Collaborative Research: A New Paradigm for Systemic Change in Inclusive Education for Students with Disabilities

Andrea L. Ruppar,
Aydin Bal,
Taucia Gonzalez,
Larry Love,
Kate McCabe,
Department of Rehabilitation Psychology and Special Education,
University of Wisconsin-Madison, WI, USA
(ruppar@wisc.edu)

Abstract

Research conducted in collaboration with practitioners has the potential to transform the relationship between research and practice by embedding the research process in the contexts of schools and communities. Collaborative research is well suited to improve inclusive education, because inclusive education reform is situated in local contexts. In this review, we examined research focused on inclusive education, specifically for students with disabilities, that used collaborative research methodologies. We defined collaborative research as partnerships between university- and school-based researchers to examine local issues and extend knowledge in the field. We found that the collaborative research varied widely in relation to research team membership, and team members' roles, and research methodologies. Improving inclusive education through collaborative research will require a paradigm shift in the research community toward conceptually and empirically considering the role of social, historical, and organizational of local school contexts in improving inclusive education.

Keywords*: inclusive education, research methodology, change/innovation, collaborative interests, perspectives, and goals of multiple groups (e.g., parents, teachers, administrators; Vlachou, 1997).*

Introduction

Parents, teachers, and paraeducators report high quality inclusive education as beneficial for all students (Carter & Hughes, 2006; Downing & Peckham-Hardin, 2007).

Jordan, Schwartz, and McGhie-Richmond (2009) found inclusive education teachers who felt responsible for all of their students' learning had stronger repertoires of practice, which benefitted a wider range of learners.

While research in inclusive education has been progressing, many schools and local education agencies have stagnated in the process of change toward more inclusive practices (Ryndak et al., 2014). The lack of progress toward realizing inclusive education for students with disabilities has been attributed, in part, to a need for increasing the capacity of schools to implement inclusive practices. While building capacity among teachers and school teams to support students with disabilities in general education classes has been a priority in research, professional development, and teacher education (Waitoller & Artiles, 2012), the process of capacity building requires careful attention to local school contexts (Ryndak et al., 2014). One promising avenue that could support schools in moving toward transformative understandings of inclusive education is collaborative research.

Collaborative Research in Inclusive Education
Snow (2015) identified partnerships between universities and practitioners, starting with problems of practice identified by practitioners, as an emerging and evolving solution to what was once considered a 'gap' between research and practice. In this paper, we explore the use of collaborative research partnerships between universities and schools to improve inclusive education for students with disabilities. Collaborative research partnerships "*emphasize the interconnections of research and practice*" (Snow, 2015, p. 460) and recognize that effective *research, school-university partnership.*

Despite 40 years of research and policy-level attention to inclusive education internationally, schools continue the struggle of pushing inclusive education beyond integration of students within physical spaces to address the within-school social stratification that disproportionately impacts students with disabilities. Considered a moral imperative which is reflected in initiatives for educational change around the world (UNESCO, 2005), the definition of *inclusive education* is evolving and differs across geographical regions (Opertti & Belacázar, 2008). Depending on the local context, the definition might reflect various minoritized groups such as students from racially, religiously, and ethnically diverse backgrounds, refugees, or students of various gender or sexual identities. However, students with disabilities are consistently considered part of the concept as well as practices (Opertti & Belacázar).

Often described as a social movement in education, inclusive education refers to the process of education within spaces that are designed for and welcoming to all learners, especially those who have previously been excluded from or marginalized within traditional education. The implementation of inclusive education has been characterized as a struggle among the vested sustained systemic change in schools requires active and strategic collaboration among multiple communities of practice (school, district, families, and students). Research conducted in close collaboration with local stakeholders has been identified as a catalyst for school change regarding inclusive education (Ainscow, Booth, & Dyson, 2004). The role of research in inclusive education contexts can be transformative:

> *In inclusive education contexts, praxis – the coupling of critical reflection and action – can be conceptualized as catalytic, communicative, and interactive. That is, research interacts with practice in ways that generate new forms of knowledge about teaching and learning because the act of creating access for those who have been excluded changes*

the environment from a reproducing and assimilative context to a generative and inventive one (Artiles & Kozleski, 2007, p. 362).

Collaborative research methods, though not new, have recently gained new traction in education research due to increased attention to the process of partnering (i.e., universities partnering with schools/communities) by attending to issues of "critical historicity, power, and relationality" (Bang & Vossoughi, 2016, p. 173) and advance the transformative potential of working in collaboration with local stakeholders to produce scholarship that is practical, impactful, and sustained to local contexts (Vakil, McKinney de Royston, Nasir, & Kirshner, 2016). This wave of methods is rooted in critical theories that call for more attention to issues of power and race while disrupting top-down approaches to research (Valik et al, 2016).

By collaborative research we refer to the range of participatory design approaches that blur the boundaries between researchers and researched through partnerships on issues impacting local educational contexts (see Table 1). Collaborative research focuses on contributing to both improved practice and theory building, and could be a promising avenue to researchers and local school community members to work together to create and sustain inclusive schools.

Table 1. A Range of Collaborative Research Methods

Collaborative Research Methods	Defined	Examples
Design-Based Research (DBR)	A context-specific intervention is applied and studied in context through researcher and participant collaboration	Kirshner & Pozzoboni, 2011; Vakil et al., 2016
Participatory Action Research (PAR)	Participants in collaboration with researchers engage in researching and taking action on local issue	Fine et al., 2003
Youth Participatory Action Research (YPAR)	Collaborative research between youth and adults that results in action to create change	Bertrand, Durand, & Gonzalez, 2017; Cammarota & Fine, 2010; Mirra, Garcia & Morrell, 2016)
Practice-Embedded Educational Research (PEER)	The knowledge or research and knowledge of practice combine to addressing a pressing education issue	Snow, 2015
Social/Community-Based Design Experiments	Dynamic and flexible understandings of who is considered researcher with attention to local knowledge systems	Bang, Medin, Washinawatok, & Chapman, 2010
Formative Interventions	Cycles of reflection and action among local stakeholders in collaboration with researchers	Bal, 2011; Gutiérrez, Engeström & Sannino, 2016

Note. There are many iterations of each of these methods (e.g., PAR without researchers). These definitions highlight collaborative methods that involve researchers and local stakeholders.

Given the potential for collaborative research to generate solutions to enduring problems of practice, and the need for attention to local contexts when addressing problems related to inclusive education for students with disabilities, a collaborative approach to research might

present a promising approach to advancing inclusive practices. An understanding of how collaborative research has been utilized to examine and develop inclusive education for students with disabilities will support the development of new collaborative endeavours. Efforts to improve inclusive education will require researchers to adopt a new perspective, tools, and methods on the role of research in changing entrenched exclusionary practices. Therefore, the purpose of this systematic literature review is twofold. First, we review the current status of collaborative research in inclusive education for students with disabilities. Then, we propose a new paradigm for research in inclusive education based on the literature reviewed that is grounded in school-university partnerships for systemic transformation.

Review of Collaborative Research in Inclusive Education

In this review, we examined research partnerships to improve inclusive education in which university-based researchers collaborated with members of local school communities. We were particularly interested in understanding how the process of collaborative research enhanced inclusive education at the local level and contributed to the knowledge base on inclusive education overall.

Inclusionary and Exclusionary Criteria

We used four inclusionary criteria for this research synthesis. First, we included only articles in English published before 2016 in peer-reviewed journals. Second, we included only empirical research focused on inclusion for students with disabilities. Third, we focused our review on research conducted in K-12 schools; studies in early childhood and post-secondary settings were excluded from the review. Fourth, we included only articles describing research that included school personnel or other stakeholders (e.g., teachers, administrators, school psychologists, parents, and students) as part of the research team. Because our purpose was to examine collaborative research relationships between K-12 schools and universities, studies documenting teacher-led action research that did not include a university researcher as part of the research team were excluded from the review.

Search Procedures

The first author conduced an electronic search using Educational Resource Information Clearinghouse (ERIC), PsychInfo, Academic Search Premier, and ProQuest using the following search terms: *participatory research* or *collaborative research* or *action research* and *special education* or *inclusion* or *inclusive education.* Titles and abstracts of articles were reviewed to determine if they met inclusionary criteria. Next, the terms *special education* or *inclusion* or *inclusive education* were searched in the following journals: *Educational Action Research, Action Research,* and *the Canadian Journal of Action Research.* Finally, an ancestral search was conducted of the included articles to identify any other related articles. A second researcher replicated these procedures, and no additional articles were found. In the following sections, we present our findings within the context of the overarching literature on action and collaborative research, and discuss implications for designing collaborative research for inclusive education.

Coding Procedures

Each article was coded according to the following six categories (see Table 2): *Participants, setting, beneficiaries of research, inclusive education outcomes measured,*

researcher roles, methodology, and *location of research*. One researcher coded all 19 articles and approximately 30% (n = 6) were reviewed by a second reader. Inter-rater reliability was calculated at 80%, however, inter-rater reliability on the items *researcher roles* and *methodology* were 17% and 67%, respectively. Because of this low agreement, two researchers reviewed all 19 articles and reached consensus on these items. Finally, each article was reviewed to identify any recommendations for researchers. The articles that provided recommendations were reviewed for recurring themes. The first author identified and summarized these themes.

Results

Research Landscape

The search resulted in 19 articles that met the inclusionary criteria. Table 2 provides details about each of the selected studies. Five of the selected studies (26.3%) were conducted in the United States, ten were conducted in Europe or the United Kingdom (52.6%), and the remaining four (21%) studies were conducted in Canada, Australia, and countries in Africa. Over time, collaborative research has gained in popularity (see Figure 1). Only two articles were published before 2004. Beginning in 2004, at least one article per year was published, with the exception of 2013 and 2015, in which no articles were published. Four articles were published in 2014, the most of any year.

Definitions of Collaborative Research

In describing collaborative research in inclusive education, we must define how *collaboration* and *research* were conceptualized and enacted in the relevant research. First, we describe the ways that the research was conducted in the studies that we reviewed. Then, we explain the variety of ways that collaboration between university researchers and local school community members was explained, focusing on the roles of the university researchers in the process in order to inform future research in this area.

Research methodologies and procedures

Qualitative or qualitative action research (n=11, 57.8%), mixed methods or mixed methods action research (n=5, 26.3%) and quantitative (n=1, 5.2%) methods were used in the 17 studies in which research methodologies were clearly described. Two authors used the term *action research* to describe their methods but did not specify the type of data collected. Interviews (n=7, 36.8%), field notes or other observations (n=4, 21%), and documents (e.g., emails, websites, student work, n=6, 31.5%) were the most frequently used data sources. In several studies (n=4, 21%), researchers did not identify specific analytical procedures. Instead, they identified a particular analytic technique (e.g., constant comparison, inductive content analysis, conversational analysis) without explaining how it was used (i.e., Agnelidies, Georgiou, & Kuriakou, 2008; Cumming, Standrova, & Singh, 2014; Dymond et al., 2006; Mendez et al., 2008). For example, Agnelidies et al. (2008) stated that they followed Creswell's (2009) recommendations for six stages of analysis, but they did not explain their use of a key component of Creswell's procedures – the use of a specific theoretical approach or method for analysis.

Table 2. Collaborative Research Studies Reviewed

	Purpose(s)	Participants and Setting	Beneficiaries of research	Inclusive education outcomes measured	Researcher Role(s)	Method-ology	Geo-graphic location
Bal et al. (2014a)	Facilitate an inclusive school-based problem solving team to address racial disproportionality in school discipline and special education placement	Elementary school principal, 16 staff members, 13 parents, YMCA representative, and a 5-person research team	School-based committee, including families; culturally and linguistically diverse students with disabilities	No	Co-researcher	Mixed	US
Bal et al. (2014b)	Examine extent and predictors of racial disproportionality in special education in the district and to study how the district leadership used those quantitative analyses in their efforts to address racial disproportionality	School district leadership team (using district-level data)	District-level leadership; culturally and linguistically diverse students with disabilities	No	Co-researcher	Mixed	US
Agryrpoulous and Thymakis (2014)	Develop keyboarding skills of a student with multiple disabilities using assistive technology to "achieve better inclusion"	12-year old girl with multiple disabilities in a 5th grade general education setting	Individual student	Yes	Validation group	Action, not otherwise specified	Greece
Cumming et al. (2014)	Examine the use of iPads as instructional tools and perceptions of students and teachers about iPads to improve UDL	Four students, 13-16 years old with developmental disabilities in a private school	5 teachers and 4 students with developmental disabilities	Yes	External Facilitator	Qualitative Action	Australia

**Lyons (2012)	Examine the use of PAR to resolve role issues in inclusive classrooms	All school personnel in an urban school district in Western Canada	All personnel in the school; all students in the school	No	External Facilitator	Qualitative	Canada
Lynch et al. (2011)	Establish priority areas for developing inclusive itinerant services for students with visual impairment	All practitioners supporting students with visual impairment in 5 districts in Kenya	Teachers → students with visual impairments	No	Co-researchers	Mixed Action	Kenya
Polat (2011)	Investigate how schools can be supported in developing more inclusive practices	8 schools across Tanzania (number of teacher participants varied across the study)	School-based teams	No	External facilitator and critical friends	Qualitative Action	Tanzania
**Sales et al. (2011)	Examine how action research led to changes in teachers' perspectives and contributed to transforming school culture toward inclusion	19 members of school teaching staff in a primary school	Teachers	Yes	External facilitators	Qualitative	Spain
**Agrypoulous and Nikolaraizi (2009)	Impact of action research on teachers and student teachers' professional development and academic access of two pupils	9-year old girl with hearing impairment and 12-year old girl with visual impairment in general education primary schools	Teachers' professional development; students' academic access	Yes	Co-researchers	Qualitative Action	Greece

784

|							
** Agnelides et al. (2008)	Study the degree to which collaborative action research could contribute to the development of inclusive practices	Three researchers in a primary school	Teachers' practice	Yes	Critical friend	Qualitative	Cyprus
**Davies et al. (2008)	Facilitate inclusion through action research	22 teachers in 6 schools across 2 local authorities	Teachers' practice	Yes	Critical friend	Qualitative	England and Wales
Mendez et al. (2008)	Examine process of transition to a community of learning	13-year old girl with intellectual disability in a public school, special education teacher, and researcher	Student and teacher	Yes	Co-researcher	Action and Qualitative	Spain
Dyson and Gallannaugh (2007)	Examine the barriers to participation and learning, identify practices to overcome barriers, examine extent to which practices facilitate learning outcomes, examine how practices can be encouraged and sustained	Primary school team (head teacher, teacher in a middle leadership position, one or more class teachers)	Teachers' practice	Yes	Co-researcher and critical friends	Mixed methods action	England
Dymond et al. (2006)	Describe experiences of school personnel in redesigning high school science course	General education teacher, special education teacher, special education co-teacher in a high school	Teachers' practice	Yes	Co-researchers	Action and Qualitative	US
Agrypoulous and Stamouli (2006)	Improve inclusion in geometry and geography classes for a student with a visual	12-year old girl with retinopathy of prematurity	Student and teachers	Yes	Co-researcher	Action, not otherwise specified	Greece

		impairment	in a primary school					
Frankham and Howes (2005)	Examine the process of starting an action research project to promote inclusion	School teams at a primary school	Teachers' relationships	No	Research participants and critical friends	Qualitative	England
Jones and Smith (2004)	Evaluate behavior and discipline systems	Schoolwide data for an inner-city secondary school	Perceptions of schoolwide behavior system for reducing exclusions	Yes	External Facilitator[a]	Mixed Action	England
Boudah et al. (2000)	Examine the process of collaborative research	Administrators and teachers in two large high schools	Perceptions of teachers and students, changes in teaching	Yes	External facilitator	Qualitative	US
Welch and Chisholm (1994)	Assess a process-oriented strategy for written expression	29 students in an English class (7 with learning disability)	Intervention for written expression in inclusive classes resulted in improved student outcomes; teacher candidates improved ability to implement interventions use ecological assessment team teaching, use data	Yes	External Facilitator	Quantitative	US

[a]*Note.* The university researcher in this study was also the behaviour coordinator at the school.
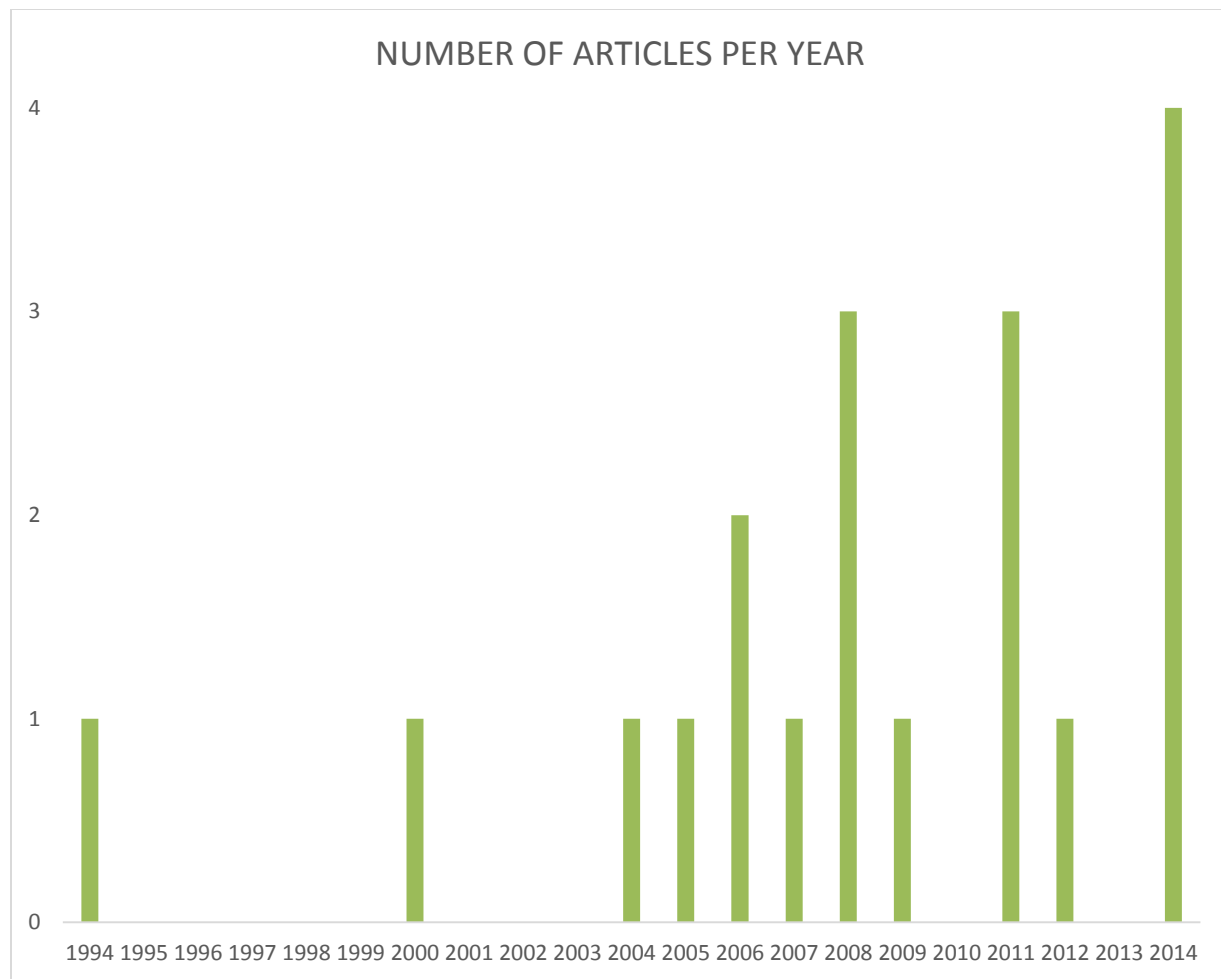
Figure 1. Number of collaborative research articles per year

Of the studies using an action research framework, two specifically named and described which qualitative methods were specifically used (i.e., Agrypoulous & Nikolaraizi, 2009; Cumming et al., 2014). In two studies (i.e., Agryrpoulous & Thymakis, 2014; Agrypoulous & Stamouli, 2006), researchers identified action research as the guiding framework, but they did not report specific data collection or analysis procedures.

Researcher Roles
In this section, we pay particular attention to the ways researchers have situated their roles in relationship to the research. The collaborative relationships between university-based researchers and school-based researchers have the potential to advance knowledge in powerful ways by bringing multiple perspectives to the problem and analysis process, and advantaging the voices of teachers, schools, and students in the research process and findings (Erickson, 1996). The university-based researchers assumed a variety of roles in collaborative research, ranging from facilitators who worked at the university and did not engage at the research site, to collaborators driving action and research decisions. We identified three main categories of university-based researchers' roles: *external facilitator, critical friend, co-researcher* (see Table 2). In one study (Agrypoulous & Thymakis, 2014) the researchers identified themselves as a "validation group,"

which seemed to mirror the critical friend role. In another study (Frankham & Howes, 2005) the researchers were participants in the study. In the following sections, we describe the three most common types of researcher roles: External facilitator, critical friend, and co-researcher.

External facilitator
An external facilitator is the least intrusive of the three identified researcher roles. External facilitators worked outside of the school context to assist with the research process, but were not directly involved in all aspects of the research. Seven studies were identified in this category. In these studies, researchers took on a variety of fluid roles which were, at times, described in ambiguous terms. As external facilitators, some university researchers provided targeted support at critical points in the process (Boudah et al., 2000; Cumming et al., 2014). However, the relationship of an external facilitator to a research team sometimes changed throughout the research process. For example, in Cumming et al.'s (2014) study, university-based researchers were invited to the project when it was already underway. Polat et al. (2011) described researchers with multiple roles, depending on location. Local researchers facilitated the research activities, while others worked at a distance offering expertise, critiques, and probing questions. In Sales et al. (2011), university researchers began the study in a directive role, and gradually transitioned to external facilitation in order to promote the autonomy of the school staff and the sustainability of the school-wide transformation toward inclusive practices. As Sales et al. (2011) demonstrated, universities can strategically fade their presence, using external facilitation as a final step toward school autonomy. Overall, external facilitators seem to provide a supportive rather than a leadership role, although their roles might transition from directive to supportive over the course of a research study.

Critical Friend
          In five of the studies reviewed, researchers identified themselves as critical friends of the action research team. The specific roles and responsibilities of critical friends varied across research studies, and were often not explicitly defined. One definition of a critical friend is a knowledgeable third party who provides support as facilitator, consultant, or co-researcher, who maintains a consistent presence of the research team, and who responds to the needs of the research team with suggestions (Dyson et al., 2007). Like external facilitators, critical friends in action research serve a variety of flexible roles. Some of these roles and duties include research advisement, rapport building, meeting facilitation, financial support, conflict resolution, teaching consultation, writing consultation, and provider of resources related to the research process (e.g., academic databases and research equipment). Overall, critical friends provide support rather than driving the research and might offer expertise and guidance in relationship to content and research methodology. Thus, a critical friend is likely to support the research efforts within a school or district, rather than taking a leadership role.

Co-researcher
 Whereas external facilitators and critical friends play a supportive role, the term *co-researcher* implies that both the university and school-based researchers take an active position in research from inception to dissemination. Researchers in seven studies partnered with school personnel in this way. The context in which the research is conducted can influence the roles co-researchers take. Geographic location might influence researchers' roles. Lynch et al. (2011) described research that was co-designed, planned, and carried out between researchers based in the United

Kingdom and Kenya. While some university researchers worked at a distance, others were engaged in driving the change and collecting data in the field. Mendez et al. (2008) and Agrypoulous and Stamouli (2006) described research conducted in collaboration with teachers that was designed to specifically address an issue in classrooms. In these studies, the university researchers worked alongside teachers in the classrooms to collaboratively work on a particular problem and evaluate the outcomes. University researchers have also taken total ownership over the research-related duties of a participatory action research project. In Dymond et al. (2006), university researchers were responsible for the research design, data collection, and analysis, while school-based researchers were responsible for the development and implementation of the intervention.

Across these studies, two issues in co-researcher roles were evident. First, some university researchers seem to take more control over the research aspects of a project than others, implicitly or explicitly leaving the "action" to the school-based partners. Because university researchers bring knowledge and resources about research design, data collection, and analysis to a collaborative research relationship, their leadership was important to ensuring that the school-based researchers find answers to the issues they face. They also built coalitions among multiple stakeholders with diverse and often conflicting experiences, perspectives, and goals to examine and address tension-filled issues such as racial disproportionality in special education (Bal et al., 2014b). However, as Frankham and Howes (2005) recognized, researchers are also part of the "action" in action research and thus constitute part of the data. Thus, a second problem arises in that university researchers often fail to be explicit about their role in driving the change that occurs through the research.

A trend toward more explicitly collaborative research in recent years was noted. Bal et al. (2014a; 2014b) described a collaborative relationship among university researchers, district and school administrators, teachers, parents, and students, to ameliorate disproportionate identification of minority students in special education and exclusionary school discipline in the state of Wisconsin. A collaborative problem-solving process, *Learning Lab*, guided by critical pedagogy (Freire, 2000; Ladson-Billings, 1995) and activity theory (Engeström, 1987; Vygotsky, 1978) provided framework for identifying the problem, continually examining and re-examining the context, reaching possible solutions, and examining the effects of the solution. While engaging in research to co-examine the process and effectiveness of the intervention, multiple stakeholders, specifically those from historically marginalized racial, linguistic, and economic communities, participated the process resulting in a deep local understanding of the problem and a grassroots-driven solution. Importantly, this design prioritizes the democratic process, allowing an explicitly horizontal structure among research team members and creating explicit procedures for prioritizing the diverse perspectives and goals of the stakeholders (Gutiérrez & Vossoughi, 2010). Learning Labs served as research and innovation sites for the university-based researchers as well as practitioners. University researchers developed new techniques of collective problem solving such as system mapping in facilitating a reciprocal and transformative school-family-community-university partnership (Bal, 2014a).

Outcomes of Research

The collaborative research studies that we reviewed affected a variety of outcomes in relationship to inclusive education. Most commonly, service delivery processes were examined and improved. For example, Dymond et al. (2006) examined the implementation of universal design for learning by a team of general and special educators in a general education science

class that included students with significant disabilities. Collaborative research also allowed school teams to self-evaluate and develop new practices. In Dyson and Gallanaugh (2007), researchers worked with a school team to identify the local barriers to inclusive education and evaluate of the use of practices to facilitate and sustain positive outcomes through inclusive education. Similarly, Bal et al. (2014b) and Jones and Smith (2004) used collaborative research to systematically examine school and district-wide data in order to inform the development and improvement of service delivery.

At the student level, collaborative research has been used to improve students' participation and progress in inclusive classes. For example, Agrypoulous and Thymakis (2014), Agrypolous and Nikolaraizi (2009), and Agrypolous and Stamouli (2006) examined the use of various adaptations and supports to support class participation for students with disabilities. However, the data were not collected and analysed systematically. Therefore, while the results of these studies might inform practice, they do little to inform the research base on inclusive education. Welch and Chisholm (1994) used group experimental design to examine the effectiveness of a writing intervention in an inclusive classroom. Despite the limitation of a small sample size (n = 29), this research demonstrates that collaborative research can be used to systematically test new interventions using accepted research designs.

Challenges and Recommendations

A key purpose of this review was to identify strategies for conducting collaborative research in the area of inclusive education. Recommendations for researchers are often provided in the discussion section of articles to share lessons learned. A subset of articles (n=13, 86.6%) provided recommendations for researchers. Two recurring themes (i.e., recommendations that were made across more than one article) were identified in the recommendations for researchers: a) recommendations about the amount of time necessary to complete collaborative research; and b) strategies for dealing with tensions between university and field-based researchers.

Time. Collaborative research often was described as time consuming (Agnelides et al., 2008; Boudah et al., 2000; Dymond et al., 2006; Snow, 2015). Boudah et al. (2006) explained the time required was both *extensive* and *intensive.* The process of engaging school-based researchers in a collaborative project is difficult to begin and sustain, due to constraints on school community members' busy schedules, school vacations, and competing priorities. Dymond et al. (2006) suggested that research teams should create a realistic time frame for change to occur, recognizing that cooperative planning is critical to developing school-based researchers' knowledge about inclusive education practices as well as research techniques.

Tensions. The purpose of collaborative research for inclusive education is to actively initiate and evaluate a change toward inclusive practices. Because transformation toward inclusive education involves individuals with multiple competing gaols and interests (Vlachou, 1997), tensions between the research team and others in the school can arise. Davies et al. (2008) described tensions that were the result of competing political priorities and the goals of the research team, specifically in relationship to the research team's goal of reflective practice in the context of high-stakes testing. Davies et al. (2008) also described tensions between what they described as a "medical model" and a "constructivist" stance toward teaching. The authors found that teachers were reluctant to critically examine their own practices because they believed that that the students' difficulties were due to deficits within the child rather than problems with the way the child was being taught, hampering the progress of change. Tensions can also arise between university researchers and school partners. Dymond et al. (2006) found that school team

members wished university researchers would spend more time in the classroom, observing students, so that they could provide more specific suggestions. Teachers on the team also expressed frustration at the amount of time it took to systematically re-design instruction and precisely measure outcomes.

Discussion

Our review showed that collaborative research on inclusive education varies widely in terms of methodology, unit of analysis, and strategies. This variety made it difficult to draw conclusions about the scope and depth of the research base on inclusive education that uses collaborative methods. A robust framework for designing and evaluating collaborative research in inclusive education is needed. Such a framework will lead to a more cohesive and richer research base from which patterns might emerge, resulting in a more focused direction in collaborative research in inclusive education. Specific goals and procedures for designing collaborative research in inclusive education may provide guidance for researchers who engage with community members around practical issues of significance. Moreover, a specific definition of collaborative research, as well as the key components in the process, may provide the field with a more structured approach to engaging community members in the research process.

Scholars have recognized that mere publication of research results, offering new standards, assessments and curricula, and providing professional development workshops to practitioners have had limited impact in transforming education systems, solving the everyday challenges that educators, students, families, and education leaders experience in schools, and improving outcomes (Artiles, Dorn, & Christensen, 2006; Berliner, 2006; Darling Hammond, 2010; Donovan, 2013; Snow, 2015). These tools, practices and programs will come up against inevitable challenges regarding their uptake, implementation and relevancy to vastly diverse local school contexts. Donovan (2013) suggested, "if we create the organizational capacity for researchers and design experts to work with practitioners inside the system, we could potentially change the outcome." (p. 319). This requires a paradigm change, major changes in infrastructure, and the tools and ways of doing things in the education research community (Bal, 2016). The new paradigm for collaborative scientific inquiry requires researchers to increase their reflexivity, relevancy, and comfort with the complexities of the real life of schools.

Our review revealed that a shift is needed in the ways that problems are defined. Researchers have partnered with teachers and school teams to solve particular problems of practice, such as the use of adaptations for individual students in inclusive classes, but interventions rarely address the systemic patterns of exclusion that might have led to the problems of access faced by students. As Snow (2015) explained, the "recognition that students and teachers operate within systems and that improvements inside classrooms require thinking about and often operating at school and district levels at the same time" (p. 462). Thus, rather than addressing isolated problems within individual schools, collaborative research in inclusive education should attend to multiple systems of influence simultaneously (Ruppar, Allcock, & Gonsier-Gerdin, 2016).

Because systemic change is a multifaceted process of shifting practices, perspectives, and ideal and material tools (e.g., cultural models, scripts) in research and practice, researchers seeking change should engage with the values and power relations within educational settings (Ainscow, 2012). Relationships among researchers and practitioners must be intentionally structured to reduce power inequities and create spaces for dialogue about differences in values and ideology. Changes toward inclusive education are often met with resistance due to

ideological differences among educators (Olson, Roberts, & Leko, 2016). Practice-embedded research in the area of inclusive education will require specific attention to the ways stakeholders perceive and understand problems, and new frameworks are needed to support teams of collaborative researchers in moving past the stage of problem identification into research design and action.

Moreover, it is important to be careful in determining research team membership. In the research that we reviewed, partnerships were formed between researchers and the practitioners who were faced with challenges in relationship to inclusive education. Yet, none of the research teams included individuals with disabilities or students on the research team. Students are at the centre of inclusive education efforts, yet they are seldom invited to engage in the work. Youth participatory action research (YPAR) is a robust example of a collaborative method grounded in assets-based epistemologies that recognize the valuable insights and experiences that youth bring to work rooted in social change. Who understands the nature of school inclusion (and exclusion) better than youth? YPAR involves youth working in collaboration with adults as active participants in advancing social change. While YPAR was not included in the collaborative research we reviewed, we posit that youth with disabilities and other non-dominant youth can play important roles in advancing inclusive education.

Limitations

We found few studies overall that met our inclusion criteria. There are two possible explanations for this. First, researchers might not explicitly state when research is collaborative; thus, this review might not include all of the research on inclusive education using collaborative methods. The use of keywords that identify the research as collaborative, such as the ones included in our search, will make it easier to locate and review collaborative research in the future. A second possible interpretation is that collaborative research is not a widely-used approach in inclusive education. Finally, relevant articles might have been screened out because researchers did not specifically use the term *inclusive education* in the keywords, even if the research resulted in more inclusive outcomes.

Directions for Future Research

Collaborative research has the potential to improve inclusive education because it is intentionally situated in the everyday work of educators. However, we had difficulty locating relevant articles. Future researchers should explicitly position their work as collaborative in order to increase the visibility of collaborative research in the mainstream of inclusive education inquiry, and also be explicit about the inclusive education outcomes of their research. Locally meaningful and ecologically valid research to understand the complexities in the real life of educators and schools can lead to the uptake and implementation of research-based programs and interventions in reciprocal collaboration with local stakeholders (Bal & Trainor, 2016; Donovan, 2013). Because of the potential benefits of this research approach for bridging research and practice, future researchers should consider ways to develop reciprocal, locally meaningful, and sustained partnerships with local stakeholders and purposefully collaborate with community members in rigorous research activities to build more inclusive and transformative schools for *all*.

References:

Note. * indicates article was included in the review.

Ainscow, M., Booth, T., & Dyson, A. (2004). Understanding and developing inclusive practices in schools: a collaborative action research network. *International Journal of Inclusive Education*, *8*(2), 125-139.

Allan, J. (2006). Failing to make progress? The aporias of responsible inclusion. In E. Bratlinger (Ed.), *Who benefits from special education?: Remediating (fixing) other people's children*. Mahwah, New Jersey: Lawrence Erlbaum Associates.

* Dymond, S. K., Renzaglia, A., & Rosenstein, A. (2006). Using a participatory action research approach to create a universally designed inclusive high school science course: A case study. *Research and Practice for Persons with Severe Disabilities*, *31*, 293–308. http://doi.org/10.1177/154079690603100403

*Angelides, P., Georgiou, R., & Kyriakou, K. (2008). The implementation of a collaborative action research programme for developing inclusive practices: Social learning in small internal networks. *Educational Action Research*, *16*, 557–568. http://doi.org/10.1080/09650790802445742

Anyon, J. (2005). *Radical possibilities: Public policy, urban education, and a new social movement*. New York: Routledge.

* Argyropoulos, V. S., & Nikolaraizi, M. A. (2009). Developing inclusive practices through collaborative action research. *European Journal of Special Needs Education*, *24*(2), 139–153. http://doi.org/10.1080/08856250902793586

*Argyropoulos, V. (2006). A collaborative action research project in an inclusive setting: Assisting a blind student. *British Journal of Visual Impairment*, *24*(3), 128–134. http://doi.org/10.1177/0264619606066187

* Argyropoulos, V., & Thymakis, P. (2014). Multiple disabilities and visual impairment: an action research project. *Journal of Visual Impairment & Blindness,* March-April 2014, 163-167.

Artiles, A. J., Dorn, S., & Christensen, C. (2006). Learning in inclusive education research: Re-mediating theory and methods with a transformative agenda. *Review of Research in Education*, *30*, 65-108.

Artiles, A. J., & Kozleski, E. B. (2007). Beyond convictions: Interrogating culture, history, and power in inclusive education. *Language Arts, 84,* 351-358.

Artiles, A. J., Kozleski, E. B., Gonzalez, T. (2011). Beyond the allure of inclusive education in the United States: Facing difficult questions, tracing enduring challenges. *Revista Teias, 12,* 285-308.

Bal, A. (2016). From intervention to innovation: A cultural-historical approach to the racialization of school discipline. *Interchange, 47,* 409-427. doi:10.1007/s10780-016-9280-z

* Bal, A., Kozleski, E. B., Schrader, E. M., Rodriguez, E. M., & Pelton, S. (2014a). Systemic transformation from the ground-up: Using learning lab to design culturally responsive schoolwide positive behavioural supports. *Remedial and Special Education*, *35*, 327–339. http://doi.org/10.1177/0741932514536995

* Bal, A., Sullivan, A. L., & Harper, J. (2013). A situated analysis of special education disproportionality for systemic transformation in an urban school district. *Remedial and Special Education*, *35*, 3–14. http://doi.org/10.1177/0741932513507754

Bang, M., & Vossoughi, S. (2016). Participatory design research and educational justice: Studying learning and relations within social change making. *Cognition and Instruction*, *34*(3), 173-193.

Berliner, D. C. (2006). Our impoverished view of educational research. *Teachers College Record*, 108(6), 949-995.

* Boudah, D. J., Knight, S. L., Kostohryz, C., Welch, N., Laughter, D., & Branch, R. (2000). Collaborative research in inclusive classrooms: An investigation with reflections by teachers and researchers. *Teacher Education and Special Education*, *23*, 241–252. http://doi.org/10.1177/088840640002300306

* Cumming, T. M., Strnadová, I., & Singh, S. (2014). iPads as instructional tools to enhance learning opportunities for students with developmental disabilities: An action research project. *Action Research*, *12*, 151–176. http://doi.org/10.1177/1476750314525480

Darling-Hammond, L. (2010). Teacher education and the American future. *Journal of Teacher Education*, *61*(1-2), 35-47.

* Davies, S. M. B., Howes, A. J., & Farrell, P. (2008). Tensions and dilemmas as drivers for change in an analysis of joint working between teachers and educational psychologists. *School Psychology International*, *29*, 400–417. http://doi.org/10.1177/0143034308096439

Donovan, M. S. (2013). Generating improvement through research and development in education systems. *Science, 340*, 317–319.

Dyson, A. (1999). Inclusion and inclusions: Theories and discourses in inclusive education. In H. Daniels and P. Garner (Eds.). *World Yearbook of Education 1999.* New York: Routledge.

* Dyson, A., & Gallannaugh, F. (2007). National policy and the development of inclusive school practices: a case study. *Cambridge Journal of Education*, *37*, 473–488. http://doi.org/10.1080/03057640701705690

Erickson, F. (2006). Studying side by side: Collaborative action ethnography in educational research. In G. Spindler & L. Hammond (Eds.) *Innovations in Educational Ethnography: Theories, Methods, and Results.* Hove, UK: Psychology Press.

* Frankham, J., & Howes, A. (2006). Talk as action in "collaborative action research": making and taking apart teacher/researcher relationships. *British Educational Research Journal*, *32*, 617–632. http://doi.org/10.1080/01411920600775324

Gutiérrez, K., & Vossoughi, S. (2010). Lifting off the ground to return anew": Documenting and designing for equity and transformation through social design experiments. *Journal of Teacher Education*, *61*(1-2), 100-117.

* Jones, J., & Smith, C. (2004). Reducing exclusions whilst developing effective intervention and inclusion for pupils with behaviour difficulties. *Emotional and Behavioural Difficulties*, *9*, 115–129. http://doi.org/10.1177/1363275204045732

Kozol, Jonathan. (2005) *The shame of the nation: The restoration of apartheid schooling in America*. New York: Random House.

Kurth, J. A., Morningstar, M. E., & Kozleski, E. B. (2015). The Persistence of Highly Restrictive Special Education Placements for Students With Low-Incidence Disabilities. *Research and Practice for Persons with Severe Disabilities*, *39*, 227–239. http://doi.org/10.1177/1540796914555580

* Lynch, P., McCall, S., Douglas, G., McLinden, M., Mogesa, B., Mwaura, M., Muga, J., & Njoroge, M. (2011). Inclusive educational practices in Kenya: Evidencing practice of itinerant teachers who work with children with visual impairment in local mainstream schools. *International Journal of Educational Development*, *31*, 478–488. http://doi.org/10.1016/j.ijedudev.2010.08.006

* Lyons, W. E. (2012). Examining role issues in inclusive classrooms through participatory action research. *The Canadian Journal of Action Research*, *13*, 19-37.

* Méndez, L., Lacasa, P., & Matusov, E. (2008). Transcending the zone of learning disability: learning in contexts for everyday life. *European Journal of Special Needs Education*, *23*, 63–73. http://doi.org/10.1080/08856250701791328

Olson, A., Roberts, C. A., & Leko, M. (2016). Providing students with severe disabilities access to the general curriculum. *Research and Practice for Persons with Severe Disabilities, 41,* 143-157. doi: 10.1177/1540796916651975

Opertti, R., & Belalcázar, C. (2008). Trends in inclusive education at regional and interregional levels: issues and challenges. *Prospects*, *38*, 113–135. http://doi.org/10.1007/s11125-008-9062-1

 * Polat, F. (2011). Inclusion in education: A step towards social justice. *International Journal of Educational Development*, *31*, 50–58. http://doi.org/10.1016/j.ijedudev.2010.06.009

Rogoff, B. (2003). *The cultural nature of human development*. New York, NY: Oxford University Press.

Ruppar, A. L., Allcock, H., & Gonsier-Gerdin, J. (2016). Ecological factors affecting access to general education content and contexts for students with significant disabilities. *Remedial and Special Education*. http://doi.org/10.1177/0741932516646856

Ryndak, D. L., Taub, D., Jorgensen, C. M., Gonsier-Gerdin, J., Arndt, K., Sauer, J., et al. (2014). Policy and the impact on placement, involvement, and progress in general education: Critical issues that require rectification. *Research and Practice for Persons with Severe Disabilities*, *39*, 65–74. http://doi.org/10.1177/1540796914533942

* Sales, A., Traver, J. A., & García, R. (2011). Action research as a school-based strategy in intercultural professional development for teachers. *Teaching and Teacher Education*, *27*, 911–919. http://doi.org/10.1016/j.tate.2011.03.002

Slee, R. (2013). How do we make inclusive education happen when exclusion is a political predisposition? *International Journal of Inclusive Education*, *17*(8), 895-907.

Snow, C. E. (2015). 2014 Wallace foundation distinguished lecture: Rigor and realism: Doing educational science in the real world. *Educational Researcher*, *44*, 460–466.

United Nations Educational Scientific and Cultural Organization (UNESCO). (2005). *Guidelines for inclusion: Ensuring access to education for all.* Paris: UNESCO.

Vakil, S., McKinney de Royston, M., Suad Nasir, N. I., & Kirshner, B. (2016). Rethinking race and power in design-based research: Reflections from the field. *Cognition and Instruction*, 34(3), 194-209.

Vlachou, A. (1997). Struggles for inclusive education: An ethnographic study. Maidenhead, UK: Open University Press.

Vygotsky, L. S. (1978). *Mind in society.* Cambridge, MA: Harvard University.

Waitoller, F. R., & Artiles, A. J. (2013). A decade of professional development research for inclusive education. *Review of Educational Research*, *83*, 319–356.

* Welch, M., & Chisholm, K. (1994). Action research as a tool for preparing specialists to use strategic interventions in educational partnerships. *Teacher Education and Special Education: the Journal of the Teacher Education Division of the Council for Exceptional Children*, *17*, 269–279. http://doi.org/10.1177/088840649401