General Education Teachers’ Experiences with Inclusion of Students who use Augmentative and Alternative Communication

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A qualitative interview methodology was used to investigate the experiences of 11 general education teachers who had included students with augmentative and alternative communication (AAC) in their classes. Information was gathered from participants in the following areas: (a) the benefits of including students who use AAC in general education classes, (b) the negative aspects of including these students, (c) the barriers to successful inclusion outcomes, (d) the supports required for successful inclusion, and (e) recommendations for other teachers and professionals (e.g., speech-language pathologists). Participants described barriers that they faced related to schools, teams, teachers, educational assistants, classmates, students, curricula, and AAC. Participants also emphasized the benefits of including students to the students themselves (e.g., increased classroom interactions with peers), classmates (e.g., increased acceptance of individuals with disabilities), and themselves as teachers (e.g., personal growth and learning). Results are discussed with reference to the literature as well as directions for future research.

Keywords: Assistive Technology; Augmentative and Alternative Communication; Inclusion; Interviews; Teachers

Increasingly, students with complex communication needs are being included in general education settings. In working to support students who use augmentative and alternative communication (AAC) in inclusive classroom settings, general education teachers are faced with a complex task. They must be the principal facilitators of learning for the students who use AAC in their classrooms, as well as for the rest of the students in the class who also have a wide range of needs and abilities. General education teachers must identify appropriate curriculum goals and determine how these goals can be met by all of their students, including those who use AAC. Research has shown that the roles played by such general educators, in addition to those played by special education teachers, are integral to the successful inclusion of students who use AAC (Giangreco, 2000; Locke & Mirenda, 1992). Since communication is fundamental to the educational process (Beukelman & Mirenda, 1998; Cumley & Beukelman, 1992), it is essential that all teachers are able to communicate effectively and efficiently with students with complex communication needs.

Despite this necessity, there has been only one study to date in which there has been an attempt to examine the experiences of general education teachers who have included students using AAC in their classes. Soto, Müller, Hunt, and Goetz (2001), in a qualitative investigation, conducted five focus groups comprised of representatives from the following key stakeholder groups: general education teachers, inclusion support teachers, instructional assistants, parents, and speech-language-pathologists in the San Francisco Bay area. The researchers examined the critical issues for each of these stakeholders in the inclusion of students who use AAC. Each of the five focus groups identified issues relating to team collaboration, AAC training for inclusion team members, participation of effective educational assistants, and administrative support as being prerequisites for successful inclusion programs. Participants in each of the five focus groups were reported to recognize the feasibility of inclusive education for students who use AAC and the benefits of inclusion for these students, their peers, their parents, and the school community.
at-large. The general education teachers in this study were reported to place less emphasis on the positive outcomes of a successful inclusion program for the students using AAC (which had been emphasized in the other focus groups) and more emphasis on classroom-wide benefits. These teachers also placed a unique emphasis on the importance of such practices as team teaching and using group-centered classroom activities.

This initial investigation by Soto et al. (2001) provided valuable insight into the types of issues that appear to be central to the experiences of a group of general education teachers who have included students using AAC in their classes. Such documentation of the priorities and needs of these teachers is predicted to facilitate the successful implementation of inclusion programs for students who use AAC. Soto et al. however, did not seek to investigate the potential negative impacts of including students who use AAC in general education classrooms. Furthermore, only six teachers participated in this study, and they were all from the same state and metropolitan area (the San Francisco Bay area).

As suggested by Pugach (2001), in order for the use of qualitative inquiry to investigate issues related to the education of students with special needs to result in maximum benefits, it is important to increase opportunities for stakeholders in the inclusion process to be heard. To date, such opportunities have been limited for general education teachers. In light of this gap in the literature, further investigation into the experiences of general education teachers is warranted. Cumley and Beukelman (1992), for example, asserted that, “Both regular and special educators must share educational responsibilities if mainstreamed students with AAC systems are to achieve success” (p. 115).

Therefore, in the current investigation we sought to interview general education teachers in the United States who had experience in including students who use AAC in their general education classes. Our overall purpose was to describe general educators’ self-reported experiences with inclusion of students who use AAC. Specifically, information was gathered from teachers in the following areas: (a) the benefits of including students who use AAC in general education classes; (b) the negative impact of including these students; (c) the barriers to successful inclusion outcomes; (d) the supports required for successful inclusion; and (e) recommendations for other teachers, professionals (e.g., speech-language-pathologists), and school administrators who are involved in the inclusion of students who use AAC.

METHOD

Design
A qualitative interview methodology was chosen for this investigation for two reasons. First, there has been limited research examining general education teachers’ experiences with including students who used AAC in their classes, and qualitative research designs have been identified as appropriate inductive vehicles for data analysis in new areas of research (Patton, 1990). Second, it was anticipated that the general education teachers’ ease of including students using AAC in their classes would be closely linked to the specific circumstances related to individual classroom and student situations (Lincoln & Guba, 1985). Therefore, a methodology that would afford participants opportunities to provide rich descriptions of the contextual situations associated with their individual experiences was most appropriate for this study (e.g., Gubrium & Holstein, 1997; Patton, 1990; Strauss, 1988).

Participants

Recruitment of participants
The recruitment of general education teachers was accomplished through (a) direct phone calls to special educators and speech-language pathologists who were known by the investigators to have worked with individuals who used AAC; (b) solicitation of participant nominations through an electronic mail message sent to clinicians known to provide AAC services; and (c) use of snowball, or chain, sampling (Patton, 1990, p. 182), whereby secured participants identified other special and general education teachers who had experience teaching students who used AAC. Written informed consent was obtained from each participant.

Criteria for participation
Eleven teachers in the United States who met the following criteria were interviewed: individuals who had (a) been trained as general education teachers in public schools; and (b) had experience in the previous 5 years teaching at least one student who used an AAC system and who was included in general education programming for any portion of the school day or week. Table 1 provides a summary of the participating teachers’ demographic information and Table 2 provides a summary of the demographic information of their students who used AAC (i.e., target students’).
<table>
<thead>
<tr>
<th>Participant</th>
<th>Amanda</th>
<th>Beth</th>
<th>Cynthia</th>
<th>Deb</th>
<th>Erin</th>
<th>Farrah</th>
<th>Gina</th>
<th>Heather</th>
<th>Iola</th>
<th>Judy</th>
<th>Keri</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>PA</td>
<td>PA</td>
<td>CA</td>
<td>PA</td>
<td>PA</td>
<td>PA</td>
<td>MN</td>
<td>AK</td>
<td>PA</td>
<td>PA</td>
<td>AK</td>
</tr>
<tr>
<td>Age</td>
<td>48</td>
<td>46</td>
<td>33</td>
<td>46</td>
<td>48</td>
<td>32</td>
<td>58</td>
<td>49</td>
<td>45</td>
<td>49</td>
<td>43</td>
</tr>
<tr>
<td>Highest formal education level attained</td>
<td>Master's equivalent</td>
<td>2 Master's level courses</td>
<td>Master's degree</td>
<td>Several Master's level courses</td>
<td>Master's degree</td>
<td>Master's degree</td>
<td>Bachelor's degree</td>
<td>Bachelor's degree</td>
<td>Master's equivalent</td>
<td>Master's degree</td>
<td></td>
</tr>
<tr>
<td>Special education training</td>
<td>None</td>
<td>None</td>
<td>1 class</td>
<td>Bachelor's degree</td>
<td>None</td>
<td>Master's degree</td>
<td>None</td>
<td>5 + in-services</td>
<td>5 + in-services</td>
<td>3 in-services</td>
<td>1 course</td>
</tr>
<tr>
<td>Training in AAC</td>
<td>None</td>
<td>None</td>
<td>Limited; informal</td>
<td>None</td>
<td>None</td>
<td>DynaVox</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Years of teaching experience</td>
<td>27</td>
<td>24</td>
<td>10</td>
<td>14</td>
<td>10</td>
<td>6</td>
<td>25</td>
<td>6</td>
<td>14</td>
<td>28</td>
<td>12</td>
</tr>
<tr>
<td>Years of experience teaching target students (TSs)</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TS' time included</td>
<td>42 min./day</td>
<td>10 min./day</td>
<td>half-time</td>
<td>2–3 periods/day</td>
<td>45 min./day</td>
<td>full-time</td>
<td>full-time</td>
<td>50 min./day</td>
<td>almost full-time</td>
<td>full-time</td>
<td>4 h/day</td>
</tr>
<tr>
<td>Subjects taught in which TS were included (grade level)</td>
<td>Foods &amp; Nutrition (gr. 9 - 12)</td>
<td>Home-room (gr. 8 &amp; 10)</td>
<td>All except Math (gr. 4)</td>
<td>Family &amp; Consumer Sciences (gr. 6 &amp; 7)</td>
<td>Home-room (gr. 6)</td>
<td>All (gr. 1)</td>
<td>Social Studies &amp; Reading (gr. 6)</td>
<td>Home Economics (gr. 7)</td>
<td>All except Lang. Arts (gr. 2)</td>
<td>All (gr. 3)</td>
<td>All except Reading &amp; Math (gr. 5)</td>
</tr>
<tr>
<td></td>
<td>April</td>
<td>Billy</td>
<td>Cara</td>
<td>Dara</td>
<td>Evan</td>
<td>Faye</td>
<td>Gillian</td>
<td>Heath</td>
<td>Ida</td>
<td>James</td>
<td>Kelly</td>
</tr>
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<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Teacher</td>
<td>Amanda</td>
<td>Beth</td>
<td>Cynthia</td>
<td>Deb</td>
<td>Erin</td>
<td>Farrah</td>
<td>Gina</td>
<td>Heather</td>
<td>Iola</td>
<td>Judy</td>
<td>Keri</td>
</tr>
<tr>
<td>Age</td>
<td>17</td>
<td>15</td>
<td>10</td>
<td>12</td>
<td>12</td>
<td>6</td>
<td>12</td>
<td>14</td>
<td>8</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Primary diagnosis</td>
<td>CP</td>
<td>CP</td>
<td>CP</td>
<td>CP</td>
<td>CP</td>
<td>CP</td>
<td>MR Down Synd.</td>
<td>CP</td>
<td>CP</td>
<td>a</td>
<td></td>
</tr>
<tr>
<td>Physical challenges</td>
<td>Significant Wheelchair</td>
<td>None apparent</td>
<td>Significant Wheelchair Limited fine motor</td>
<td>Significant Wheelchair</td>
<td>None apparent</td>
<td>Wheelchair Paraplegia</td>
<td>Wheelchair Quadriplegia</td>
<td>Some muscle control issues</td>
<td>Difficulties with gait</td>
<td>Significant Wheelchair</td>
<td>Some fine motor issues</td>
</tr>
<tr>
<td>AAC system(s) used</td>
<td>Unaided</td>
<td>Unidentified VOCA</td>
<td>DynaMyte DynaVox with hand switch</td>
<td>DynaVox</td>
<td>DynaMyte sign</td>
<td>DynaVox with head switch</td>
<td>Unidentified VOCA</td>
<td>Gestures sign</td>
<td>Gestures Alpha-Talker DynaMyte</td>
<td>DynaVox with head switch</td>
<td>DynaMyte sign</td>
</tr>
<tr>
<td>System competency</td>
<td>Not at all competent</td>
<td>Somewhat competent</td>
<td>Competent</td>
<td>Very competent</td>
<td>Competent</td>
<td>Somewhat competent</td>
<td>Not at all competent</td>
<td>Expert user</td>
<td>Somewhat competent</td>
<td>Very competent</td>
<td>Very competent</td>
</tr>
<tr>
<td>Facility with curriculum</td>
<td>Well below</td>
<td>N/A</td>
<td>Below</td>
<td>Below</td>
<td>Below</td>
<td>At grade level except in Math</td>
<td>Well below</td>
<td>Below</td>
<td>Below</td>
<td>Well below</td>
<td>Well below</td>
</tr>
</tbody>
</table>

aInformation that participants did not know.
bIn cases in which participants had more than one experience teaching students who used AAC, they primarily discussed their experiences with the student they taught most recently during the interview.
cTeachers were asked to characterize target students’ competency with using their AAC system(s) to meet their communicative needs, using the following semantic differential scale: [not at all competent – somewhat competent – competent – very competent – expert user].
dTeachers were asked to characterize target students’ abilities to function in the curriculum, using the following semantic differential scale: [well below grade level – below grade level – at grade level – above grade level – well above grade level].
Materials
A Sony TCM-465V\textsuperscript{TM} hand-held cassette recorder was used, in conjunction with its external microphone and its telephone pickup adapter. Recordings were made on Sony High Fidelity 90 min cassette tapes.

Procedures
A semi-structured interview method was employed (Kvale, 1996). Each participant was interviewed once, in-person or over the telephone, by the principal investigator. Interviews ranged in duration from 30 min to one hour. In-person interviews were conducted at a convenient location for each participant (e.g., a teacher's school). An interview guide (Appendix A), consisting of a series of themes to be covered throughout the interview, was used. The interview themes were developed through a review of the literature relating to the inclusion of students with severe disabilities (e.g., Gemmell-Crosby & Hanzlik, 1994; McGregor & Pachuski, 1996; Smith & Smith, 2000; Todis, 1996). There was, however, flexibility in the sequence of the themes covered and the exact wording of the questions asked in each interview. At the beginning of the interview, each teacher was informed that the investigator had no set agenda with reference to specific questions to be asked or response choices to be given during the interview, other than an outline of themes that might be covered. The principal investigator reminded the teachers that she was interested in finding out anything and everything with respect to their experiences relating to including students who use AAC in their class(es).

Data Analysis
The audio-taped interviews were transcribed verbatim into written texts by the principal investigator. Analysis procedures then followed Boyatzis' (1998) five-step procedure for inductively developing codes, with the addition of a further step to validate the results of the investigation (Kvale, 1996).

In Step 1, an outline of paraphrased items was generated, based on each interview text (i.e., synopses based on the raw material). This transformed the raw data into more manageable thought units for analysis and allowed an initial indication of the contents of each transcript. In Step 2, each transcript outline was examined separately for the occurrence of themes within it, which began to provide some organization to the data. The patterns identified within the transcripts were then compared across transcripts in Step 3. Overall themes and corresponding operational definitions were then developed in Step 4, in order to itemize a meaningful coding system (see Appendix B for the operational definitions of the final coding themes). Subsequently, these final coding themes were used to analyze the entire sample of raw data. Following these coding procedures, sub-themes were identified within each coding theme in an attempt to best describe the issues discussed in the interviews.

A summary of each participant's interview was then compiled in a format consistent with the coding system and the identified sub-themes within each coding category. In an effort to "give the interpretations back to the subjects" (Kvale, 1996, p. 190), these summaries were forwarded via e-mail or read to each participant over the phone. Following the presentation of this information, participants were asked to comment on the accuracy of the summary in depicting their experiences and opinions. Participants were also asked to add any additional information or qualifications to their summaries. All participants indicated that they were in agreement that the summaries accurately reflected their contributions to this investigation and some participants added additional qualifying remarks, which were included in the final presentation of the results.

Finally, Step 5 involved determining the reliability or consistency of judgment of the coders. A graduate student was trained in the application of the operational definitions for the coding of themes. This student coded and received feedback on a few pages of transcript samples. Following this brief training session, the graduate student then independently reviewed and coded 10% of the data. Cohen's Kappa was used to determine inter-rater reliability and yielded a level considered to be almost perfect (kappa = 0.87) (Landis & Koch, 1977).

The final coding themes were (a) benefits of inclusion; (b) negative impacts of inclusion; (c) barriers to inclusion; (d) supports for inclusion; (e) recommendations; (f) descriptive information about teachers, students, class, or school; and (g) unrelated or uncodable statements.

RESULTS AND DISCUSSION
The findings are presented as they relate to the five main coding themes that emerged from the eleven participants' varying experiences. Table 3 provides a summary of the themes, sub-themes, and examples of the specific issues discussed by the participants within each sub-theme.
<table>
<thead>
<tr>
<th>Themes</th>
<th>Sub-themes</th>
<th>Examples of issues discussed by participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits of educational inclusion</td>
<td>For students who used AAC &amp; parents</td>
<td>Satisfaction with inclusion experiences.</td>
</tr>
<tr>
<td></td>
<td>For classmates</td>
<td>Skill development.</td>
</tr>
<tr>
<td></td>
<td>For teachers</td>
<td>Increased classroom interaction with peers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Increased awareness, acceptance, and/or compassion for individuals with disabilities.</td>
</tr>
<tr>
<td>Negative impact of educational inclusion</td>
<td>For students who used AAC</td>
<td>Lack of educational gains.</td>
</tr>
<tr>
<td></td>
<td>For classmates</td>
<td>Social exclusion.</td>
</tr>
<tr>
<td></td>
<td>For teachers</td>
<td>Unequal status relationships with classmates.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Classroom disruption caused by student using AAC.</td>
</tr>
<tr>
<td>Barriers to educational inclusion</td>
<td>For students who used AAC</td>
<td>Time-consuming nature of inclusion.</td>
</tr>
<tr>
<td></td>
<td>Team-related barriers</td>
<td>Priority on fulfilling legal obligations instead of helping students to meet their individualized goals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Placement of students in large classes.</td>
</tr>
<tr>
<td></td>
<td>Teacher-related barriers</td>
<td>Lack of team communication/collaboration.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack of home support.</td>
</tr>
<tr>
<td></td>
<td>Educational assistant-related barriers</td>
<td>Teachers’ training/skill limitations related to AAC/special education.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Insufficient preparation time.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Negative teacher attitudes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teacher “burnout.”</td>
</tr>
<tr>
<td></td>
<td>Classmate-related barriers</td>
<td>Educational assistants’ disregard for job-related responsibilities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Educational assistants’ training/skill limitations related to AAC/special education.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Insufficient educational assistant classroom coverage time.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack of consistency of educational assistants/turnover.</td>
</tr>
<tr>
<td></td>
<td>Target student-related barriers</td>
<td>Students’ communication skill limitations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack of student motivation/effort to use AAC system.</td>
</tr>
<tr>
<td></td>
<td>Curriculum-related barriers</td>
<td>Attendance issues.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High curriculum skill demands.</td>
</tr>
<tr>
<td></td>
<td>AAC-related barriers</td>
<td>Difficulty in modifying certain curricula.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technology limitations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Breakdown &amp; repair issues.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Access issues.</td>
</tr>
<tr>
<td>Supports for educational inclusion</td>
<td>School-related supports</td>
<td>Architectural supports.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Placement of students in small classes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use of “merit” grading system when students are included in classes that require skills that exceed their abilities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Allowing teachers necessary time to become comfortable with idea of having students with disabilities included in their classes.</td>
</tr>
<tr>
<td></td>
<td>Team-related supports</td>
<td>Effective team communication/collaboration.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adequate transition planning and preparation.</td>
</tr>
</tbody>
</table>

(continued overleaf)
Benefits of Educational Inclusion

The benefits reported by participants included benefits for almost all individuals in the general education classroom: that is, target students who used AAC, their classmates, and the general education teachers themselves.

Benefits for students who used AAC and their parents

The general education teachers discussed three main issues related to positive outcomes for the included students who used AAC. First, participants indicated that the target students and their parents were satisfied with the inclusion experiences. As Judy explained, “The parents were very appreciative at the end of the year. They both told me that and it meant a lot. They said that they knew he came into school happy every day and came home happy every night.” Farrah also reported student enjoyment of the inclusion experience: “She really wanted to come to school. In fact, she enjoyed it so much that on days that she was sick or we had off, the mother expressed how much Faye wished she were at school.”

Second, the general education teachers noted skill development. They mentioned that the target students’ speech and skill at operating their AAC systems improved during the time the students were included in their classes. Farrah also commented on the academic gains made by a student who was included in her class: “She has done so many more things than we ever expected her to do.”

Finally, participants commented on the benefits of students interacting with their typically developing peers during classroom activities. One teacher described some peer interactions as a “bright spot” in the inclusion process. Keri noted that the target student in her class, Kelly, made a “really strong connection” with one of her classmates. She further noted that all of the students in her class seemed to “accept Kelly as Kelly for who she was . . . She was just another student. She couldn’t speak, but she had her device and she used it.” Amanda indicated that Andrew had been “working in a group, just like any other kitchen member” in her cooking class. She described instances in which Andrew’s kitchen teammates encouraged him to do things on a project “… so that he would feel involved with the rest of the group.”

Benefits for classmates

The general education teachers overwhelmingly stressed the positive effects of inclusion for the other students in their classes. The teachers reported that these students became more aware of students with disabilities as well as more compassionate, tolerant, and accepting of diversity. Erin asserted: “You can talk about it all you want with them, but until they really experience what it’s like to have someone in their classroom who is in a wheelchair, or can’t talk, or has a learning disability, they don’t really know.” Judy commented that she thought it was good for children to realize that other children “… may be different, but they are really still the same.”

Second, the general education teachers noted support and knowledge of individual team members (e.g., speech-language pathologist, educational assistant).

Teacher-related supports

- Consistency of educational assistant working with student using AAC.
- Maintenance of a positive attitude.
- Knowledge of individual students’ needs.
- Prior training in topics related to special education.

Classmate-related supports

- Peer acceptance of student and willingness to assist in the inclusion process.

Curriculum-related supports

- Realistic academic goals for student.
- Applied nature of subject matter.
- Inclusion of students in lower grade levels.

AAC-related supports

- Provision of means to participate in classroom activities.
because they were used to waiting for Cathy [to speak, using her AAC system].” Another teacher, Beth, even suggested that long-term effects of the inclusion experience might be possible and stated, “A lot of the students enjoy working with Billy . . . you can tell some of them are going to go out into careers where they’re going to work with people.”

**Benefits for teachers**

The teachers stated that they enjoyed the experience of including a student with complex communication needs in their classes. Participants praised the experience for offering them opportunities to learn. Erin expressed a desire to take a course in sign language, after working with a student who required AAC and stated, “I grew, I wanted to learn more.” Similarly, Farrah explained that she decided to pursue training at the Master’s level in special education and stated, “Just to make me a better person and a better teacher, I decided that I had better learn more about the needs of some of these children.” Iola also commented that she felt that her inclusion experience was “a good lesson, for a teacher, in trying to meet the needs of all your students.”

**Negative Impacts of Educational Inclusion**

Despite identifying many benefits relating to educational inclusion, participants also presented some negative effects of including students who used AAC in their classes. Again, three subthemes relating to negative impacts emerged for the students who used AAC, their classmates, and their teachers.

**Negative impacts for students who use AAC**

Participants identified three major negative impacts of inclusion for these students: lack of academic gains, social exclusion, and unequal status relationships with classmates. Participants reported that they did not feel that they were competent to assess whether or not students who used AAC made educational gains because they were not skilled in modifying evaluation methods. As Amanda stated, “It was hard to measure how much he was getting.” Another participant said that while she thought the social needs of the target students were being “at least partially addressed” in the general education classroom, she felt that the target students’ academic needs did not receive the attention they deserved. These issues seemed to be more salient for the teachers who taught target students at higher grade levels than those who taught students in lower grade levels.

The general education teachers also expressed concern about interactions of the included students with their classmates. They reported that sometimes the students who used AAC were being excluded by their peers in social situations outside of the classroom. This was the case for Gina’s student, Gillian, for whom socialization with typically developing peers was an educational goal that was “not happening.” Participants also spoke of this social exclusion as having obvious effects on the included students. Keri gave the following description of her student, Kelly, and her reaction to the mismatch between her interests and the interests of her peers on the playground:

> We discovered during the year that Kelly was taking longer and longer to eat her lunch, so that she would avoid going outside . . . At this level, they really didn’t want to slide on the slide or they didn’t want to swing on the swings. They were all in their little groups talking about boys and doing that kind of thing . . . Sometimes some kids would play with her and it’s not that they didn’t try to include her, but for her, just walking around wasn’t fun.

Finally, the teachers highlighted the unequal status relationships that classmates developed with included students who used AAC. As evidenced in Keri’s comment above, the teachers noted that students demonstrated an obligation to socialize with the target student, rather than a desire to do so. Heather explained that with her target student, the classmates were playing more the role of “helpers” or “teachers” than that of friends. As Iola noted, target students’ classmates sometimes took the “helper” role too far: “They wanted to be very helpful and supportive of her and we would have to stop them and say, ‘No, she can do that; she can do that herself’ — for example, tying her shoes, carrying her tray, or making sure her food was broken up.”

**Negative impacts for classmates**

Participants also expressed concern about classroom disruptions related to noise caused by the target students. Judy recounted her experience with a target student’s AAC system causing problems for another student with a significant disability. She explained that there seemed to be no way to turn off, turn down, or to activate the AAC system without it saying “I choose that one” before speaking the name of the item selected by the target student. She stated, “I had another child in the class with a psychotic disorder and every time that switch was triggered.
[and] it would say, ‘I choose that one,’ this boy would say ‘I can’t stand that sound, I can’t stand that sound’ . . . I came home at night saying, ‘I choose that one, I choose that one, I can’t stand that sound, I can’t stand that sound.’"

**Negative impacts for teachers**

Other than Judy’s above description of the stress she experienced on a daily basis, the general education teachers reported only one negative impact for themselves. Some teachers said that it was very time-consuming to learn to use the AAC systems and to plan to include target students in the activities for each of their classes. Teachers stated that they were not given extra time in their schedules to accommodate these demands. Erin explained, “For me, it was the preparation. It was the time. I need time and although I’m really, really interested and it was a priority for me, it was another layer that I had to do to prepare.” Judy added, “Many days I was there past my time . . . It just took the planning for me to come up with how to get [the target student] included as much as possible.”

**Barriers to Educational Inclusion**

All participants encountered barriers to the inclusion of students who used AAC in their classes. Specifically, the participants discussed eight types of barriers that related to schools, teams, teachers, educational assistants, classmates, target students themselves, curricula, and AAC.

**School-related barriers**

Participants discussed three different types of school-related barriers, the first of which related to the physical setup of their classroom environments. In illustrating this point, Amanda spoke about the lack of accessible kitchen stations in her classroom: “We don’t even have the necessary adjustments for the handicapped. We don’t have lower sinks or counters that would be accessible.” The teachers also spoke of the difficulties target students experienced when they tried to move freely throughout the small and often crowded classrooms.

The second issue was the tendency of schools to “stick pretty close to the legalities” of providing services for students with disabilities, without necessarily meeting the educational needs of these students. Teachers discussed instances in which they were physically present at goal setting meetings solely to meet the requirement of having a general education teacher at the meeting, and attending other meetings, during which they were completely excluded from the planning process.

Finally, participants discussed problems that can occur when children with special needs are placed in regular classrooms with large numbers of students. Amanda stated that large class sizes were problematic in high school as well as in elementary school. On this issue, Beth stated: “I know that the biggest problem with inclusion is that they put too many kids in the class. What happens when you put too many kids in the classrooms is that you can’t help them as much as you should and they become lost and frustrated and become disruptive.”

**Team-related barriers**

The team-related barriers discussed by participants fell into two main categories: (a) collaboration/communication issues among school teams, and (b) lack of home support. The teachers expressed their concerns about the fact that they could not problem-solve with team members on an ongoing basis. Participants also indicated that consistent methods for sharing information were often not in place. Gina commented that she never received any information on the abilities, needs, educational background, or current educational goals of a student who appeared in her class, saying, “I’ve never been told that she has cerebral palsy, but she does. Though she has an educational assistant with her in the room, I know nothing—zero. If anything were to cause the educational assistant not to be there, I wouldn’t know the first thing about even pushing her wheelchair, much less getting her to understand or speak.” Gina further described the experience of finding out that a student who used AAC would be included in her class: “It was a shock. The door opened, as I was calling off the attendance to make sure all my students were there on the first day, and she was wheeled in.”

The participants were also concerned that they were not actively involved in the process of developing individualized educational goals for students included in their classes. Some teachers described themselves as being completely “out of the loop.” These teachers were also not involved in developing strategies for how goals should be met in the general education classroom. Amanda stated that the agenda of the goal setting meeting she attended “didn’t apply to anything that I have dealt with in class.”

One of the participants also discussed the challenges that occur when more than one institution is involved with a given student (e.g., rehabilitation institution and school). Farrah, for example, explained that one of her students participated in a number of therapy sessions in
an external facility. She noted that, although there was communication between personnel in the two facilities, it was difficult to maintain complete streamlining of goals and activities (e.g., on a number of occasions unanticipated programming changes were made to the student’s AAC system).

The second team-related barrier that was discussed was a lack of parental support in the inclusion process. Teachers reported that they sometimes had different expectations compared to the parents of the target students. Iola explained that, although Ida had been making good progress with reading skills, “her father was convinced that she couldn’t read.” Some teachers also indicated that students’ AAC systems were not used at home, with parents reporting that students did not complete their homework because they “couldn’t do it.”

**Teacher-related barriers**

Participants also identified the following barriers related to themselves as teachers: (a) their own training and skills were sometimes limited, (b) time constraints resulted in inadequate planning and preparation, (c) negative teacher attitudes were problematic, and (d) teacher “burnout”.

Teachers described how their lack of training relating to special education and AAC limited their ability to meet the needs of target students. Gina explained that she “… had no idea about Gillian’s equipment or how to assess whether she was learning or not.” Similarly, Erin described how she was completely dependent on Evan’s educational assistant to operate his AAC system.

Teachers also discussed the time required to learn how to use a high-tech AAC system and to plan classroom accommodations. They commented that if additional time was not built into their regular schedules to complete necessary training and planning, it was often impossible to fulfill all of their obligations. Therefore, time was frequently not available to learn about the AAC systems that their students were using.

Participants reported that it was possible for teachers’ attitudes to change with time and encouragement from other teachers; however, they also stated that general education teachers who resisted including students with significant communication disabilities in their classes were unlikely to provide these students with positive inclusion environments. Farrah, who had more than one experience in teaching a student who used AAC, added that “teacher burnout” might be a problem if the same small group of teachers was repeatedly asked to teach students who used AAC in general education classroom settings.

**Barriers related to educational assistants**

Four specific issues related to educational assistants were raised. First, there were reports of some negative experiences with educational assistants. Gina gave examples of how her assistant had acted as a “babysitter”: “When the class goes to the library, the para wheels Gillian’s wheelchair down there. Gillian sits in the middle of the library while the para reads the newspaper and the other children go and find books.” Gina explained that she viewed this behavior as the educational assistant’s complete disregard for job-related responsibilities that involved the target student’s academic goals.

Gina further proposed that the educational assistant’s disregard for her responsibilities could have been related to her lack of training and skills in AAC—the second issue related to educational assistants that was raised by the participants. In addition, participants expressed concern about a lack of educational assistant coverage. Heather explained that Heath had to return to his “intensive needs” classroom when his educational assistant was not available to assist him in the general education classroom.

The fourth and final issue related to educational assistants concerned staff turnover. Erin described how her school had a difficult time finding a person to commit to working with Evan over an extended period of time. She said that it seemed like “there was a new educational assistant every couple of days.” With this lack of consistency, she explained that it was difficult to develop effective long-term routines with Evan in the general education classroom.

**Barriers related to classmates**

The participants also discussed three barriers to successful inclusion that were related to the other students in the class. The first issue was a mismatch between target student and classmate interests. Participants reported that although classmates were not “mean spirited,” they often excluded the target student from social activities. The teachers noted that classmates’ interests became “more and more different” from those of the target students as they got older. Heather described a widening “maturity gap” between her Grade 7 student, Heath, and his typically developing classmates. Several participants described a shift in the interests of typically developing classmates from playing games to walking around and talking about social relationships (e.g., having a “crush” on a classmate).

The second issue raised related to the difficulty the general education teachers sometimes encoun-
tered in facilitating interactions between target students and their classmates. Cynthia noted, “You didn’t always want to ask the same students over and over [to work with their classmates who used AAC], but then there are some other kids who it was just not going to be ideal with, for whatever reason. Either they seemed uncomfortable or they didn’t really get it.” Erin also spoke of some students having a fear of the target student in her class.

The final issue raised concerned the tendency of some classmates not to communicate directly with the target students who used AAC. Instead, they spoke to the educational assistants or completely avoided the target students. Teachers noted her typical reaction to students who spoke to the educational assistant (Donna) instead of the target student (Dara): “I say ‘Don’t look at Donna, look at Dara! You’re talking to Dara!’” She also recounted incidents in which students tried to exclude Dara from school assembly activities “because she was different.”

**Barriers related to the students who used AAC**

Three issues were raised within this subtheme. First, participants discussed students’ communication skill limitations. Iola explained that Ida typically used her system at a very basic level and therefore, did not fully participate in all classroom activities. Participants also noted that students lacked the communication skills necessary in social situations: For example, Erin reported that Evan’s slow rate of communication hindered his interactions with his classmates. Similarly, in commenting on Ida’s attempts to form friendships, Iola noted, “She would go about things all wrong – like, she thought that coming up and hitting somebody on the back during the game of tag or whatever was a way to get somebody’s attention.”

The second issue that was raised within this subtheme related to students’ lack of motivation to use AAC systems. Iola reported that she found it “… very difficult to try and motivate [Ida] to use [her system].” Iola indicated that Ida did not want to take the time to access the messages she needed from her AAC system. This was an issue that caused frustration for Iola.

The final student-related barrier related to school attendance. Teachers noted such problems as frequent student absences and tardiness. They explained that these issues presented barriers in their attempts to provide consistent and inclusive classroom experiences for the target students.

**Curriculum-related barriers**

Two specific issues emerged under this subtheme: (a) high curriculum skill demands, and (b) difficulty in modifying certain curricula. Teachers indicated that certain academic content areas required students to use high level thinking skills that were not always consistent with the target students’ abilities. Several teachers reported that some of the target students’ educational goals were not appropriate. Keri, for example, explained that her inclusion team struggled with how to involve Kelly in a fifth grade unit on the Revolutionary War. She stated that modifications had been made so that Kelly could relate to the curriculum at a very basic level. Unfortunately, the modifications did not allow the best use of instructional time because, according to Keri, Kelly had potential for more skill development in other areas, such as reading. Farrah also expressed concern about the fact that some structured curricular programs and standardized tests that she was required to use with her class did not present options for adaptations. Although she stated that she was able to make some adaptations for most classroom activities, she was concerned about being unable to find any possibilities for modifications with some specific curriculum programs and tests relating to literacy skills.

**AAC-related barriers**

Participants raised three issues related to AAC: technology limitations, breakdown and repair, and access. Although some teachers considered high tech, voice output-based AAC systems to be beneficial to the inclusion of students with complex communication needs, others highlighted the fact that these communication systems had limitations as well. In describing Evan’s use of his computerized communication system, Erin said, “Frequently, there were problems with it. Frequently, it wasn’t operating or it didn’t have what he wanted to say or what he needed to communicate in it. He would also leave it at home sometimes.” Keri emphasized the difficulties that breakdowns caused (i.e., students still needed to be able to communicate, even if the AAC system was not working). Both Erin and Keri stated that they preferred their students to have some signing skills to augment communication with their computerized AAC systems.

**Supports for Educational Inclusion**

Although the general education teachers highlighted many real and potential barriers to the effective inclusion of students who use AAC, they also identified school, team, teacher, classroom, curriculum, and AAC supports they believed
would facilitate successful educational inclusion. These subthemes mirrored those identified as barriers to inclusion.

**School-related supports**

Four issues were raised within this subtheme. First, the teachers emphasized the importance of students having access to all classrooms and materials, including computers. This access seemed to be particularly relevant to the participants who taught family and consumer science classes (e.g., cooking, sewing).

Second, the participants frequently spoke of the advantages of including students who use AAC in small classes (e.g., increased opportunities for interaction with teachers and classmates).

The third issue that emerged in this subtheme related to the use of a “merit” grading system, which Heather felt was appropriate to use with included students. Although Heather modified students’ assignment and test requirements, she still gave them “real” grades for the work they did, rather than simply giving her included students ‘A’s’ on all of their assignments. She reported that parents had positive reactions to this grading system: “The parents love it when you come to the [planning] meetings and when you talk about what their kids do.” They are so proud of either that C-plus or the B-minus or even the D-plus because their child earned an actual grade!”

The fourth issue raised in this subtheme related to the importance of providing teachers with the necessary time to adjust to the idea of having students with disabilities in their classes. Participants spoke of the advantages of not forcing teachers to take students into their classes before they felt positively about such a prospect. As Erin described, time and experience were very helpful in preparing teachers to include students with special needs in their own classes: “What happens is that when I’m willing to take a student, another teacher is willing to take her also. Maybe someone else will be willing to try then. They might say, ‘I’ll try but if it doesn’t work, can we pull her?’ We say, ‘Absolutely! If it doesn’t work, we’ll pull her.’”

**Team-related supports**

Participants noted that an educational team approach was a positive factor in the inclusion of students who used AAC. Participants highlighted four specific issues related to team support. First, effective team communication/collaboration was identified as a crucial element in the inclusion process. The teachers repeatedly discussed the necessity of constantly maintaining open lines of communication. They highlighted the importance of each team member being kept current about student goals and experiences in all settings. Additionally, a critical need for group problem solving and planning was identified. Keri described that time was allocated for this type of collaboration in her school on a weekly basis and that substitute teachers were provided to ensure that general education teachers could attend collaborative meetings.

Second, participants identified a specific need for transition planning as students who use AAC moved from class to class. They gave examples of valuable supports that were put in place for them before they actually had the target students in their classes. Teachers spoke of the benefits that resulted from meeting with students’ previous teachers to gain insight into their experiences. As Erin noted, “Sitting down and going over the goals before you get the student is key because it sets the path you are going to follow.” Teachers also spoke of the advantages of observing, at the end of the year, students who would be coming to their classes at the start of the next school year. This practice allowed the teachers to see students’ strengths and limitations as well as the types of accommodations being made. Finally, the teachers described the benefits of receiving detailed written notes on classroom experiences from students’ previous teachers. As an example, Erin described a procedure adopted in her school, in which “passports” containing summaries of individualized goals, background information, and potential curriculum modifications were maintained for each student with special needs.

Third, participants identified key team members who greatly assisted them throughout the course of the year, during which students who used AAC were included in their classes. Stakeholders, such as physical therapists, occupational therapists, special education teachers, autism support teachers, life skills teachers, and parents, were reported to provide valuable support. Furthermore, educational assistants, speech-language-pathologists, and assistive technology consultants were identified as being crucial to the continuous implementation of an inclusion program for students who use AAC.

In addition, speech-language-pathologists and assistive technology consultants were commonly touted as providing crucial assistance with curriculum adaptation, AAC system operation, and vocabulary selection for AAC systems. Judy described her experiences this way: “Our speech teacher was wonderful. She looked into other resources for James. I think she’s the one that really pulled it all together with him.”
Participants cited educational assistants as providing “invaluable supports for inclusion.” Amanda stated, “Without the aide, I think [including a student who uses AAC] would really be impossible.” Educational assistants were praised for their depth of knowledge about the students who used AAC, for providing the students with the individual attention they often required, for the knowledge they had of how to operate and maximize the benefits of AAC systems, and for their ability to assist with curriculum adaptations. Cynthia spoke about the role played by the educational assistant, Cara, who worked with a student who used AAC in her class, “It was definitely crucial that there was somebody like Cara that not only was really experienced, but just handled everything so easily. She made a lot of on-the-spot decisions about how to reinterpret an assignment.”

Some teachers also pointed out that they found it very beneficial to have an educational assistant who worked with a student consistently from year to year. Teachers stated that the knowledge these educational assistants had about students and their academic programs allowed them to make suggestions to teachers about how to include students in various activities. Erin asserted that students with autism, in particular, can benefit from the stability that comes with having the same educational assistant. “It made a big difference in Evan’s life to have that consistency. It would be wonderful if the same educational assistant could follow him all the way through school,” she said.

**Teacher-related supports**

The general education teachers identified three keys to successful inclusion. First, they frequently cited a positive attitude and an “open mind” as requisite characteristics for teachers attempting to support students in positive inclusion experiences.

Second, it was important for teachers to be informed about individual students’ skills and abilities as well as the education goals included in students’ individualized education programs. Finally, although none of the participants in this study had formal training in AAC, some teachers did have training in special education in the form of university courses, workshops, and inservices. As Farrah explained:

> Having a special ed. background really helps. I’m not fearful when these kids come in. I’m not afraid to fail. I understand that it’s going to be different with each child that comes in. Even though they may have similar needs, it doesn’t mean that the same things are going to work with everyone.

**Classmate-related support**

Participants stressed the important role classmates played in the inclusion process. Teachers indicated that they were surprised by how accepting the classmates had been and by the efforts classmates had made to include the target students in various ways. Heather indicated that her students “knew the boundaries and what was appropriate” in terms of how to interact with a student who used AAC who was included in her class. Another teacher, Iola, explained that she relied on her target student’s classmates because sometimes they “could tell [her] more about what Ida was saying than [she] understood. After being with them for so long, they understood her a lot more than I think we gave them credit for.”

**Curriculum-related supports**

Participants discussed three major issues relating to the curriculum. First, realistic academic goals were cited as being critical. Beth asserted that educational inclusion can be successful “as long as the goals are realistic, so it’s not a dumping ground.” Realistic goals were often mentioned in conjunction with the other two issues raised in this subtheme: the nature of the classes in which students were included and the grade level at which the students were included.

Keri recounted some successful and some unsuccessful attempts to include Kelly in different classes. She stated that the success seemed to depend on the subject: “Science is hands-on and we were able to take all the science objectives and materials and scale them down so that Kelly could participate in all the experiments we did, but the focus for her was a little bit different. Science actually went very well.” Teachers frequently identified such subjects as math and language arts as being less conducive to including students at a variety of levels. Highly experiential subjects (e.g., cooking, sewing, art) were often described as encompassing more possibilities for curriculum adaptation.

Participants also argued that it was most appropriate to include target students in classes where similar skills are being targeted with their classmates. They explained that, in some cases, this would mean that older target students, who lagged behind their age-matched peers in academic skills, would be included in lower grade levels. According to these participants, in the early grades it is often possible to target the same types of skills for both included students and their classmates. After describing her experience with including students in higher-level classes, Heather
stated, “Special ed. students blend pretty easily with kindergartners. They really do.” Participants explained that, while they understood that it could be difficult to include older students in lower level classes, they still thought it was inappropriate to try to target lower level skills in advanced classes because physical presence does not automatically translate into active involvement in the curriculum.

**AAC-related supports**

Finally, AAC as a specific form of assistive technology was noted to be crucial to students’ active participation in class. Judy asserted that for her student, access to a voice output communication aid “opened up a whole new world.” Access to the AAC system alone, however, was not reported to be beneficial. Participants repeatedly stressed the importance of students and team members having adequate training and knowledge of how to operate the systems.

**Recommendations**

Based on their positive and challenging experiences, participants had a number of recommendations related to the educational inclusion of students who use AAC. These recommendations are summarized in Table 4.

**Recommendations for general education teachers**

The numerous recommendations participants had for other general education teachers who might face similar experiences in their classes included: (a) honestly communicating personal capabilities and limitations throughout the process, (b) developing competencies with AAC system operation, (c) requesting additional planning time, (d) remembering students’ “humanity” at all times, (e) including students in all classroom activities, (f) carefully matching assistive technology to individual activity demands, and (g) providing classmates with information throughout the inclusion process.

**Recommendations for teams**

The general education teachers also provided recommendations for inclusion teams serving the needs of students who use AAC (including such team members as special education teachers, educational assistants, speech-language pathologists, occupational therapists, and physical therapists). These recommendations included (a) maintaining effective team collaboration, (b) providing adequate training for all team members, (c) ensuring individual team members support general education teachers on an ongoing basis, (d) implementing effective transition planning, and (e) selecting AAC systems with functions that are appropriate for individual students. Erin offered the following, based on her experiences with an effective inclusion team:

> I think the whole team needs to be involved just the way we were. We communicated and everyone was aware of what was happening in my classroom, in the support classroom, and at home. We tried to keep those communication lines open, so that we were really providing the best support for the student. I think that’s very important.

**GENERAL DISCUSSION**

The 11 general education teachers who participated in this investigation were from four different states and taught students using AAC who had varying strengths and needs. Therefore, the teachers’ diversity of experience was apparent in the results. Some teachers, for example,
reported that educational assistants provided valuable supports throughout the inclusion process; others described experiences in which they did not feel that the educational assistants they worked with offered much support to them or their students. However, the varying positive and negative teacher experiences reported in this investigation were consistent in their description of the impacts of inclusion and components of successful inclusion.

Impacts of Inclusion

For students using AAC

The teachers’ discussion of the benefits and negative impacts of inclusion on students using AAC fell into two broad categories: academic impacts and social impacts. Participants’ concern regarding the lack of academic gains for their students using AAC appears to be in contrast to recent findings in the general disability literature. For example, participants in the current study indicated that although they felt that students using AAC developed some scholastic, speech, and AAC system operational skills, they were uncertain about whether or not these students were being academically well-served, overall. Recent findings in the general disability literature suggest that inclusion has some beneficial effects on academic outcomes for all students with disabilities (e.g., Baker, Wang & Walberg, 1995; Fisher, 1996).

These differing results may be a reflection of the fact that academic assessment is heavily dependent on students’ abilities to communicate their knowledge. Participants’ discussions about students’ lack of academic progress in the present study centered on their own difficulties in modifying assessment techniques to monitor the academic progress of students who used AAC; therefore, a lack of concrete documentation of academic gains might have been at the root of teachers’ perceptions of minimal academic gains. In contrast, as reported in a number of general disability related studies on inclusion, the majority of participants who took part in these studies and who made at least small academic gains, were not reported as having complex communication needs (e.g., Baker et al., 1995; Fisher, 1996). It would appear, therefore, that it is not only necessary to support students who use AAC to participate in classroom activities, but it is also critical to support general education teachers in their efforts to assess students’ academic gains via alternative means.

Another explanation for differences between the present study’s results and those of the general disability literature might be participants’ suggestion that the lack of academic gains may have been the result of inappropriate placements of students. Some teachers stated that they felt that educational inclusion of students using AAC was more appropriate for younger rather than older students, unless the students had kept pace with their peers in reaching academic milestones.

Such notions need to be weighed carefully against evidence provided by past research indicating that students using AAC can make their greatest progress when expectations are appropriately high (McNaughton, Light, & Arnold, 2002). Individuals who use AAC have asserted that such high expectations are often not put in place in special education settings (McNaughton et al., 2002). It will be important for students using AAC, their families, and their educators to evaluate both the costs and the benefits of inclusion and to make decisions on individualized bases.

In addition to identifying academic concerns, participants discussed frankly the social impacts of educational inclusion of students who use AAC. The initial perusal of the benefits and negative impacts of inclusion for these students could create the illusion of conflicting teacher experiences relating to peer interaction. Close examination of the teachers’ experiences, however, suggests an important distinction. Keri, for example, described her student Kelly’s classroom interactions with her peers as a “bright spot” in the inclusion process. On the other hand, she also recounted stories of Kelly attempting to avoid socialization with her peers on the playground because Kelly’s peers were not interested in playing the types of games she wanted to play. Instead, Kelly’s peers preferred to walk around the playground and discuss dating. It was apparent from experiences such as these that the social benefits described by Keri and other participants were limited to positive classroom interactions between students using AAC and their classmates, who appeared to be willing to include and assist students using AAC in these situations.

In contrast, when discussing socialization outside of the classroom, participants explained that students using AAC were socially excluded and had differing interests from their classmates. This is a sobering finding, given that (a) many of the participants identified increased socialization as a formal education goal for students using AAC; and (b) social interaction has been reported to affect “virtually all aspects of development – physical, cognitive, social, and emotional” (Sigelman & Shaffler, 1995, p. 360). This finding is
consistent, however, with previous evidence that supports the notion that physical proximity of children with disabilities to children without disabilities does not necessarily create a positive environment for all involved (Armstrong, Rosenbaum & King, 1987; Beck & Dennis, 1996; Ferguson, 1999; Voeltz, 1980, 1982). Interpretation of this finding must take into account the fact that all of the students who used AAC in the current study were reported to have had cognitive challenges that may have influenced their own social experiences.

Impacts for classmates

Teachers also identified academic and social impacts of inclusion on classmates of students who used AAC. Although the classroom disruptions that were identified by participants as potentially affecting classmates’ learning environments were noteworthy, they did not present as insurmountable. As an example, configuring students’ AAC systems to say only selected vocabulary instead of repeated statements (e.g., “I choose that one”) would be an easy change to make for educational personnel who have received the necessary instruction and have access to personnel support. In fact, overcoming such barriers could be predicted to result in academic benefits for the students using AACs as well as for their classmates. These findings illustrate the potentially widespread positive effects of ensuring that general education teachers have the necessary training, skills, and support to address common classroom issues that arise from the inclusion of students with severe disabilities who use AAC.

In contrast to academic impacts, the identified social impacts of inclusion on classmates of students who used AAC were significant. The participants in the present study placed great emphasis on classmates’ increased knowledge of disabilities in general and awareness of the impacts of living with a disability specifically. These results are in keeping with those reported by other researchers who have investigated the benefits of inclusion of students with a wide range of severe disabilities. Giangreco, Dennis, Cloninger, Edelman, and Schattman (1993), for example, reported that teachers identified similar personal growth benefits for classmates of included students with severe disabilities. Furthermore, Peck, Donaldson, and Pezzolite (1990) and Helmstetter, Peck, and Giangreco (1994) found that high school students themselves reported positive outcomes from having relationships with students with disabilities (e.g., increased awareness, tolerance, and understanding of individuals with disabilities). It appears that the increasing inclusion of students with a wide range of disabilities in general education classrooms (e.g., Sobsey & Cox, 1996) may have a wide-reaching societal impact, as a new generation of citizens mature who have learned to value and respect individuals with disabilities.

For teachers

Participants reported similar social impacts to those reported for target students and classmates themselves. The teachers discussed their increased awareness of disabilities and disability-related issues as well as the job satisfaction they associated with learning to meet the needs of a wide range of students. That they found these inclusion-based experiences to be very positive and transformative is also consistent with previous findings in the severe disability literature (e.g., Giangreco et al., 1993).

In contrast, the other immediate effect the teachers identified for themselves was difficulty performing all of their job-related duties in the allotted time. Although providing teachers with additional release time or educational assistants to assist with curriculum adaptations, material preparations, and AAC system setup are two viable options for lessening such effects, these options are often precluded by budgetary and human resource constraints. Therefore, it is apparent that the effects of including students who use AAC are not limited to students’ classrooms or even their schools. Rather, support must also be present at the school district level to ensure the success of such inclusion.

In summary, participants identified both positive and negative effects of inclusion for the target students who used AAC, the classmates of these students, and themselves. Furthermore, participants discussed more elaborately the benefits for other individuals in the classroom (i.e., classmates & teachers) than they did the benefits for the students who used AAC (although benefits for these students were described by each teacher). These findings are similar to those of Soto, Müller, Hunt, and Goetz (2001), who included integration support teachers, parents, speech-language-pathologists, and instructional assistants as well as general education teachers in their participant groups.

Components of Successful Inclusion

When describing their positive and negative experiences, participants identified numerous components of successful inclusion, which fell into five major categories relating to the team, classmate, curriculum, AAC system, and school.
Team elements

The three major team-related components of successful inclusion identified by participants were: (a) effective team communication and collaboration; (b) adequate classroom support provided by educational assistants with training, skills, and dedication to the inclusive education of students who use AAC; and (c) appropriate general education teacher training and preparation time.

The finding that effective team communication and collaboration is essential to the inclusion of students who use AAC is in keeping with the general disability literature, which has documented teacher reports of team collaboration being important but not always successfully implemented. Smith and Smith (2000), for example, indicated that the general education teachers who participated in their qualitative interviews identified a need for more reliable collaborative support on an on-going basis. As Kavale and Forness (2000) stated: “The reality of general education suggests that the requisite attitudes, accommodations, and adaptations for students with disabilities are not yet in place” (p. 290). In an effort to ensure that the general education classroom is a supportive and appropriate environment for students with severe disabilities, it is apparent that additional mechanisms must be put in place to facilitate ongoing communication and collaboration between all inclusion team members, including general educators and parents.

The findings of the present study also provide support for the finding in the general disability literature that appropriate training for educational personnel is critical to the inclusion process (e.g., Gemmell-Crosby & Hanzlik, 1994; Giangreco, Edelman, & Broer, 2001; Roll-Pettersson, 2001; Smith & Smith, 2000). The current investigation and the work of Soto et al. (2001) provide evidence that educational personnel working with students who use AAC in general education classroom have unique training needs. In addition to learning about their students’ individual disabilities, they also have training needs related to the operation and effective use of AAC systems, which, in some cases, can be relatively complex computerized systems. Given the fundamental nature of communication in the classroom (Beukelman & Mirenda, 1998; Cumley & Beukelman, 1992), it is essential that educational personnel who interact with students who use AAC on a daily basis are able to communicate effectively and efficiently with them. This ability may require that educational personnel be able to troubleshoot in instances of AAC system failure, alter their communication patterns to facilitate the communication of their students, and/or model the use of AAC systems, all of which are tasks that require training and skill development.

Classmate component

Classmate willingness to assist in the inclusion process through direct interactions with target students was identified as a key component to successful inclusion. Because participants explained that the physical proximity of children who use AAC to children without disabilities does not necessarily ensure successful peer interaction, inclusion teams need to attempt to facilitate positive interactions between target students and their peers. Some evidence exists to suggest that communicative interaction training for classmates and target students may be effective in this regard (e.g., Hunt, Alwell, Farron-Davis, & Goetz, 1996; Staub & Hunt, 1993).

Curriculum component

As previously discussed, participants explained that they felt inclusion was more appropriate at lower, rather than higher grade levels. The teachers further identified subjects of an applied nature (e.g., classes like family studies and science) as being more conducive to inclusion of students with severe disabilities using AAC. In these instances, the teachers explained that more appropriate goals for target students that were similar to those of their classmates could be identified and that curriculum adaptations were more feasible and reasonable. These findings are similar to those of other studies in which individualized education program characteristics of students with all types of severe cognitive and physical disabilities have been examined (e.g., Giangreco, Dennis, Edelman, & Cloninger, 1994).

While these curriculum-related issues are noteworthy, they may not be relevant considerations for all students (e.g., students without or with only mild intellectual disabilities). The need for individualized decision-making becomes apparent. It may be that providing general education teachers with ongoing classroom support or training in curriculum adaptation methods could alleviate concerns associated with such curriculum components of the inclusion process. Speech-language-pathologists, for example, as experts in communication disabilities, need to provide consistent support for AAC system development in order to facilitate participation in classroom activities.
**AAC component**

Technology limitations, including the breakdowns and failures of computerized AAC systems that were discussed by the participants, may never be completely eliminated. Nonetheless, continued technological improvements are vital to the improvement of quality of life for individuals who use AAC. Furthermore, access to multiple modes of communication can be very effective in ensuring students who use AAC have consistent means to participate in classroom activities. This component of consistent access to an augmentative or alternative means of communication is relevant only to students with complex communication needs and, because of the essential nature of communication in the classroom, it is one of the utmost importance. Principles of best practice suggest that speech-language pathologists must facilitate interventions that emphasize multimodal communication (e.g., Beukelman & Mirenda, 1998).

**School components**

Finally, successful inclusion programs must be maintained beyond the confines of the general education classroom. In the current study, the following actions on the part of the school administration were identified as essential components of successful inclusion programs: (a) making necessary architectural adaptations to allow participation of students with severe disabilities, and (b) placing students in small classes to ensure the feasibility of adequate student support by educational personnel. Large class sizes have been noted in the general disability literature to be detrimental to the inclusion of students with severe disabilities (e.g., Harrington, 1997; Smith & Smith, 2000; Vaughn, Schumm, Jallad, Slusher et al., 1996).

In summary, there are a number of implications for educational practice that can be gleaned from the current study. Recommendations for inclusion teams and professionals who are striving to support general education teachers and students who use AAC include the following: (a) effectively coordinate team collaboration and information dissemination; (b) arrange for team members to receive adequate and individualized training related to AAC system operation and communication with individuals who have complex communication needs; (c) provide on-going classroom support (e.g., assistance with curriculum adaptations); (d) provide additional planning time for general education teachers; (e) provide students with access to appropriate and varied AAC systems for all classroom activities; (f) facilitate interactions between students who use AAC and classmates; (g) ensure the classroom environment is accessible for students who use AAC; (h) facilitate transitions by communicating/collaborating with new teachers before students are placed in new classes; (i) ensure the formulation of adequate and appropriate goals for students who use AAC; and (j) ensure appropriate educational placements are made for target students.

**Limitations of the Study**

The primary limitation of the current study is that the results are not generalizable to the population of general education teachers who have included students who use AAC in their classes because of two factors. First, the study was qualitative in nature. Second, the sample was not representative of the target group, in that (a) it was small; (b) participants were drawn from only four states in the US; and (c) with the exception of two teachers, the participants had taught only one student who used AAC.

**Directions for Future Research**

Given the fact that this investigation is one of the first to examine the experiences of general education teachers with respect to the inclusion of students with AAC in their classrooms, additional research is required to ensure that both teachers and students receive adequate and effective support throughout the inclusion process. Based on the types of issues raised by the participants in the current study, a survey of a wider range of general education teachers in additional geographic locations would provide information on whether the issues raised were specific to the participants in the present study or are representative of those located throughout the US. Further research is required to investigate the experiences of teachers who have more experience in teaching students who use AAC and some training in AAC. Moreover, future research is needed to examine the experiences of teachers who have taught students using AAC with a greater range of communication and cognitive skills.

Additionally, the present investigation provides data to support the notion that educational assistants are crucial to the process of including students who use AAC in general education classrooms and carry a great deal of responsibility in the process. Therefore, it is important to investigate the experiences of educational assistants.

Finally, future research is needed to evaluate the outcomes of implementing the components of successful inclusion identified in the present...
investigation. In particular, an investigation into the effects of providing educators with AAC training and ongoing classroom support for curriculum adaptations and socialization issues would provide directions for professional development. Further research will help to advance the understanding and practice of inclusion of students with AAC needs in general education settings.

Acknowledgments

This paper was completed in partial fulfillment of the requirements for the Ph.D. program in the Department of Communication Sciences and Disorders At The Pennsylvania State University, University Park, PA, USA. Preliminary results from this study were presented at the annual convention of the American Speech-Language-Hearing Association in New Orleans, Louisiana, November 15, 2001. The research was supported, in part, by a graduate scholarship in communicative disorders from the SERTOMA Foundation and a graduate scholarship from the American Speech-Language-Hearing Foundation. The authors would like to offer their sincere thanks to the teachers who gave of their time and experience to participate in this project. The authors would also like to thank Ms. Stephanie Gulla for her assistance with coding the data, as well as Dr. Katherine Hustad, Mrs. Glenda Kent, Dr. David McNaughton, and Dr. Carol Miller for their assistance and suggestions throughout the duration of this project.

Note

1 Pseudonyms are used for participants and their target students and were selected to begin with the same letter (e.g., Amanda & April refer to the teacher and her target student, respectively).

References


### APPENDIX A. Interview Guide Themes

<table>
<thead>
<tr>
<th>Theme</th>
<th>Issues to be probed</th>
<th>Sample probe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities/goals</td>
<td>Information related to activities or goals that were more difficult and/or easier when including students using AAC in class(es).</td>
<td>Can you talk about the kinds of goals that were set for the student who used AAC and how challenging these goals were?</td>
</tr>
<tr>
<td>Benefits</td>
<td>Information related to benefits of including students using AAC in class(es)</td>
<td>How did the inclusion process go overall?</td>
</tr>
<tr>
<td>Difficulties</td>
<td>Information related to difficulties encountered when attempting to include students using AAC in class(es).</td>
<td>Did you experience any roadblocks to inclusion?</td>
</tr>
<tr>
<td>Recommendations</td>
<td>Recommendations for such individuals as school teachers, specialists, or administrators involved in the educational inclusion of individuals who use AAC.</td>
<td>What would you say to other educators involved in the inclusion of students who use AAC?</td>
</tr>
<tr>
<td>Strategies</td>
<td>Information related to strategies that were found to be (not) effective when attempting to include students using AAC in class(es) (e.g. teaching strategies).</td>
<td>Was there anything (for example, a teaching strategy) that you tried in the inclusion process that really worked?</td>
</tr>
<tr>
<td>Support</td>
<td>Information related to supports received when including students using AAC in class(es).</td>
<td>Can you tell me about the kind of support you received in the inclusion process?</td>
</tr>
</tbody>
</table>

*Note*: The probes relating to these themes were framed in reference to each teacher’s personal experiences.
APPENDIX B. Operational Definitions of Coding Themes

1. Benefits of inclusion. Positive outcomes resulting from an AAC user’s engagement in general education programming, including academic, personal, physical, psychological, or social gains.

2. Negative impact of inclusion. Negative outcomes resulting from an AAC user’s engagement in general education programming, including academic, personal, physical, psychological, or social impacts.

3. Supports for inclusion. Any action, attitude, device, organization, person, phenomenon, policy, practice, preference, strategy, or situation that enables or assists an AAC user to participate in general education programming. Supports can include attitudes, information dissemination, knowledge, personal characteristics, or skills.

4. Barriers to inclusion. Any action, attitude, device, environment, organization, person, phenomenon, physical limitation, policy, practice, or situation that impedes an individual’s ability to participate in general education programming adequately or to the individual’s fullest potential. Barriers can include attitudes, information dissemination, knowledge, physical/medical conditions, or skills.

5. Recommendations. Suggestions for others regarding ways of overcoming barriers to the educational inclusion of AAC users based on participants’ personal experiences.

6. Descriptive information. Comments about teachers, students, classes, or schools that provide information about the circumstances surrounding the inclusion of individual students, but do not include related benefits, negative impacts, barriers, or supports (e.g., description of a student’s disability, educational program, AAC system, class, family situation, physical status, or of a teacher’s background, experiences etc.).

7. Unrelated or uncodable statement. A comment or question that is unrelated to the educational inclusion of students who use AAC or is unintelligible within the context provided.