

## Empirical Research on Ethnic Minority Students: 1995–2009

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Ethnic minority disproportionality has been a topic of extensive discussion and research for many years. In 1997, Artiles, Trent, and Kuan conducted a seminal review of the special education research literature to identify how often researchers report and disaggregate data in ways that would support conclusions about specific ethnic minority groups. These authors found alarmingly low rates of publication on identifiable minority groups. The purpose of this review is to replicate the work of Artiles et al. and extend this literature analysis to the subsequent 15-year period (1995–2009). We found increases in the proportion of articles reporting ethnic minority information 15 years following the Artiles et al. publication. Discussion focuses on the gap in our knowledge of evidence-based practices for ethnic minority students in special education.

### EMPIRICAL RESEARCH ON ETHNIC MINORITY STUDENTS

Over the past decade, special educators have faced a daunting challenge: They are responsible for teaching an increasing number of ethnic minority students who differ in a number of dimensions (e.g., language, socioeconomic status, etc.). Given this challenge faced by educators, it could be argued that a substantial research base is needed to provide empirical information on effectiveness of various educational approaches. Artiles, Trent, and Kuan's (1997) analysis of 22 years of research, however, revealed that such a research base did not exist nor was it in the process of being developed. They found an alarmingly low proportion of empirical studies on ethnic minority students.

In response to these issues, several professional organizations have written specific principles devoted to culturally sensitive practices. For example, the Council for Exceptional Children state "differing ways of learning of individuals with exceptional learning needs including those from culturally diverse backgrounds and strategies for addressing these differences (CEC Standard 3 CC3k5) are required skills for beginning teachers." The National Association of Special Education Teachers states that members "should understand how culture diversity, gender, and community shape the lives

of the individuals with whom they teach and collaborate with" (NAEST standard 5c). In addition, the American Psychological Association (APA (2010)) Ethical Principles of Psychologists and Code of Conduct states: "Where scientific or professional knowledge in the discipline of psychology establishes that an understanding of factors associated with. . .race, ethnicity, culture, national origin. . .is essential for effective implementation of their services or research, psychologists have or obtain the training, experience, consultation, or supervision necessary to ensure the competence of their services, or they make appropriate referrals. . ." (2.01 Boundaries of Competence). In order for practitioners to comply with the above standards, research must identify effective or research-based practices that have been validated across culture and linguistically diverse students or for particular culturally and linguistically diverse (CLD) groups. The ultimate goal allowing educators to improve the quality of their services offered to this important segment of the U.S. population with disabilities.

The disproportionate representation of CLD students in high-incidence special education programs (e.g., mental retardation, learning disabilities, and emotional disturbance) has also been a serious concern for decades (Artiles, Trent, & Palmer, 2004; Donovan & Cross, 2002; Dunn, 1968; Heller, Holtzman, & Messick, 1982). In fact, disproportionate representation of minority groups in special education was discussed in the literature as early as 1965 (Arnold & Lassmann, 2003). Disproportionate representation refers to the percentage of CLD students in special education being larger than

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the percentage of CLD students in the educational system as a whole (Harry & Anderson, 1994). Legislative attempts to address this issue began as early as 1975 with the passage of P.L. 94-142 and have continued to be addressed No Child Left Behind (NCLB, 2001) and Individuals with Disabilities Improvement Act (IDEIA, 2004).

Researchers have reported two important issues with regard to disproportionately. First, CLD students with disabilities are reported to have lower academic progress in major content areas (Rodriguez, Duran, Diaz, & Espinosa, 2001; Smith, 1995). Several authors have reported on average, African American, Latino, and American Indian children arrive at kindergarten or first grade with lower levels of English oral language, prereading, and premathematics skills than are possessed by White and Asian American children (Donovan & Cross, 2002; Farkas, 2003; Phillips, Crouse, & Ralph, 1998). Increasing diversity of student population, increasing number of primary languages spoken in many schools, and states raising the bar of the achievement expected of all students has placed additional demands on educators who are ill prepared to teach CLD learners or infuse appropriate practices to meet their needs.

Second, CLD students are overrepresented in special education programs. Recent reports from the U.S. Office of Civil Rights, and Office of Special Education Programs, have continued to document the problem of minority disproportionality in special education. In fact, minority disproportionality is such an important issue that the National Research Council investigated the matter twice (Donovan & Cross, 2002; Heller et al., 1982). Concerns about disproportionate representation focus on the “judgmental” categories of special education (e.g., Learning Disabilities, attention deficit hyperactivity disorder (ADHD), or those disability categories usually identified by school personnel rather than a medical professional after the child has started school (Klingner et al., 2005). The school personnel making placement decisions typically exercise wide latitude in deciding who qualifies for special education through a process that is reportedly quite subjective (Gottlieb, Alter, Gottlieb, & Wishner, 1994; Harry & Klingner, 2006). Notably, overrepresentation does not exist in disability categories that require less subjective judgment such as visual, auditory, or orthopedic impairment (Donovan & Cross, 2002).

There are numerous possible reasons for disproportionate representation (Harry & Klingner, 2006). Because educators are so ill prepared to provide CLD students proper educational practices, they tend to underachieve in comparison with their mainstream counterparts, this puts pressure on practitioners to find ways to give CLD students extra assistance to help close the achievement gap. Practitioners may perceive that special education is the only viable option for providing this support and refer the child to special education, or mistakenly assume that the student’s struggles are due to a disability rather than a consequence of the process of learning a second language. Another possible explanation is when there are significant differences between the student’s culture and the school’s culture, teachers may misread students’ aptitudes, intent, or abilities (Delpit, 1995). These factors may lead to false positives—inappropriate placement into special education. On the other hand, some practitioners may be fearful of referring CLD students into special educa-

tion because they believe it is wrong to refer students before they are fully proficient in English, or they may assume that a student’s struggles are due to language acquisition when in fact the student does have a disability. When this happens, students who have disabilities go without services they may need. These different kinds of inappropriate decisions characterize the complexities of disproportionate representation of CLD students.

Given the considerable shifts in the composition of the school-aged population and the mandate to educate all children to high levels of proficiency, it is more important than ever for schools to use effective and appropriate strategies to meet CLD students’ needs. According to a 1999 National Center for Education Statistics (NCES) report, teachers reported that “addressing the needs of limited English proficient or culturally diverse students” (p. 1) was one of the top three areas in which they felt underprepared. To address these concerns, many practitioners are being taught multicultural education approaches to work with ethnic minority students with disabilities in teacher preparation classes and professional conferences (Brown, 2002; Goldman, Aldridge, & Worthington, 2004; McCabe, 2000). Multicultural education courses and in-service programs have proliferated across the country to better prepare teachers to meet the challenges of diversity in classrooms (Jennings & Smith, 2002). However, Artiles et al. (1997) suggested special educators should base their multicultural education practices on a sound empirical knowledge base that will allow them to understand the interactions between sociocultural variables and educational approaches. It is not clear whether the educational approaches being taught in multicultural education courses and in-service programs are based on sound empirical evidence. Artiles, Barreto, and Pena (1998) argued that little research is available on the effectiveness of multicultural teacher education programs and this research is “plagued with conceptual and methodological limitations leading to lack of generalizable findings” (p. 6). Furthermore, with the call for highly effective teaching practices made by Deshler, Hock, and Hugh (2006), the need for highly effective practices for CLD students is greater than ever.

Artiles et al. (1997) conducted a seminal review analyzing the empirical literature on ethnic minority students published in a 22-year period (i.e., 1972–1994) in two learning disability (*Journal of Learning Disabilities, Learning Disability Quarterly*) and two special education journals (*Exceptional Children, Journal of Special Education*). They examined the extent to which empirical research focused on ethnic minority students, changes in the research over that 22-year period, the topics investigated, and the quality of the empirical research. The authors systematically searched these 88 volumes for data-based articles that included ethnic minority participants (e.g., African American, Latino, Asian American, and Native American) and disaggregated data to allow for conclusions about specific minority groups.

Artiles et al. (1997) found an alarming scarcity of research on ethnic minority students. From the total sample of 2,378 empirical articles published in these four journals across 22 years, only 58 (2.43 percent) presented data on specific ethnic minority groups. The two most noticeable trends in their data were the low proportions of empirical studies on ethnic minority students and the fluctuations in the proportions of

such studies across the time period. In addition, most studies that reported results on specific ethnic minority groups were not focused on instruction; rather they focused on the assessment ( $n = 20$  or 35 percent), sensory-perceptual processing ( $n = 8$  or 14 percent), and placement issues ( $n = 6$  or 10 percent). Furthermore, the majority of these studies tended to lack methodological soundness. Thus, Artiles et al. (1997) found little research with the focus and of quality necessary to support the development of empirically based interventions for culturally diverse students.

The decade since the Artiles et al.'s (1997) review has seen increased attention devoted to disproportional representation in special education and achievement of culturally diverse students (e.g., National Research Council, NCLB, IDEIA, and National Center for Culturally Responsive Education Systems). The purpose of this review is to examine how research publication patterns in special education may have changed since the earlier review. Thus, we systematically replicated the work of Artiles et al. (1997) and extended the analysis to literature of the subsequent 15-year period (i.e., 1995–2009). Specifically, we examined: (1) the extent to which four empirical journals publish research focused on identifiable ethnic/racial culture groups and (2) the extent to which there has been a change in the frequency of reporting culture and linguistic diversity in four empirical journals in the last 11 years. We replicated the methods of Artiles et al. (1997) as closely as possible in order to obtain comparable data that would provide a long-term picture of publication trends in this area.

## METHOD

### Selection and Coding of Empirical Articles

Using the methods established by Artiles et al. (1997), we reviewed the entire contents of four journals that publish primary research in the areas of learning disabilities and special education. This review covered the 15-year period from 1995 through 2009. Specifically, we reviewed every article in *The Journal of Learning Disabilities* (JLD) volumes 28–42, *Learning Disability Quarterly* (LDQ) volumes 18–32, *The Journal of Special Education* (JSE) volumes 28–43, and *Exceptional Children* (EC) volumes 61–75. These were the same four journals originally selected by Artiles et al. (1997).

First, empirical articles were identified. This included reports of studies using quantitative, qualitative, or mixed research methods; essays, literature reviews, rejoinders, and editorials were not included. Second, the type of information available on ethnic minority groups was coded for each data-based article. *Ethnic homogeneous* was defined as an empirical article that reported data for a single ethnic group. If a group design was used, 90 percent of the total number of participants had to come from a single ethnic minority group. *Ethnic Comparative* was defined as a study in which comparable data from two or more ethnic groups were reported (i.e., data were disaggregated by ethnic group). *Ethnic heterogeneous* was defined as a research article that described participants in terms of ethnic minority groups, however, did not disaggregate results by ethnic minority groups. *No ethnicity information* was coded for studies that did not describe the ethnicity of participants. White participants were

coded in this review and considered an ethnic group in ethnic comparative and ethnic heterogeneous studies; however, articles in which 90 percent or more of the participants were White were *not* included in the ethnic homogenous category, this designation was reserved for studies of ethnic *minority* groups. Third, specific ethnic minority groups were coded as African American (including such terms as African American, Black American, non-Hispanic Black), Latin American (including, Hispanic, Latin, Spanish American, Mexican American, Puerto Rican, etc.) Asian American (including Chinese, Filipino, Vietnamese, Korean, Japanese, etc.), Native American (including, American Indian, Pacific Islanders, Alaskan Indian, etc.), or not specified. Fourth, detailed information was coded on other characteristics of studies that included ethnicity information. Study characteristics included, location of study, disability diagnosis, gender, grade level of participants, educational placement, experimental design, and number of ethnic minority groups included (see appendix for decision tree).

### Data Collection and Analysis Procedures

Ten research assistants, trained doctoral students, and the first author, participated in the data collection. Each was given a sample of articles from older volumes of the target journals to code for training purposes. Research assistants coded a training article, interobserver agreement was evaluated, and clarifications were provided on categories that were problematic. This process was repeated until assistants reached the criterion of 100 percent agreement with established codes for sample articles.

The researcher and assistants reviewed each journal issue and completed the following tasks: (1) identified and counted the number of empirical articles published in each issue; (2) coded the article as either Ethnic Homogeneous, Ethnic Comparative, Ethnic Heterogeneous, or no ethnicity information; (3) coded the methodological characteristics of each article that contained ethnicity information; and (4) reported the identified characteristics of each article on a coding sheet (see Appendix for decision tree). Overall, a total of 57 volumes across four journals were coded.

### Reliability

To assess reliability, we calculated interrater agreement for the coding of research articles. A subset of 15 randomly selected volumes (26.3 percent of the study sample) was used to assess reliability. The 15 volumes were relatively equally distributed across the four journals (i.e., three volumes of each of three journals and two volumes of one journal). We used Kazdin's formula (1982) to calculate interrater agreement (i.e., agreements divided by agreements plus disagreements multiplied by 100 percent). The mean interrater agreement was 91.2 percent with a range of 73.4–100 percent. The lowest level of interrater agreement was for "location of study" for one volume of LDQ. When research assistants coded this category and the data were not easily placed in "Urban, Suburban, Rural, or Multiple," they were encouraged to write specific information to assist in determining where the study took place.

TABLE 1  
Characteristics of Research on Ethnic Minority Students: Artiles  
et al. (1997) Compared to This Study

Descriptive Features	Artiles et al.		This Study	
	Number	Percent	Number	Percent
Total number of studies across four journals	2,378		1,169	
Studies on specific ethnic groups	58	2.43%	117	10.01%
Ethnic comparative	34	1.43%	65	5.56%
Ethnic homogenous	24	1.01%	52	4.45%
Studies reporting mixed or no ethnic groups	2,320	97.56%	936	87.60%
Ethnic heterogeneous	80	3.40%	407	34.82%
No ethnic information reported	2,240	94.19%	529	51.80%

## RESULTS

*Total Number of Empirical Articles.* Table 1 provides an analysis of the characteristics of the empirical articles on minority students from both this review and Artiles et al. (1997). The original study yielded a total of 2,378 empirical articles, 58 (2.4 percent) of which reported results for specific ethnic minority groups (ethnic homogenous and ethnic comparative). This 15-year analysis systematically replicated the methods of the previous review. A total of 1,169 empirical articles were reviewed with a total of 117 (10.01 percent) reporting on specific ethnic minority groups. To identify the different types of articles, we categorized each article by the method in which authors reported ethnic minority information for their participants and later disaggregated results for analysis by ethnic group.

*Type of Study.* Overall, a large majority of the empirical articles identified reported either ethnic minority information about their participants but failed to disaggregate their data or did not report any ethnic minority information about their participants (87.60 percent). When compared to Artiles et al. (1997), we find a slight decrease in the percent of articles reporting no ethnic minority information reported (97.56 percent). Interestingly, 5.56 percent of the selected articles reported information on two or more ethnic minority groups as participants and data were disaggregated in the results section (i.e., Ethnic Comparative). When compared to Artiles et al. (1997), a noticeable gain in authors reporting ethnic minority information about participants and more importantly disaggregating those data for analysis by subgroup is present. We also identified 4.45 percent of the articles for the second category of studies on specific ethnic groups (ethnic homogenous) where authors reported information on one ethnic minority group. Again, this was a substantial growth when compared to the original review of literature.

To visually see the trends in both studies, we combined data in Figure 1; it shows the proportion of empirical ethnic minority studies compared to the total number of empirical research studies in four journals across 33 years. The first

phase reflects Artiles et al.'s (1997) 22-year analysis (i.e., 1972–1994) and the second phase shows results from this review of the next 15 years (i.e., 1995–2009). Data points represent 5- or 6-year time spans, this inconsistency was necessary to accurately reflect the time periods of the reviews. However, since data are represented as percent of articles, this inconsistency does not bias results.

The most notable features of these data include the dramatic increase in proportion of studies reporting on minority groups in the 1996–2000 period, then the decrease for two of the four journals in the 2001–2005 period. Overall, Artiles et al. (1997) reported extremely low proportions (2.43 percent) of research reporting ethnic minority information. Our review indicated an increase in the overall proportion of empirical research articles reporting information on ethnic minority participants (10.01 percent). Visual inspection of Figure 1 indicates little change from 1972 through 1994 (2.32 percent), then a slight upward trend for two of the four journals in the 1995–2001 time period (overall 9.28 percent). This review found a dramatic increase in all four journals in the 2002–2007 period to an overall average of 11.5 percent. Then, in the most recent time frame (2008–2009), three journals showed declines while one (JSPED) continued the upward trend. The overall average publication rate was 10.01 percent in this most recent time period.

To support the visual analysis, we compared the results from Artiles et al. (1997) and this review with statistical tests. Chi-square analysis revealed statistically significant differences  $\chi^2(1, N = 145) = 5.93, p = .014$  in the proportion of publications on ethnic minority students between the two reviews. The four journals are publishing a higher proportion of empirical articles on ethnic minority students in this review compared to the Artiles et al.'s (1997) review. For the years 1995–2001, the JSPED and JLD published a higher proportion of articles on ethnic minority participants when compared to EC and LDQ. From 2002 to 2007, all except the JLD had increasing trends of empirical articles with ethnic minority information about the participants. Interestingly, three of the four journals (i.e., LDQ, JLD, & EC) had decreasing trends for the years 2008–2009. JSPED was the only journal to have an increasing trend for the same period of time.

Figure 2 provides a distribution of articles by type of article (e.g., Ethnic Comparative, Ethnic Homogenous, Ethnic Heterogeneous, and no ethnic information reported). Compared to the original study, our review reveals an overall increase in the percent of articles identified as ethnic comparative, ethnic homogenous, and ethnic heterogeneous. The largest increase was in ethnic comparative articles. In addition, the percent of articles reporting no ethnic minority information about participants decreased when compared to Artiles et al. (1997).

Artiles et al. (1997) performed chi-square analyses to evaluate the difference between learning disability journals and special education journals. They found no statistically significant difference between the two types of journals on the frequency of articles on ethnic minority students. Similarly, our analysis yielded no statistically significant differences  $\chi^2(3, N = 85) = .590, p = .670$  across the two types of journals.

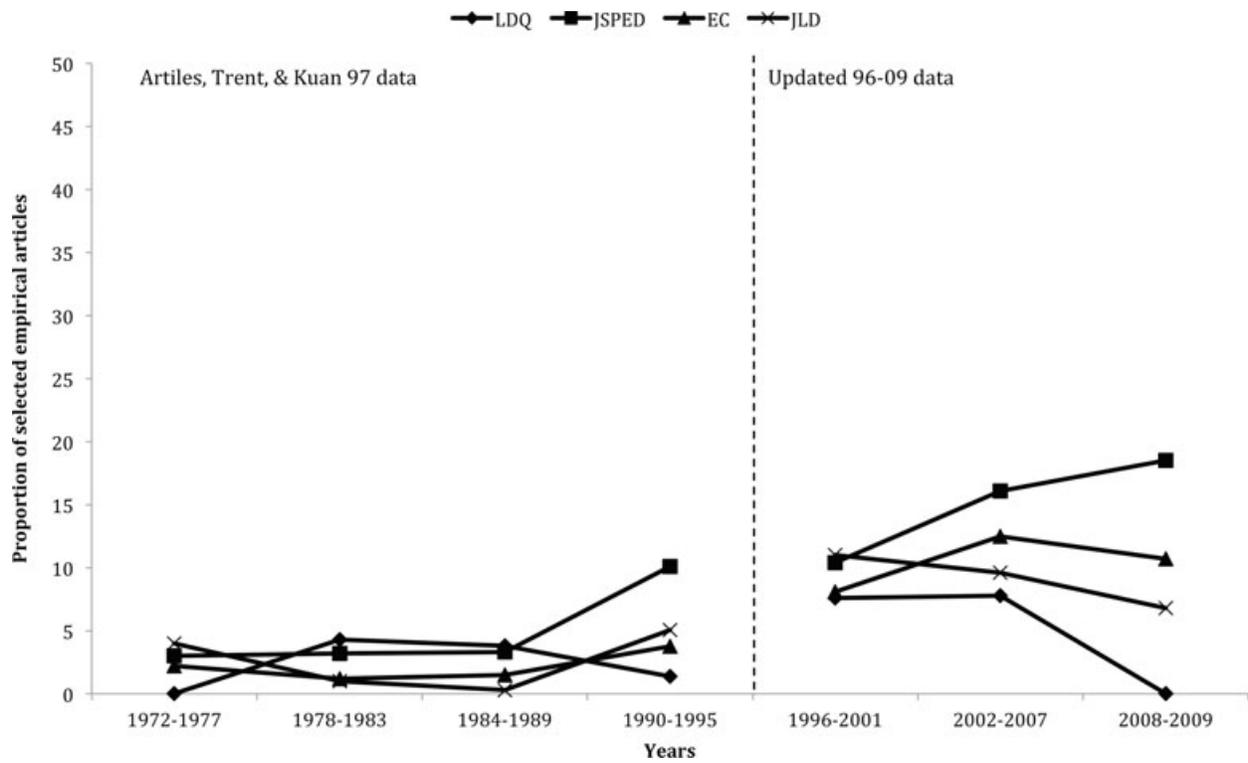


FIGURE 1 Proportion of empirical articles containing ethnic minority information: 1972–2009.

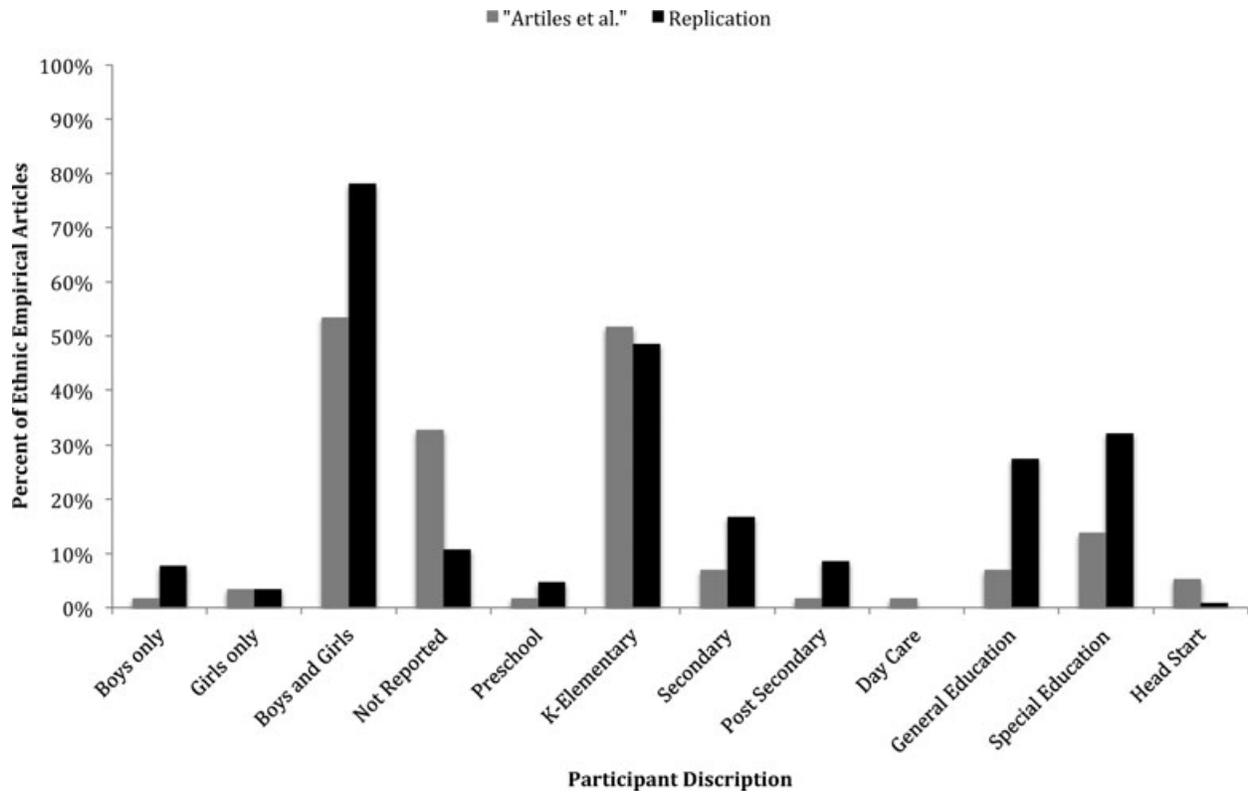


FIGURE 2 Distribution of articles by type of participant information reported by researchers.

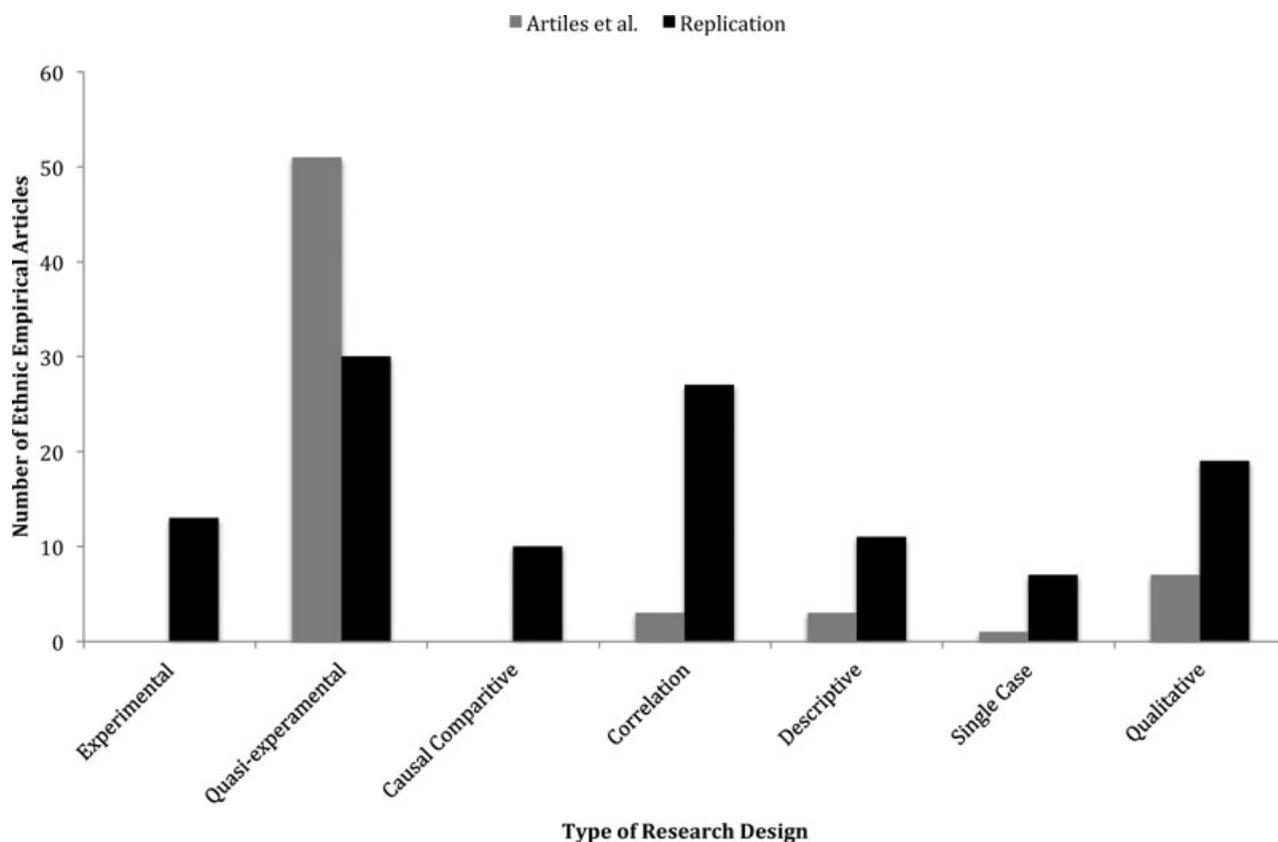


FIGURE 3 Frequency of experimental designs used in research on CLD students.

### Methodological Characteristics of Research on Ethnic Minorities

Methodological characteristics of studies on ethnic minority students were coded according to a category system developed by Artilles et al. (1997) (All coding categories are listed in the Appendix). Figure 3 presents data on the research designs used in articles on ethnic minority students (i.e., Ethnic Comparative + Ethnic Homogenous) during the period of this review compared to those in the Artilles et al.'s (1997) review. This figure shows dramatic changes in the design of research. In the earlier review, quasi-experimental designs dominated accounting for 88 percent of the studies, qualitative designs accounted for 7 percent and no other design had more than 5 percent. In contrast, this review found much greater diversity of designs; quasi-experimental and correlational designs each accounted for approximately one-quarter of all studies on ethnic minorities, qualitative made up 16 percent and experimental, causal-comparative, descriptive, and single case each accounted for 5 percent or more.

*Ethnicity of Participants.* The majority of research on a single ethnic group (i.e., Ethnic Homogenous) focused on African American (5.81 percent) and Latino (6.98 percent) students. Generally, studies that included more than one ethnic group (i.e., Ethnic Comparative), were on African American and

White (19.77 percent) students followed by Latin and White (4.65 percent). Again, there is a marked increase in the percent of articles that report ethnic minority information and importantly take the next step to disaggregate their data for individual subgroups. For ethnic comparative articles with three or more subgroups, 8.14 percent of the articles reported participants from African American, Latin, and White backgrounds, 3.29 percent from African American, Latin, Native American, and White backgrounds, and 8.14 percent from African American, Asian American, Latin, Native American, and White backgrounds.

*Location.* Artilles et al. (1997) found 55.2 percent of their selected articles took place in urban locations and our review identified 24.4 percent in urban locations, showing a dramatic reduction in these locations. Suburban locations accounted for 8.14 percent of the studies in our sample and 10.5 percent were conducted in multiple locations (e.g., both suburban and inner city, etc.). Artilles et al. (1997) reported 38 percent of the authors failed to report the location where their investigations were implemented. We found that even more of the studies (54.7 percent) did not report this information.

*Disability Diagnosis.* Artilles et al. (1997) recommended that researchers report information on procedures utilized to diagnose disabilities be included in empirical

studies to help better understand heterogeneity of the disability population and because of the varied diagnostic procedures used throughout the country. We found that reporting of diagnostic procedures has increased substantially in the last 11 years. Our analysis indicates that 81.4 percent of our sample report diagnostic procedures; in contrast, Artiles et al. (1997) only found 47 percent of their sample reported similar diagnostic procedures.

*Sample Size, Gender of Participants, Grade Level, and Educational Placement.* There was great variation in the size of sample used in the reviewed studies. Samples ranged from 1 to 130,000 participants with the median sample size of 53. The majority of studies (83 percent) included both boys and girls in their samples. Overall, the majority of students were recruited from elementary school groups (49 percent); this is comparable to the 52 percent reported by Artiles et al. (1997). We found that over one-third (36.05 percent) of the 86 studies were conducted in special education settings, over one-quarter (27.91 percent) took place in general education, and only 5.81 percent of the reports did not specify the educational setting in which the research was carried out. These findings contrast with those reported by Artiles, et al. (1997) who found that 72.4 percent of their sample ( $n = 56$ ) did not describe their educational setting.

## DISCUSSION

The purpose of public education is twofold. First, educators must provide students with basic knowledge and skills needed to take advantage of more advanced educational opportunities (e.g., college or vocational instruction). Second, educators must prepare students to meet challenges of life and become active contributors to society. Educators must assure all students the opportunity to succeed in school, regardless of race, class, gender, geographic locale, and disability. However, in every community there are influences that have strong effects on the local school system. These influences can come from parents, political and legal structures, and demographic characteristics, to name a few (Hoy & Miskel, 2001). The percentage of CLD students in public schools has increased from 22 percent in 1972 to 42 percent in 2003, primarily due to growth in Hispanic enrollments (NCES, 2005). The number of children aged 5–17 who speak a language other than English at home has doubled since 1979 (NCES, 2005). Additionally, more students from culturally diverse backgrounds and those living in poverty are attending public schools (Winzer & Mazurek, 1998). Garcia (2004) identified trends in the economic and environmental conditions in which CLD students live. “Of the 21.9 million children less than six years of age in 1998... five million (25%) were living in poverty” (p.1). Over 50 percent of non-White children were living in poverty; 72 percent lived in racially isolated neighborhoods. The poverty rate for immigrants is 50 percent higher than for those born in the United States and immigrants comprise 22 percent of all persons living in poverty (Camarota, 2001).

The increase in the CLD student population continues to challenge the school system because schools have been less prepared to meet the needs of these students. In 2001, the

NCLB was passed as an initiative to increase the academic proficiency of all students. NCLB was intended to reform education through four mechanisms: (1) improved accountability for states and schools, (2) more options for parents and students regarding school selection and additional education resources, (3) greater freedom for states and school districts in the spending of federal education funds, and (4) employing proven educational methods (U.S. Department of Education, 2005). Beginning with data from the 2002–2003 school year, each state was required to publish a state report card that includes outcomes for specific subgroups of students; results must be disaggregated by race/ethnicity, gender, disability status, migrant status, English proficiency, and economic status. Adequate school performance is based on overall performance and progress for each subgroup. Recent disaggregated NCLB data have prompted concerns, as substantial performance differences continue between males and females, whites, African Americans, Hispanic, and middle-class and low-socioeconomic status (SES) students (Donovan & Cross 2002; Porter, Linn, & Trimble, 2005).

Given the high visibility of issues of disproportionate representation and the underlying issue of disparate outcomes, as well as the demands of NCLB, there was reason to think that research on ethnic minority students would have increased in the last decade. In this study, we replicated the methods of Artiles et al. (1997). Specifically, we reviewed the entire contents of four journals that publish primary research in the areas of learning disabilities and special education. We asked whether there had been a substantial increase in research on ethnic minorities in special education since the Artiles et al.'s (1997) review. Similar to Artiles et al. (1997), several articles were identified as ethnic comparative, ethnic heterogeneous, ethnic homogeneous, or not reporting ethnic information. Artiles et al. (1997) suggested a need for research to report basic demographic information about the participants (e.g., language, ethnic minority status, SES, etc.). Importantly, there is an overall increase in the proportion of empirical articles with ethnic minority information reported for participants.

Another recommendation made by Artiles et al. (1997) was a need for researchers to disaggregate their analysis so represented changes could be assessed across subgroups. Often, CLD students are represented in the research on effective practices for teaching students; unfortunately, the findings for these students are rarely disaggregated from the findings for majority students (Donovan & Cross, 2002; Swanson, Hoskyn, & Lee, 1999), limiting their usefulness in determining the benefit of the intervention for minority populations. Researchers are beginning to disaggregate those data for subgroup analysis. This analysis found a marked increase in the proportion of ethnic comparative articles (from 1.43 percent to 6.09 percent). This may be a result of the call for disaggregated data from NCLB (2001). Hopefully, this trend will continue to increase as we look for evidence-based practices. Unfortunately, there was a slight decrease in the number of articles that reported ethnic minority information from 2001 to 2005. Some scholars may suggest although there has been an overall increase (6.09 percent) in the proportion of articles with ethnic minority information reported, the overall proportion is still low. It is difficult to set a standard for

how much research should be disaggregated into ethnic categories. Some potential hypotheses regarding why this proportion of articles is not higher include: (1) the sample size for individual studies may not be large enough to support statistical analysis of subgroups with adequate power, (2) analysis of individual subgroups may add substantially to the length of manuscripts causing authors and editors to cut rich and potentially valuable information, and (3) the response cost needed to run additional analysis may be high, given a complex primary analysis.

Artiles et al. (1997) suggested a need for more studies in distinct settings with single disability and ethnic groups to help us obtain an in-depth knowledge of the interplay among disability, sociocultural background, and other cultural factors for particular ethnic groups. In this study, we found only a slight increase in the proportion of articles presenting data on one ethnic minority group (from 3.40 percent to 4.11 percent). Too often, insufficient demographic data are provided about CLD students (Artiles et al., 1997; Donovan & Cross, 2002; Gersten & Baker, 2000; Simmerman & Swanson, 2001; Troia, 1999). For example, 87.80 percent of the identified empirical articles did not contain ethnic minority information about participants in this study. However, we are making gains in the proportion of articles that disaggregate their data. The disaggregation of ethnic minority and disability groups may help investigators to discern complex interplay between ethnicity and disability. Researchers should look at the interactions between important cultural/linguistic characteristics and outcomes. Interestingly, there are many questions about which variables are most important for characterizing students' cultural and linguistic relations, it may be more important to increase the number of studies that report results based on some cultural/linguistic variables and remember that no variable or set of variables can capture the full range of cultural and linguistic dynamics. Results should be disaggregated whenever it can be done with adequate power. Results indicating a difference between groups are important and results finding similarities are equally important. With continued recruitment, training, support, and retention of scholars who are interested in conducting research with ethnic minority students with disabilities, we can continue to increase the base of knowledge in this area. Scholars are beginning to grapple with these complex variables and may identify which variables are the most important for educators to establish evidence-based practices.

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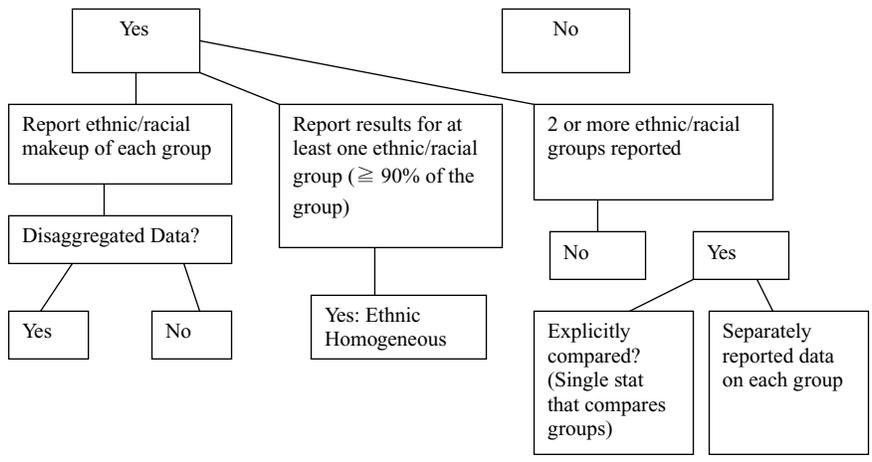
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- Causal-comparative—used to explore possible causal relationships between variables (p. 288).
- Correlational—one purpose is to search for variables, measured at one point in time, that predict a criterion variable measured at subsequent point in time. Another purpose is to search for possible causal patterns among variables (p. 319).
- Quasi-experimental—a type of experiment in which research participants are *not randomly* assigned to the experimental and control groups.
- Experimental design—a type of experiment in which research participants are randomly assigned to the experimental and control groups.
- Single-subject design
  - Multiple baseline
  - Alternating treatment
  - Reversal
  - Withdrawal
- Qualitative designs—qualitative data analysis is primarily an inductive process of comparison in which the categories and patterns emerge from the data from specific questions that the researcher asks about the data. The researcher codes the data into categories, and then identifies (sorts) similarities and distinctions between categories to discover patterns or relationships among the categories. Synthesis or analysis is the key to identify patterns. Types of analysis are called strategies rather than procedures (e.g., case study).
  - No—These are not considered part of our analysis
    - Lit reviews
    - Meta analysis
- Type of Study: Was There Any Information on the Ethnic/Racial Makeup of the Participants Overall?

**APPENDIX**

Selection Criteria

- Empirical Articles: Is the Article Empirical?
  - Yes
    - Quantitative group designs
      - Descriptive—involves describing characteristics of a particular sample of individuals or other phenomena (p. 288).



- Ethnic comparative—comparing two or more ethnic groups to each other and data disaggregated in the results section.
- Ethnic homogeneous—one racial/ethnic/or English language learner. Group must be equal or more than 90 percent of total *N*.
- Ethnic heterogeneous—subjects are described in terms of racial/ethnic/ELL groups, however, the results are not disaggregated.
- Locale
  - Urban
  - Suburban
  - Rural
  - Multiple
  - Not Specified (e.g., population of city)
- Information on Disability Diagnosis
  - Yes—a description of disability or diagnosis criteria (e.g., school identified, IQ and Achievement Testing Information available for participants, psychological diagnosis, etc.)
  - No—no information provided
- Sample Size
  - *N*—number of subjects
  - Not specified
- Sex
  - Boys only
  - Girls only
  - Boys and girls
- Not specified
- Grade Levels
  - Preschool
  - K-Elementary (K-6)
  - Secondary (7–12)
  - Postsecondary (vocational training, community college, etc.)
  - Other
    - Specify
  - Not Specified
- Educational Placement
  - Day care
  - General education
    - Mainstream
    - Inclusion
  - Special education
    - Resource room
    - Self-contained
  - Residential
    - Group home
  - Head start
  - Not specified
- Ethnicity of Participants
  - African American only
  - Hispanic only
  - Asian American only
  - Native American only
  - Not reported

## About the Authors

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