. Read through and code one transcript at a time. Identify segments of text that appear to be referring to a single topic. Denote each text segment by putting brackets around it
2. Use the definition of categories attached to allocate a code to each segment of text. This is like attaching a topic label to the text segment
3. You may use the “track changes” function to note the category heading in the right margin beside the text segment
4. See the example below
Example of comparison of coding by the independent coder and researcher
replaced with. I tend to reflect consistency of coding in at least one category per text segment.

I'm concerned whether that might cause some disruption to the mainstream kids or himself but it seems to work pretty well um I'd like to spend more time with him and know more about what I could do with him but um that's another story I suppose.

R: Yeah yeah what do you feel um I might actually skip ahead to ask you about training what you can tell me about training?

P: In regards to what I've had for this student?

R: Yeah

P: Minimal

R: Of relevant to this student

P: ah I have spent some time with another student that we have here at the school who is not as severely disabled as this student and I've found that a very big learning experience too in terms of modifying work from the mainstream students to her and um understanding her needs and what she requires her communication needs such as um she wears a device and a microphone for the teacher so all these things I suppose all like I said before on-the-job training towards it I haven't had anything specifically external to the school or professional development regarding how you cope with a student that's at this level or how do you cope with a student that's at this level no but um but coming back to my point the time that I spent with that student the female student sort of gave me more insight into working with the more severely disabled male student that we have here at the school

R: So just following on from that theme um what do you what can you tell me about what you feel um would be if you could have more what do you feel would help you?

P: I suppose if I could have more it would be to give me a better knowledge base of what I can physically do with a student in terms of teaching them or providing for them because it tends to be a bit mundane what we can provide for them I think um yeah I suppose a greater knowledge pool of resources towards a student that is you know within certain boundaries of that level of ability would be far more helpful not necessarily in terms of curriculum things physical things such as the high 5's I mentioned before but that works quite well I can manage that the social side of things but just I suppose the problem is yeah you know what a fortnight ahead what can I do with him that's just what can I do with him in this lesson that comes back to the question before where I do rely heavily on the teacher's aide because they know more about what he can and can't do and that kind of thing so there's definitely a knowledge gap there for me to what the student needs um for a mainstream school too if we'd been a special ed. school I suppose ah then there would have been more in terms of development professional development for the staff to know how to deal with a lot of kids at that ability level but um I mean I quite enjoy it I don't get me wrong it's a good fun but I don't know if I am providing the best I can for him that's being brutally honest

R: Yeah so I guess um I'd like to ask you specifically then what factors you feel have a negative impact on um opportunities for communicative interaction for this student in your class?

P: Yep sure factors would be the time I have to spend obviously with the other students and maintaining them as a whole within the bounds of certain behaviours to get the work done there not a bad class that this student goes into don't get me wrong they're mixed ability some very outgoing kids in there um some not so outgoing kids I spend a lot of time with them obviously and I think one of the factors would be I spend more time with them than I spend with this student and I would like to spend more time with him but you know how do you equate that equally across all the kids in the class so things like just spending more time with him would be a factor its necessary for me to spend more time with the mainstream kids to keep them on the
right track because we’re looking at junior high school here if I spend 30 minutes of
the lesson with this student particular student we’ve been talking about rather than the
other kids then all hell would break loose [laughs] with the others and that would be a
severe distraction so that’s probably the main factor just time and the needs of the
other students.
R: yeah and you mentioned um I’d like to you mentioned before about um issues of
resources and professional learning um those sorts of issues is there anything more
you can say about what you feel would help you?
P: um whether it’s realistic or not is another issue also I think sometimes it would be
good to have possibly a two teacher scenario where the teacher’s aide is there who
know socially what this student requires as well and that’s their main goal I perceive
so with them and another teacher in the classroom so let’s say we set up the
mainstream students we have a teacher with them that monitors them and keeps them
gently nudging them in the right direction with what they need to do and then I could
spend more time with [student] and probably concentrate also on developing more
resources and things would be more beneficial to him so like a tag team teacher
scenario in the classroom would probably be a good a step in the right direction but
like I say whether it’s practical or not is another issue um that’s probably the main one
that comes to mind more one on one time with him
R: more one on one time
P: yeah
R: yeah yeah are there facets about to do with um the context of the school here
I guess I’m asking for sort of places and minutes about being in a not just a
mainstream school but like a central school
P: okay um I think assistance in I’m not sure if its relevant to this particular case but I
think a lot of kids are assisted with the central school situation where they come
through the infants department to primary they know the school pretty well they’ve
got super confidence going into the high school side here this particular student I’m I
think that’s helped with um perhaps his transition across because he’s familiar with
the place he has siblings at the school also um that’s probably helped the student just
coming back I just thought if something about the factors that is a concern with
having this student with the mainstream class it does mean a lot of issues with regards
um having classes that are up stairs that have been brought down stairs to
accommodate the student that’s fantastic for the student don’t get me wrong it does
effect I think the mainstream kids because they’re not familiar with a home room like
they are more generally with a more stable room because often they are moving
around to accommodate that student um like I said it’s a good thing that we can
accommodate and I think that’s fantastic but I do think that disrupting the mainstream
kids to some respect as well
R: yeah yeah um there is in relation to the opportunities for communication for this
student um can you tell me what its like with his peers who don’t have disabilities?
P: Yeah there’s not a lot of interactions between the two parties um but like I
mentioned before the mainstream students are quite accepting of this particular
student that we’re talking about but you know there’s no sort of derogatory comments
or anything of that nature or concern by the kids of him being there but no there’s not
a lot of interaction the high 5’s a big communication tool like I mentioned before I
haven’t seen a lot of the other kids do that whether I just haven’t been aware at the
time that it’s been done but no the kids seem to keep to themselves a fair bit so there is
what divide in that respect
R: So what would be his main social contacts?
P: [sighs] the teacher's aide I think outside of that I do feel for him because he doesn't have a lot of social contacts within the school in my opinion he's very much his own person um I do believe that external to the school he has time with other students of like ability I think that's the case with external activities but um not within school so there's not a lot of interaction
R: okay was there anything else I mean I think we've pretty much covered the things that I wanted to ask you about was there anything else has there been any experiences that have sort of stuck out in your mind about this student and his interactions?
P: Um yeah okay um and this has been the things like um school assemblies or whole secondary school gatherings those kind of things due to the nature of his disability at times he will be um within a crowd and he'll be making um attempting verbal communication I suppose but noises and that would disrupt moments of silence amongst the other mainstream students um this has stuck out in my mind thinking you know how do you go about controlling that and often the teacher's aide will take him out because it's when he gets distressed I believe when he makes these kind of noises um that probably the first time I had him in class he was fine he was perfectly behaved there wasn't an issue there but I was so nervous about okay how do I go in this is very foreign to me very new do I spend a lot of time with him do I let the other kids go let them do their thing a fair bit and give them a bigger elastic band to stretch in terms of um what they do while I spend more time with him or do I leave to his own devices and spend more time with the other kids that was a very big moment for me anyway yeah in class
R: and I guess from my point of view the other major issue that I'm interested in is um do you have the facility to check those sort of queries out with other people?
P: Uh I think so yeah I think that's in place um I just it may not even be in a context as far as I'm aware if I have a concern or an issue more about myself I'm knowing something I just um I'll talk to the teacher's aide um that spend more time with him or I'll talk to my principal about you know this is wrong about where we expect him to at this what we accept is this to be tolerated those kind of things so it's just an informal channel of communication I suppose with my principal and teacher's aide there's nothing that I'm aware of that's sort of um documented it's just what you do bang bang bang yeah
R: and I think that along those sorts of lines I'm interested in um how many students with disabilities do you have in the school?
P: I believe um if we're talking of a more severe nature two two students
R: Mm mm
P: two or three
R: Mm mm
P: roughly
R: yeah and are they the first lot that have come through?
P: In my time here yes yep yep
R: So I think I from where I'm coming from I'm interested in how much having those to what degree having those students at the school effects the culture of the school?
P: yep yeah um yeah it does it does effect the culture of the school um there's a lot of changes made to the school to accommodate this particular student that we've been focusing on so um a lot of ramps put in fantastic they've been great things but that's changed procedure like I said room movements. Mm time-lining changes to be accommodated for the school that's been difficult um changes in particular rooms that were previously accessible to students and staff things like a room dedicated for the
Student for afternoon naps and things like that, it has meant that we've got two teacher's aides in the rooms um more regularly which is a fantastic thing but it's something that I was aware of to begin with um what else there was else something else that came to mind there before um all desks changes of desks to accommodate these students so they were some of them are lower or higher or um to accommodate wheelchairs and what have you um what else dedicated areas for the student in the canteen area for feed times recess and lunch I think that's part of it that comes to mind.

R: What about the what about other staff I guess the attitudes of other staff do you think that's changed?

P: I think it's got more positive as times gone on um I think change has been the biggest fear for many many of us including myself but as times gone on I think it's been more accepted and has made the staff realise that things are going okay you know like I said I think change was the biggest fear for most of us to start with but as yeah trial and error got better over time.

R: With those changes the timetabling the desks and those kind of things

P: Yeah

R: um have you the thing that we haven't covered is do you get much outside input from outside either sort of department officials or outside agencies do you get much contact there?

P: Yeah there has been um I'm not sure about the male student that I have but the female student we have here regularly has an external um what's the word that I'm after an external um member of staff teaching staff who's trained in the area that comes in and spends a lot more time and focus with the female student one on one going through various concepts um I don't know what those concepts are but we are aware that this staff member spends time with this student and I believe that's a huge benefit to the student um periodically this staff member comes to our staff meetings and mentions abedef and g of whatever we need to know about how the student is progressing or difficulties they're having um I'm not certain whether there's that kind of facility with the more severely disabled male student that we have I may be unaware of it I'm not sure but yeah we do have people come in

R: Okay

P: Yeah

R: Was there anything else that you wanted to add or

P: I think we've covered it pretty well yeah

R: Great

P: Yeah I think you've asked me everything you've got everything out of me [laughs]

R: [laughs loudly] thanks for your time

P: That's all right no problems.

Second interview on 27/11/2009

R: The first question I wanted to ask you in relation to [student]

P: Yeah

R: What do you actually find interpreting the meaning of his actions? You know the things that you see him do in the classroom?

P: um yeah not well at all um I'm only taking a guess or a stab at what it is that he's trying to do project um there's a couple of things mainly his, basically the greeting that he has which is the 'High 5' if as a staff we're able to get him to co-operate and give us a 'High 5' and sort of make a bit of a you know greeting when you see each other, it's time that's the main goal out of that and then after that it's kind of like the
R: yeah, yeah um I'm just having a look at the transcript and the next thing I wanted to ask you was um I think I asked you if you'd gotten much support, much input in terms of um programming for when you have him in your classes and you were saying that you didn't.

P: that's right.

R: and I just wanted to ask you why you think that's the case, and would input for programming for him be useful for you?

P: Oh I was just going to say I think the latter half of your question is pretty much the line I was going to take with it anyway um I don't have a lot of input into it true but um primarily because I'm not qualified to do it don't have a special education background or anything of that nature to be able to meaningfully um put something into the program which would suit him I think that's what we lack here as a school is that we're not a special education um

R: yeah

P: um or anything of that nature so that becomes a bit of a stepping stones to try and bypass

R: mm, mm and um do you know where are you aware of anywhere where there's the support could come from for programming for kids like him?

P: Um yeah or uh there is areas in or schools in the area that would cater for it better

R: yeah

P: um special education schools that kind of thing but not necessarily from here I don't think, no

R: yeah

P: excuse me for 2 seconds I'll only be 2 seconds

R: sure

P: I'm back

R: okay

P: yeah

R: Um and you were talking in that conversation that we were having about um about ah not getting much input with programming you were saying that a lot of it's been really 'on the job' training, um I wanted to I was curious to ask you what you think is the role of a teacher's experience in providing opportunities for communication for a student like [student]?

P: what was that last bit again sorry? Didn't catch it.

R: what do you think is the role of teacher experience of your experience as a teacher in um your ability to provide opportunities for him to communicate?

P: Um I think it's one of those things where you really have to I think have had students with a similar level of um ability to what the said person that we're talking about him

R: mm

P: um in the past like I say to gain experience working with those people I think it's the kind of thing where the more time you spend with them the more you experience you'll get with them but um whether it's beneficial for those in the early stages of one's career like myself being with those people I don't know how much I'm passing onto them um I feel at times as though I'm a bit inadequate in being able to cater for his needs um so I think it is perhaps more a teacher whose had more experience with those kind of students would definitely be better prepared for a student of that nature.
R: mm, it's been interesting. I've spoken to quite a few teachers in support units, special ed trained teachers and they've talked about how in the early part of their careers teaching students like [student] they really needed, they didn't know what they were doing even though they had special ed training.

P: sure

R: and they really needed at that time in their careers they really needed some kind of input into programming.

P: yeah

R: um and I guess I'm exploring that trying to explore that aspect of things as well, would there be a role for me I guess having another person um supporting you with programming maybe being in the classroom with you for some lessons ah when you've gotten [student] in there?

P: yeah (nods) that is a role there but I don't know whether your where the um what and I getting at look I don't know whether our particular school is set up to enter for students to the best of our

R: yeah

P: what's the word I'm not sure if our school is set up to enter for students to give them the best quality of learning here

R: yeah

P: for those students of those abilities

R: yeah

P: particularly when you do have one in the area

R: yeah

P: that is um for example [special school] special

R: yes, yeah I'm familiar with [special school]/

P: education school

R: yeah

P: and that's already sort of set up, it's got a program like that but it's a case that the family simply want the child to be at the local school which is understandable but whether it's necessarily ah to his maximum benefit is questionable

R: yeah, yeah you're just trying to do the best you can

P: I think so. I think if you brought someone in um are you taking resources from elsewhere to scatter them in to school where they're more adept, and just to cater for putting students into a particular school you know what I mean

R: yeah, yeah

P: taking from one end to feed another so to speak

R: yeah, yeah because the resources are finite

P: that's right.

R: yeah, yeah you mentioned um later on in our first chat that you didn't see a lot of interaction happening between the mainstream students and [student] am I'm just wondering why you think that's the case and do you think that interaction could be facilitated?

P: am I think why the first part of your question why is that the case um he doesn't spend a lot of time at school

R: okay

P: he'll come in often later at the end of the day or leave early um then even when he is here um due to his condition he does have times of the day where he does have sleep

R: yes

P: there's a room allocated to him where he goes for a kip
R: mm
P: um so when you take that away and the time when he’s not actually at school there’s not a lot of time left for him to be in classes and that kind of thing um I don’t know how well he would relate to the other kids. They don’t seem to have a problem with him being in classrooms that’s not an issue but um you don’t see a lot of interaction between himself and the others.
R: mm yeah yeah perhaps they just don’t know how to
P: sighs
R: yeah yeah okay let’s see I’m just scrolling down to the um alright. We talked a little bit about the lesson content
P: yeah
R: um and I had a question alongside the transcript to what type of professional development do you think would be most useful for you um in terms of what to do with actual ah you’re teaching him geography what to do with actual lessons when you have him in your class? What type of professional development do you think would be most useful?
P: well I’d love to have some kind of I don’t know whether you know this could be as rare as hen’s teeth but I’d love to have some kind of special education uh professional development for HSIE teachers or something of that nature or even if it was a bit broader you know special education professional development for the secondary staff you know
R: mm
P: ways ways and resources of dealing with children of that nature or something like that do you know what I mean that’d be that’d probably be like something that’d be a day event at least I imagine but something to give you a few ideas and that I know every child’s different anyway so it probably gonna be a taste of picking through the eyes of some of that as well but something of that nature needs to be done particularly when beyond [student] we’re I believe we’re getting enrolled too in this school a couple more children with some varying disabilities next year so the school is getting more of these... these ah type of students so
R: mm
P: it is getting harder to cater for them and I think something does need to be initiated there to make it more worthwhile for these children that are coming
R: mm mm because I see that teachers are just expected to do more and more
P: yeah yeah
R: yeah yeah
P: much more on the ‘to do’ list
R: yeah
P: yes
R: yeah that’s great I love that suggestion I’ll just scroll down to the um next question. I think I had about yeah we’re going through them okay um you were talking about how [student’s] come through, he came through the primary/
R: yes/
R: end of the school so he’s familiar with the place and has siblings at the school/
R: I think that is that primary reason by the way why he is here due to familiarity
R: yes yeah and ah that’s that’s probably helped him
P: yes
R: and um I’ve got a question here I’m not sure that it makes sense to me now it’s just a question about has that in any way influenced the amount of communication that
goes on between him and the other kids... doesn’t sound like it’s made much difference.

P: I don’t think it has — all that it probably has done is to create a greater awareness of the others around him knowing that he is there and vice versa in terms of interaction so I still stand by what I said before.

R: yes/

P: I don’t think he has a great deal of interaction with the other kids

R: yeah, and he it sounds like he’s not around enough perhaps for you know for them to develop friendships with him

P: yes

R: yeah, here we go here’s the next one, um alright so following on from that point

P: yep

R: um I started to sort of think about whether what you think are the attitudes... I’ve got a question here about the um the ah the fact that there isn’t that much interaction and just a query do you think it reflects attitudes or is it more of a skill based issue or do you think it really does have to do with the fact that he’s just not there enough?

P: yep. It’s probably a combination, he’s not there enough um which is you um due to his condition I dare say um but I also think it is, it is very difficult for other students who are um what is high school students um early to mid to late teens. I suppose its very difficult for them to even relate with [student]

R: yep, yeah

P: I find it difficult as a staff member to relate with [student] because apart from the greeting you’re kind of left a bit lost as to where to go from there because there is no verbal communication um there is no eye contact um there’s very little understanding of instruction from his perspective that we may issue to him

R: yes/

P: he’ll have instructions with his family that kind of thing that he can follow but you’re left a little bit lost as to where to go from there. It’s a bit hard to prolong an interaction or a conversation of any manner

R: yeah

P: and I think if teachers find that difficult then what chance does a student have as well of going beyond that apart from greeting if they’re feeling confident to do so with him

R: yes, yeah and they are teenagers after all dealing with their own issues

P: exactly

R: yep, a lot of people have had special trained teachers have said to me how hard it is to stay motivated when you don’t get very much back from the student

P: yep, yeah that’s exactly right. I can understand that, yeah

R: yep, yeah so good I feel like I’ve asked you the same I don’t think I picked up that he wasn’t there that much so I’ve I apologise I think

P: that’s alright

R: I’ve put in a couple of questions asking you the same sort of thing but I think we’re coming to okay um right ah I think I was then sort of talking to you about um your kind of lines of support and you were saying you were talking about informal channels with your principal and with the teachers’ aides. It sounds like that works well for you um what do you think about something more formal being in place like mentoring something like that?

P: mentoring of staff?

R: yeah
P: yeah I think that has some possible merits to it um particularly if it was something on a either weekly or fortnightly basis where the mentor or the instructor or something met with the teachers that deal with [student] because it would perhaps give them then a little bit of an opportunity to say you know 'where can I head, which direction can I go with him next week with you know that particular topic or this particular study area that we’re doing?’ and look for suggestions a bit of guidance which is what I think perhaps a lot of staff would um really cherish
R: mm mm yeah and a busy yeah I guess it’s a central school, it’s such a busy place that sort of support for that kind of thing would probably be it would help if it came from outside
P: yeo
R: the school it sounds like you know [principal] is doing as much as she can
P: I think so too it comes back to your
R: yeah
P: question early too do you take someone who’s highly skilled, special education trained to go into a central school um to do this when their argument would probably be you know this student could come to us at our school um
R: mm
P: because we are located within travelling distance of that school
R: mm
P: like I say, you know, again are you taking one resource away from somewhere else
R: mm
P: it would be beneficial for this school
R: yeah, yeah
P: from this school’s point of view it would be get
R: yeah, yeah I’ve certainly heard stories of um one-off um trials of that type of thing where highly experienced ah specialist teachers have gone in and provided ongoing support for teachers new to teaching students like [student] and how the benefits of that have just continued for years and years
P: yeo
R: and years after that but it’s not been a sustained thing. It’s something that’s got to a commitment that’s got to come from the Department I think
P: yeo
R: yeah and you were talking about how um a lot of staff had some fear around um talking students how to accommodate students like [student] but you feel that its gotten better over time. Have changes in staff attitudes has have seen changes in staff attitudes has that effect on how staff have communicated with [student]?
P: I think the staff have always had a fairly positive attitude about it there’s no doubt there’s been fear there about how to deal with it
R: and fair enough
P: it’s been thrown straight into the ...at us but um
R: yeah absolutely
P: um I think its more been not so much changes but just more its happened, getting on with it, that’s what we’ve gotta do um I don’t know whether again like I say apart from the greeting or the initial interaction I don’t know whether how much more any other staff member is being able to accommodate in a confident manner
R: yeah
P: past what his is actually learning I think he’s [student] you know we’ve all settled in I mean the staff have settled in, he’s settled to us a lot better but um more so
probably as a visitor it feels a bit like it he visits class every now and again i see how things go and um ah that's about the extent of what he's getting out of his education here at this point in time but as far as i believe so
R: mm yeah everyone’s doing the best they can
P: look they are yeah
R: yeah certainly you know it certainly comes across that way to me as an outsider.
This um next question final question that I have for you it might be a bit repetitious but I'll ask it anyway in case it brings up something else for you. Um do you perceive that outside people whether specialist teachers or therapists could support you to communicate with [student] in the classroom?
P: Um no doubt I think they could yeah
R: mm
P: No doubt um they would help, they would support um again where do these people come from and it's a finite resource pool and you'd be dragging them from somewhere else to be in this situation in a modern environment where you know staff with specialties are... the staff are centralised into areas where their expertise is whether that then like you say it's a department issue whether that then gets spread across different you know or many schools to accommodate for a greater need I don't know
R: mm
P: yeah there's no doubt that people of that nature would benefit
R: I guess if the department wants to accommodate students in mainstream schools then they need to think this stuff through
P: yeah, exactly you go one way or the other, you don't sort of sit in the middle I don't think
R: yeah, yeah yep. I think that's what's yeah so think um we talked a little bit about this one sort of final thing to finish off but kind of bring it all together I guess and we've talked a little bit about this when I came out to the school but if you could if you were all one of those people um in policy or that sort of level in the department and you could set up the systems say for example in your particular school you could get it up so that it was ideal for accommodating students like [student] and the ones that are coming through next year how what you would it look like to you, how would you set it up?
P: okay, yep um
R: Don't worry about whether or not it's realistic, how would it look?
P: yeah okay well I think you'd have a special ed unit in each school. Ideally um if that becomes a venture which is too costly then you have a special education centre
R: yeah
P: um nor the school, the staff
R: um
P: yeah
R: you either go one way or the other
P: yeah yeah it's too difficult on both sides
X School context

Comment [JC06]: Class structure
Comment [JC07]: Characteristics of students
Comment [JC08]: Attitudes
Comment [JC09]: Other people
Comment [JC10]: Department
Comment [JC11]: Staffing
Comment [JC12]: Characteristics of students
Comment [JC13]: Department
Comment [JC14]: Department
Comment [JC15]: Teacher's experience
P: yeah, yep
R: yeah, yep that's great
End of interview

**Complex contextual influences on the communicative interactions of students with multiple and severe disabilities**

TANIA DE BORTOLI¹, MICHAEL ARTHUR-KELLY¹, PHIL FOREMAN¹, SUSAN BALANDIN², & BERNICE MATHISEN³

¹The University of Newcastle, Newcastle, Australia, and ²Molde University College, Norway

Abstract

The aim of this study was to explore teachers' perceptions and experiences of supports and obstacles to engaging students with multiple and severe disabilities (MSD) in communicative interactions at school. Eleven teachers of students with MSD participated in two in-depth interviews. Interview transcripts were analyzed for narrative structure and content themes. Inter-rater reliability for coding of content themes was 87.5%. Participants identified a broad range of factors, including: characteristics of individual students, attitudes, perceptions and beliefs of teachers and other staff, class structure, staffing, opportunities for collaboration, resources, funding, infrastructure, collaboration with speech-language pathologists, appropriate communication education for teachers, the role of government departments, and broader societal factors.

The findings suggest that there are complex contextual influences on the communicative interactions of students with MSD. While inadequate systemic supports appear to contribute to low frequencies of communication, systemic factors can be structured so that students participate in activities and have opportunities for communication. Further research is required with teachers of students with MSD to substantiate these findings.

**Keywords:** Communication, multiple and severe disabilities, students, school, teachers, teachers' aides, speech-language pathologists.

Introduction

Over the past two decades, researchers have reported low frequencies of communicative interactions between teachers and students with multiple and severe disabilities (MSD) (Arthur, 2003; 2004; 2006; Arthur, Foreman, Pascoe, Butterfield, & Bennett, 1999; Butterfield, 1991; Foreman, Arthur-Kelly, Pascoe, & Smyth-King, 2004; Houghton, Brenicki, & Goossens, 1987; Iacono, Carrier, & Hough, 1998; Rowland, 1990; Sigafos, Roberts, Kerr, Couzens, & Hagiuchi, 1994). Researchers have expressed concerns about students with MSD not being engaged in activities or communicative interactions for large amounts of time in the classroom (Arthur, 2004; Foreman et al., 2004). This is believed to limit students' educational and social participation (Arthur, 2004), and therefore require remediation (Foreman, Arthur-Kelly, & Pascoe de Moraes, 2007; Foreman et al., 2004; Houghton et al., 1987; Rowland, 1990; Sigafos, 1999). Little is understood, however, about reasons for the low frequencies of communicative interactions of students with MSD (De Bortoli, Arthur-Kelly, Mathisen, Foreman, & Balandin, 2010).

Assumptions that teachers simply required more knowledge and skills have been challenged by the finding that communication education for teachers has not always increased the frequency of communicative interactions for students with MSD (Foreman et al., 2007). Teachers have identified a range of factors that influence their ability to include students who use augmentative and alternative communication (AAC) (but do not necessarily have MSD) in general classrooms (Kert-Walsh & Lipton, 2003; Soto, 1997; Soto & Goossens, 1998; Soto, Muller, Hunt, & Goossen, 2001). These factors include: (a) the attitudes, perceptions, and beliefs of teachers and other staff about the students, and (b) the availability of teachers' aides (TAs), resources, collaboration with other teachers and speech-language pathologists, and appropriate communication education. In response to Chalmers, Carter, Clayson, and Hook's (1998) questionnaire, teachers identified some barriers to creating opportunities for communication for
students with MSD that included negative attitudes of staff, lack of funding, inadequate staffing, and limited access to therapy services.

Researchers recognize that there may be interactions between the communicative characteristics of students with MSD and various factors in their context (Arthur-Kelly, Bochner, Center, & Moh, 2008; Carter, 2002). However, there is relatively little data available in the literature that progresses our understanding of these interactions and contextual factors (De Bortoli et al., 2010). Several researchers have called for the application of “complexity theory” (Packman & Kuhn, 2000) or a “systemic approach” (De Bortoli et al., 2010) to research about communication issues. We have previously highlighted the potential value of taking a systemic approach to investigating the complex contextual factors influencing the communicative interactions of students with MSD (De Bortoli et al., 2010). There remains a need for a better understanding of teachers’ views of contextual issues influencing communication with students with MSD. The aim of the present study was to explore teachers’ perceptions of factors that influence the communicative interactions of students with MSD. The researchers used a systemic approach to investigate perceived supports and obstacles.

Method

Participants

Participants were recruited through the NSW DET. Eleven teachers participated in the study. All participants had taught at least one student within the past 3 years who met the following criteria: (1) severe intellectual disability as classified by the NSW DET, and (2) a range of impairments that may include physical and sensory impairments (Foreman & Arthur, 2002). Five teachers worked in Schools for Special Purposes (SSPs) and six in support units (SUs) in mainstream schools. Schools were in metropolitan and regional/rural areas. Teachers ranged in years of teaching experience from <5-30 years. The pseudonyms, school setting, and years of teaching experience of the participants are summarized in Table I.

Procedure

Ethical approval for this study was granted by the University of Sydney’s Human Ethics Committee and the Research and Innovation Office of the New South Wales (NSW) Department of Education and Training (DET).

Each teacher participated in two in-depth interviews lasting 45-120 minutes. In the first interview, participants were invited to talk about their perceptions and experiences of supports and obstacles to communicating with students with MSD. The second interview was conducted during the following school term (3-10 weeks after the first interview). In the second interview, participants were invited to change and/or elaborate on issues discussed in the first interview. Interviews were audio-taped for later analysis, with the participants’ consent.

Transcription and management of data

The first author (TDB) transcribed the interviews as soon as possible after interviews. All identifying information was removed from transcripts. Pseudonyms replaced participants’ names, and general descriptors (e.g., student, teacher, school, place) were used.

Analysis and verification

The transcripts of the first interviews were analyzed for content themes (Richards, 2005; Tesch, 1990) and narrative structure by the first author (Coffey & Atkinson, 1996; Creswell, 2008; Ruusman, 1993).
Each participant was then sent a copy of their transcript including the first author's initial coding for content themes. In the second interview, participants were invited to provide feedback regarding the researcher's interpretations (Fleenor & Howe, 1992; Freeman, de Murais, Preissle, Roulston, & St. Pierre, 2007). Only two participants were not able to attend second interviews due to relocating interstate and overseas. However, all participants provided verification of their transcripts and interpretations of themes, either by writing on their transcripts (n = 11) and/or by discussion in the second interview (n = 9).

In addition, an independent person coded randomly selected transcripts for three of the 11 participants (27.3%) into content themes. This analysis compared the themes identified by the independent person with those noted by the first author, yielding an inter-coder reliability rating of 87.5%.

Results

The findings are presented as the six main themes that emerged from the participants' experiences. These are summarized in Table 2, with sub-themes and examples of supports and obstacles discussed by participants.

Teachers' experiences communicating with students with MSD

The teachers in this study found communicating with students with MSD "difficult" (Zara, Lennar, Barry, Polly, Donna), "challenging" (Jake, Derek), and "very frustrating" (Penny, Sally, Gary). However, they also spoke about the "enjoyment" (Molly, Gary, Lenne, Polly) and "reward" (Derek, Sally, Donna) derived from eventually managing to communicate effectively with students. Polly said for example: "It's very, very enjoyable. Once I have worked out how they communicate, whether it's yes/no or they've got a communication mode or it's just facially, I'm fine and I love it". Teachers reported both success and failure in engaging students communicatively, as reflected in Barry's comment: "Well some things you feel are really good, you feel really happy about them. A lot of things you feel ashamed that you haven't actually managed to get something out of a certain student. So there are pluses and minuses".

Teacher and student dyad

Many teachers initially identified supports and obstacles associated with students' characteristics, their own characteristics, and their relationship with their students.

Characteristics of students. Teachers perceived individual students' complex communication needs (CCN) as an obstacle to establishing communicative interactions. They reported difficulty recognizing and interpreting their students' idioms and often pre-intentional forms of communication. They also perceived that students took a long time to communicate and displayed low rates of spontaneity and responsiveness. Barry said, for example:

The main thing is really having to scan the kids to see if there's a communicative grunt, movement, smile, brown, whatever ... some will actually give a response and others you really have to search for any response the kids are going, whether they are actually communicating and whether you are actually reading that communication correctly.

As a consequence, several teachers found it difficult to stay motivated to communicate with their students. Polly said, for example: "Maintaining your enthusiasm and your energy for communicating with those students that do not respond to you is very difficult".

Most teachers also found that their students' complex personal care needs created an obstacle to the amount of communication that occurred. The "physical, labour-intensive" (Donna) nature of meeting students' personal care needs, such as assistance with eating and drinking, toileting, and physical management, competed with the time teachers spent communicating with individual students. Polly said:

They're obviously labour-intensive as far as everything that's got to be done. So therefore you've got to prioritise and the first thing is to be fed. The second thing is to be toileted and then you can start looking at what (other) priorities are for that child and all the things that they need. Their actual disability becomes part of why you don't have time to communicate.

Teacher characteristics. Teachers noted that specific characteristics helped them to communicate with students with MSD. Several teachers identified their length of professional experience as an important support. Molly said for example: "I think the longer you work with children with severe disabilities, the more communication you get going with them and the more at ease, and the more you want to communicate with them anyway". Newer teachers perceived their professional incompetence as an obstacle to communicating with students. Jake said for example: "I felt like I'd been thrown into that class because I was freshly trained and fresh out of university and I think people thought I might have had some fresh ideas. So it was particularly difficult".

Teachers also identified attitudes, perceptions, and beliefs that they perceived promoted their efforts to enhance communicative interactions with students. This included beliefs about the right and capacity of students with MSD to communicate. Derek said: "I think that even with severe disabilities,
Influence on the communicative interactions of students

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(continued)
people still sense that you consider them a worthwhile human being and you want to communicate with them so that's probably your starting point I think for effective communication". Sally added.

It's our expectations that impact on how we relate to those students. If we have the expectation that there's not a lot of ability there, then that's where we're going to pitch our interactions. If you see potential you're far more encouraged and entitled to look at opportunities for communication programming.

Several teachers spoke in particular about the importance of not underestimating students' abilities to communicate. Donna said, for example: "Even the ones with severe communication problems and multiple disabilities, they still have a degree of communication. They don't have the oral language, but they do understand, you can't underestimate that".

A few teachers reported that their attitudes changed through having some experiences that challenged their implicit assumptions about students' abilities to communicate. Sally, for example, said:

I still remember this moment I remember it vividly. I suddenly went: 'She is understanding what I'm doing. She's understanding'. I had made an assumption that there wasn't a lot going on for this young person. I learned never to assume. You never know what level of ability is there. From there we got her all sorts of things [assistive technology].

Zara related a similar experience when she said:

One of the little girls that I had for 3 years, she was the one that I thought would never pick up anything but it took me 6 months to figure out that she was closing her eyes and turning her head in response to me, not just as an internal sort of need or movement or whatever. I think it just made me aware that I needed to . . . be more responsive to the students and what was going on with them.

Both teachers reported that these experiences were catalysts for positive changes in their communication practices.

Relationship between teacher and student. Teachers perceived that developing relationships with individual students helped them to learn how to communicate with these students. Molly, for example:

I think once you get to know the student you get to know exactly what they want, what their non-verbal communication is, what a smile means, what throwing a cup at you means, just generally a gesture, a look. Taking the time to get to know them and get to know what they like to do, how they get their message across and looking for those little signs are the main key of getting communication going.

Several teachers stated that this understanding was achieved by spending time communicating with students on a one-to-one basis over long periods. However, teachers also saw the amount of time required to get to know students and how to communicate with them as an obstacle.

The school context.

Teachers reported varying experiences of certain factors as supports or obstacles to communicative interactions for students with MSD. Factors identified in the school context included: class structure, timetables, infrastructure, staffing, collegiality, teachers' aides (TAs), inappropriate practices, attitudes of other staff, resources, and funding. Some teachers reported being supported by a whole school focus on communication associated with advocacy in the above factors. In contrast, other teachers reported feeling unsupported by the school context and this associated with difficulties in these factors. Penny said: "I think the actual school situation makes it really hard". Some teachers reported attempting to make changes in their school context.

Class structure. Teachers perceived that meeting the needs of six students with MSD in a class limited the time available for communicating with individual students, particularly if there was only one TA. Polly said:

I've got to say you do not get enough time. If you have six students [with MSD] in your class, you're lucky if you have 8 minutes per period with one child, 8 minutes to be fed, 8 minutes to be toileted, 8 minutes to be communicated with, and how much communication can a child get in 8 minutes per period?

Teachers also reported limited interaction between students with MSD in a class because of their CCNs.
As a consequence of these issues, some teachers perceived that students may not be engaged in activities or communicative interactions for periods of time. Barry said, for example:

"The main problem is always worrying about the down time of kids when they're just sort of sitting waiting for something to happen. If you're trying to interact 1:1 with a student, what happens to the other student who is sitting there? Do you put them in a spot so they can watch the entertainment going on around them or is there something they can actually do?"

Other teachers reported that it was possible to engineer the classroom so that individual students were engaged in communication-enhancing activities for most of the day. Melly said:

"It is hard to get around to all the students but if I'm doing something with one of the children the others aren't just left sitting there doing nothing. Everybody is set up with something they'd like to do first. So there's communication always going on in the room and they're always active - so that they're not just left to their own devices."

Mainstream high-school timetable. Some teachers perceived that the requirement to adhere to the timetable in their school's formal time constraints that limited opportunities for communication with students with MSD. Sally said:

"I used to think the capping program would take forever until I realized the capping programs were a wonderful opportunity for communication, but we've got a limited amount of time to do this in and this has to be done by the time the bell goes. So we lose opportunities because we're trying to be expeditious. Our experience and our need to work to a timetable is not necessarily in our students' best interest."

Barry agreed:

"Of course our students' needs are not time-related. Some of our kids may actually start to blossom with what you're doing with them after 20 minutes. Often you'll find just as you're thinking 'I'm really getting somewhere with this person, they're responding,' you know you have to be upstaged, so that can be frustrating."

Infrastructure. A few teachers perceived that the size and organization of space in the classroom also influenced access to activities and opportunities for communication for students with MSD. Penny gave an example:

"He [student] was standing or lying on the floor actually at the back of the class. To me it was very inappropriate the way he was just lying on the floor there in the back of the class where people had to step over him. There really was absolutely nowhere where these kids fitted in, where they were being integrated properly."

Staffing. Teachers also talked about two issues related to staffing: (a) staff-to-student ratios, and (b) the experience and expertise of staff. First, most teachers perceived that a ratio of two staff to six students in a class of students with MSD was insufficient for meeting students' complex personal care needs, and engaging in communicative interactions throughout the day. Polly said, "Yes students do sit there. There's just not the manpower. Everything's one-to-one and there's not the manpower of two people to get around six students!"

A few teachers reported adequate staffing. They perceived that a ratio of one staff member to two students, for at least part of the day to assist with meeting students' personal care needs, enabled more activities and more communication to happen in the classroom. Donna commented:

"I'm very fortunate I have another lady who comes in for those two-hour periods in the middle of the day so I'm not just there helping the teacher's aide feeding. So I can work with the other children. When I'm in there now I'm working with two teachers and myself, so that's a very, very good ratio and I have noticed a big improvement in their communication skills."

Second, teachers perceived that a lack of experience and expertise among staff was an obstacle. Penny said:

"There were no teachers on staff who'd ever had anything to do with students with severe disabilities and I don't think there's ever been anybody like this student there at all before, and nobody really knew how to handle it at all."

Penny thought that this situation was compounded by lack of opportunities for collegiality. In contrast, other teachers reported being supported by the high level of experience and expertise, skills, and knowledge that were shared among staff at their school.

Collegiality. Several teachers perceived that limited opportunities to communicate with each other contributed to (a) students having fewer opportunities to communicate, and (b) breakdown in the consistency and continuity of individual students' communication programs. Derek said:

"Here we've started some really good communication systems with people and there'd be a change of teacher from year to year, so you know there'll be changes. Different people will come in at different times of the day. It's really hard to keep focus on that communication, consistent communication in that setting. Someone might change the communication program for some reason, that everybody's been working on, it might be changed for the better but often that's not communicated effectively. [Students] get to a certain point and it seems that it breaks down because of those reasons and they don't sort of take those further steps."

Teachers also reported that limited opportunities to meet and support each other contributed to a sense
of isolation. Jake commented: “You’re on your own and you’ve got to do everything yourself”.

Other teachers, however, reported opportunities to share knowledge about individual students’ communication systems. Zara and Leanne described formal opportunities such as a communication committee, regular meetings, and providing each other with Individual Education Plans (IEP) and written communication programs. They also described informal ways such as showing each other how to use students’ communication systems. Leanne said:

A person coming in to this school would have the meetings to go to, would have people, their supervisor or other people in the school, maybe they’d be working in a classroom next door to someone who would help them, or they would have people close on hand to help with how to use communication systems, what to do with them.

Teachers noted that this supported them in the following ways: (a) learning how to communicate with individual students, (b) problem-solving to meet individual students’ communication needs as they arose, (c) developing and implementing communication programs with students, and (d) maintaining consistency and continuity in individual students’ communication programs.

Teachers’ aids (TAs). Most teachers perceived TAs as supportive because: (a) their assistance with meeting students’ personal care needs enabled teachers to focus on communicating with individual students, (b) their experience and relationships with individual students made them effective communication partners, and (c) some TAs implemented communication programs with individual students.

Not all teachers’ experiences of working with TAs were positive, however. Penny, for example, perceived that one TA she worked with attempted to undermine measures she had established to ensure that the student was not exposed to inappropriate practices. She said:

This teacher’s aide was very resentful of anybody else having any other input. She really didn’t want any interference. The second teacher’s aide was absolutely fantastic; very perceptive and really interested in communication. It caused a bit of a problem between the two. A little bit of sabotage and things were going on. Whereas I was able to in-service the special IBO and she’d do everything I asked to the letter, where we were trying to encourage choice, trying to encourage communication, it wasn’t looked upon very kindly by the other aide and it would revert back. So this was just one of the problems which I think makes.

Inappropriate practices. A few teachers also observed inappropriate practices in their school context (ie) that they considered inappropriate because students were denied opportunities to communicate, or their attempts to communicate were ignored. Penny observed the above-mentioned TA standing behind the student while feeding him, making no attempts to communicate with him and disregarding behaviour which might have indicated refusal. Jake observed teachers responding to the screams of a student in his class by wearing ear muffs when near her. It concerned him that these teachers were not trying to interpret the potential communicative function of that behaviour, and therefore not meeting the student’s communication needs.

Attitudes, perceptions, and beliefs of others. Teachers thought that inappropriate practices reflected the attitudes or perceptions of other staff about students with MSD. For example, Penny commented that the TA’s well-meant practice demonstrated a lack of respect for the student. She said that staff displayed a lack of “awareness” of an enabling “philosophy” because they had not been exposed to this in the content. She said:

There was no sort of cultural awareness of this bigger picture, like this is a quality time between a teacher and a student, one-on-one quality time with lots of communication opportunities. All those sort of philosophies, which people aren’t necessarily aware of if they haven’t been exposed to it.

Teachers also noted that the perception that students with MSD are incapable of communicating limited others’ attempts to find ways for these students to access communication. Penny said:

He had a teacher’s aide who emphasised “Oh no, he wouldn’t be able to communicate because he couldn’t move anything”, and I said “Well he can move his head so he should be able to”. He has slight head rotation that’s all, but he can use a head switch. It’s working quite well.

Research. More than half the teachers reported experiencing under-representation, particularly with reference to assistive technology. Penny said: “There was one broken computer in the whole unit … absolutely nothing”. Barry noted that old and incompatible computers hindered his attempts to use assistive technology to increase the amount of time students spent engaged in interactions and activities. He said: “Incompatibility of technology is the main issue that I’m working with at the moment. Unfortunately the Intelligents is a part of the incompatibility problems. That’s the frustrating thing at the moment”.

Other teachers reported being well-resourced. Donna said: “We’ve got computers laid on we’re not lacking”. Leanne also talked about having digital cameras for every classroom, AAC-related software, and a pool of school-wide communication resources for routine daily activities and Key Learning Areas (KLAs). She said:

We’ve had communication meetings where it’s been augmented some songs for morning circle, and then
that'll be put into a resource and that makes it a lot easier. They're put in the library as a whole package so you can just go and get that.

Leanne commented that such readily-available school-wide resources saved teachers work and time, and helped them to incorporate opportunities for communication into activities throughout the day.

Funding. Those teachers who reported being under-staffed and under-resourced in terms of assistive technology and other equipment perceived that this was due to insufficient funding, whether through the school or DET. Barry said, for example:

"It's a funding issue. It was put onto us to biz into the rest of the school with their roll out and we managed to get one computer that went to the L.M.A.O. class which is needed by them as well. So we have very old technology here with computers."

Similarly, those teachers who reported being well-resourced and adequately staffed perceived that this was enabled by adequate funding. They also reported support from their principals. Donna, for example, reported that:

"I said to our principal at the beginning of the year, half way through term 1, 'With nine in that room, I've got to have someone else in there for the life skills in the middle of the day,' and he said 'OK, we'll have to find the money for it', which we have done."

Molly also said, "Since this principal's been here he's done a lot of community fund-raising stuff which has brought more money into the school, and so that gives you better resources".

Teachers making changes. Finally, some teachers spoke about attempting to make changes to factors in their school context. Penny reported changed rooms and the way the space in the classroom was organized so that her student with MSD who used a wheelchair could be in physical proximity to his peers and involved in activities. However, Penny perceived that achieving changes required a "battle" and her actions were met with "resistance" and "opposition". She said:

"I tried to introduce some changes, but it was very hard. I really complained quite a bit. You come with such great intentions, I said vision, really want to change so much but it is just so hard to do when things are so entrenched. We're sort of shifting away; this was for 2 years. In that time we managed to get a bit more formal communication. I feel now we have a much better system."

Despite finding the process difficult and slow she felt that changes made the classroom more conducive to opportunities for communication.

Communication education for teachers. Teachers were specifically asked about their experiences of communication education and spoke about its availability, traditional models of professional development, their attitudes towards technology, and meeting the specific needs of individual students.

Availability of communication education. Most teachers perceived a limited availability of continuing communication education. Several teachers reported that they had been working for decades with very little professional education about communication. Polly reported that she had attended one 2-day workshop on autism spectrum disorder in 20 years of working with students with MSD. Other teachers reported an inability to meet specific, identified needs for ongoing, practical support with using assistive technology.

Traditional models of professional development. Many teachers also stated that traditional models of education such as workshops and in-service courses were not useful because they were "too general for this heterogeneous, incredibly diverse" (Gary) group of students with CGNs, (b) were "too basic" (Zara), or (c) presented too much information that was subsequently difficult to apply. Zara said: "I have been to courses but have found that they haven't shown much more than what we know already, so we stopped attending those courses".

Teachers' attitudes. Some teachers said their own attitudes, perceptions, and beliefs could be an obstacle to adopting information presented at in-services. Penny, Leanne, and Molly described themselves as "technophobes" and experienced difficulty learning to use speech generating devices (SGDs) and AAC-related software.

Specific needs of individual students. Teachers reported that their professional learning needs related to meeting the specific needs of individual students as they arose within specific situations, for example in the classroom. These teachers reported that close, ongoing contact with other teachers at the school, visiting specialist teachers and speech-language pathologists was more supportive than workshops and in-services. Molly, Leanne, and Zara, for example, reported having their training needs met within the school context through collegiality, and practical, hands-on learning experiences to accompany new resources.

Other people outside the school. Teachers reported a need for input from professionals outside the school. Derek, for example, stated that because the complex communication needs of
individual students are so different: “I think it’s too hard to do it on your own”. They spoke about potential roles of other specialist teachers and speech-language pathologists.

Specialist teachers. Several teachers stated that input from itinerant support teachers for hearing and vision supported students’ communication. One teacher reported that a period of team-teaching with a specialist teacher showed her how to incorporate opportunities for communication into curricular areas and classroom lessons. Sally commented that while this one-off support had a lasting impact on her communication practices, she needed further support for updating her lessons.

Teachers also perceived networking with special education teachers in other schools as supportive because it enabled discussion and sharing ideas about communication. Barry, for example, said:

We used to have a special education network. All the support units around here would get together to discuss things like communication, sharing ideas, and unfortunately that sort of lapsed a few years ago and that was probably one of the only opportunities we used to have to actually have that cross-feeding going on.

Teachers reported having few opportunities for this networking. Penny and Barry perceived that this was due to the geographical location of their schools. Barry also noted that there was minimal organizational/departmental support for teachers in different areas to communicate.

Speech-language pathologists. Most teachers reported valuing speech-language pathologists’ expertise for assistance with: (a) interpreting students’ potentially communicative behaviours, (b) finding ways for students with severe physical disabilities to access communication, and (c) developing AAC systems for individual students. They also valued speech-language pathologists’ role in educating teachers and TAs to implement communication programs. Jane said, for example:

The team would come in from DADHC [Department of Ageing, Disability and Home Care] and train up the TAs to run these very impressive programs where the kids would actually then be communicating with the staff and the staff were learning how to communicate with the kids.

Some teachers, however, perceived that speech-language pathologists created “extra work” (Leanne) for them because their recommendations were not relevant to the class program and context. Leanne said: “Speechies come in here and there, but they don’t get that sense of the daily rhythm of the class to be able to fit it in. They’re just not here”. A few teachers made no mention of speech-language pathologists.

Government department/agency

More than half of the teachers in this study perceived obstacles to communicating with individual students associated with government departments responsible for providing services. They talked about the DET and the government department responsible for speech-language pathology service delivery.

DET: Many teachers perceived the mandatory curriculum, particularly key learning areas (KLAs), to conflict with a focus on meeting the communication needs of individual students. Jane said:

...and for us in the classroom, if you are expected to teach the curriculum, that’s what you have to do. So sometimes there is a conflict there, where you are doing the mandatory curriculum and then being able to focus on the communication needs of individual students.

Programming documentation requirements were also seen to compete with the time teachers could spend developing communication programs and setting up activities to create opportunities for communication.

Many teachers also perceived that there was a lack of departmental funding for: (1) additional staffing to support teachers to develop and implement communication programs, and (2) resources such as assistive technology. Polly noted that her head teacher was constantly “battling” the Department for resources needed for the students. Some teachers perceived that the department was mainly concerned with cost cutting.

Government department responsible for speech-language pathology services. Most teachers perceived an insufficiency of speech-language pathology services for children with MSD, from early intervention and throughout the school years. Polly said:

I don’t think communication is started early enough with kids. If you’re still asking for a speech pathologist to be coming to high school to start programs, I think there’s something wrong there. There are not enough services to those children as well as enough people in the education system to implement it.

Some teachers identified obstacles resulting from changes in the government department employing speech-language pathologists who provide services for students with MSD. Teachers perceived that organizational changes made speech-language pathology services relatively inaccessible due to: (a) geographical relocation of staff, (b) a complicated service request process, (c) long waiting times, and (d) the introduction of a model of brief visits. Derek said:
Just the fact that we saw therapists on a regular basis, so if we did think of something we could just run it past or you know just ask for a little bit of help. Whereas now that opportunity is not ours anymore and if we do want it’s a more complicated process to refer and blah, blah, blah to get that assistance that we had before.

Teachers reported that speech-language pathologists’ brief visits were not helpful because they did not allow speech-language pathologists the time required to get to know students, or (b) enable collaboration with teachers. Jake said:

I do feel with [students with MSD] that those relationships need to be built and they won't communicate with you unless you are long-term and that can’t be done with just... when the therapist comes in they line up one of your students as their client, they come in and they see that one client for 2 hours, they say thanks very much, you see them in 2 weeks, they sleep off a communication book, they do one session with the client and they go ‘Great you’re on your way’, and they leave.

Derek agreed: “When therapists do come in now there’s no collaboration, no real assistance in developing communication programs like we used to have”. They perceived that these factors have deterred teachers from making referrals, even though their perceptions of the need for the service have not changed.

Teachers reported that these organizational changes have had a negative impact on their students with MSD. They reported that students had fewer opportunities for communication and there was loss of consistency and continuity in the implementation of communication programs. Barry, Derek, Sally, and Polly noted that, as a result of these changes, students were leaving school without achieving their potential as communicators.

These teachers also perceived that there was little they could do about these changes. Jake, for example, said: “There’s no point complaining, there’s absolutely no point complaining about the way things are because what is that going to do?” In contrast, one teacher described receiving “a fair bit of support” (Donna) from speech-language pathologists in the past 2 years, where previously she had received “nothing”.

Social factors

Finally, teachers spoke about factors in the community, social inclusion, and community attitudes.

Social inclusion. Teachers perceived a relationship between students’ communication goals in the classroom and opportunities for communication in the wider community. Gary said:

I’ve actually tried in recent years to be incredibly mindful of everything I do in the classroom with any kind of signs, like that it’s got to have a reason that exists outside the classroom. You can use the classroom like a kind of training ground, but if it’s not in the short-term going to have a function outside, then it’s a waste of time doing it.

He noted that teaching his school leaves basic functional communication skills that could be used in the community and were accessible to a range of potential communication partners, such as being able to indicate the need to go to the toilet, had “phenomenal implications” because it increased their access to other settings and hence opportunities for communication after they left school.

However, teachers in SSPs reported that students with MSD had few opportunities for interaction with other young people, particularly in their local community. Also teachers in SU’s observed that there was minimal integration of students with MSD at mainstream schools. Teachers spoke about the importance of community access programs for facilitating opportunities for communication with members of the general public. However, Polly stated that under-achievement of her SU limited delivery of this program. Other teachers said that they encountered barriers in the physical environment to accessing community places. Moly reported difficulty finding parking in close proximity to shopping centres for buses that transport students who use wheelchairs.

Community attitudes

Teachers also noted that while “the public is becoming more aware of other ways of communicating with these children [there is still] a long way to go” (Molly). Several teachers felt that perceptions of students with MSD, particularly regarding their appearance and behaviour, adversely influenced their access to opportunities for communication in the community. A few teachers reported the existence of a dominant view among teaching staff and parents that social inclusion is not currently in the best interests of students with MSD. Molly observed that many parents believed their children’s needs would not be met in mainstream educational settings. Gary also believed that lack of infrastructure restricted prospects for participation in the mainstream workplace after leaving school. Several teachers therefore recognized the need for socio-structural change in order to improve access to opportunities for communicative interactions for students with MSD.

Discussion

Amount of communication in the classroom

Teachers’ perceptions that students may not be engaged in communicative interactions for lengths of time in the day are consistent with reported low frequencies of communicative interaction for
students with MSD (Arthur, 2005; Foreman et al., 2004; 2007; Houghton et al., 1987).

**Communicating with students with MSD is difficult**

Teachers found communicating with students with MSD difficult. The perception that students' complex communication needs were a factor influencing this difficulty supports the claims of previous researchers (Arthur, Butterfield, & McKinnon, 1998; Arthur et al., 1999; Carter, 2002).

**Communication education for teachers**

Teachers' reports also suggest that communication education has not supported them to communicate with these students. This finding offers new insights into potential reasons for the reported poor impact of communication education on frequencies of communicative interactions for students with MSD (Foreman et al., 2007). Apart from the perceived limited availability of communication education, these teachers reported that traditional models such as workshops and in-service courses were unhelpful. Teachers reported a preference for working closely with other teachers in their school context or professionals from outside the school. These findings lend support to aspects of an emerging research-into-practice professional development model (Little & Houston, 2003). The findings also suggest that effective professional development about assistive technologies may need to address teachers' attitudes toward technology.

**Teachers identified a broad range of factors**

Students' CCNs and communication education were not the only factors identified by these teachers. Like teachers of students who use AAC in general classrooms (Kent-Walsh & Light, 2003; Soto, 1997; Soto et al., 2001), these teachers perceived a range of factors influencing their ability to interact with their students. The findings of this study offer new insights into the broad range of perceived factors influencing the communicative interactions of students with MSD and CCNs. Teachers had variable experiences of these factors, which could be both supports and obstacles depending on details of the particular situation.

**The complexity of identified factors**

The factors identified by these teachers operated at different levels and interacted in complex ways. These findings are consistent with a conclusion that the factors identified by these teachers may be systemic (Laszlo, 1973). Figure 1 was developed as a model for further exploration, to represent the way these levels are embedded within each other. The different levels of the factors are discussed, followed by some of the complex interactions.

**The different levels of factors**

Teachers identified factors at the level of individuals, represented in the centre of Figure 1. In addition, there was an interaction between these, represented by the bridge between the two. Teachers also identified factors at

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![Figure 1. Systemic factors influencing the communicative interactions of students with multiple and severe disabilities (MSD).](image-url)
the level of the classroom, represented by the circle around students and teachers in Figure 1. They perceived that the classroom was influenced by factors in the broader school context, represented by the next circle in Figure 1. A number of factors operated at this level. Teachers reported that their ability to meet the personal care needs of individual students and create opportunities for them to communicate was influenced by the needs of other students in the class, the infrastructure, staffing ratios, attitudes, perceptions and beliefs of TAs, timetables, and AAC resources available.

Teachers' reports also suggested that factors in the school context were influenced by factors outside the school. Teachers spoke about the influence of specialist teachers and speech-language pathologists operating in their geographical region, represented by the next circle in Figure 1. Those teachers who felt unsupported in their school context in particular spoke about relying on support from these professionals outside the school. Teachers' reports also suggested that the school context and other professionals in the region were influenced by factors at the government department level, represented by the next circle in Figure 1. Teachers reported that their access to support from speech-language pathologists was influenced by organizational issues at the level of the government department employing these therapists. Teachers also felt that the inadequacy of staffing and resources in their school was influenced by their own department. Some teachers reported that their school attempted to compensate by finding or raising their own funds for additional staffing and resources, and generating communication resources to work with the mandatory curriculum. The final level, societal factors, included both infrastructure and attitudes, and is represented by the outermost circle in Figure 1.

Interactions between factors. The factors identified by teachers also appeared to interact in a number of ways. These included interactions between factors:

(a) at the same level,
(b) at a number of levels, and
(c) that were multidirectional. First, there appeared to be interactions between factors at the level of the school context. Teachers who felt supported in their school context reported having collegiality, frequent professional development, funding made available by the principal, adequate staffing ratios, and ample resources. These teachers also expressed the view of researchers that it was possible to engineer the classroom context to create opportunities for students to communicate (Butterfield & Artibas, 1996; 1995; Butterfield, Artur, & Signos, 1995; Carter & Hochkins, 2002; Downing, 2001; Siegel-Causey & Bahtishski, 1997; Signos et al., 1994). This observation offers insights into factors potentially influencing teachers' ability to do this. In contrast, teachers who felt unsupported in their school context reported inadequate staffing ratios and resources, limited collegiality and communication education, inappropriate infrastructure, and negative attitudes of other staff. These findings suggest that complex interactions between factors in the school context will either support or hinder teachers' ability to create opportunities for students to communicate.

Second, teachers described factors that interacted with factors at other levels. Communication education and time are discussed as examples. In Figure 1 communication education is represented across three levels. Teachers talked about communication education with reference to their school context, professionals from outside the school, and DET or other agencies. For example, teachers suggested that collegiality with other teachers at their school, or collaborating with speech-language pathologists, compensated for lack of appropriate traditional education provided by DET. Similarly, teachers reported that they had almost no communication education when this was not provided in the school context and there was limited accessibility to professionals outside the school. This finding suggests that teachers' professional development needs will be met or unmet at a number of contextual levels.

Time is also represented in Figure 1 as crossing almost all levels. At the individual level, teachers' reports are consistent with previous research suggesting additional time is required for teachers to communicate with students with MSD as compared to other students (Downing, 2001), and that these students can communicate effectively when given adequate time (McCarthun, 2000). However, the present study offers new insights into obstacles created by time constraints at other levels. Teachers reported a conflict between the time required to communicate with students and how time is structured within the school context. Teachers also suggested that speech-language pathologists spent insufficient time at schools to collaborate effectively with teachers and that this was due to the procedures of their government department. These findings suggest that temporal structures at various levels create barriers to meeting the communication needs of students with MSD.

Third, teachers spoke about interactions between factors that appeared to be multi-directional. Attitudes, perceptions, beliefs, and change are discussed as examples. Teachers' positive attitudes and perceptions of their students with MSD (represented by teacher characteristics in Figure 1) were thought to enhance creation of opportunities for communication. These findings are similar to those of Siro (1997), who found that teachers' attitudes, perceptions, and beliefs influenced their intentions to communicate with students who use AAC in general classrooms. However, teachers' attitudes, perceptions, and beliefs about their students' ability to communicate were also perceived to change as a result of experiences interacting with these students. These findings support the notion of a relationship...
between positive attitudes and exposure to people with disabilities (McCarthy & Light, 2005). Teachers also reported, however, that other staff in the school context and broader community had different attitudes about the ability of students with MSD to communicate. Teachers’ reports suggest that staff working in schools may be influenced by negative attitudes present in the broader society (represented in the outermost circle in Figure 1). The difficulty experienced by some teachers in bringing about change to the negative attitudes and practices of other staff also renews calls in the literature for a greater understanding of how to effect attitude change (McCarty & Light, 2005).

Change is represented in Figure 1 as crossing all the levels. Teachers’ reports suggest that change takes place at the individual level, for example in attitudes, perceptions, and beliefs, and in the broader context. Teachers also spoke about both changes imposed on them by broader contextual factors, and their own attempts to change contextual factors. The findings suggest that teachers can make changes to factors in the school context such as infrastructure, resources, and class structure that influence their ability to create opportunities for communication. The findings also suggest that when change is imposed from outside, for example at the governmental level, teachers may feel helpless to bring about changes to factors that present obstacles to enhancing communicative interactions for students with MSD. At the societal level, several teachers observed that change is required to enable access to communicative interactions for young people with MSD.

Supports and obstacles may be systemic:

In summary, teachers identified social (other people) and structural (infrastructure, resources, time tables) factors at different levels that presented either supports enabling access to communication or obstacles restricting access to communicative interactions for students with MSD. These findings offer new insights into potential reasons for low frequencies of communicative interactions of students with MSD and suggest that supports and barriers may be complex and systemic. Therefore, a model for enhancing communicative interactions for students with MSD may also need to be complex, requiring recommendations at multiple levels (such as those outlined in Figure 1) and possibly including social change.

Limitations of the study and directions for future research:

This small study consisted of participants working in segregated classrooms in only four schools across two regions of NSW, Australia. Care must, therefore, be taken in interpreting the results, as they may not reflect the experiences of teachers of students with MSD in general. There is a need for further research to explore the perspectives of special education teachers in other geographic locations to substantiate the views of participants in this study. Based on the findings regarding the school context and minimal integration of students with MSD, there is a need for research involving mainstream teachers who include students with MSD in general classrooms. Finally, given the identified role of professionals outside the school, there is a need for further research to explore the perspectives of speech-language pathologists about supports and barriers to communicative interactions for students with MSD. This research is needed to inform the development of a model and policy for enhancing communicative interactions with these students.

Acknowledgement:

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Note:

1. The first author was originally a PhD candidate at the University of Sydney. Her condition was transferred to the University of Newcastle when her principal supervisor moved overseas.

References:


Influences on the communicative interactions of students


APPENDIX U: Copy of article in press. De Bortoli, T., Balandin, S., Foreman, P.,
Arthur-Kelly, M., & Mathisen, B. Mainstream teachers’ experiences of
communication with students with multiple and severe disabilities. *Education and

Education and Training in Autism and Developmental Disabilities

Journal of the Division on Autism and Developmental Disabilities
The Council For Exceptional Children

Stanley H. Zucker, Ph.D.
Editor

7 June 2011

Dr. Tania De Bortoli
11 Coomonderry Street
Katoomba, NSW
AUSTRALIA

Dear Dr. De Bortoli:

Enclosed is a copy of your manuscript (#11-14) entitled “Mainstream teachers' experiences of communicating with students with multiple and severe disabilities.” I am pleased to inform you that it has been accepted for publication in the June 2012 issue of *Education and Training in Autism and Developmental Disabilities*.

Attached is a manuscript revision checklist based upon reviews and my technical edit. There are also notations marked on the manuscript. Please revise the manuscript to take into account my suggestions and corrections.

Please return two copies of the revised manuscript and any original artwork to me by 1 August 2011. Also, please send your manuscript on disk (in any document format) to facilitate our typesetting process. We will convert your file and code it for page setup.

About three months prior to the issue date above, as a reminder to expect proofs, you will be notified when the manuscript has been sent to Cadmus Journal Services for final typesetting. Proofs will be sent to you about three weeks after that.

Thank you for having considered *Education and Training in Autism and Developmental Disabilities* as an outlet for your scholarship. I look forward to receiving the revised manuscript and disk.

Sincerely,

Stanley H. Zucker, Ph.D., FAAIDD
Professor

Enclosures

Mary Lou Fulton Teachers College
1050 S. Forest Ave., #404 Farmer Bldg., PO Box 871811
Arizona State University, Tempe, AZ 85287-1811
(480) 965-1449 etadd@asu.edu
Mainstream teachers’ experiences of communicating with students with multiple and severe disabilities

Abstract
The aim of this study was to explore regular teachers’ perceptions and experiences of supports and obstacles to communicative interactions for students with multiple and severe disabilities (MSD). Five teachers of students with MSD participated in two in-depth interviews. Interview transcripts were analysed using content analysis. Transcripts were coded into categories, which were then grouped to yield content themes. Participants identified a broad range of themes, including: the complex needs of students with MSD, teachers’ training and experience, communication education for teachers, the presence of peers without disabilities, the mainstream classroom, other staff in the school context, resources, infrastructure, the culture, size and geographical location of the school, the home context, support from specialist personnel outside the school, including collaboration with speech-language pathologists, the role of government departments, and broader societal factors. There are complex, systemic influences on access to communicative interactions for students with MSD in mainstream school settings. Inadequate systemic supports restrict communicative interactions between students with MSD and their teachers and peers without disabilities, and limit the involvement of students with MSD in mainstream classroom activities. Further research is required with teachers of students with MSD to substantiate these preliminary findings.

Introduction
Access to communicative interactions is important for the educational participation and social inclusion of students with multiple and severe disabilities (MSD) (Calculator & Black, 2009; Downing, 2006). For several decades, however, researchers have reported low frequencies of communicative interaction for these students at school (Arthur, 2003; De Bortoli et al., 2010). Until recently, little research has examined potential reasons for the low frequencies of communicative interactions and there is limited understanding about their persistence, particularly between teachers and students with MSD (De Bortoli et al.). Our recently reported research suggests that supports and barriers to communicative interactions for these students in segregated classrooms (i.e., special schools and support units) are complex and systemic (De Bortoli, T., Arthur-Kelly, M., Foreman, P., Balandin, S., & Mathisen, B., in press).

In the past 20 years, researchers have suggested that the presence of peers without disabilities in mainstream school settings may offer a more favourable context for enhancing the frequency of communicative interactions for students with MSD (Arthur-Kelly, Foreman, Bennett, & Pascoe, 2008; Calculator, 2009; Houghton, Bronicki, & Guess, 1987; Siegel-Causey & Bashinski, 1997). Further, the potential benefits of mainstream settings for students with severe disabilities have been well documented (Carter, Hughes, Guth, & Copeland, 2005; Downing, 2001, 2006; Hunt, Soto, Maier, & Doering, 2003; Kent-Walsh, & Light, 2003; Soto, Muller, Hunt, & Goetz, 2001). Researchers have investigated the level of engagement and frequency of communication for students with severe disability and MSD in both primary and high school settings. However, research with primary-aged students with MSD in mainstream classrooms has produced mixed results. Foreman, Arthur-Kelly, Pascoe, and Smyth King (2004) found that students with MSD spent more time involved in communicative interactions in mainstream classrooms than in segregated classrooms. In contrast, Helmstetter, Curry, Brennan, and Sampson-Saul (1998) identified that students were more actively engaged in segregated classrooms, and that in mainstream classrooms, they were most actively engaged when interacting on a one-to-one basis with a teachers’ aide (TA). Researchers have claimed also that students with severe disabilities in mainstream high schools continue to have limited engagement in classrooms activities and that the frequency of communicative interactions remains low (Carter & Hughes, 2006; Carter et al.; Downing, 2006; Hughes et al., 2002). Given that school may be an optimal place to acquire and practise
communication skills, there is a need to better understand how to support students with MSD to leave the education system having realised their potential as communicators (Downing).

There appears to be a consensus among researchers that, although there may be increased opportunities for communicative interactions in mainstream school settings, physical placement alone is not sufficient to ensure increased access to communicative interactions for students with intellectual or physical disabilities (Calculator, 2009; Cutts & Sigafoos, 2001; Downing, 2006; Hughes et al., 2002; Kent-Walsh & Light, 2003). Indeed, researchers have concluded that there may be a range of complex factors, including contextual factors, influencing the communication of students with MSD in mainstream school settings (Arthur-Kelly et al., 2008; Cutts & Sigafoos; De Bortoli et al., 2010; Helmstetter et al., 1998).

Despite mixed research results regarding frequencies of communication opportunities for students with MSD in mainstream classrooms, to date there has been limited research with teachers exploring the factors potentially influencing such opportunities (Arthur-Kelly et al., 2008; Carter & Hughes, 2006; De Bortoli et al., in press; McNally, Cole, & Waugh, 2001). Most research investigating the involvement of students with severe disabilities in mainstream classrooms has been conducted in large metropolitan schools (Carter et al., 2005; Cutts & Sigafoos, 2001). This is despite reports from families in rural areas that they wish their child with a significant disability to attend the local school in order to have the opportunity to interact with other children in the community (Calculator, 2009; Downing, 2006). The aim of the present study was to explore teachers’ perceptions and experiences of factors that influence the communicative interactions of students with MSD in mainstream school settings in rural areas.

Method

Participants

Participants were recruited through the state education system. The first author contacted disability support services staff within two district/area offices, who forwarded the names of schools including students with MSD in mainstream classrooms. The first author then contacted 11 schools by telephone. Following discussion with executive teachers, six schools were deemed not eligible for the study because they did not have a student with MSD enrolled. No successful contact was made with two schools. Three schools were deemed eligible and five teachers from these schools volunteered to participate in the study. All participants currently taught one student in a mainstream classroom who had MSD. MSD was defined as having a severe intellectual disability, and a range of impairments that may include physical and sensory impairments (Foreman & Arthur, 2002). All five teachers worked in mainstream public schools in rural areas. Teachers ranged in years of teaching experience from 5-30 years. Two of the teachers had not previously encountered students with disabilities, while the other three teachers had some previous experience working with students with a range of disabilities. The pseudonym, school setting, and years of teaching experience of the participants are summarised in Table 1.

Procedure

Each teacher participated in two in-depth interviews lasting 45-120 minutes. In the first interview, participants were invited to talk about their perceptions and experiences of supports and obstacles to access to communication for the student with MSD. Four open-ended questions, developed from a review of the literature, were used to guide the interview (see Table 2). Each participant was then sent a copy of their transcript including the initial coding for content themes. The second interview was conducted during the following school term (3 to 10 weeks after the first interview). In the second interview, participants were invited to: (a) change and/or elaborate on issues discussed in the first interview, and (b) provide feedback on the researcher’s interpretations (Eisenhart & Howe, 1992; Freeman, M., de Marrais, K., Preissle, J., Roulston, K., & St. Pierre, E., 2007). Interviews were audio-taped for later analysis, with the participants’ consent.

Transcription and Management of Data

The first author transcribed the interviews as soon as possible after interviews were conducted. All identifying information was removed from transcripts. Pseudonyms replaced
Analysis and Verification

The transcripts of the first interviews were subjected to an analysis of content themes (Coffey & Atkinson, 1996; Creswell, 2008; Richards, 2005; Tesch, 1990). Text segments were coded for the topic discussed and assigned to categories. Categories were derived partly from previous research (De Bortoli et al., in press), with some categories not used and new categories added according to the topics discussed by the participants in this study. Categories occurring at the same systemic level (De Bortoli et al.), or within the same context (e.g., school setting, government department), were grouped together to yield the content themes. Qualitative data analysis software (NVivo 8, QSR International) was used to assist in data management.

Only two participants attended second interviews due to work commitments at the end of the school year. However, all participants provided verification of their transcripts and interpretations of themes, either by writing on their transcripts \(n=5\) and/or by discussion in the second interview \(n=2\). In addition, an independent person, a research assistant with experience in qualitative research, coded randomly-selected transcripts for two of the five participants \(40\%\) into content themes. She was given instructions for coding that included definitions of the coding categories and then independently coded the transcripts without any discussion with the main investigator. Subsequent analysis compared the coding of transcripts into categories by the independent person with those noted by the first author, yielding an inter-coder reliability rating of 92%.

Results

Findings are presented as the six main themes that emerged from the participants’ experiences. These are summarised in Table 3, with categories and examples of supports and obstacles discussed by participants.

Teachers’ Experiences Communicating with Students with MSD

Two of the participants in this group (Phoebe and Nigel) were in the early stages of their careers and had no previous experience with students with MSD. The other three participants had 15-30 years experience and had previously taught one student with MSD. Participants described communicating with students with MSD as “difficult” (Phoebe, Nigel, Naomi), “overwhelming” (Phoebe), “frustrating” (Betty, Dora), and “daunting” (Dora). Nigel said: “I find it difficult because apart from the greeting you’re left a little bit lost as to where to go from there. It’s a bit hard to prolong an interaction or a conversation of any manner.” Yet the teachers also reported some positive experiences and feelings. Betty said: “[Student] makes my day when he smiles at me, it’s wonderful.” The supports and obstacles to communication identified by participants are outlined below.

Individuals: Teacher and Student

Participants initially identified obstacles to communicating associated with both the student’s characteristics, and their own characteristics. The more experienced teachers also identified some supports associated with their own characteristics.

Student characteristics. Participants identified the complex communication needs of their student with MSD as an obstacle to establishing communication. They perceived that communication was difficult because of their student’s limited responsiveness and spontaneity. Betty said: “With a typical student you are able to get some feedback and therefore know that your message has been understood. Sometimes with [student] we may get no visual signs whatsoever, not even facial movement.”

Participants reported difficulty interpreting students’ idiosyncratic forms of communication. Nigel said: “He can’t communicate verbally so actions and eye contact are the biggest things. I’m only taking a guess or a stab at what it is that he’s trying to project.” Three participants perceived that their student may be pre-intentional. Phoebe noted: “I don’t know if [student] has intent to communicate, that’s the hard part. We can put him in situations to foster communication but I don’t know if the intent is there, if he actually wants to communicate.” Four participants also observed that communicating with their student with MSD required increased effort and time on their part, because of the need for one-to-one
interaction. Participants then emphasised their lack of skills and knowledge to interact with students with such complex communication needs.

*Teacher characteristics.* Participants reported that their lack of training, knowledge and experience was a major obstacle to establishing communication with students with MSD. Phoebe said: “I’m not trained and I don’t understand how it [communication] works with a child with severe, multiple disabilities and minimal communication.”

Naomi noted, however, that the experience, skills and knowledge she had acquired at a previous school, teaching children with a variety of additional needs, supported her to communicate with her current student with MSD. She had undertaken training in sign language, and said “so I could actually communicate with them that way.” Following on from discussion of their own characteristics, participants talked about the importance of communication education.

*Communication Education for Teachers*

**Formal education and courses.** The participants reported a general lack of training for teaching and communicating with their student with MSD. They noted limited relevant content in their pre-service teacher education and limited continuing communication education. Nigel said:

> We’ve very much been told to try and interact with the student as best we can but I haven’t had any kind of special education training or any specific professional development regarding how to cope with a student that’s at this level. It has been very much on-the-job training, a bit of trial and error.

Participants perceived a need to attend external courses to help them acquire some skills and strategies for communicating with students with MSD.

**Mentoring.** The early career teachers, in particular, perceived the potential value of regular opportunities for mentoring, for personal support and guidance with programming. However, they reported limited opportunities for such experiences. Phoebe said: “As far as mentoring goes, it’s quite difficult to find someone that’s willing to support you.” In the absence of formal education and mentoring, Nigel described some of his experiences of “on-the-job training.”

**Practical experience.** Nigel described the benefits of spending time with another student at the school who had a hearing impairment. He said: “I’ve found that a very big learning experience in terms of understanding her communication needs. It gave me more insight into working with the more severely disabled student that we have here at the school.”

Participants noted other ways they could be supported to learn how to communicate with students with MSD. These included using the internet, visiting other schools, and support people coming into the school.

**Internet.** Naomi reported that access to the internet at her school enabled her to research the communication needs of children with disability. She perceived this as an important resource for teachers in rural areas.

**Visiting other schools.** Participants also commented that observing practices in other schools, particularly special schools, would be helpful. Phoebe said: “[We] are going to another school to see what they are doing there for these students with multiple disabilities and severe language delays, and how the teachers there communicate with them, to see that we’re on the right track.”

**The role of support people.** Finally, participants perceived that support people, from outside the school, had a role in imparting skills and knowledge about how to communicate with students with MSD. Naomi said:

> When the children come through they bring their entourage of OTs and Speechies. The itinerant support people are making sure that as a beginning teacher you’re getting that information. That’s basically how I learned. So really those support people are crucial.

Regardless of their level of experience or access to training, however, participants talked about receiving limited support. Naomi noted that while this support is crucial for beginning teachers it had been “dwindling away.” She said:
Particularly for a beginning teacher, to be faced with a student with multiple and severe disabilities, it’s essential to have support. If I was a beginning teacher I would say that I would be struggling because I wouldn’t know where to go with this child. Participants talked about obstacles, and supports, they encountered in the contexts of the classroom and school. These are presented in the next theme. The role of support people from outside the school will be presented in the following theme.

**Classroom and School Contexts**

Participants perceived that a number of issues influenced access to communicative interactions for the student with MSD. These included: (a) peers without disability, (b) the mainstream classroom, (c) other staff in the school, (d) resources and the physical environment, and (e) the culture of their school.

**Peers without disability.** Participants reported that the other students generally held positive attitudes toward their peer with MSD. The two participants in primary classrooms perceived that the student with MSD had opportunities for communication, because of the presence of peers as potential communication partners. Phoebe said:

I think him just being here is a great opportunity for communication because he’s getting to interact. The other kids want to hold his hand, they want to speak to him, they want to sit beside him. His being in the mainstream setting just provides him with other students that want to talk to him and that want to be his friend.

Participants at the secondary school level, however, reported minimal interaction between the student with MSD and other students, despite students’ positive attitudes. Nigel said:

There’s not a lot of interaction between the mainstream students and him [student with MSD]. None of the other students seem to want to even attempt the “high fives,” a big communication tool. So, there is that divide in that respect.

Nigel perceived that, like the staff, the other students found it difficult to communicate with the student with MSD. He said: “It is very difficult for other students to even relate with [student]. If teachers find that difficult then what chance does a student have?”.

**The mainstream classroom.** Participants noted a number of barriers to communication associated with the mainstream classroom. Participants reported both awareness that their student with MSD needed more time, and a concern about allocating their time and effort equitably among all their students, to ensure delivery of the curriculum, particularly at the high school level. Participants also reported difficulty communicating with the student with MSD in the group situation and programming to involve him in classroom activities. They perceived that the student with MSD could be “disruptive” (Naomi) for them and the other students. Phoebe said “We encourage him to make noises to communicate but it’s awfully difficult to be teaching when you’ve got someone yelling in the background.”

**Other staff in the school context.** Participants talked about the perceived role of teacher’s aides, the principal, and collegiality in supporting or hindering access to communication for students with MSD. Participants spoke about the importance of having a teachers’ aide (TA) in the classroom to facilitate communication, and work one-to-one with the student with MSD on their individual education plan (IEP). Naomi said: “With more severe children we do that more through the teacher’s aide and using that aide to set them up with communication skills. You need that space where he’s just with his aide working on his own program.” However, Phoebe reported limited opportunities during the school day to communicate with her TA about the student’s progress and goals.

Participants also spoke about the role of opportunities to meet with other teachers, in supporting them to communicate with their student with MSD. Three participants reported that dialogue between teachers supported positive attitudes and a consistent approach to communicating with the student with MSD. Betty commented that: “It’s been a communication for staff actually” to take a consistent approach to using high fives with their student. Phoebe, however, reported almost no opportunities for collegiality. She was the only teacher at her school who had a student with MSD in her classroom. She said:
I’ve found that there’s no one else in the same situation as me. There’s no one with my lack of training that has a student with multiple and severe disabilities in their classroom that can speak on a de-briefing level.

Participants also reported varying experiences of support from their principal. Phoebe said: “I don’t feel that I get support from the principal.” Other participants reported that their principal managed the students with disabilities at their school, provided informal problem-solving with them, and arranged a speaker to attend a staff meeting prior to the student with MSD arriving.

**Resources and the physical environment.** In addition to the role of other people in the school context, participants talked about the infrastructure of their school, and the need for more resources. Betty, Dora and Nigel described changes made to the physical environment of their school to enable the student with MSD to participate in classes with his peers. These included use of downstairs classrooms, installation of ramps, and acquisition of desks to accommodate wheelchairs. Nigel reported that changes were made to the use of particular rooms and areas in the school, so that the student had dedicated spaces for sleep and mealtimes.

However, participants reported difficulty acquiring, or lack of knowledge about resources to support the student’s participation in classroom activities and opportunities for communication. Naomi said: “We haven’t really been offered any equipment here and we’re making do as we go.” Nigel reported that his student with MSD had recently acquired an assistive technology device. However he also said: “I don’t know a lot about it, the teacher’s aide knows more about it.”

**The school culture.** In addition to these specific issues, participants shared their perceptions of their school culture. They discussed the school’s ability to cater for the needs of students with MSD, and the impact of its size and geographical location. Even participants in the same school had different perceptions about their school’s ability to cater for the needs of students with MSD. Betty and Dora commented that their school had a history of accommodating students with disabilities, in terms of enabling access in the physical environment. Betty said:

> I think it’s a culture within our school because I remember twenty years ago, we had students that would have been at [special school] then. We had a fellow in a wheelchair and it was no big deal. We just changed the timetable for him every year so that he never had to go upstairs. So I think we’ve had it in our community, in our school community for quite some time.

Nigel, however, expressed the view that, while it was “fantastic” to be able to accommodate the student with MSD, staff had fears about how to interact with him. He noted that staff attitudes had become more positive: “I think change has been the biggest fear for many of us, including myself, but as times gone on I think it’s been more accepted.” Nevertheless, he expressed uncertainty about the school’s ability to cater for the educational and communication needs of the student with MSD, and recommended that more be done “to make it more worthwhile for those children that are coming.”

Participants also noted supports and obstacles associated with small, rural schools. Four participants perceived that the emotionally supportive culture of their school was due to it being a small, rural school. Naomi said: “It’s really a family environment in a small school. Everyone’s accepting of our little person and really nurturing and encouraging.” Betty perceived that there was a “sense of community within the school.”

The perceived disadvantage of small, rural schools, however, was greater difficulty accessing support from the state system and professionals outside the school. Naomi said: “I think we find it a little bit difficult to access support being in a smaller school rather than being in a larger school where there are more of those sorts of children.” Teachers’ perceptions and experiences of other people outside the school is the next theme.

*Other People Outside the School*
Participants talked about the role of people outside the school. These included parents of their student with MSD and professionals in their district/region, such as visiting specialist teachers and speech pathologists.

**Home context.** Participants reported varying experiences of contact with their student’s parents. Three participants reported having close contact, via phone and communication book. Dora said: “A lot of the communication is through the parents for the kids. So we work with them. [Communicating with the student] is hard.” They reported that the communication book was not being used to communicate with the student with MSD.

Two participants noted that not all families were capable of supporting their child’s communication development. Phoebe described limited support from the family for enhancing her student’s skills: “I feel that I don’t get much support from the home environment. It isn’t particularly an opportune environment. I don’t think they are particularly concerned with fostering [student’s] development. It frustrates me. That’s a big obstacle.”

Participants perceived that parents had an important role in accessing support, for example, speech pathologists, both before students start school and throughout their school years. Naomi said: “Some parents are maybe not as diligent in looking for that help before school. If we are trying to access that support later on then it’s perhaps a little more limited.”

**Visiting specialist teacher.** The two participants in primary schools spoke about the ways that an itinerant teacher for hearing (ISTH) provided support. These included facilitating the communication skills of the student with MSD, the teacher and the other students in the class. Phoebe said: “With access to their support, we are trying to teach him to communicate using his eyes and using simple Makaton signs. So they are our alternative forms of communication.” Naomi added: “The itinerant support people set you up for making sure that you’re going to be able to communicate well, that you’re able to sign to them to communicate to them.” She also said:

> We use the support teacher to work with all of the children so she could sign to the children as well. That way we’re all on the same wave length in being able to communicate with each other. That was really important.

Participants also reported that the ISTH supported them with programming to involve the student with MSD in activities and create opportunities for communication. Naomi said: “Every chance I get with my support teacher we’re programming.”

However, Naomi reported that this support “has just dwindled away. Now we might see our support teacher once every couple of weeks. Those support people are crucial.” The participants in a high school noted that an ISTH comes to their school to support a student who has a hearing impairment. However, they noted that their student with MSD was not receiving similar support. Nigel said: “I’m not certain whether there’s that kind of facility with the more severely disabled male student that we have. I may be unaware of it.”

**Speech pathologist and other therapists.** In contrast to her supportive experience with an ISTH, Phoebe described her negative experience of visits from a speech pathologist and other therapists that were unhelpful. She said:

> The very first day of school, seven people from [Non Government Organisation] knocked on my classroom door and started speaking about Big Mack switches, and augmented communication systems… I was just so overwhelmed by these people telling me what I must do. I was actually told: “You need to do more, and this was the very first day of meeting this little person.”

She also reported not being involved because the speech pathologist did not arrange appropriate times with her to visit the school. She said: “So since having [student] at school we’ve had three speech visits that really I felt I got nothing from. These visits happen outside the classroom while I’m teaching.” Apart from participants’ comments about the individual professionals that they worked with, they also talked about factors associated with government departments. This is the next theme.

**Government Departments: State Education System**

Teachers talked about supports and obstacles associated with both the state education system and other government departments and agencies responsible for providing speech pathology services.
The integration officer. Participants working at the central school reported receiving weekly visits from an integration officer “because there are quite a few special needs children here” (Dora). Dora said: “She talks to the teachers to see if there are any special resources that the child may need to help with their learning. If we need a laptop she can get that from district office.” Participants perceived the integration officer’s presence as helpful, even though she had limited time at the school.

Difficulty obtaining support. Having previously also worked in a central school, Naomi perceived, however, that there was less support from the state system for students with MSD in smaller schools. Phoebe reported that her requests for support seemed to “fall on deaf ears.” Despite positive reports about the ISTH and integration officer, participants talked about difficulties obtaining funding, support from specialist staff, and support for networking with other teachers of students with MSD in mainstream classes.

Difficulty obtaining funding. Participants reported difficulty obtaining funding through the state system for resources to support their student’s participation in activities and opportunities for communication. Phoebe said: “I pushed and pushed and pushed. It’s taken a term and a half to get $400 worth of funding to buy some developmental toys and resources for him.” However, she also described resorting to purchasing resources with her personal money, for which she had not been reimbursed. Betty perceived that staff had to “fight,” not only to obtain resources, but also for additional staffing in the classroom.

Limited specialist staff. Participants perceived that there were limited avenues for accessing specialist support through the state system, for students with MSD in the mainstream setting. Phoebe said:

When I first filled out the access request form, “hearing” was the only box that [student] fitted into. It was the only box that I could tick for him and I thought “I need some support. I’m just going to try.”

Nigel perceived that there was a scarcity of such staff. He said: “If you brought someone in [here], are you taking resources from elsewhere. It’s a finite resource pool.”

Isolation of mainstream teachers of students with MSD. Participants talked about being on their own, both personally and professionally. Phoebe said: “When you do try to have a personal relationship with some of the people higher up in integration and in special ed, it’s like they don’t want to talk to you about how you’re feeling.”

Betty commented that the integration officer’s visits were not enough support for individual teachers. She noted the need for the state system to provide opportunities for networking with other teachers of students with MSD in mainstream settings:

So that we can look at all the different strategies, share all the resources that are out there. We all do our own thing. There doesn’t seem to be on a departmental level enough co-operation, co-ordination. We could do it a hell of a lot better.

Participants also made comments about lack of support associated with other departments and agencies.

Other Departments and Agencies

Participants spoke about the limited and inconsistent provision of speech pathology services to students with MSD at their schools.

Limited services to schools. Participants perceived that it was difficult to access speech pathology services in the school setting, and that when provided input was brief. Phoebe said: “You have to jump through so many hoops to get it, or it costs extra and the family just can’t accommodate that.” Phoebe’s student had received three school visits over six months. The student was now on a waiting list for further support.

Nigel, Betty and Dora reported that no speech pathologists come to their school, and perceived that this service was not accessible for the high school. Betty said: “I think if we could get it we would have accessed it by now but I know that certainly doesn’t come in through high school.” Nevertheless, participants unanimously stated that speech pathologists could support them to communicate with the student in the classroom.

Inconsistent provision of services to schools. Naomi compared the provision of speech pathology services to students with MSD at different schools. She reported that at the central school where she had taught kindergarten previously: “We had a lot more support for
that student. We had occupational therapy. We had speech pathology that came with him and stayed with him.” In contrast, she reported receiving no service at her current small, primary school, and added: “I’m not sure why there would be a difference because that was a rural school as well.” However, as previously mentioned, she perceived greater difficulty accessing a speech pathology service at a small school than a larger school. Naomi, Betty and Dora stated that it was up to parents to arrange a speech pathology service. Dora said: “I think that’s just something that parents do off their own bat.”

Participants’ perceptions about the influences of the broader community on the student’s access to communication in the mainstream school setting are presented in the final theme.

Societal Factors: Social Inclusion

Finally, participants expressed different views about the extent to which social inclusion occurred at their school and in the broader community. Four participants perceived that their local communities were accepting of young people with MSD and their attendance at the local school. They believed that it was important for the student with MSD to participate in activities and not be segregated. Betty perceived that the student with MSD was “included in just the same way [as other students],” and noted that: “If they’re [students with MSD] set apart and appear that they are very different and you don’t get to interact with them” then communicative interactions are much less likely to happen.

One participant had different views, however, about social inclusion. Nigel perceived that the student with MSD was not being socially included. He therefore had doubts about the benefits of the mainstream school setting for this student: “The family want the child to be at the local school which is understandable but whether it’s necessarily to his maximum benefit is questionable.” Nigel commented that the special school in the area would better cater for the needs of the student with MSD. He said: “We do have a special education school in the area and that’s already sort of set up, it’s got a program like that.” He noted that apart from the lack of interaction between the student with MSD and other students at school, this student attended segregated activities outside school as well.

Discussion

Participants Identified a Broad Range of Factors

The findings of the present study support previous research (De Bortoli et al., in press; Kent-Walsh & Light, 2003; Soto et al., 2001), and suggest that supports and obstacles influencing the communication of students with MSD in mainstream schools are complex and systemic. These are represented in Figure 1.

Participants’ Difficulties Communicating with Students

Given their limited training and experience, participants had difficulty interacting with students with such complex communication needs. These issues are represented in the innermost circles of Figure 1. These findings are consistent with previous research with mainstream teachers including students with severe disabilities and students who use AAC (Carter & Hughes, 2006; Kent-Walsh & Light, Soto et al., Smith, 2000). This factor was compounded by few opportunities for continuing professional development and limited supports at a number of contextual levels, such as mentoring, networking with other mainstream teachers, specialist support people, and external courses. In Figure 1 communication education crosses a number of levels. This situation existed despite claims by researchers that teachers need a high level of professional development support to include students with severe and multiple disabilities (McNally et al., 2001).

Classroom Context

Involvement in classroom activities. Participants’ difficulties engaging students with MSD in classroom activities may have been due to an interaction between their limited training and experience teaching these students, and instructional practices in mainstream classrooms, such as whole-group activities. This appeared to be particularly true in high school classrooms with lecture-style instructional practices and focus on curricular content.

Reliance on TA. Participants’ consequent reliance on a TA to mediate communication and work individually with the student with MSD may have further limited the students’ involvement and communicative interactions in the mainstream classroom (Carter & Hughes,
While the support of a TA in the classroom was crucial for these participants, it may nevertheless have contributed to the social isolation of the student with MSD, a phenomenon discussed by other researchers (Carter & Hughes, 2006; Downing, 2006; Kent-Walsh & Light, 2003).

Peers without disability. The findings also suggest that there was limited realisation of the potential opportunities for communication offered by the presence of peers without disabilities. While the primary-aged students were perceived to be naturally interactive (also reported by Bentley, 2008), participants did not report perceived quantity or nature of communicative interactions between students. In the high school setting, the presence of peers as potential communication partners reportedly did not translate into interactions, consistent with previous research (Carter & Hughes, 2005). The findings suggest that the presence of peers without disabilities as potential communication partners may have interacted with other contextual factors. Instructional practices and peers are represented in the next circle in Figure 1. Teachers’ aides are included in the following outer circle representing the school context/culture along with other influencing factors at this level.

School Context/Culture

The findings suggest that the cultures of schools varied in terms of support for facilitating communicative interactions for their students with MSD. These varied from lack of support and isolation, to supportive school environments. Parents have also reported experiencing differences between schools in the support provided to include their child with a disability (Kluth, Bliken, English-Sand, & Smukler, 2007).

In the present study, a supportive school culture enabled participants to meet and develop a school-wide goal for their student with MSD of using high fives for greeting, a goal documented in the literature as socially valid and age-appropriate (Calculator & Black, 2009; Downing, 2001, 2006). However, as one of the teachers commented, this communication goal was very limited, a view supported by researchers who have stated that students with MSD may rely on a limited number of communication modes and therefore be limited in the messages that they can convey (Calculator, 2009; Downing, 2006). Therefore, the findings suggest that this supportive school culture, which also reportedly helped participants transform their initial fears into more positive perceptions, was not sufficient to ensure communicative interactions for the student with MSD. The factor of change, which was perceived to occur or need to occur at the personal level, in the school context and in organisational service provision, is represented in Figure 1 by a wedge that crosses these levels.

Geographical Area.

The infrequent communicative interactions reported may have been influenced by limited specialist support services into the schools. Participants perceived that the rural location of their schools meant they received minimal support from specialist teachers and speech pathologists, as represented in the next circle in Figure 1. It may also have made access to professional development more difficult.

Limited specialist support services may have presented a barrier to communicative interactions for the student with MSD because teachers, TAs and peers without disability appeared to receive limited support for learning how to communicate with the student. Researchers state that teachers and peers without disability need to be taught how to: (a) recognise and respond to the idiosyncratic forms of communication of students with MSD, and (b) use AAC systems to have communicative interactions with them (Calculator, 2009; Copley & Ziviani, 2004; Downing, 2006; McMillan, 2008). Further, research suggests that even minimal teaching of peers facilitates interaction (Carter & Hughes, 2006; Carter, Cushing, Clark & Kennedy, 2005; Downing, 2006).

Limited specialist support services may also have presented a barrier to involving the student with MSD in classroom activities because participants received limited support for programming, a support recommended in the best practice literature (Calculator, 2009; Calculator & Black, 2009; Hunt et al., 2003). While participants in primary school environments relied on visits from a specialist teacher for programming, and teaching
students some signs to communicate with the student with MSD, their comments suggest that this support was not sufficient, and that support from speech pathologists was also needed.

The findings also suggest variable co-operation between schools and the families of students with MSD. Even though parents reportedly wanted their child with MSD to attend the local school, it is not known whether their expectations were met. Limited specialist support may also have presented a barrier to the collaboration required to facilitate consistent approaches to communication across contexts (Calculator & Black, 2009; Downing, 2006; Hunt et al., 2003). Teachers at the high school, for example, used a communication book with parents but did not use it with the student to facilitate participation in the classroom and conversations with peers (as discussed by Downing, 2001, 2006).

**Government Departments and Other Organisations**

The findings suggest other issues that have implications for service delivery at a departmental/organisational level, as represented in the next circle in Figure 1. The finding that some teachers were only able to access a specialist teacher because their student with MSD had a hearing impairment suggests limited avenues for teachers to access specialist support services through the state education system. The findings also suggest that speech pathology services operated under a model of few visits during which the student was withdrawn from the classroom, teacher and peers. Conflicts between the time required, and the time available or provided, to meet the communication and learning needs of students with MSD is represented by a wedge in Figure 1 that crosses a number of levels. Limited to teaching the student with MSD communication skills, this model, therefore, was not supportive of facilitating communicative interactions in the classroom and school contexts. It appears that some participants were not even making service requests, suggesting that organisations providing speech pathology services may need to provide schools with information about accessing this service.

**Discourses about Social Inclusion**

The existence of different views amongst teachers in the same school about the ability to support communicative interactions for students with MSD in their local, rural school suggests that there are different discourses operating simultaneously. This level of influencing factors is represented in the outermost circle of Figure 1. These discourses may both be influenced by the interactions between factors discussed above, and influence access to communication for students with MSD in mainstream settings. The parents in Kluth et al.’s (2007) study also reported the influences of different districts’ and schools’ discourses and cultures on the social inclusion of their children with disabilities. The finding that teachers perceived limited philosophical and practical support from the education system for socially including students with MSD may reflect a broader social discourse while at the same time influencing the views of individual teachers.

The findings of this study suggest the existence of the following discourses: (a) students with MSD have the right to attend their local school and not be separated from peers; (b) resources are scarce and it is not cost effective to provide the supports needed for students with MSD in mainstream schools; (c) if students with MSD attend the local school they have to fit in with little additional support to accommodate them (also reported by the parents in Kluth et al.’s (2007) study); and (d) the needs of students with MSD are not always met in the local mainstream school and it is in the best interests of some students to have segregated education. Researchers have speculated that teachers doubt the benefits for students with severe disabilities of attending a mainstream classroom in the neighbourhood school, because the barriers overshadow the potential benefits, and that there would be greater benefits for such students in segregated settings (Carter & Hughes, 2006; Downing, 2006; Smith, 2000). The perpetuation of some of these discourses may continue to limit opportunities for communicative interaction for students with MSD. Perhaps because of the difficulties establishing communication in the school setting, none of these teachers spoke about preparing the student to communicate in the broader community, as discussed by Calculator and Black (2009). The findings suggest that, without supports, students with MSD can still be segregated, with limited opportunities for interaction at school and more broadly in their local community.
Limitations and Future Research

This was a small study incorporating the views of five teachers in three rural schools. Certainly, the results do not reflect the views of other teachers of students with MSD in mainstream school settings. Further research is needed with other teachers of students with MSD in mainstream schools in a broader geographical area in order to substantiate the claims of the participants of this study. The findings of this study have implications for: (a) how the culture of a school influences the communicative interactions of students with MSD, and (b) speech pathology service delivery. The importance of collaboration and teamwork also suggests that further research involving potential team members, such as speech pathologists, other health professionals, parents, specialist teachers and peers without disability is required. Further observational research is also required to document what actually happens in mainstream classrooms between teachers, students with MSD, and their peers. This research would contribute further insight regarding a model for enhancing the communicative interactions of students with MSD in mainstream school settings.

Conclusion: Supports and Obstacles may be Systemic

The findings of this study offer new insights into the supports and obstacles that impact teachers in rural schools in their communicative interactions with students with MSD in mainstream classes. The participants’ perceptions suggest that the supports and obstacles for communicative interactions, and engagement in the classroom are complex and systemic. The findings therefore also suggest that a model for enhancing access to communicative interactions for students with MSD in rural, mainstream schools may also need to be complex and systemic. This may include the following recommendations: (a) support for individual teachers, such as mentoring, opportunities for gaining experience with students with disability at university, regular opportunities for networking with other teachers and visiting other schools, accessing courses using technologies, and collaboration with specialist support staff; (b) specialist support services into schools to support teachers, TAs and peers without disability to learn how to communicate with the student, involve him/her in class activities, set up peer support arrangements, facilitate collaborative teaming involving families, set up AAC systems, and build up the school culture in terms of communication practices and resources; (c) further investigation of service provision for students with MSD in rural areas, (d) government departments and other organisations continue developing policies and practices for building the social inclusion capacities of rural mainstream schools thereby reducing the isolation of teachers and families; and (e) a continuing dialogue about social discourses around mainstream educational settings and students with MSD that may be influencing their access to communicative interactions.

References


Table 1: Characteristics of participants

<table>
<thead>
<tr>
<th>Participant</th>
<th>Gender</th>
<th>Age (years)</th>
<th>Years of teaching experience</th>
<th>Type of teaching experience</th>
<th>Educational setting</th>
<th>Location</th>
<th>Training background</th>
</tr>
</thead>
<tbody>
<tr>
<td>Betty</td>
<td>F</td>
<td>55+</td>
<td>30</td>
<td>Primary and secondary</td>
<td>Central school</td>
<td>Rural</td>
<td>DipEd</td>
</tr>
<tr>
<td>Dora</td>
<td>F</td>
<td>55+</td>
<td>30</td>
<td>Primary and secondary</td>
<td>Central school</td>
<td>Rural</td>
<td>DipEd</td>
</tr>
<tr>
<td>Naomi</td>
<td>F</td>
<td>36-45</td>
<td>15</td>
<td>Primary</td>
<td>Small mainstream public</td>
<td>Rural</td>
<td>B.Ed.</td>
</tr>
<tr>
<td>Phoebe</td>
<td>F</td>
<td>20-35</td>
<td>6</td>
<td>Primary</td>
<td>Small mainstream public</td>
<td>Rural</td>
<td>B.Ed</td>
</tr>
<tr>
<td>Nigel</td>
<td>M</td>
<td>20-35</td>
<td>5</td>
<td>Secondary</td>
<td>Central school</td>
<td>Rural</td>
<td>B.Ed</td>
</tr>
</tbody>
</table>

Table 2:
Interview outline

The following is the general interview format for the initial interview with teachers. The format of the in-depth interview has been chosen to allow participants to discuss their experiences of communicating with their students with multiple and severe disabilities openly and without interruption. The interviews will be conversational in style and the number of questions kept to a minimum. The following questions will be used as a guide only.

1. Demographic information
   o What type of setting do you work in?
   o How many years experience have you had working with students with severe and multiple disabilities?

You may find it helpful to think of particular students when answering these questions.

2. Communicating with students with severe, multiple disabilities
   o What is it like to communicate with your student(s)?
   o What do you think is important about communication for your students?

3. Supports
   o Can you tell me what supports or has a positive affect on your communication with your student(s)?
   o What do you think could help make communication easier?

4. Training
   o Have you had any communication training? If so, how would you evaluate it?
   o What sort of communication training do you think would be valuable to you?

5. Obstacles
   o What factors have a negative impact on your communication with your student(s)?

Topic areas will be introduced with the natural flow of conversation. It may be unnecessary to introduce a topic or ask a question if the participant has already addressed it. Therefore, these topic areas are merely a guide and not a set interview regime.

Table 3:
Themes, sub-themes and examples of supports and obstacles discussed by participants

<table>
<thead>
<tr>
<th>Themes</th>
<th>Categories</th>
<th>Supports</th>
<th>Obstacles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals-Teacher and student</td>
<td>Student characteristics</td>
<td>Complex communication needs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teacher characteristics</td>
<td>Existing skills, knowledge and experience.</td>
<td></td>
</tr>
<tr>
<td>Communication education for teachers</td>
<td>Formal education and courses</td>
<td>Limited pre-service and continuing education.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mentoring</td>
<td>Working with students with disability.</td>
<td></td>
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<tr>
<td></td>
<td>Practical experience</td>
<td>Access to information in rural schools.</td>
<td></td>
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<tr>
<td></td>
<td>Internet</td>
<td>Observing communication practises.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Visiting other schools</td>
<td>Giving teachers skills and knowledge.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Support people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The school context</td>
<td>Peers without disabilities</td>
<td>Communication opportunities. Positive attitudes.</td>
<td>Limited interaction at high school.</td>
</tr>
<tr>
<td>------------------------------------</td>
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<td>------------------------------------</td>
</tr>
<tr>
<td><strong>The mainstream classroom</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Difficulties programming and communicating in group situation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teachers’ aides.</td>
<td>Collegiality: meeting with other teachers.</td>
<td>Limited opportunities for collegiality.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Principal supports teachers.</td>
<td>Principal provides limited support to teacher.</td>
</tr>
<tr>
<td><strong>Other staff in the school context</strong></td>
<td></td>
<td>Accessible physical environment.</td>
<td>Difficulty accessing resources, assistive technology.</td>
</tr>
<tr>
<td><strong>Resources and the physical environment</strong></td>
<td></td>
<td>Small, rural schools provide supportive atmosphere.</td>
<td>Difficulty meeting learning and communication needs. Difficulty for small, rural schools to access support.</td>
</tr>
<tr>
<td><strong>School culture</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other people outside the school</strong></td>
<td>Home context</td>
<td>Close contact for exchange of information.</td>
<td>Family not capable of supporting the child’s communication.</td>
</tr>
<tr>
<td></td>
<td>Visiting specialist teachers</td>
<td>Facilitating communication skills; student, teacher, peers. Programming for activities.</td>
<td>Reduced support. Limited support for students without hearing impairment.</td>
</tr>
<tr>
<td></td>
<td>Speech pathologists and other therapists</td>
<td>Integration officer supports school with resources.</td>
<td>Limited collaboration with teacher.</td>
</tr>
<tr>
<td><strong>Government departments/agencies</strong></td>
<td>State education system</td>
<td></td>
<td>Difficulties obtaining funding, specialist staff and support for networking.</td>
</tr>
<tr>
<td></td>
<td>Other departments and agencies</td>
<td></td>
<td>Limited access to speech pathology services. Inconsistent service to schools.</td>
</tr>
<tr>
<td><strong>Societal factors</strong></td>
<td></td>
<td>Positive community attitudes.</td>
<td>Social exclusion in mainstream school. Segregated activities outside school.</td>
</tr>
</tbody>
</table>