# Inclusion

## General Educators' Involvement in Interventions for Students with Intellectual Disability
### --Manuscript Draft--

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**Abstract**

General educators are crucial players in efforts to support access to the general curriculum for students

with intellectual disability. In this systematic review, we examined the roles of general educators within

interventions delivered and evaluated in inclusive middle and high school classrooms. Among these 40

intervention studies, the involvement of general educators could be characterized as mixed and often

minimal. Across studies, their involvement spanned six different areas: developing the intervention,

arranging peer involvement, implementing intervention components, providing perspectives, collecting

data, and delivering class instruction. The ways in which general educators have contributed to the

delivery of inclusive interventions remains uneven. We offer recommendations for research and practice

aimed at increasing the involvement of general educators in providing support to students with

intellectual disability.

*Keywords:* inclusion, general educators, intellectual disability, autism spectrum disorder,

secondary schools

**General Educators' Involvement in Interventions for Students with Intellectual Disability**

Calls to expand access to inclusive education for students with intellectual disability (ID) have been longstanding. For more than fifty years, advocates, families, and researchers have worked in tandem to ensure students with disabilities could attend their neighborhood schools, enroll in typical classrooms, and participate meaningfully in rich learning and social opportunities alongside their peers (e.g., Agran et al., 2020; Brown et al., 1983; Jackson et al., 2008). As a result, an increasing number of students with ID have spent a growing proportion of their school day in regular classes alongside their peers without disabilities (Brock, 2018; Morningstar et al., 2017). Indeed, the most recent national data indicate that 15% of secondary students (ages 12-21) with ID spend most of their school day in regular classes (80% or more), 27% spend a balance of time in regular classes (40-79%), and 58% have more limited or no involvement (less than 40%; U.S. Department of Education, 2018).

General educators are central to the success of inclusive education. Broadly, they serve as core members of individualized education program (IEP) teams and may support schoolwide inclusive reform efforts within their building (Theoharis & Causton, 2014). But within the classroom, their contributions are especially influential. As lead instructors, they are responsible for making curricular decisions; planning, delivering, and differentiating instruction; adopting universal design principles; implementing individualized modifications, accommodations, and supports; and evaluating progress for *all* of their students. Current conceptualizations of inclusion situate the general educator as the primary instructor for students with ID and special educators, paraprofessionals, and related services providers adopting collaborative, supportive, or supplementary roles (e.g., Giangreco et al., 2010; McLeskey et al., 2014). Consequently, the engagement of general educators directly impacts the learning and participation of students with ID.

To date, few studies have focused centrally on general educators' actual roles in the design, delivery, and evaluation of interventions for supporting students with ID in their classrooms. Instead,

most research involving general educators has addressed their attitudes and preparation in relation to inclusive education (e.g., Avramadis & Norwhich, 2002; De Vroey et al., 2015; Kiely et al., 2015). For example, Carter and Hughes (2006) surveyed high school staff about their experiences including students with severe disabilities. Although general educators identified a number of barriers to inclusion (e.g., limited knowledge about disabilities, lack of resources to support students in their classrooms), they also affirmed an array of benefits for students with disabilities, peers, and themselves.

The availability of research-based practices to support the general education participation of students with ID has grown considerably over the last few decades (e.g., Brock & Huber, 2017; Kuntz & Carter, 2019; Spooner et al., 2012). Yet, the everyday implementation of those research-based practices in inclusive classrooms requires the active involvement of general educators. However, it is unclear whether and how general educators have participated in or contributed to inclusive interventions evaluated within the research literature. In addition to knowing which *practices* are effective for which *students* for which *outcomes*, it is also essential to address which *practitioners* have a role in delivering those practices (Horner et al., 2005). Prior observational studies suggest that general educators may have few interactions with students with ID in their classes as instructional responsibilities are so often delegated to paraprofessionals (e.g., Chung et al., 2012, 2019).

Although it is important to promote inclusion and implement research-based practices across the entire grade span, secondary (i.e., middle and high) school introduces unique complexities (Carter, 2018; Mastropieri & Scruggs, 2001). For students, the academic curriculum deepens, course content becomes more difficult, expectations for independence elevate, and the social dimensions of schooling become more challenging to navigate. The roles and responsibilities of secondary school teachers also differ from elementary school. General educators often teach within a narrower range of subject areas; they teach multiple classes, each with a completely different set of students; and they tend to teach in isolation apart from additional support staff (e.g., limited co-teaching). As a result, intervention

implementation and inclusive practices tend to look quite different in secondary school classrooms.

The purpose of this review was to examine the roles of middle and high school general educators within studies evaluating the efficacy of interventions delivered within inclusive classrooms to students with ID. Such information would be informative in several ways. First, it could clarify the extent to which researchers are actively engaging general educators when establishing best practices for use in inclusive middle or high school classrooms. Second, it could highlight possible avenues for involving general educators more fully in the design, delivery, and evaluation of future interventions. Third, it could shed light on whether the field has indeed established research-based practices that can be readily implemented by general educators (versus those evaluated with special educators, paraprofessionals, or related services providers).

**Method**

**Inclusion Criteria**

Our analyses were a companion to a larger review focused on the efficacy of interventions delivered to middle and high school students with ID within inclusive classrooms (Kuntz & Carter, 2019). Although we used the same inclusion criteria, our focus in this current article is on the nature of the involvement of general educators in the 40 available intervention studies. To be included in our review, studies must have: (a) included at least one middle or high school participant with an intellectual disability, (b) evaluated interventions delivered in a general education classroom, (c) examined changes in at least one student outcome resulting from that intervention, (d) used an experimental design with sufficient information to determine an experimental effect, (e) been conducted in the United States, and (f) been published in a peer-reviewed journal.

**Search Procedures and Screening**

We identified all relevant articles by using a multipronged approach. First, we searched four electronic databases (i.e., Education Database, Education Full Text, ERIC, PsycINFO) using a combination

of search terms focused on intervention setting (i.e., "inclusive education" OR "inclusive school*" OR

"inclusion" OR "general education" OR "general education class*" OR "general curriculum" OR

"mainstream*" OR "regular education"), school level (i.e., "high school" OR "middle school" OR "junior

high" OR "secondary education" OR "secondary student*" OR "school age" OR "adolescen*"), disability

(i.e., "intellectual development disorder*" OR "intellectual disabilit*" OR "severe disabilit*" OR "autis*"

OR "developmental disabilit*" OR "cognitive disabilit*" OR "cognitive impairments" OR "retard*" OR

"multiple disabilit*"), and research design (i.e., "empirical study" OR "quantitative study" OR "single-

case" OR "single-subject" OR "multiple baseline" OR "multiple probe" OR "alternating treatment*" OR

"parallel treatment*" OR "group design" OR "intervention*" OR "program effect*" OR "instructional

effect*" OR "treatment" OR "randomized" OR "ABAB" OR "withdrawal"). Second, we reviewed the

references of all identified articles (i.e., backward search). Third, we examined studies citing each of the

identified articles (i.e., forward search).

**Coding of Articles**

For this review, we coded information about the characteristics of participating general

educators. This included (a) the number of general educators involved in the study, (b) their gender, (c)

their race/ethnicity, (d) their years of teaching experience, (e) whether they had prior experience

teaching students with disabilities, (f) their teaching certifications, and (g) involvement in study-related

activities. Some authors did not specify the number of general educators involved in the classes in which

students with ID attended. Unless otherwise specified, we assumed just one general educator was

assigned to each participating student's classroom. Because studies may have included students who did

not meet the inclusion criteria (e.g., they had another disability or were in a younger grade), we only

coded information for the general educators of secondary students with ID who met the inclusion

criteria.

To examine the ways in which general educators were involved in each these studies, we

developed a new coding framework using a constant comparative approach (Strauss & Corbin, 1990)

involving multiple rounds of discussion and revision. First, we reviewed each article to identify all

statements or sections addressing the involvement of general educators. Second, we used open coding

to name and describe each identified reference to the role of a general educator within a particular

study. Third, we combined similar codes used across articles and refined our names and accompanying

definitions. Fourth, we grouped similar codes under each of six primary categories of involvement: (1)

developing the intervention, (2) arranging peer involvement, (3) implementing intervention

components, (4) providing perspectives, (5) collecting data, and (6) delivering class instruction. Finally,

we applied the final coding framework to all 40 articles included in the review. This framework included

six categories incorporating 25 subcategories (see Table 1 for definitions).

**Inter-rater Reliability**

To determine the inter-rater reliability on the coding of the articles, a second coder—a doctoral

student in special education—assessed 25% of the included articles ($n$ = 10). For training purposes, the

first author met with the second coder and reviewed the research questions, inclusion criteria, and each

item of the coding manual verbally as well as provided the information in writing. We calculated the

percent agreement by dividing the number of exact agreements (i.e., items in which codes matched

across coders) by the number of agreements plus the number of disagreements (i.e., items in which

codes differed across coders) and multiplying by 100. Reliability averaged 92.0% (range 73.2%-100.0%).

In addressing disagreements, we reviewed the original article in order to come to consensus on the final

coding.

<div align="center">

**Findings**

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**Characteristics of General Educators**

Across these 40 studies, 108 general educators were involved in supporting the inclusion of

students with ID who met our study criteria. Two general educators (1.9%) were male, 18 (16.7%) were

female, and gender was not specified for 88 (81.5%). Race/ethnicity was not reported for 100 general

educators (92.6%); seven (6.5%) were European American and one (0.9%) was Hispanic/Latino. Years of

teaching experience was not reported for 86 (79.6%) general educators and prior experience working

with students with disabilities was not reported for 98 (90.7%) general educators. When teaching

experience was reported, 10 (9.2%) had more than 11 years of experience, two (1.9%) had between 6

and 10 years, eight (7.4%) had between 2 and 5 years, and two (1.9%) were first year teachers. When

disability experience was reported, seven general educators (6.5%) were found to have had prior

experience teaching students with disabilities. Three general educators (2.8%) were noted as having

alternative or emergency certification; the certifications of the remaining 105 general educators (97.2%)

were not discussed.

**General Educator Involvement**

Six categories of general educator involvement were identified across these studies: developing

the intervention, arranging peer involvement, implementing intervention components, providing

perspectives, collecting data, and delivering class instruction. In Table 2, we report their involvement by

individual study. These studies are organized based on the five primary intervention approaches

identified by Kuntz and Carter (2019): systematic instruction, peer support arrangements, self-

management strategies, peer-mediated communication interventions, and educational placement

changes. However, we emphasize that many studies addressed multi-component interventions that

incorporated multiple approaches.

***Developing the Intervention***

The most common area of general educator involvement was related to aspects of developing

the intervention (22 total studies). General educators provided researchers with information on setting

intervention goals (e.g., identifying skills relevant to instruction in the general education classroom) in

16 studies (40.0%). For example, researchers interviewed general educators to develop a list of

classroom participation behaviors then asked general educators to rank those behaviors (Gilberts et al., 2001). Researchers selected behaviors ranked as *very important* by 3 out of the 4 general educators. In ten studies (25.0%), general educators consulted with the research team on developing the intervention. For example, general and special educators worked together to select vocabulary words aligned to the core curriculum and aligned to the focus students' IEP (Collins et al., 2007). In eight studies (20.0%), they attended meetings focused on planning some aspect of the intervention. In five studies (12.5%), the general educators attended training on the intervention. One of these five studies (McDonnell et al., 2001) also provided general educators with technical assistance. Carter et al. (2016) shared individual support plans with the general educators. Six other studies (15.0%) reported anecdotal information from general educators being used in consultation or planning but did not specify how. For example, Wehmeyer et al. (2003) stated "project staff worked both with the student's special education teacher and the general education teacher from whom the student was receiving instruction" (p. 83).

### Arranging Peer Involvement

Peers were key participants in many of these studies and general educators often had a role in arranging their involvement (16 studies). In 15 of these studies (37.5%), general educators nominated peers to work with the focus students. For example, Chung and Carter (2013) asked each general educator to recommend two peers who would work well with the focus students. In six studies (15.0%), they explicitly grouped peers with the students as part of instruction. For example, McDonnell et al. (2001) asked general educators to form heterogeneous peer tutoring groups including focus students. Jameson and colleagues (2008) asked general educators to distribute research materials (i.e., recruitment packages) to the peers. Shukla and colleagues (1998) noted that general educators were involved in the peer arrangements of the study but did not specify how.

### Implementing Intervention Components

In 11 different studies, general educators were directly involved in some aspect of intervention

delivery. In four of these studies (10%), general educators were the primary interventionist. For example, general educators provided system of least prompts (SLP) procedures with students writing letters (Collins et al., 2001), implemented "naturalistic teaching" with students learning functional and core content vocabulary (Collins et al., 2007), recited course-related and -unrelated facts to students throughout each class period (Collins et al., 1999), and provided classwide instruction in an educational placement study (Kennedy & Itkonen, 1994). General educators were a secondary interventionist in four studies (10.0%). For example, general educators provided opportunities for students to practice the skills, but did not teach the self-management skills directly (Agran et al., 2002, 2005); they taught inquiry science lessons with a prescribed set of components (Jimenez et al., 2012); and they implemented peer tutoring classwide (McDonnell et al., 2001). General educators were a peripheral interventionist in one study (2.5%). Specifically, a general educator provided intermittent feedback to students as they worked with the researcher in class (Smith et al., 2013). In two studies (5.0%), general educators had an unspecified role as interventionist.

### *Providing Perspectives*

A total of 19 studies involved having general educators provide their perspectives on the goals, procedures, or outcomes of the intervention. Researchers in 10 of these studies asked general educators to complete surveys or questionnaires addressing the acceptability of the procedures and their perceptions of the intervention's effect. Researchers in seven studies interviewed general educators about the benefits of the intervention and their satisfaction with its outcomes. In six studies, general educators were asked about the social validity of the intervention, but the manner in which this was done was not specified. Finally, general educators provided informal, anecdotal information regarding the social validity of the study in three studies. For example, Collins et al. (2001) stated that the general educator shared anecdotal data regarding her enjoyment in working with the focus student. Agran et al. (2005) stated that general educators shared informally their satisfaction with the intervention and

results.

Across this subset of studies, general educators were generally positive about the goals,

procedures, and outcomes of the interventions. Their feedback addressed three themes. First, general

educators reported that focus students engaged more frequently with the class academically and/or

socially and the occurrence of problem behaviors was reduced (Agran et al., 2002; Agran et al., 2005;

Carter et al., 2011; Chung & Carter, 2013; Copeland et al., 2002; Gilberts et al., 2001; Hughes et al.,

2013b; Jameson et al., 2008; Jameson et al., 2012). Second, general educators viewed the interventions

as reasonable, beneficial, and/or likely to continue the intervention in their classes (Carter et al., 2016;

Hughes et al., 2013b; Jameson et al., 2008; Jameson et al., 2012; Jimenez et al., 2012; Smith et al., 2013).

Third, general educators stated they felt more prepared to work with students with ID in their classes

(Biggs et al., 2017; Collins et al., 2001; Copeland et al., 2002).

### Collecting Data

Data collection is an essential component of any intervention evaluation. General educators

contributed to data collection in a total of five studies. General educators collected data on one or more

dependent variables in four studies. For example, Agran et al. (2002) reported that general educators

recorded students' performance (i.e., correct or incorrect) on selected problem-solving skills. Two

studies reported that general educators collected interobserver agreement data (Agran et al., 2001;

Smith et al., 2013). One study (Smith et al., 2013) reported that general educators collected reliability

data for procedural fidelity.

### Delivering General Instruction

The classroom instruction general educators provided was described in 19 studies. The

researchers reported how general educators provided instruction to the overall class in 18 studies

(45.0%) and for students with disabilities specifically in two studies (5.0%). Authors described the

assignments given to students by general educators in four studies (10.0%). In two studies (5.0%),

researchers reported that general educators used their classwide instructional materials in

generalization measures.

<center>**Discussion**</center>

Collaboration is critical to the support of high-quality inclusive learning opportunities for middle

and high school students with ID. Among the central stakeholders in this area of educational practice are

general educators. Yet, little attention has focused on their place within interventions aimed at

supporting access to the array of social and academic opportunities that exist within inclusive

classrooms. This review examined the roles general educators have played in published studies. Our

findings provide several insights into the ways in which they may contribute to the design and delivery

of research-based practices.

Overall, the involvement of general educators in the design, delivery, and evaluation of

interventions within their classrooms was quite mixed and usually fairly minimal. Across all 40 the

studies, involvement in activities related to intervention development was most common (55.0% of

studies; e.g., assisting the researchers in prioritizing targeted skills and intervention goals, consulting

with researchers on components of the intervention). In making instructional decisions, the perspectives

of general educators can be especially valuable as researchers strive to design interventions that both

align with the context of the classroom and meet the educational needs of individual students with ID. A

primary role of general educators is planning the scope and sequence of instruction in their classes.

Without their input, it would be nearly impossible to achieve that alignment for students with ID.

Further, we encourage researchers to involve general educators in designing or providing training for

paraprofessionals and peers who are providing support to students with disabilities (e.g., Brock et al.,

2016; Brock & Carter, 2016).

The use of peer-mediated interventions can positively enhance inclusive education at the

secondary level (Carter, 2018). Although general educators had some involvement arranging peers

within peer support and peer-mediated communication interventions, they may be underutilized in this

area. General educators' knowledge of all of their students could be an asset for supporting the social

inclusion and belonging of students with ID within their classes. As lead instructors in their classroom,

general educators may be in the very best position to identify which peers would be effective at

providing support to their classmates with disabilities or who would themselves benefit from having

such involvement. They often understand the particular peer dynamics within their classrooms, they

know which students have academic or character strengths that might suit involvement as a peer

partner, and they develop relationships with students that might prime peers to agree to involvement

(Carter, 2017). In contrast, special educators often have a limited presence in inclusive secondary

classrooms and the attention of paraprofessionals is typically directed toward the students whom they

are supporting.

Rarely were general educators directly involved in delivering some or most of the instructional

aspects of these interventions. When such involvement did occur, it was usually within interventions

evaluating systematic instruction or self-management strategies. In contrast, most studies involved

general educators in helpful, but minor, components of the intervention evaluation. Such findings

suggest that researchers may be underutilizing general educators and missing opportunities to capitalize

on their content and instructional expertise. A number of avenues for greater involvement were

illustrated in the studies we reviewed. First, general educators could provide task directions or

opportunities for students with ID to practice the targeted skills while paraprofessionals deliver other

parts of the intervention (e.g., Agran et al., 2002; Heinrich et al., 2016). This could extend beyond

targeted behaviors by incorporating material aligned with classwide instruction. Second, researchers

could collaborate with general educators on the planning and delivery of general instruction within the

class (e.g., Hughes et al., 2000; McDonnell et al., 2001). General educators' knowledge of the curriculum

makes them a prime resource for developing and implementing interventions that target both isolated

skills (e.g., specific vocabulary words) and adaptive skills (e.g., practicing social skills). Third, general

educators could deliver generalization trials to test student achievement across people, materials, or

skills (e.g., Smith et al., 2013). Students with ID often need adapted and specialized instruction;

however, this need should not be addressed at the exclusion of having opportunities to participate in

general class instruction. It may be reasonable for a general educator to present the generalization task

or provide one or more instructional trials prior to the generalization task.

We were surprised by the extent to which the views of general educators regarding the

interventions were sought in these studies. When educators do not consider particular educational

practices to be either feasible or acceptable, they are unlikely to implement them well, if at all (Snell,

2003). Yet, general educators provided social validity data in less than half of the studies. We encourage

researchers to seek out the perspectives of classroom teachers on the goals, procedures, and outcomes

of all interventions carried out in their classrooms. Their insights into what works, why, and when are

important for researchers to consider and report. When positive assessments of social validity are

found, they often come from general educators who have very little involvement in the day-to-day

delivery of the intervention being evaluated. For example, in response to the prompt, "The strategy was

easy to use in the general education setting," general educators in Jameson et al. (2012) provided an

average rating of 4 out of 5 (i.e., *agree*). However, their only involvement in the study involved

nominating peers and completing social validity surveys and interviews. These same general educators

rated "I would use this strategy with other students with significant cognitive disabilities" slightly lower

at 3.8 on average indicating that, despite the perception of ease of use, they may be less likely to use

the intervention without support. The perspectives of general educators were sought in just one of the

studies in which they served as the primary interventionist (Collins et al., 2001). Anecdotally, the general

educator in this study stated that she liked the students and was more likely to interact with the

students as a result of her participation in the study, but she was unable to give them the direct

instructional time needed (i.e., a peer was introduced during intervention to provide the SLP procedures

and the general educator continued to provide task directions and feedback to students). In future

studies, it may be helpful to ask general educators how they viewed their role in the intervention (e.g.,

Does their description of their role match the role expected of them by researchers?) and if that role

was acceptable and sustainable (e.g., Did they feel the effort required of them was acceptable? If not,

what would be an acceptable role for general educators? How confident would they feel using the same

procedures with another student? If their confidence is low, what supports would they need to be

successful on their own?).

Finally, we found that most studies evaluating inclusive interventions provided fairly limited

information about the general educators who served as lead teachers within classrooms. For example,

only 20% of studies addressed the teaching experience of general educators and only 10% of studies

addressed the extent to which they had any prior experience working with students with disabilities.

The confidence and capacity of educators who are very early in their careers or are quite new to

educating students with ID may look very different from those of educators with more extensive prior

experience. Moreover, basic demographic information like gender and race/ethnicity were omitted in

the majority of studies. This may be because researchers considered the involvement of these particular

staff to be peripheral or irrelevant to the interventions they were evaluating. For example, most

interventions were delivered primarily by peers, paraprofessionals, special educators, or researchers

(Kuntz & Carter, 2019). Even when general educators' only involvement is in the area of delivering

instruction to the entire class, that instruction provides the foundation upon which more individualized

interventions are delivered to students with disabilities. In other words, the effectiveness of any

intervention is going to be impacted by the instructional context in which it is delivered. As a result, it is

important to know something about the individuals delivering that instruction. Moving forward, we

recommend that researchers more fully describe the school staff who are directly or indirectly involved

in the classrooms.

**Limitations**

Several of our decisions constrain the conclusions that can be drawn from this review. First, we

focused only on the roles of general educators within experimental studies. Descriptive studies may also

identify avenues through which general educators can be involved directly or indirectly in supporting

students with ID within their classrooms (e.g., Carter, Hughes, et al., 2005; Chung et al., 2019). Second,

we narrowed our review to studies evaluating interventions with students who had an intellectual

disability. Much could be learned from understanding the ways in which general educators engage

students with other disabilities (e.g., autism, sensory impairments) within their classrooms. Likewise, we

did not address the roles and responsibilities of general educators working in pre-school and elementary

classrooms. Third, it may be that general educators were much more involved in interventions than is

evident from the published reports. For example, page limits or other priorities may have precluded the

inclusion of additional details. Because these studies were published over a 23-year period, we did not

anticipate being able to reliably and consistently collect this information by reaching out personally to

authors.

**Implications for Practice and Research**

These findings have several implications for practitioners supporting the inclusion of students

with ID in middle and high schools. First, general educators need effective training and support to

include students fully in the social and learning opportunities that comprise their classroom. For

example, teacher preparation programs can develop and provide coursework aligned to both general

education and special education certifications that allows for professionals in both programs to

collaborate with and learn from each other. Additionally, districts can provide in-service training and

planning opportunities for general educators to learn more about the students with ID they serve from

the students' special education case managers or district leaders. Second, teacher preparation programs

and school districts can provide special educators with more training on how to effectively maximize

time and energy through better models of consultation with general educators. Third, policies

emphasizing access to the general education curriculum in the least restrictive environment (e.g., IDEA,

2004) have shifted research toward identifying effective inclusive strategies for students with ID.

However, the findings of this review indicate there is still much work to be done to include general

educators in this research. Lasting change toward inclusion in general education classes for students

with ID can only be achieved when all stakeholders are involved and actively participate. Fourth, all of

the studies we reviewed appeared in special education journals. As a result, it is unlikely that general

educators and the faculty who train them would encounter these articles unless actively seeking out

research related to inclusive practices. As a field, we need to identify accessible ways of sharing the

practices addressed in these studies with general educators who are looking for effective support

models for students with disabilities.

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**Table 1**

*Categories of General Educator Involvement and Descriptions*

| Category | Description | n (%) |
|---|---|---|
| **Developing the intervention** | **Assisted the research team in developing the intervention in whole or in part** | |
| Content validity | Assisted in identifying relevant skills to be taught in general education classroom | 16 (40.0%) |
| Consultation | Provided information to researchers in developing the intervention | 10 (25.0%) |
| Planning | Attended planning meeting(s) with intervention team in developing the intervention | 8 (20.0%) |
| Training | Attended a training provided by the research team regarding the intervention | 5 (12.5%) |
| Information sharing | Received information from researchers regarding the intervention | 1 (2.5%) |
| Not specified | Authors did not specify how general educators consulted or planned | 6 (15.0%) |
| **Arranging peer involvement** | **Arranged peers to tutor or support students with disabilities** | |
| Nominate/Identify peers | Identified which peers would be a good fit or benefit from involvement in the study | 15 (37.5%) |
| Intentionally group peers | Grouped peers and students to be in proximity during the study | 6 (15.0%) |
| Distribute materials to peers | Provided peers with materials needed for the study | 1 (2.5%) |
| Provide unspecified information | Authors did not specify what or how information was shared with peers | 1 (2.5%) |
| **Implementing intervention components** | **Implemented the independent variable in whole or in part** | |
| Primary interventionist | Implemented the majority of the intervention or was the sole interventionist | 4 (10.0%) |
| Secondary interventionist | Provided opportunities for student implementers or assisted with implementation | 4 (10.0%) |
| Peripheral interventionist | Provided feedback or supervised individuals implementing the intervention | 1 (2.5%) |
| Not specified | Authors indicated general educator involvement but did not specify how | 2 (5.0%) |
| **Providing perspectives** | **Provided information on the goals, procedures, and outcomes of the study** | |
| Survey/questionnaires | Provided through the distribution of formal surveys or questionnaires | 10 (25.0%) |
| Interviews | Provided through question and answer with a researcher | 6 (15.0%) |
| Anecdotal information | Provided through unstructured conversations | 3 (7.5%) |
| Approach not specified | Authors did not specify how general educators provided the information | 6 (15.0%) |
| **Collecting data** | **Collected data on the intervention in whole or in part** | |
| Intervention outcome data | Collected data on dependent variable(s) as primary data collector | 4 (10.0%) |
| Interobserver agreement data | Collected interobserver agreement data on dependent variable(s) | 2 (5.0%) |
| Procedural fidelity | Collected reliability data on the procedural fidelity of the intervention | 1 (2.5%) |
| **Delivering class instruction** | **Indicated how class instruction was delivered prior or during the intervention** | |
| Instruction | Indicated instructional formats (e.g., lecture, small group) used by general educator | 18 (45.0%) |
| Assignments | Provided information regarding assignments provided in the class | 4 (10.0%) |
| Student with disabilities | Indicated how the student with disabilities generally received instruction in the class | 2 (5.0%) |
| Provided generalization materials | Shared class materials to be used as generalization of the intervention | 2 (5.0%) |

**Table 2**

*General Educator Involvement by Study*

| Study | Developing the intervention | | | | | | Arranging peer involvement | | | | Implementing intervention components | | | | Providing perspectives | | | | Collecting data | | | Delivering class instruction | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Content Validity | Consultation | Planning | Training | Information Sharing | Unspecified/ Anecdotal | Nominate/ Identify Peers | Group Peers | Distribute Materials to Peers | Unspecified | Primary Interventionist | Secondary Interventionist | Peripheral Interventionist | Unspecified | Survey/ Questionnaire | Interviews | Anecdotal Information | Unspecified | Data on DV | IOA | Procedural Fidelity | General Instruction | SWD Instruction | Assignments | Generalization |
| **Self-management interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agran et al. (2001) | X | X | | X | | | | | | | | | | | X | | X | | X | X | | | | | |
| Agran et al. (2002) | X | | | X | | X | | | | | | X | | | X | X | X | | X | | | | X | | |
| Agran et al. (2006) | X | X | X | | | X | | | | | | | | | | | | | | | | X | | | |
| Agran et al. (2005) | X | | | | | | | | | | | X | | | | | X | | | | | X | X | | |
| Agran et al. (2008) | X | X | | | | | | | | | | | | X | | | | | | | | | | | |
| Copeland et al. (2002) | | | | | | X | | | | | | | | | | X | | | | | | X | | X | |
| Gilberts et al. (2001) | X | | | | | | | | | | | | | | | | | X | | | | X | | | |
| Hughes et al. (2002) | | | | | | | | | | | | | | | X | | | | | | | | | | |
| Wehmeyer et al. (2003) | | | | | | X | | | | | | | | | | | | | | | | | | | |
| **Peer support interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Biggs et al. (2017) | | | X | | | | X | X | | | | | | X | X | | | | | | | X | | | |
| Brock et al. (2016) | X | X | X | X | | | X | X | | | | | | | | | | | | | | | | | |
| Brock & Carter (2016) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carter et al. (2016) | | | | | X | | | | | | | | | | X | | X | | | | | X | | | |
| Carter et al. (2005) | | | | | | | X | X | | | | | | | | | | | | | | | | | |
| Carter et al. (2011) | | | | | | | X | | | | | | | | | X | | | | | | | | | |
| Carter et al. (2007) | | | | | | | X | | | | | | | | | | | | | | | X | | | |
| Chung & Carter (2013) | | | | | | | X | X | | | | | | | | X | | | | | | | | | |
| McDonnell et al. (2001) | X | | X | X | | | | X | | | | X | | | | | X | X | | | | X | | X | |
| Shukla et al. (1998) | | | | | | | | | X | | | | | | | | | | | | | X | | | |
| Shukla et al. (1999) | | | | | | | X | | | | | | | | | | | | | | | X | | | |

| Study | \<Developing the intervention\> Content Validity | Consultation | Planning | Training | Information Sharing | Unspecified/ Anecdotal | \<Arranging peer involvement\> Nominate/ Identify Peers | Group Peers | Distribute Materials to Peers | Unspecified | \<Implementing intervention components\> Primary Interventionist | Secondary Interventionist | Peripheral Interventionist | Unspecified | \<Providing perspectives\> Survey/ Questionnaire | Interviews | Anecdotal Information | Unspecified | \<Collecting data\> Data on DV | IOA | Procedural Fidelity | \<Delivering class instruction\> General Instruction | SWD Instruction | Assignments | Generalization |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Peer-mediated social interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hughes et al. (2013a) | | | | | | | X | | | | | | | | | | | | | | | | | | |
| Hughes et al. (2011) | | | | | | | X | | | | | | | | | | | | | | | | | | |
| Hughes et al. (2013b) | | | | | | | X | | | | | | | | | X | | | | | | | | | |
| Hughes et al. (2000) | | | | | | | | | | | | | | | | X | | | | | | | | | |
| Reilly et al. (2014) | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Systematic instruction interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Collins et al. (2001) | X | | X | X | | | | | | | X | | | | X | | X | | | | | | | | |
| Collins et al. (2007) | X | X | | | | | | | | | X | | | | | | | | | | | X | | | |
| Collins et al. (1999) | | | | X | | | | | | | X | | | | | | | | | | | X | | | |
| Heinrich et al. (2016) | X | X | | | | | | | | | | | | | X | | | | | | | | | | |
| Jameson et al. (2008) | X | X | | | | | X | | X | | | | | | X | X | | | | | | | | | |
| Jameson et al. (2012) | | | | | | | X | | | | | | | | X | X | | | | | | X | | | |
| Jameson et al. (2007) | X | X | | | | | | | | | | | | | | | | | | | | X | | | |
| Jimenez et al. (2012) | | | X | | | | X | | | | | | X | | X | | | | | | | | | | |
| McDonnell et al. (2002) | | | | | | | | | | | | | | | | | | | | | | X | | | |
| McDonnell et al. (2006) | X | X | | | | | | | | | | | | | | | | | | | | X | | X | X |
| Riesen et al. (2003) | X | X | | | | | | | | | | | | | | | | | | | | X | | | |
| Roberts & Leko (2013) | | | | | | | | | | | | | | | | | | | | | | X | | | |
| Smith et al. (2013) | X | | | | | | | | | | | | | X | | | | X | X | X | | | | X | X |
| **Educational placement interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kennedy et al. (1997) | | | X | | X | | X | | | | | | | | | | | | | | | | | | |
| Kennedy & Itkonen (1994) | | | X | | | | X | X | | | X | | | | | | | X | | | | | | | |

General Educators' Involvement in Interventions for Students with Intellectual Disability

**Abstract**

General educators are crucial players in efforts to support inclusive education for students with intellectual disability. In this systematic review, we examined the roles of general educators within interventions delivered and evaluated in their middle and high school classrooms. Among these 40 intervention studies, the involvement of general educators could be characterized as mixed and often minimal. Across studies, general educator involvement spanned six different areas: developing the intervention, arranging peer involvement, implementing intervention components, providing perspectives, collecting data, and delivering class instruction. The ways in which general educators have contributed to the delivery of interventions in their classrooms remains uneven. We offer recommendations for research and practice aimed at increasing the involvement of general educators in providing support to students with intellectual disability.

*Keywords:* inclusion, general educators, intellectual disability, autism spectrum disorder, secondary schools

**General Educators' Involvement in Interventions for Students with Intellectual Disability**

Calls to expand access to inclusive education for students with intellectual disability (ID) have been longstanding. For more than fifty years, advocates, families, and researchers have worked in tandem to ensure students with disabilities could attend their neighborhood schools, enroll in typical classrooms, and participate meaningfully in rich learning and social opportunities alongside their peers (e.g., Agran et al., 2020; Brown et al., 1983; Jackson et al., 2008). As a result, an increasing number of students with ID have spent a growing proportion of their school day in regular classes alongside their peers without disabilities (Brock, 2018; Morningstar et al., 2017). Indeed, the most recent national data indicate that 15% of secondary students (ages 12-21) with ID spend 80% or more of their school day in regular classes, 27% spend 40-79% of their school day in regular classes, and 58% less than 40% of their school day (U.S. Department of Education, 2018).

General educators are central to the success of inclusive education. Broadly, they serve as core members of individualized education program (IEP) teams and may support schoolwide inclusive reform efforts within their building (Theoharis & Causton, 2014). But within the classroom, their contributions are especially influential. As lead instructors, they are responsible for making curricular decisions; planning, delivering, and differentiating instruction; adopting universal design principles; implementing individualized modifications, accommodations, and supports; and evaluating progress for *all* of their students. Current conceptualizations of inclusive education situate the general educator as the primary instructor for students with ID, while special educators, paraprofessionals, and related services providers adopt collaborative, supportive, or supplementary roles (e.g., Giangreco et al., 2010; McLeskey et al., 2014). With the adoption of this conceptualization, the engagement of general educators should directly impact the learning and participation of students with ID.

To date, few studies have focused centrally on general educators' actual roles in the design, delivery, and evaluation of interventions for supporting students with ID in their classrooms. Instead,

most research involving general educators has addressed their attitudes and preparation in relation to

inclusive education (e.g., Avramadis & Norwhich, 2002; De Vroey et al., 2015; Kiely et al., 2015). For

example, Carter and Hughes (2006) surveyed high school staff about their experiences including

students with severe disabilities in their classrooms. Although general educators identified a number of

barriers to inclusive education (e.g., limited knowledge about disabilities, lack of resources to support

students in their classrooms), they also affirmed an array of benefits for students with disabilities, peers,

and themselves.

The availability of research-based practices to support inclusive education for students with ID

has grown considerably over the last few decades (e.g., Brock & Huber, 2017; Kuntz & Carter, 2019;

Spooner et al., 2012). Although, the everyday implementation of those research-based practices in

inclusive classrooms requires the active involvement of general educators, and it is unclear whether and

how general educators have participated in or contributed to interventions evaluated within the

research literature. In addition to knowing which *practices* are effective for which *students* for which

*outcomes*, it is also essential to address which *practitioners* have a role in delivering those practices

(Horner et al., 2005). Prior observational studies suggest that general educators may have few

interactions with students with ID in their classes as instructional responsibilities are so often delegated

to paraprofessionals (e.g., Chung et al., 2012, 2019).

Although it is important to promote inclusive education and implement research-based

practices across the entire grade span, secondary (i.e., middle and high) school introduces unique

complexities (Carter, 2018; Mastropieri & Scruggs, 2001). For students, the academic curriculum

deepens, course content becomes more difficult, expectations for independence elevate, and the social

dimensions of schooling become more challenging to navigate. The roles and responsibilities of

secondary school teachers also differ from elementary school. General educators often teach within a

narrower range of subject areas; they teach multiple classes, each with a completely different set of

students; and they tend to teach in isolation apart from additional support staff (e.g., limited co-teaching). As a result, interventions and supports tend to look quite different in secondary school classrooms.

The purpose of this review was to examine the roles of middle and high school general educators within studies evaluating the efficacy of interventions delivered within their classrooms to students with ID. Such information would be informative in several ways. First, it could clarify the extent to which researchers are actively engaging general educators when establishing best practices for use in inclusive middle or high school classrooms. Second, it could highlight possible avenues for involving general educators more fully in the design, delivery, and evaluation of future interventions. Third, it could shed light on whether the field has indeed established research-based practices that have been implemented by general educators.

## Method

### Inclusion Criteria

Our analyses focused on the same 40 studies included within a prior review focused on the efficacy of interventions delivered to middle and high school students with ID within general education classrooms (Kuntz & Carter, 2019). Specifically, studies must have: (a) included at least one middle or high school participant with an intellectual disability, (b) evaluated interventions delivered in a general education classroom, (c) examined changes in at least one student outcome resulting from that intervention, (d) used an experimental design with sufficient information to determine an experimental effect, (e) been conducted in the United States, and (f) been published in a peer-reviewed journal. We used the same inclusion criteria in both reviews. However, our focus in this current article is on the nature of the involvement of general educators in the 40 available intervention studies. Our search included all studies published up through August 2018.

### Search Procedures and Screening

We identified all relevant articles by using a multipronged approach. We searched four

electronic databases (i.e., Education Database, Education Full Text, ERIC, PsycINFO) using a combination

of search terms focused on intervention setting (i.e., "inclusive education" OR "inclusive school*" OR

"inclusion" OR "general education" OR "general education class*" OR "general curriculum" OR

"mainstream*" OR "regular education"), school level (i.e., "high school" OR "middle school" OR "junior

high" OR "secondary education" OR "secondary student*" OR "school age" OR "adolescen*"), disability

(i.e., "intellectual development disorder*" OR "intellectual disabilit*" OR "severe disabilit*" OR "autis*"

OR "developmental disabilit*" OR "cognitive disabilit*" OR "cognitive impairments" OR "retard*" OR

"multiple disabilit*"), and research design (i.e., "empirical study" OR "quantitative study" OR "single-

case" OR "single-subject" OR "multiple baseline" OR "multiple probe" OR "alternating treatment*" OR

"parallel treatment*" OR "group design" OR "intervention*" OR "program effect*" OR "instructional

effect*" OR "treatment" OR "randomized" OR "ABAB" OR "withdrawal"). Next, we reviewed the

references of all identified articles (i.e., backward search). Finally, we examined studies citing each of

the identified articles (i.e., forward search).

**Coding of Articles**

For this review, we coded information about the characteristics of participating general

educators. This included (a) the number of general educators involved in the study, (b) their gender, (c)

their race/ethnicity, (d) their years of teaching experience, (e) whether they had prior experience

teaching students with disabilities, (f) their teaching certifications, and (g) involvement in study-related

activities. Some authors did not specify the number of general educators involved in the classes in which

students with ID attended. Unless otherwise specified, we assumed just one general educator was

assigned to each participating student's classroom. Because studies may have included students who did

not meet the inclusion criteria (e.g., they had another disability or were in a younger grade), we only

coded information for the general educators of secondary students with ID who met the inclusion

criteria.

To examine the ways in which general educators were involved in each of these studies, we developed a coding framework using a constant comparative approach (Strauss & Corbin, 1990) involving multiple rounds of discussion and revision. First, we reviewed each article to identify all statements or sections addressing the involvement of general educators. Second, we used open coding to name and describe each identified reference to the role of a general educator within a particular study. Third, we combined similar codes used across articles and refined our names and accompanying definitions. Fourth, we grouped similar codes under each of six primary categories of involvement: (1) developing the intervention, (2) arranging peer involvement, (3) implementing intervention components, (4) providing perspectives, (5) collecting data, and (6) delivering class instruction. Finally, we applied the final coding framework to all 40 articles included in the review. This framework included six categories incorporating 25 subcategories (see Table 1 for definitions).

**Inter-rater Reliability**

To determine the inter-rater reliability on the coding of the articles, a second coder—a doctoral student in special education—assessed 25% of the included articles ($n$ = 10). For training purposes, the first author met with the second coder and reviewed the research questions, inclusion criteria, and each item of the coding manual verbally and in writing. We calculated the percent agreement by dividing the number of exact agreements (i.e., items in which codes matched across coders) by the number of agreements plus the number of disagreements (i.e., items in which codes differed across coders) and multiplying by 100. Reliability averaged 92.0% (range 73.2%-100.0%). In addressing disagreements, we reviewed the original article in order to come to consensus on the final coding.

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**Findings**

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**Characteristics of General Educators**

Across these 40 studies, 108 general educators were involved in supporting students with ID in

their classrooms. Two general educators (1.9%) were male, 18 (16.7%) were female, and gender was not

specified for 88 (81.5%). Race/ethnicity was not reported for 100 general educators (92.6%); seven

(6.5%) were European American and one (0.9%) was Hispanic/Latino. Years of teaching experience was

not reported for 86 (79.6%) general educators. When teaching experience was reported, 10 (9.2%) had

more than 11 years of experience, two (1.9%) had between 6 and 10 years, eight (7.4%) had between 2

and 5 years, and two (1.9%) were first year teachers.  Prior experience working with students with

disabilities was not reported for 98 (90.7%) general educators. When disability experience was reported,

seven general educators (6.5%) were found to have had prior experience teaching students with

disabilities. Three general educators (2.8%) were noted as having alternative or emergency certification.

The certifications of the remaining 105 general educators (97.2%) were not discussed.

**General Educator Involvement**

Six categories of general educator involvement were identified across these studies: developing

the intervention, arranging peer involvement, implementing intervention components, providing

perspectives, collecting data, and delivering class instruction. In Table 2, we report general educator

involvement by individual study. These studies are organized based on the five primary intervention

approaches identified by Kuntz and Carter (2019): systematic instruction, peer support arrangements,

self-management strategies, peer-mediated communication interventions, and educational placement

changes. However, we emphasize that many studies addressed multi-component interventions that

incorporated multiple approaches.

*Developing the Intervention*

The most common area of general educator involvement was related to aspects of developing

the intervention (*n* = 22, 55.0%). In 16 (40.0%) of these studies, general educators provided researchers

with information on setting intervention goals (e.g., identifying skills relevant to instruction in the

general education classroom). For example, researchers interviewed general educators to develop a list

of classroom participation behaviors and then asked general educators to rank those behaviors (Gilberts

et al., 2001). Researchers selected behaviors ranked as *very important* by three out of the four general

educators. In 10 of these studies (25.0%), general educators consulted with the research team on

developing the intervention. For example, general and special educators worked together to select

vocabulary words aligned to the core curriculum and aligned to the focus students' IEP (Collins et al.,

2007). In eight studies (20.0%), general educators attended meetings focused on planning some aspect

of the intervention. In five of these studies (12.5%), the general educators attended training on the

intervention. In one of these five studies (McDonnell et al., 2001), the researchers also provided general

educators with technical assistance. Carter et al. (2016) shared individual support plans with the general

educators. In six of these studies (15.0%) reported that anecdotal information from general educators

was used in consultation or planning but did not specify how. For example, Wehmeyer et al. (2003)

stated, "project staff worked both with the student's special education teacher and the general

education teacher from whom the student was receiving instruction" (p. 83).

### *Arranging Peer Involvement*

Peers were key participants in many of these studies and general educators often had a role in

arranging their involvement ($n$ = 16; 40.0%). In 15 of these studies (37.5%), general educators

nominated peers to work with the focus students with ID. For example, Chung and Carter (2013) asked

each general educator to recommend two peers who would work well with the focus students. In six of

these studies (15.0%), general educators explicitly grouped peers with the focus students as part of

instruction. For example, McDonnell et al. (2001) asked general educators to form heterogeneous peer

tutoring groups including focus students. Jameson and colleagues (2008) asked general educators to

distribute research materials (i.e., recruitment packages) to the peers. Shukla and colleagues (1998)

noted that general educators were involved in the peer arrangements of the study but did not specify

how.

***Implementing Intervention Components***

General educators were directly involved in some aspect of intervention delivery (*n* = 11;

27.5%). In four of these studies (10%), general educators were the primary interventionist. For example,

general educators provided system of least prompts (SLP) procedures with students during letter writing

(Collins et al., 2001), implemented "naturalistic teaching" with students learning functional and core

content vocabulary (Collins et al., 2007), recited course-related and -unrelated facts to students

throughout each class period (Collins et al., 1999), and provided classwide instruction in an educational

placement study (Kennedy & Itkonen, 1994). In four of these studies (10.0%), general educators were a

secondary interventionist. For example, general educators provided opportunities for students to

practice the skills, but did not teach the self-management skills directly (Agran et al., 2002, 2005); they

taught inquiry science lessons with a prescribed set of components (Jimenez et al., 2012); and they

implemented peer tutoring classwide (McDonnell et al., 2001). In one of these studies (2.5%), general

educators were a peripheral interventionist. Specifically, a general educator provided intermittent

feedback to students as they worked with the researcher in class (Smith et al., 2013). In two of these

studies (5.0%), general educators had an unspecified role as interventionist.

***Providing Perspectives***

General educators also provided their perspectives on the goals, procedures, or outcomes of the

intervention (*n* = 19; 47.5%). In 10 of these studies (25.0%), researchers asked general educators to

complete surveys or questionnaires addressing the acceptability of the procedures and perceptions of

the intervention's effect. In seven of these studies (17.5%), researchers interviewed general educators

about the benefits of the intervention and their satisfaction with its outcomes. In six  of these studies

(15.0%), general educators were asked about the social validity of the intervention, but the manner in

which this was done was not specified. In three of these studies (7.5%), general educators provided

informal, anecdotal information regarding the social validity of the study. For example, Collins et al.

(2001) stated that a general educator shared anecdotal data regarding her enjoyment in working with

the focus student. Agran et al. (2005) stated that general educators informally shared their satisfaction

with the intervention and results.

Across this subset of studies, general educators were generally positive about the goals,

procedures, and outcomes of the interventions. Their feedback addressed three themes. First, general

educators reported that focus students engaged more frequently with the class academically and/or

socially and the occurrence of problem behaviors was reduced (Agran et al., 2002; Agran et al., 2005;

Carter et al., 2011; Chung & Carter, 2013; Copeland et al., 2002; Gilberts et al., 2001; Hughes et al.,

2013b; Jameson et al., 2008; Jameson et al., 2012). Second, general educators viewed the interventions

as reasonable or beneficial, and many said they were likely to continue the intervention in their classes

(Carter et al., 2016; Hughes et al., 2013b; Jameson et al., 2008; Jameson et al., 2012; Jimenez et al.,

2012; Smith et al., 2013). Third, general educators stated they felt more prepared to work with students

with ID in their classes (Biggs et al., 2017; Collins et al., 2001; Copeland et al., 2002).

### *Collecting Data*

General educators contributed to data collection associated with the intervention ($n$ = 5; 12.5%).

In four of these studies (10.0%), general educators collected data on one or more dependent variables in

four studies. For example, Agran et al. (2002) reported that general educators recorded students'

performance (i.e., correct or incorrect) on selected problem-solving skills. In two of these studies (5.0%),

general educators collected interobserver agreement data (Agran et al., 2001; Smith et al., 2013). In one

of these studies (2.5%), general educators collected reliability data for procedural fidelity (Smith et al.,

2013).

### *Delivering General Instruction*

The classroom instruction general educators provided was described in almost half of the

studies ($n$ = 19; 47.5%). In 18 of these studies (45.0%), the researchers reported how general educators

provided instruction to the overall class and, in two of these studies (5.0%), for students with disabilities specifically. In four of these studies (10.0%), authors described the assignments given to students by general educators. In two of these studies (5.0%), researchers reported that general educators used their classwide instructional materials in generalization measures.

**Discussion**

Collaboration is critical to the support of high-quality inclusive education for middle and high school students with ID. Among the central stakeholders in this area of educational practice are general educators. Yet, little attention has focused on their involvement in interventions aimed at supporting access to the array of social and academic opportunities that exist within general education classrooms. This review examined the roles general educators have played in published studies. Our findings provide several insights into the ways in which they may contribute to the design and delivery of research-based practices.

Overall, the involvement of general educators in the design, delivery, and evaluation of interventions within their classrooms was quite mixed and usually fairly minimal. Across all 40 of the studies, involvement in activities related to intervention development was most common (55.0% of studies). In making instructional decisions, the perspectives of general educators can be especially valuable as researchers strive to design interventions that both align with the context of the classroom and meet the educational needs of individual students with ID. A primary role of general educators is planning the scope and sequence of instruction in their classes. Without their input, it would be difficult to achieve curricular alignment for students with ID.

The use of peer-mediated interventions can positively enhance inclusive education at the secondary level (Carter, 2018). Although general educators had some involvement arranging peers within peer support and peer-mediated communication interventions, they may be underutilized in this area. General educators' knowledge of all of their students could be an asset for supporting the social

inclusion and belonging of students with ID within their classes. As lead instructors in their classroom,

general educators may be in the very best position to identify which peers would be effective at

providing support to their classmates with disabilities or which peers would themselves benefit from

having such involvement. General educators often understand the particular peer dynamics within their

classrooms, they know which students have academic or character strengths that might suit

involvement as a peer partner, and they develop relationships with students that might prime peers to

agree to involvement (Carter, 2017). In contrast, special educators often have a limited presence in

inclusive secondary classrooms and the attention of paraprofessionals is typically directed toward the

students whom they are supporting.

General educators were rarely involved directly in delivering some or most of the instructional

aspects of these interventions. When such involvement did occur, it was usually within interventions

evaluating systematic instruction or self-management strategies. In contrast, most studies involved

general educators in helpful, but minor, components of the intervention evaluation. Such findings

suggest that researchers may be underutilizing general educators and missing opportunities to capitalize

on their content and instructional expertise. A number of avenues for greater involvement were

illustrated in the studies we reviewed. First, general educators could provide task directions or

opportunities for students with ID to practice the targeted skills while paraprofessionals deliver other

parts of an intervention (e.g., Agran et al., 2002; Heinrich et al., 2016). Second, researchers could

collaborate with general educators on the planning and delivery of general instruction within the class

(e.g., Hughes et al., 2000; McDonnell et al., 2001). General educators' knowledge of the curriculum

makes them a prime resource for developing and implementing interventions that target both isolated

skills (e.g., specific vocabulary words) and adaptive skills (e.g., practicing social skills). Third, general

educators could deliver generalization trials to test student achievement across people, materials, or

skills (e.g., Smith et al., 2013). Students with ID often need adapted and specialized instruction;

however, this need not be addressed at the exclusion of having opportunities to participate in general

class instruction.

We were surprised by the limited extent to which the views of general educators regarding the

interventions were sought in these studies. When educators do not consider particular educational

practices to be either feasible or acceptable, they are unlikely to implement them well, if at all (Snell,

2003). Yet, general educators provided social validity data in less than half of the studies. We encourage

researchers to seek out the perspectives of classroom teachers on the goals, procedures, and outcomes

of all interventions carried out in their classrooms. Their insights into what works, why, and when are

important for researchers to consider and report. When positive assessments of social validity are found

in the literature, they often come from general educators who have very little involvement in the day-

to-day delivery of the intervention being evaluated. For example, in response to the prompt, "The

strategy was easy to use in the general education setting," general educators in Jameson et al. (2012)

provided an average rating of 4 out of 5 (i.e., *agree*). However, their only involvement in the study was

nominating peers and completing social validity surveys and interviews. The perspectives of general

educators were sought in just one of the studies in which they served as the primary interventionist

(Collins et al., 2001). Anecdotally, the general educator in this study stated that she liked the students

and was more likely to interact with the students as a result of her participation in the study. However,

she said she was unable to give students the direct instructional time needed (i.e., a peer was

introduced during intervention to provide the SLP procedures and the general educator continued to

provide task directions and feedback to students). In future studies, it may be helpful to ask general

educators how they viewed their role in the intervention (e.g., Does their description of their role match

the role expected of them by researchers?) and whether that role was acceptable and sustainable (e.g.,

Did they feel the effort required of them was acceptable? If not, what would be an acceptable role for

general educators? How confident would they feel using the same procedures with another student? If

their confidence is low, what supports would they need to be successful on their own?).

Finally, we found that most studies provided fairly limited information about the general educators who served as lead teachers within classrooms. For example, only 20% of studies addressed the teaching experience of general educators and only 10% of studies addressed the extent to which they had any prior experience working with students with disabilities. The confidence and capacity of educators who are very early in their careers or are quite new to educating students with ID may look very different from those of educators with more extensive prior experience. Moreover, basic demographic information (e.g., gender, race/ethnicity) was omitted in the majority of studies. This may be because researchers considered the involvement of these particular staff to be peripheral or irrelevant to the interventions they were evaluating. For example, most interventions were delivered primarily by peers, paraprofessionals, special educators, or researchers (Kuntz & Carter, 2019). Even when general educators' only involvement is in the area of delivering instruction to the entire class, that instruction provides the foundation upon which more individualized interventions are delivered to students with disabilities. In other words, the effectiveness of any intervention is going to be impacted by the instructional context in which it is delivered. As a result, it is important to know something about the individuals delivering that instruction. Moving forward, we recommend that researchers more fully describe the school staff who are directly or indirectly involved in the classrooms.

**Limitations**

Several of our decisions constrain the conclusions that can be drawn from this review. First, we focused only on the roles of general educators within experimental studies. Descriptive studies may also identify avenues through which general educators can be involved in supporting students with ID within their classrooms (e.g., Carter, Hughes, et al., 2005; Chung et al., 2019). Second, we narrowed our review to studies evaluating interventions with students who had an intellectual disability. Much could be learned from understanding the ways in which general educators engage students with other disabilities

(e.g., autism, sensory impairments) within their classrooms. Likewise, we did not address the roles and

responsibilities of general educators working in pre-school and elementary classrooms. Third, it may be

that general educators were much more involved in interventions than is evident from the published

reports. For example, page limits or other priorities may have precluded the inclusion of additional

details. Because these studies were published over a 23-year period, we did not anticipate being able to

reliably and consistently collect this information by reaching out personally to authors.

**Implications for Practice and Research**

These findings have several implications for practitioners supporting inclusive education for

students with ID in middle and high schools. First, general educators need effective training and support

to include students fully in the social and learning opportunities that comprise their classroom. For

example, teacher preparation programs can develop and provide coursework aligned to both general

education and special education certifications that allows professionals in both programs to collaborate

with and learn from each other. Additionally, districts can provide in-service training and planning

opportunities for general educators to learn more about the students with ID they serve from special

education case managers or district leaders. Second, teacher preparation programs and school districts

can provide special educators with more training on how to effectively maximize time and energy

through better models of consultation with general educators. Third, policies emphasizing access to the

general education curriculum in the least restrictive environment (e.g., IDEA, 2004) have shifted

research toward identifying effective strategies for supporting inclusive education for students with ID.

However, the findings of this review indicate there is still much work to be done to include general

educators in this research. Noticeable change in inclusive education for students with ID can only be

achieved when all stakeholders are involved and actively participate. Fourth, all of the studies we

reviewed appeared in special education journals. As a result, it is unlikely that general educators and the

faculty who train them would encounter these articles unless actively seeking out this research. As a

field, we need to identify accessible ways of sharing the practices addressed in these studies with

general educators who are looking for effective support models for students with disabilities.

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**Table 1**

*Categories of General Educator Involvement and Descriptions*

| Category | Description | *n* (%) |
|---|---|---|
| **Developing the intervention** | **Assisted the research team in developing the intervention in whole or in part** | |
| Content validity | Assisted in identifying relevant skills to be taught in general education classroom | 16 (40.0%) |
| Consultation | Provided information to researchers in developing the intervention | 10 (25.0%) |
| Planning | Attended planning meeting(s) with intervention team in developing the intervention | 8 (20.0%) |
| Training | Attended a training provided by the research team regarding the intervention | 5 (12.5%) |
| Information sharing | Received information from researchers regarding the intervention | 1 (2.5%) |
| Not specified | Authors did not specify how general educators consulted or planned | 6 (15.0%) |
| **Arranging peer involvement** | **Arranged peers to tutor or support students with disabilities** | |
| Nominate/Identify peers | Identified which peers would be a good fit or benefit from involvement in the study | 15 (37.5%) |
| Intentionally group peers | Grouped peers and students to be in proximity during the study | 6 (15.0%) |
| Distribute materials to peers | Provided peers with materials needed for the study | 1 (2.5%) |
| Provide unspecified information | Authors did not specify what or how information was shared with peers | 1 (2.5%) |
| **Implementing intervention components** | **Implemented the independent variable in whole or in part** | |
| Primary interventionist | Implemented the majority of the intervention or was the sole interventionist | 4 (10.0%) |
| Secondary interventionist | Provided opportunities for student implementers or assisted with implementation | 4 (10.0%) |
| Peripheral interventionist | Provided feedback or supervised individuals implementing the intervention | 1 (2.5%) |
| Not specified | Authors indicated general educator involvement but did not specify how | 2 (5.0%) |
| **Providing perspectives** | **Provided information on the goals, procedures, and outcomes of the study** | |
| Survey/questionnaires | Provided through the distribution of formal surveys or questionnaires | 10 (25.0%) |
| Interviews | Provided through question and answer with a researcher | 6 (15.0%) |
| Anecdotal information | Provided through unstructured conversations | 3 (7.5%) |
| Approach not specified | Authors did not specify how general educators provided the information | 6 (15.0%) |
| **Collecting data** | **Collected data on the intervention in whole or in part** | |
| Intervention outcome data | Collected data on dependent variable(s) as primary data collector | 4 (10.0%) |
| Interobserver agreement data | Collected interobserver agreement data on dependent variable(s) | 2 (5.0%) |
| Procedural fidelity | Collected reliability data on the procedural fidelity of the intervention | 1 (2.5%) |
| **Delivering class instruction** | **Indicated how class instruction was delivered prior or during the intervention** | |
| Instruction | Indicated instructional formats (e.g., lecture, small group) used by general educator | 18 (45.0%) |
| Assignments | Provided information regarding assignments provided in the class | 4 (10.0%) |
| Student with disabilities | Indicated how the student with disabilities generally received instruction in the class | 2 (5.0%) |
| Provided generalization materials | Shared class materials to be used as generalization of the intervention | 2 (5.0%) |

**Table 2**

*General Educator Involvement by Study*

| Study | Developing the intervention | | | | | | Arranging peer involvement | | | | Implementing intervention components | | | | Providing perspectives | | | | Collecting data | | | Delivering class instruction | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Content Validity | Consultation | Planning | Training | Information Sharing | Unspecified/ Anecdotal | Nominate/ Identify Peers | Group Peers | Distribute Materials to Peers | Unspecified | Primary Interventionist | Secondary Interventionist | Peripheral Interventionist | Unspecified | Survey/ Questionnaire | Interviews | Anecdotal Information | Unspecified | Data on DV | IOA | Procedural Fidelity | General Instruction | SWD Instruction | Assignments | Generalization |
| **Self-management interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agran et al. (2001) | X | X | | X | | | | | | | | | | | X | | X | | X | X | | | | | |
| Agran et al. (2002) | X | | | X | | X | | | | | | X | | | X | X | X | | X | | | | | X | |
| Agran et al. (2006) | X | X | X | | | X | | | | | | | | | | | | | | | | X | | | |
| Agran et al. (2005) | X | | | | | | | | | | | X | | | | | X | | | | | X | X | | |
| Agran et al. (2008) | X | X | | | | | | | | | | | | X | | | | | | | | | | | |
| Copeland et al. (2002) | | | | | | X | | | | | | | | | | X | | | | | | X | | | X |
| Gilberts et al. (2001) | X | | | | | | | | | | | | | | | | | X | | | | X | | | |
| Hughes et al. (2002) | | | | | | | | | | | | | | | X | | | | | | | | | | |
| Wehmeyer et al. (2003) | | | | | | X | | | | | | | | | | | | | | | | | | | |
| **Peer support interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Biggs et al. (2017) | | | X | | | | X | X | | | | | | X | X | | | | | | | X | | | |
| Brock et al. (2016) | X | X | X | X | | | X | X | | | | | | | | | | | | | | | | | |
| Brock & Carter (2016) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carter et al. (2016) | | | | | X | | | | | | | | | | X | | X | | | | | X | | | |
| Carter et al. (2005) | | | | | | | X | X | | | | | | | | | | | | | | | | | |
| Carter et al. (2011) | | | | | | | X | | | | | | | | | X | | | | | | | | | |
| Carter et al. (2007) | | | | | | | X | | | | | | | | | | | | | | | X | | | |
| Chung & Carter (2013) | | | | | | | X | X | | | | | | | | X | | | | | | | | | |
| McDonnell et al. (2001) | X | | X | X | | | | X | | | | X | | | | | X | X | | | | X | | X | |
| Shukla et al. (1998) | | | | | | | | | X | | | | | | | | | | | | | X | | | |
| Shukla et al. (1999) | | | | | | | X | | | | | | | | | | | | | | | X | | | |

| Study | Developing the intervention | | | | | | Arranging peer involvement | | | | Implementing intervention components | | | | Providing perspectives | | | | Collecting data | | | Delivering class instruction | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Content Validity | Consultation | Planning | Training | Information Sharing | Unspecified/ Anecdotal | Nominate/ Identify Peers | Group Peers | Distribute Materials to Peers | Unspecified | Primary Interventionist | Secondary Interventionist | Peripheral Interventionist | Unspecified | Survey/ Questionnaire | Interviews | Anecdotal Information | Unspecified | Data on DV | IOA | Procedural Fidelity | General Instruction | SWD Instruction | Assignments | Generalization |
| **Peer-mediated social interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hughes et al. (2013a) | | | | | | | X | | | | | | | | | | | | | | | | | | |
| Hughes et al. (2011) | | | | | | | X | | | | | | | | | | | | | | | | | | |
| Hughes et al. (2013b) | | | | | | | X | | | | | | | | | X | | | | | | | | | |
| Hughes et al. (2000) | | | | | | | | | | | | | | | | X | | | | | | | | | |
| Reilly et al. (2014) | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Systematic instruction interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Collins et al. (2001) | X | | X | X | | | | | | | X | | | | X | X | | | | | | | | | |
| Collins et al. (2007) | X | X | | | | | | | | | X | | | | | | | | | | | X | | | |
| Collins et al. (1999) | | | | | | X | | | | | X | | | | | | | | | | | X | | | |
| Heinrich et al. (2016) | X | X | | | | | | | | | | | | | X | | | | | | | | | | |
| Jameson et al. (2008) | X | X | | | | | X | | X | | | | | | X | X | | | | | | | | | |
| Jameson et al. (2012) | | | | | | | X | | | | | | | | X | X | | | | | | X | | | |
| Jameson et al. (2007) | X | X | | | | | | | | | | | | | | | | | | | | X | | | |
| Jimenez et al. (2012) | | | X | | | | X | | | | | | X | | X | | | | | | | | | | |
| McDonnell et al. (2002) | | | | | | | | | | | | | | | | | | | | | | X | | | |
| McDonnell et al. (2006) | X | X | | | | | | | | | | | | | | | | | | | | X | | X | X |
| Riesen et al. (2003) | X | X | | | | | | | | | | | | | | | | | | | | X | | | |
| Roberts & Leko (2013) | | | | | | | | | | | | | | | | | | | | | | X | | | |
| Smith et al. (2013) | X | | | | | | | | | | | X | | | | | | X | X | X | | | | X | X |
| **Educational placement interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kennedy et al. (1997) | | | X | | | X | X | | | | | | | | | | | | | | | | | | |
| Kennedy & Itkonen (1994) | | | X | | | | X | X | | | X | | | | | | | | X | | | | | | |

General Educators' Involvement in Interventions for Students with Intellectual Disability

Abstract

General educators are crucial players in efforts to support access to the general curriculum for students

with intellectual disability. In this systematic review, we examined the roles of general educators within

interventions delivered and evaluated in inclusive middle and high school classrooms. Among these 40

intervention studies, the involvement of general educators could be characterized as mixed and often

minimal. Across studies, their involvement spanned six different areas: developing the intervention,

arranging peer involvement, implementing intervention components, providing perspectives, collecting

data, delivering class instruction, and examining generalization. The delivery of inclusive interventions

by general educators remains uncertain. We offer recommendations for research and practice aimed at

increasing the involvement of general educators in providing support to students with intellectual

disability.

*Keywords:* inclusion, general educators, intellectual disability, autism spectrum disorder,

secondary schools

General Educators' Involvement in Interventions for Students with Intellectual Disability

Calls to expand access to inclusive education for students with intellectual disability have been longstanding. For more than fifty years, advocates, families, and researchers have worked in tandem to ensure students with disabilities could attend their neighborhood schools, enroll in typical classrooms, and participate meaningfully in rich learning and social opportunities alongside their peers (e.g., Agran et al., 2019; Brown et al., 1983; Jackson, Ryndak, & Wehmeyer, 2008). As a result, an increasing number of students with intellectual disability have spent a growing proportion of their school day in regular classes alongside their peers without disabilities (Brock, 2018; Morningstar, Kurth, & Johnson, 2017). Indeed, the most recent national data indicate that 15% of secondary students (ages 12-21) with intellectual disability spend 80% most their school day in regular classes (80% or more), 27% spend a balance of time in regular classes (40-79%), and 48% have more limited involvement (less than 40%; U.S. Department of Education, 2018).

General educators are central to the success of inclusive education. Broadly, they serve as core members of individualized education program (IEP) teams and may support schoolwide inclusive reform efforts within their building (Theoharis & Causton, 2014). But within the classroom, their contributions are especially influential. As lead instructors, they are responsible for making curricular decisions; planning, delivering, and differentiating instruction; adopting universal design principles; implementing individualized modifications, accommodations, and supports; and evaluating progress for *all* of their students. Current conceptualizations of inclusion situate the general educator as the primary instructor for students with intellectual disability and special educators, paraprofessionals, and related services providers adopting collaborative, supportive, or supplementary roles (e.g., Giangreco, Carter, Doyle, & Suter, 2010; McLeskey, Waldron, Spooner, & Algozzine, 2014). Consequently, the engagement of general educators directly impacts the learning and participation of students with intellectual disability.

To date, few studies have focused centrally on their actual roles in the design, delivery, and

evaluation of interventions for supporting students with intellectual disability in their classrooms. Instead, most research involving general educators has addressed their attitudes and preparation in relation to inclusive education (e.g., Avramadis & Norwhich, 2002; De Vroey, Struyf, & Petry, 2015; Kiely, Brownell, Lauterbach, & Benedict, 2015). For example, Carter and Hughes (2006) surveyed high school staff about their experiences including students with severe disabilities. Although general educators identified a number of barriers to inclusion (e.g., limited knowledge about disabilities, lack of resources to support students in their classrooms), they also affirmed an array of benefits for students with disabilities, peers, and themselves.

The availability of research-based practices to support the general education participation of students with intellectual disability has grown considerably over the last few decades (e.g., Brock & Huber, 2017; Kuntz & Carter, 2019; Spooner, Knight, Browder, & Smith, 2012). Yet the everyday implementation of those research-based practices in inclusive classrooms requires the active involvement of general educators. However, it is unclear whether and how general educators have participated in or contributed to inclusive interventions evaluated within the research literature. In addition to knowing which *practices* are effective for which *students* for which *outcomes*, it is also essential to address which *practitioners* have a role in delivering those practices (Horner et al., 2005). Prior observational studies suggest that general educators may have few interactions with students with intellectual disability in their classes as instructional responsibilities are so often delegated to paraprofessionals (e.g., Chung, Carter, & Sisco, 2012; Chung, Douglas, Walker, & Wells, 2019).

The purpose of this review was to examine the roles of general educators within studies evaluating the efficacy of interventions delivered within inclusive classrooms to students with intellectual disability. Such information would be informative in several ways. First, it could clarify the extent to which researchers are actively engaging general educators when establishing best practices for use in their classrooms. Second, it could highlight possible avenues for involving general educators more

fully in the design, delivery, and evaluation of future interventions. Third, it could shed light on whether

the field has indeed established research-based practices that can be readily implemented by general

educators (versus those evaluated with special educators, paraprofessionals, or related services

providers).

We focus on general educators working within inclusive middle and high school classrooms.

Although promoting inclusion across the entire grade span is important, secondary school introduces

unique complexities (Mastropieri & Scruggs, 2001). For students, the academic curriculum deepens,

course content becomes increasingly difficult, expectations for independence elevate, and the social

dimensions of schooling become more challenging to navigate. But the roles and responsibilities of

secondary school teachers also differ from elementary school. General educators often teach within

narrower range of subject areas; they teach multiple classes, each with a completely different set of

students; and they tend to teach in isolation apart from additional support staff (e.g., limited co-

teaching). As a result, intervention implementation tends to look quite different in secondary school

classrooms.

**Method**

**Inclusion Criteria**

Our analyses were a companion to a larger review focused on the efficacy of interventions

delivered to middle and high school students with intellectual disability within inclusive classrooms

(Kuntz & Carter, 2019). Although we used the same inclusion criteria, our focus in this current article is

on the nature of the involvement of general educators in the 40 available intervention studies. To be

included in our review, studies must have: (a) included at least one middle or high school participant

with an intellectual disability, (b) evaluated interventions delivered in a general education classroom, (c)

examined changes in at least one student outcome resulting from that intervention, (d) used an

experimental design with sufficient information to determine an experimental effect, (e) been

conducted in the United States, and (f) been published in a peer-reviewed journal.

**Search Procedures and Screening**

We identified the included articles by using a multipronged approach. First, we searched four

electronic databases (i.e., Education Database, Education Full Text, ERIC, PsycINFO) using a combination

of search terms focused on intervention setting (i.e., "inclusive education" OR "inclusive school*" OR

"inclusion" OR "general education" OR "general education class*" OR "general curriculum" OR

"mainstream*" OR "regular education"), school level (i.e., "high school" OR "middle school" OR "junior

high" OR "secondary education" OR "secondary student*" OR "school age" OR "adolescen*"), disability

(i.e., "intellectual development disorder*" OR "intellectual disabilit*" OR "severe disabilit*" OR "autis*"

OR "developmental disabilit*" OR "cognitive disabilit*" OR "cognitive impairments" OR "retard*" OR

"multiple disabilit*"), and research design (i.e., "empirical study" OR "quantitative study" OR "single-

case" OR "single-subject" OR "multiple baseline" OR "multiple probe" OR "alternating treatment*" OR

"parallel treatment*" OR "group design" OR "intervention*" OR "program effect*" OR "instructional

effect*" OR "treatment" OR "randomized" OR "ABAB" OR "withdrawal"). Second, we reviewed the

references of all identified articles (i.e., backward search). Third, we examined studies citing each of the

identified articles (i.e., forward search).

**Coding of Articles**

For this review, we coded information about the characteristics of participating general

educators. This included (a) the number of general educators involved in the study, (b) their sex, (c) their

race/ethnicity, (d) their years of teaching experience, (e) whether they had prior experience teaching

students with disabilities, and (f) their teaching certifications. and (g) involvement in study related

activities. Some authors did not specify the number of general educators involved in the classes in which

students with intellectual disability attended. Unless otherwise specified, we assumed just one general

educator was assigned to each participating student's classroom. Because studies may have included

students who did not meet the inclusion criteria (e.g., they had another disability or were in a younger grade), we only coded information for the general educators of secondary students who met the inclusion criteria.

To examine the ways in which general educators were involved in each these studies, we developed a new coding framework using a constant comparative approach (Strauss & Corbin, 1990) involving multiple rounds of discussion and revision. First, we reviewed each article to identify all statements or sections addressing the involvement of general educators. Second, we used open coding to name and describe each reference to the role of a general educator within a particular study. Third, we combined similar codes used across articles and refined our names and accompanying definitions. Fourth, we grouped similar codes under each of six primary categories of involvement: developing the intervention, arranging peer involvement, implementing intervention components, providing perspectives, collecting data, delivering class instruction, and examining generalization. Finally, we applied the final coding framework to all 40 articles included in the review. This framework included six categories incorporating 25 subcategories (see Table 1 for definitions).

**Inter-rater Reliability**

To determine the inter-rater reliability on the coding of the articles, a second coder—a doctoral student in special education—assessed 25% of the included articles ($n$ = 10). For training purposes, the first author met with the second coder and reviewed the research questions, inclusion criteria, and each item of the coding manual verbally as well as provided the information in writing. We calculated the percent agreement by dividing the number of exact agreements (i.e., items in which codes matched across coders) by the number of agreements plus the number of disagreements (i.e., items in which codes differed across coders) and multiplying by 100%. Reliability averaged 92.0% (range 73.2%-100.0%). In addressing disagreements, we reviewed the original article in order to come to consensus on the final coding.

**Findings**

**Characteristics of General Educators**

Across these 40 studies, 108 general educators were involved in the supporting the inclusion of students with intellectual disability who met our study criteria. However, relatively little information is provided about them. Two general educators (1.9%) were male, 18 (16.7%) were female, and sex was not specified for 88 (81.5%). Race/ethnicity was not reported for 100 general educators (92.6%); seven (6.5%) were European American and one (0.9%) was Hispanic/Latino. Years of teaching experience was not reported for 86 (79.6%) general educators and prior experience working with students with disabilities was not reported for 98 (90.7%) general educators. When teaching experience was reported, 10 (9.2%) had more than 11 years of experience, two (1.9%) had between 6 and 10 years, eight (7.4%) had between 2 and 5 years, and two (1.9%) were first year teachers. When disability experience was reported, seven general educators (6.5%) were found to have had prior experience teaching students with disabilities. Three general educators (2.8%) were noted as having alternative or emergency certification; the certifications of the remaining 105 general educators (97.2%) were not discussed.

**General Educator Involvement**

Six categories of general educator involvement were identified across these studies: developing the intervention, arranging peer involvement, implementing intervention components, providing perspectives, collecting data, and delivering general instruction. We provide an overall summary of these six categories (and the 25 subcategories) in Table 1. In Table 2, we report their involvement by individual study. These studies are organized based on the five primary intervention approaches identified by Kuntz and Carter (2019): systematic instruction, peer support arrangements, self-management strategies, peer-mediated communication interventions, and educational placement changes. However, we emphasize that many studies addressed multi-component interventions that incorporated multiple approaches.

**Developing the intervention.** The most common area of general education involvement was related to aspects of developing the intervention (22 total studies). General educators provided researchers with information on setting intervention goals (e.g., identifying skills relevant to instruction in the general education classroom) in 16 studies (40.0%). For example, researchers interviewed general educators to develop a list of classroom participation behaviors then asked general educators to rank those behaviors (Gilberts et al., 2001). Researchers selected behaviors ranked as very important by 3 out of the 4 general educators. In ten studies (25.0%), general educators consulted with the research team on developing the intervention. For example, general and special educators worked together to select vocabulary words aligned to the core curriculum and aligned to the focus students' IEP (Collins et al., 2007). In eight studies (20.0%), they attended meetings focused on planning some aspect of the intervention. In five studies (12.5%), the general educators attended training on the intervention. One of these five studies (McDonnell et al., 2001) also provided general educators with technical assistance. Carter et al. (2016) shared individual support plans with the general educators. Six other studies (15.0%) reported anecdotal information from general educators being used in consultation or planning but did not specify how. For example, Wehmeyer et al. (2003) stated "project staff worked both with the student's special education teacher and the general education teacher from whom the student was receiving instruction" (p. 83).

**Arranging peer involvement.** Peers are key participants in many of these studies and general educators often had a role in arranging their involvement (16 studies). In 15 of these studies (37.5%), general educators nominated peers to work with students with intellectual disability. For example, Chung & Carter (2013) asked each general educator to recommend two peers who would work well with the focus students. In six studies (15.0%), they explicitly grouped peers with the students as part of instruction. For example, McDonnell et al. (2001) asked general educators to form heterogeneous peer tutoring groups including focus students. Jameson and colleagues (2008) asked general educators to

distribute research materials (i.e., recruitment packages) to the peers. Shukla and colleagues (1998)

noted that general educators were involved in the peer arrangements of the study but did not specify

how.

**Implementing intervention components**. In 11 different studies, general educators were

directly involved in some aspect of intervention delivery. In four of these studies (10%), general

educators were the primary interventionist. For example, general educators provided system of least

prompts (SLP) procedures with students writing letters (Collins et al., 2001), implemented "naturalistic

teaching" with students learning functional and core content vocabulary (Collins et al., 2007), recited

course-related and -unrelated facts to students throughout each class period (Collins et al., 1999), and

provided classwide instruction in an educational placement study (Kennedy & Itkonen, 1994). General

educators were a secondary interventionist in four studies (10.0%). For example, general educators

provided opportunities for students to practice the skills, but did not teach the self-management skills

directly (Agran et al., 2002, 2005); they taught inquiry science lessons with a prescribed set of

components (Jimenez et al., 2012); and they implemented peer tutoring classwide (McDonnell et al.,

2001). General educators were a peripheral interventionist in one study (2.5%). Specifically, a general

educator provided intermittent feedback to students as they worked with the researcher in class (Smith

et al., 2013). In two studies (5.0%), general educators had an unspecified role as interventionist.

**Providing perspectives.** A total of 19 studies involved having general educators provide their

perspectives on the goals, procedures, or outcomes of the intervention. Researchers in ten of these

studies asked general educators to complete surveys or questionnaires addressing the acceptability of

the procedures and their perceptions of the intervention's effect. Researchers in seven studies

interviewed general educators about the benefits of the intervention and their satisfaction with its

outcomes. In six studies, general educators were asked to about the social validity of the intervention,

but the manner in which this was done was not specified. Finally, general educators provided informal,

anecdotal information regarding the social validity of the study in three studies. For example, Collins et al. (2001) stated that the general educator shared anecdotal data regarding her enjoyment in working with the focus student. Agran et al. (2005) stated that general educators shared informally their satisfaction with the intervention and results.

Across this subset of studies, general educators were generally positive about the goals, procedures, and outcomes of the interventions. Their feedback addressed three themes. First, general educators reported that students with intellectual disability engaged more frequently with the class academically and/or socially and the occurrence of problem behaviors was reduced (Agran et al., 2002; Agran et al., 2005; Carter et al., 2011; Chung & Carter, 2013; Copeland et al., 2002; Gilberts et al., 2001; Hughes et al., 2013b; Jameson et al., 2008; Jameson et al., 2012). Second, general educators viewed the interventions as reasonable, beneficial, and/or likely to continue the intervention in their classes (Carter et al., 2016; Hughes et al., 2013b; Jameson et al., 2008; Jameson et al., 2012; Jimenez et al., 2012; Smith et al., 2013). Third, general educators stated they felt more prepared to work with students with severe disabilities in their classes (Biggs et al., 2017; Collins et al., 2001; Copeland et al., 2002).

**Collecting data.** Data collection is an essential component of any intervention evaluation. General educators contributed to data collection in a total of 5 studies. General educators collected data on one or more dependent variables in four studies. For example, Agran et al. (2002) reported that general educators recorded students' performance (i.e., correct or incorrect) on selected problem-solving skills. Two studies reported that general educators collected interobserver agreement data (Agran et al., 2001; Smith et al., 2013). One study (Smith et al., 2013) reported that general educators collected reliability data for procedural fidelity.

**Delivering general instruction.** The classroom instruction general educators provide was described in 19 studies. The researchers reported how general educators provided instruction to the overall class in 18 studies (45.0%) and for students with disabilities specifically in two studies (5.0%).

Authors described the assignments given to students by general educators in four studies (10.0%). Two

studies (5.0%) used general educator materials in generalization measures.

**Discussion**

Collaboration is critical to the support of high-quality inclusive learning opportunities for

secondary students with intellectual disability (ID). Among the central stakeholders in this area of

educational practice are general education teachers. Yet little attention has focused on their place

within interventions aimed at supporting access to the array of social and academic opportunities that

exist within inclusive classrooms. The purpose of this review was to examine the roles general educators

have played in published studies. Our findings provide several insights into the ways in which they may

contribute to the design and delivery of research-based practices.

Overall, the involvement of general educators in the design, delivery, and evaluation of

interventions within their classrooms was quite mixed and usually fairly minimal. Across all 40 the

studies, involvement in activities related to intervention development was most common (55.0% of

studies). This included assisting the researchers in prioritizing targeted skills and intervention goals,

consulting with researchers on components of the intervention, attending planning meetings related to

the intervention, receiving training related to the intervention, or reviewing information about the study

shared by the researchers. In each of these areas, the perspectives of general educators can be

especially valuable as researchers strive to design interventions that both align with the context of the

classroom and meet the educational needs of individual students with ID. For example, within

interventions focused on self-management or systematic instruction, teachers tended to contribute to

the selection of student behaviors that were the focus of improvement efforts. However, we also

encourage researchers to involve general educators in designing or providing training for

paraprofessionals and peers who are providing support to students with disabilities (e.g., Brock et al.,

2016; Brock & Carter, 2016).

The second most common area of involvement addressed the arranging of peers within peer-mediated support models. Within many of the peer support and peer-mediated communication interventions, general educators either nominated peers who they felt would be effective supports and conversational partners or they grouped students near each other during class activities to create contexts for interaction. As lead instructors in their classroom, general educators may be in the very best position to identify which peers would be effective at providing support to their classmates with disabilities or who would themselves benefit from having such involvement. They often understand the particular peer dynamics within their classrooms, they know which students have academic or character strengths that might suit involvement as a peer partner, and the relationships they develop with students may prime peers to agree to involvement (Carter, 2017). In contrast, special educators often have a limited presence in inclusive secondary classrooms and the attention of paraprofessionals is typically directed toward the students whom they are supporting.

Rarely were general educators directly involved in delivering some or most aspects of these interventions. When such involvement did occur, it was usually within interventions evaluating systematic instruction or self-management strategies. In contrast, most studies involved general educators in helpful, but more incidental, components of the intervention evaluation. Such findings suggest that researchers may be underutilizing general educators and missing opportunities to capitalize on their content and instructional expertise. A number of avenues for greater involvement were illustrated in the studies we reviewed. First, general educators could provide task directions or opportunities for students with ID to practice the targeted skills while paraprofessionals deliver other parts of the intervention (e.g., response prompting). For example, Agran et al. (2002) had general educators provide multiple opportunities for the students with ID to practice their targeted behaviors throughout a given class period. Heinrich et al. (2016) used paraprofessionals and a peer tutor to deliver task directions and simultaneous prompting procedures, but it may also be reasonable to involve

general educators in these areas. Second, researchers could collaborate with general educators on the

planning and delivery of general instruction within the class. For example, McDonnell et al. (2001) asked

general educators to arrange peer tutoring activities for all students in the class as a way of practicing

math and history content. Hughes et al. (2000) asked general educators to provide input on appropriate

social skills for peer-mediated communication interactions during class, but it could be reasonable for

the general educator to point out appropriate class times for the social interactions. Third, general

educators could deliver generalization trials to test student achievement across people, materials, or

skills. For example, Smith et al. (2013) used assignments created by the general educator for the general

class as a generalization measure of the learned skills. It may be reasonable for a general educator to

present the generalization task or provide one or more instructional trials prior to the generalization

task.

We were surprised by the extent to which the views of general educators regarding the

interventions were sought in these studies. When educators do not consider particular educational

practices to be either feasible or acceptable, they are unlikely to implement them well if at all (Snell,

2003). Yet, general educators provided social validity data in less than half of the studies. We encourage

researchers to seek out the perspectives of classroom teachers on the goals, procedures, and outcomes

of all interventions carried out in their classrooms. Their insights into what works, why, and when are

important for researchers to consider and report on. When positive assessments of social validity are

found, they often come from general educators who have very little involvement in the day-to-day

delivery of the intervention being evaluated. For example, in response to the prompt, "The strategy was

easy to use in the general education setting," general educators in Jameson et al. (2012) provided an

average rating of 4 out of 5 (i.e., *agree*). However, their only involvement in the study involved

nominating peers and completing social validity surveys and interviews. These same general educators

rated "I would use this strategy with other students with significant cognitive disabilities" slightly lower

at 3.8 on average. The perspectives of general educators were sought in just one of the studies in which

they served as the primary interventionist (Collins et al., 2001). Anecdotally, the general educator in this

study stated that she liked the students and was more likely to interact with the students as a result of

her participation in the study, but she was unable to give them the direct instructional time needed (i.e.,

a peer was introduced during intervention to provide the SLP procedures and the general educator

continued to provide task directions and feedback to students). In future studies, it may be helpful to

ask general educators how they viewed their role in the intervention (e.g., Does their description of their

role match the role expected by them by researchers?) and if that role was acceptable and sustainable

(e.g., Did they feel the effort required of them was acceptable? If not, what would be an acceptable role

for general educators? How confident would they feel using the same procedures with another student?

If their confidence is low, what supports would they need to be successful on their own?).

Finally, we found that most studies evaluating inclusive interventions provided fairly limited

information about the general educators who served as lead teachers within classrooms. For example,

only 20% of studies addressed the teaching experience of general educators and only 10% of studies

addressed the extent to which they had any prior experience working with students with disabilities.

The confidence and capacity of educators who are very early in their careers or are quite new to

educating students with intellectual disability may look very different from those of educators with

more extensive prior experience. Moreover, basic demographic information like sex and race/ethnicity

were omitted in the majority of studies. This may be because researchers considered the involvement of

these particular staff to be peripheral or irrelevant to the interventions they were evaluating. For

example, most interventions were delivered primarily by peers, paraprofessionals, special educators, or

researchers (Kuntz & Carter, 2019). Even when general educators' only involvement is in the area of

delivering instruction to the entire class, that instruction provides the foundation upon which more

individualized interventions are delivered to students with disabilities. In other words, the effectiveness

of any intervention is going to be impacted by the instructional context in which it is delivered. As a

result, it is important to know something about the individuals delivering that instruction. Moving

forward, we recommend that researchers more fully describe the school staff who are directly or

indirectly involved in the classrooms.

**Limitations**

Several of our decisions constrain the conclusions that can be drawn from this review. First, we

focused only on the roles of general educators within experimental studies. Descriptive studies may also

identify avenues through which general educators can be involved directly or indirectly in supporting

students with intellectual disability within their classrooms (e.g., Carter, Hughes, Guth, & Copeland,

2005; Chung et al., 2019). Second, we narrowed our review to studies evaluating interventions with

students who had an intellectual disability. Much could be learned from understanding the ways in

which general educators engage students with other disabilities (e.g., autism, sensory impairments)

within their classrooms. Likewise, we did not address the roles and responsibilities of general educators

working in pre-school and elementary classrooms. Third, it may be that general educators were much

more involved in interventions than is evident from the published reports. For example, page limits or

other priorities may have precluded the inclusion of additional details. Because these studies were

published over a 23-year period, we did not anticipate being able to reliably and consistently collect this

information by reaching out personally to authors.

**Implications for Practice and Research**

These findings have several implications for practitioners supporting the inclusion of students

with intellectual disability in middle and high schools. First, general educators need effective training

and support to includes students fully in the social and learning opportunities that comprise their

classroom. For example, teacher preparation programs can develop and provide coursework aligned to

both general education and special education certifications that allows for professionals in both

programs to collaborate with and learn from each other. Additionally, districts can provide in-service

training and planning opportunities for general educators to learn more about the students with

intellectual disability they serve from the students' special education case managers or district leaders.

Second, teacher preparation programs and school districts can provide special educators with more

training on how to effectively maximize time and energy through better models of consultation with

general educators. Third, all of the studies we reviewed appeared in special education journals. As a

result, it is unlikely that general educators and the faculty who train them would encounter these

articles unless actively seeking out research related inclusive practices. As a field, we need to identify

accessible ways of sharing the practices addressed in these studies with general educators who are

looking for effective support models for students with disabilities.

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Table 1. *Categories of General Educator Involvement and Descriptions*

| Category | Description | *n* (%) |
|---|---|---|
| **Developing the intervention** | **Assisted the research team in developing the intervention in whole or in part** | |
| Content validity | Assisted in identifying relevant skills to be taught in general education classroom | 16 (40.0%) |
| Consultation | Provided information to researchers in developing the intervention | 10 (25.0%) |
| Planning | Attended planning meeting(s) with intervention team in developing the intervention | 8 (20.0%) |
| Training | Attended a training provided by the research team regarding the intervention | 5 (12.5%) |
| Information sharing | Received information from researchers regarding the intervention | 1 (2.5%) |
| Not specified | Authors did not specify how general educators consulted or planned | 6 (15.0%) |
| **Arranging peer involvement** | **Arranged peers to tutor or support students with disabilities** | |
| Nominate/Identify peers | Identified which peers would be a good fit or benefit from involvement in the study | 15 (37.5%) |
| Intentionally group peers | Grouped peers and students to be in proximity during the study | 6 (15.0%) |
| Distribute materials to peers | Provided peers with materials needed for the study | 1 (2.5%) |
| Provide unspecified information | Authors did not specify what or how information was shared with peers | 1 (2.5%) |
| **Implementing intervention components** | **Implemented the independent variable in whole or in part** | |
| Primary interventionist | Implemented the majority of the intervention or was the sole interventionist | 4 (10.0%) |
| Secondary interventionist | Provided opportunities for student implementers or assisted with implementation | 4 (10.0%) |
| Peripheral interventionist | Provided feedback or supervised individuals implementing the intervention | 1 (2.5%) |
| Not specified | Authors indicated general educator involvement but did not specify how | 2 (5.0%) |
| **Providing perspectives** | **Provided information on the goals, procedures, and outcomes of the study** | |
| Survey/questionnaires | Provided through the distribution of formal surveys or questionnaires | 10 (25.0%) |
| Interviews | Provided through question and answer with a researcher | 6 (15.0%) |
| Anecdotal information | Provided through unstructured conversations | 3 (7.5%) |
| Approach not specified | Authors did not specify how general educators provided the information | 6 (15.0%) |
| **Collecting data** | **Collected data on the intervention in whole or in part** | |
| Intervention outcome data | Collected data on dependent variable(s) as primary data collector | 4 (10.0%) |
| Interobserver agreement data | Collected interobserver agreement data on dependent variable(s) | 2 (5.0%) |
| Procedural fidelity | Collected reliability data on the procedural fidelity of the intervention | 1 (2.5%) |
| **Delivering class instruction** | **Indicated how class instruction was delivered prior or during the intervention** | |
| Instruction | Indicated instructional formats (e.g., lecture, small group) used by general educator | 18 (45.0%) |
| Assignments | Provided information regarding assignments provided in the class | 4 (10.0%) |
| Student with disabilities | Indicated how the student with disabilities generally received instruction in the class | 2 (5.0%) |
| Provided generalization materials | Shared class materials to be used as generalization of the intervention | 2 (5.0%) |

Table 2. *General Educator Involvement by Study*

| Study | Consultation/Planning | | | | | | Peer arrangements | | | | Implementation | | | | Social validity | | | | Data collection | | | General instruction | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Content Validity | Consultation | Planning | Training | Information Sharing | Unspecified/ Anecdotal | Nominate/ Identify Peers | Group Peers | Distribute Materials to Peers | Unspecified | Primary Interventionist | Secondary Interventionist | Peripheral Interventionist | Unspecified | Survey/ Questionnaire | Interviews | Anecdotal Information | Unspecified | Data on DV | IOA | Procedural Fidelity | General Instruction | SWD Instruction | Assignments | Generalization |
| **Self-management interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agran et al. (2001) | X | X | | X | | | | | | | | | | | X | | X | | X | X | | | | | |
| Agran et al. (2002) | X | | | X | | X | | | | | | X | | | X | | X | X | X | | | | X | | |
| Agran et al. (2006) | X | X | X | | | X | | | | | | | | | | | | | | | | X | | | |
| Agran et al. (2005) | X | | | | | | | | | | | X | | | | | X | | | | | X | X | | |
| Agran et al. (2008) | X | X | | | | | | | | | | | | X | | | | | | | | | | | |
| Copeland et al. (2002) | | | | | | X | | | | | | | | | | X | | | | | | X | | X | |
| Gilberts et al. (2001) | X | | | | | | | | | | | | | | | | | X | | | | X | | | |
| Hughes et al. (2002) | | | | | | | | | | | | | | | X | | | | | | | | | | |
| Wehmeyer et al. (2003) | | | | | | X | | | | | | | | | | | | | | | | | | | |
| **Peer support interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Biggs et al. (2017) | | | X | | | | X | X | | | | | X | | X | | | | | | | X | | | |
| Brock et al. (2016) | X | X | X | X | | | X | X | | | | | | | | | | | | | | X | | | |
| Brock & Carter (2016) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carter et al. (2016) | | | | | X | | | | | | | | | | X | | X | | | | | X | | | |
| Carter et al. (2005) | | | | | | | X | X | | | | | | | | | | | | | | | | | |
| Carter et al. (2011) | | | | | | | X | | | | | | | | | X | | | | | | | | | |
| Carter et al. (2007) | | | | | | | X | | | | | | | | | | | | | | | X | | | |
| Chung & Carter (2013) | | | | | | | X | X | | | | | | | | X | | | | | | | | | |
| McDonnell et al. (2001) | X | | X | X | | | | | | X | | X | | | | | X | X | | | | X | | X | |
| Shukla et al. (1998) | | | | | | | | | X | | | | | | | | | | | | | X | | | |
| Shukla et al. (1999) | | | | | | | X | | | | | | | | | | | | | | | X | | | |
| **Peer-mediated social interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hughes et al. (2013a) | | | | | | | X | | | | | | | | | | | | | | | | | | |
| Hughes et al. (2011) | | | | | | | X | | | | | | | | | | | | | | | | | | |

| Study | Consultation/Planning | | | | | | Peer arrangements | | | | Implementation | | | | Social validity | | | | Data collection | | | General instruction | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Content Validity | Consultation | Planning | Training | Information Sharing | Unspecified/ Anecdotal | Nominate/ Identify Peers | Group Peers | Distribute Materials to Peers | Unspecified | Primary Interventionist | Secondary Interventionist | Peripheral Interventionist | Unspecified | Survey/ Questionnaire | Interviews | Anecdotal Information | Unspecified | Data on DV | IOA | Procedural Fidelity | General Instruction | SWD Instruction | Assignments | Generalization |
| Hughes et al. (2013b) | | | | | | | X | | | | | | | | | X | | | | | | | | | |
| Hughes et al. (2000) | | | | | | | | | | | | | | | | X | | | | | | | | | |
| Reilly et al. (2014) | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Systematic instruction interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Collins et al. (2001) | X | | X | X | | | | | | | X | | | | X | | X | | | | | | | | |
| Collins et al. (2007) | X | X | | | | | | | | | X | | | | | | | | | | | X | | | |
| Collins et al. (1999) | | | | | | X | | | | | X | | | | | | | | | | | X | | | |
| Heinrich et al. (2016) | X | X | | | | | | | | | | | | | X | | | | | | | | | | |
| Jameson et al. (2008) | X | X | | | | | X | | X | | | | | | X | X | | | | | | | | | |
| Jameson et al. (2012) | | | | | | | X | | | | | | | | X | X | | | | | | X | | | |
| Jameson et al. (2007) | X | X | | | | | | | | | | | | | | | | | | | | X | | | |
| Jimenez et al. (2012) | | | X | | | | X | | | | | | X | | X | | | | | | | | | | |
| McDonnell et al. (2002) | | | | | | | | | | | | | | | | | | | | | | X | | | |
| McDonnell et al. (2006) | X | X | | | | | | | | | | | | | | | | | | | | X | | X | X |
| Riesen et al. (2003) | X | X | | | | | | | | | | | | | | | | | | | | X | | | |
| Roberts & Leko (2013) | | | | | | | | | | | | | | | | | | | | | | X | | | |
| Smith et al. (2013) | X | | | | | | | | | | | X | | | | | | X | | X | X | | | X | X |
| **Educational placement interventions** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kennedy et al. (1997) | | | X | | | X | X | | | | | | | | | | | | | | | | | | |
| Kennedy & Itkonen (1994) | | | X | | | | X | X | | | X | | | | | | | X | | | | | | | |