Abstract Title Page

Title:
Design Experiments: Developing and Testing an Intervention for Elementary School-age Students who use Non-mainstream American English Dialects

Authors and Affiliations:
Shurita Thomas-Tate, Missouri State University
Carol McDonald Connor, Arizona State University
Lakeisha Johnson, Florida State University

Abstract Body

Background / Context:
Reading comprehension, defined as the active extraction and construction of meaning from all kinds of text (Snow, 2001), requires children to fluently decode and understand what they are reading (Rapp, van den Broek, McMaster, Kendeou, & Espin, 2007; Scarborough, 2001). Basic processes underlying reading comprehension are complex and call on the oral language system and a conscious understanding of this system, i.e., metalinguistic awareness, at all levels from semantic and morpho-syntactic to pragmatic awareness (Morrison, Bachman, & Connor, 2005). Higher order meta-cognitive skills also appear to contribute to comprehension (Rapp, et al., 2007). Thus there is emerging research for what we are calling *the usual suspects* (NRP, 2000). These include semantic knowledge and vocabulary (Biemiller & Boote, 2006), comprehension strategy use (NRP, 2000), awareness of text structure (Williams, Stafford, Lauer, Hall, & Pollini, 2009), background knowledge (Rapp, et al., 2007), and self-regulation, including attention (McClelland et al., 2007) among others. Even with the usual suspects, however, there is much to be learned. For example, the association between use of non-mainstream American English (NMAE), such as African American English (Charity, Scarborough, & Griffin, 2004), and literacy has been documented in correlational research but it is not clear that there is a causal association. Indeed, recent research suggests that it is not NMAE use per se that is related to reading (Connor & Craig, 2006) but rather the use of MAE rather than NMAE in contexts where it is expected, such as school (Connor & Craig, 2006; Craig, Zhang, Hensel, & Quinn, 2009). New findings suggest that those students who continue to use NMAE in situations that expect the use of School English (i.e., MAE), such as writing tasks, past second grade are at serious risk for reading underachievement (Terry, Connor, Petscher, & Conlin, 2012). What is unclear is whether dialect shifting is malleable, whether explicit focus on the contrasts between MAE and NMAE facilitate shifting, and whether teaching children dialect shifting actually leads to improved literacy skills. At the same time, we wanted to design an intervention that would teach children who used NMAE how to shift to MAE in contexts that expected the use of more formal English. Hence we decided to conduct an experiment as part of the design and development process because until it was established that dialect shifting was malleable, the benefit of developing a targeted intervention was unclear. Moreover, given the politics associated with teaching NMAE (e.g., Oakland Ebonics controversy), we also wanted to know whether it was enough to teach the NMAE features most frequently used when MAE was expected without explicitly contrasting NMAE and MAE features.

Purpose / Objective / Research Question / Focus of Study:
This design study was designed to test whether second through fourth graders could be taught to use School English (i.e., MAE) rather than Home English (NMAE) when writing (a context where School English is expected), and whether there was an advantage to providing an explicit focus on the contrasts between Home English and School English.

Setting:
The design experiment was conducted at schools in North Florida where at least 50% of the students qualified for the US Free and Reduced Lunch program, a frequently used marker of family poverty. The schools were also racially and ethnically diverse.

Population / Participants / Subjects:
Second through fourth grade students (n = 116) who used at least one feature of NMAE on the Diagnostic Evaluation of Language Variation Screener (DELV-S) part one, an oral language assessment, or in a written narrative participated in the study.

Intervention / Program / Practice:
For this design experiment, we developed a short 4-week intervention. Based on the evidence that many first graders begin using more features of School English in first grade (Terry et al., 2012b) and that dialect shifting after first grade is related to school context and not language ability (Terry et al., 2012a), we focused on students in second, third and fourth grade. We selected writing as the target outcome based on the findings by Craig and colleagues (2009) that dialect use in writing but not oral language was associated with reading outcomes. In addition, work by Cooper & Thomas-Tate (2009) identified three features of NMAE that are most frequently used in students' writing and focused on those. Specifically, target grammatical forms included the *copula*, *plurals*, and *past tense*. Finally, to answer our question regarding implicit versus explicit focus on dialect shifting, we developed one intervention and then integrated a dialect awareness component into it. Both interventions required the same amount of time to implement and were implemented by the same interventionists.

The editing and editing + dialect awareness interventions took place for 15-20 minutes per day, four days per week, over a four week period. A trained interventionist escorted each small group of students into a quiet area of the school to administer the intervention. Both interventions used the following procedures: A cyclical approach was used to teach two forms each week. The general framework for the study was an introduction to the dialect forms of the day 1, receptive language activities on day 2 to build a foundation for the new knowledge, and expressive language activities on day 3 to practice using the forms. On day 4, participants were given a task where they had to write a brief story or edit sentences using the target features of the week, as a weekly measure of their understanding and usage. Both intervention groups completed receptive and expressive tasks for each form. This included activities such as sentence sorts, cloze sentences, sentence completion, sentence generation, and editing sentences, puzzles, memory games, and bingo.

In addition to the activities described above, the editing + dialect awareness intervention also provided information on home (informal) versus school (formal) language and the settings in which each were appropriate through contrastive analysis. The metaphor of informal versus formal clothing was used to teach this concept (Swords & Wheeler, 2006), along with reading literature that included both formal and informal speech patterns. This metaphor was used throughout the remainder of the intervention. Participants were reminded when to use either home or school English based on the activity.

Research Design:
For this design experiment, once all participants were recruited, they were randomly assigned within classrooms to one of three conditions: (1) an untreated control (n = 38 students; 6 2nd grade; 14 3rd grade; 18 4th grade); (2) an editing intervention without explicit attention to dialect shifting (n = 39; 7 2nd grade; 16 3rd grade; 16 4th grade); and (3) an editing intervention with explicit attention to dialect shifting, specifically focusing on using Home English and School

English (n = 39 students; 7 2nd grade; 16 3rd grade; 16 4th grade). Preliminary analyses revealed no pre-intervention differences by group for grade [X^2 (4) = .420, p = .981], gender [X^2(2) = 1.664, p = .436], or race/ethnicity [X^2(6) = 4.020, p = .674]. Nor were there any pre-intervention group differences on the measures described below [Wilks Lambda = .926, F(6, 196) = 1.282, p = .267], including NMAE use on the DELV-S [F(2, 112) = 1.650, p = .197] and in the writing sample [F(2, 98) = 1.042, p = .357] (see Table 2).

Data Collection and Analysis:

Measures

Use of NMAE was assessed in three ways. *The DELV-S* was administered as part of the screening protocol prior to the intervention utilizing the protocol described in the examiners' manual individually with all students prior to, and following, the intervention time period. In Part 1 of this measure, students were asked to describe actions in pictures and to respond to questions based on pictures. Responses were scored for the frequency of MAE and NMAE features produced, which allowed speakers to be classified as having strong, some, or no variation from MAE. Scores from each item in Part 1 were further analyzed to obtain the ratio of dialect variation of each student (DVAR, Terry, Connor, Thomas-Tate & Love, 2010). DVAR is calculated by dividing the total score in column A (response varies from MAE) of the DELV by the sum of columns A and B (response is MAE). This number is then multiplied by 100 to obtain the percentage of dialect variation.

The Written Language Samples. As a measure of spontaneous dialect usage in a narrative, a writing task was administered in a whole class setting prior to, and following, the intervention. In this task, students were shown a picture, provided with a prompt, and were instructed to write a story about what they thought happened in the picture of two boys drinking milk. The prompt was: Write a story about what happened before the boy spit out his milk. A thirty-minute timeframe was allotted for students to both plan and write their narratives. Participants did not receive any assistance during the writing task. The written language samples were transcribed and analyzed using the Systematic Analysis of Language Transcripts software (SALT, Miller & Chapman, 2006). Morphosyntactic AAE features used were characterized using taxonomies established by Thompson et al. (2004). Frequency counts were generated for AAE features, as well as dialect density calculated using the ratio of dialect features produced to total words used (DDMs, Craig & Washington, 2000). The mean number of words used in the written sample was 106 on the pre-intervention administration and 121 on the post-intervention administration.

Editing Task. As a measure of ability to identify and change NMAE dialect forms used in sentences to School English, third and fourth grade students were administered a researcher-developed editing task in a group setting prior to, and following, the intervention. The target forms used in the sentences were the copula, plurals, and past tense, dialect forms frequently used in elementary student's writings (Cooper &Thomas-Tate, 2009) and the target of the interventions. Students were told to read each sentence and to circle the part that was not correct. Students then rewrote the sentences using School English grammatical forms. An example item was, *They watching TV in the back room*. Second graders were only administered this task following the intervention.

Findings / Results:
We used general linear multivariate (GLM) models to analyze the effect of the three conditions on students' use of Home versus School English on the three post-intervention assessments including the (1) percentage of items correctly edited to School English on the editing task; (2) DVAR percent from the DELV-S; and (3) frequency of target Home English features used on the writing task. Means and standard deviations for each group are provided in Table 3. GLM allows us to control the increased risk of type I errors related to multiple analyses.

Analysis results revealed significant treatment group differences when considering performance on all three outcomes [Wilkes Lambda = .878, F(6, 222) = 928.53, p = .024] with students in the editing + dialect awareness intervention utilizing more School English and less Home English compared to students in the other groups (see Figure 1). Post-hoc pairwise examination of means for each group (α = .075 to insure adequate power) revealed that, in general, compared to control group students, students in the editing + dialect awareness intervention condition performed significantly better on the post-intervention editing task (mean difference = 19.56, p = .001, see Figure 1, top) and had lower post-intervention DVARs (mean difference = 9.66, p = .060, see Figure 1, bottom). Students in the editing + dialect awareness condition also achieved significantly higher editing scores than did students in the editing alone intervention (mean difference = 10.17, p = .069). Students in the editing alone intervention condition did not perform significantly differently than the control group except on the editing task, where there was a trend (mean difference = 9.39, p = .095). There were no significant differences among groups with regard to frequency of target intervention features used in the writing sample although comparison of the means suggest that students in the editing + dialect awareness condition used fewer target Home English forms than did students in the other conditions.

We then examined whether there were any differences by grade. Multivariate analyses revealed no significant differences in outcomes by grade [Wilks' Lambda = .917, F(6, 206) = 1.528, p = .170]. Nor were there condition by grade interactions [Wilks' lambda = .909, F(12, 272) = .837, p = .612]. That is, overall results did not depend on the grade level at which the interventions were provided.

Conclusions:
This study examined the effects of two interventions for teaching 2nd through 4th grade students to dialect shift (i.e., use School English in their writing). Two important findings emerged from this study: First dialect shifting is malleable. Overall, students in both treatment conditions demonstrated greater knowledge and use of three MAE/NMAE contrastive features in written tasks than students in the control group. Second, explicitly contrasting home and school language enhanced dialect-shifting instruction. Students in the Dialect Awareness treatment group had significantly better outcomes on all post-intervention measures than either the editing-only treatment group or the control. Based on this design experiment, we extended the dialect awareness intervention to eight weeks and conducted an efficacy study to examine whether improving students' ability to dialect shift was directly and/or indirectly (through oral language) related to improve reading comprehension.

Appendices.

Appendix A. References.

Biemiller, A., & Boote, C. (2006). An effective method for building meaning vocabulary in primary grades. *Journal of Educational Psychology, 98*(1), 44-62.

Charity, A. H., Scarborough, H. S., & Griffin, D. (2004). Familiarity with "School English" in African-American children and its relation to early reading achievement. *Child Development, 75*, 1340-1356.

Connor, C. M., & Craig, H. K. (2006). African American preschoolers' use of African American English and their emergent literacy development: A complex relation. *Journal of Speech, Language and Hearing Research, 49*(4), 771-792.

Craig, H. K., Zhang, L., Hensel, S. L., & Quinn, E. J. (2009). African American English-speaking students: An examination of the relationship between dialect shifting and reading outcomes. *Journal of Speech, Language, and Hearing Research, 52*, 839-855.

McClelland, M. M., Cameron, C. E., Connor, C. M., Farris, C. L., Jewkes, A. M., & Morrison, F. J. (2007). Links between behavioral regulation and preschoolers' literacy, vocabulary, and math skills. *Developmental Psychology, 43*(4), 947-459.

Morrison, F. J., Bachman, H. J., & Connor, C. M. (2005). *Improving literacy in America: Guidelines from research*. New Haven, CT: Yale University Press.

NRP. (2000). National Reading Panel report: Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. In N. R. Panel (Ed.). Washington DC: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Child Health and Human Development.

Rapp, D. N., van den Broek, P., McMaster, K., Kendeou, P., & Espin, C. A. (2007). Higher-order comprehension processes in struggling readers: A perspective for research and intervention. *Scientific Studies of Reading, 11*(4), 389-312.

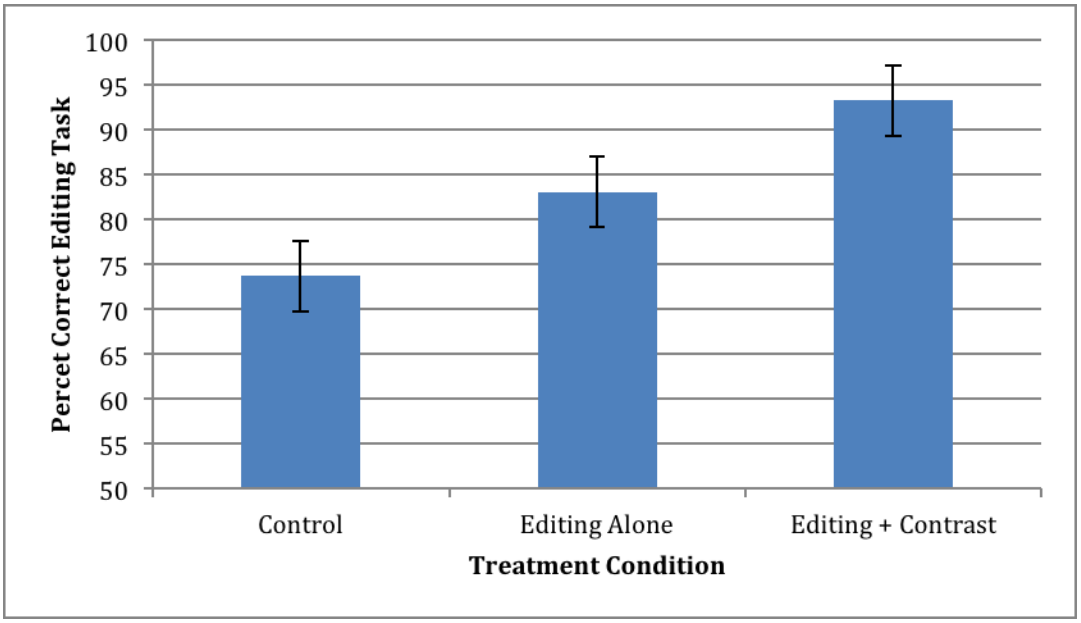
Scarborough, H. S. (2001). Connecting early language and literacy to later reading (dis)abilities: Evidence, theory, and practice. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (pp. 97-110). New York: Guilford Press.

Snow, C. E. (2001). *Reading for understanding*. Santa Monica, CA: RAND Education and the Science and Technology Policy Institute.

Terry, N. P., Connor, C. M., Petscher, Y., & Conlin, C. A. (2012). Dialect variation and reading: Is change in Nonmainstream American English use related to reading achievement in first and second grade? *Manuscript in press, Journal of Speech, Language, and Hearing Research*.

Williams, J. P., Stafford, K. B., Lauer, K. D., Hall, K. M., & Pollini, S. (2009). Embedding reading comprehension training in content-area instruction. *Journal of Educational Psychology, 101*(1), 1-20.

Appendix B Tables and Figures



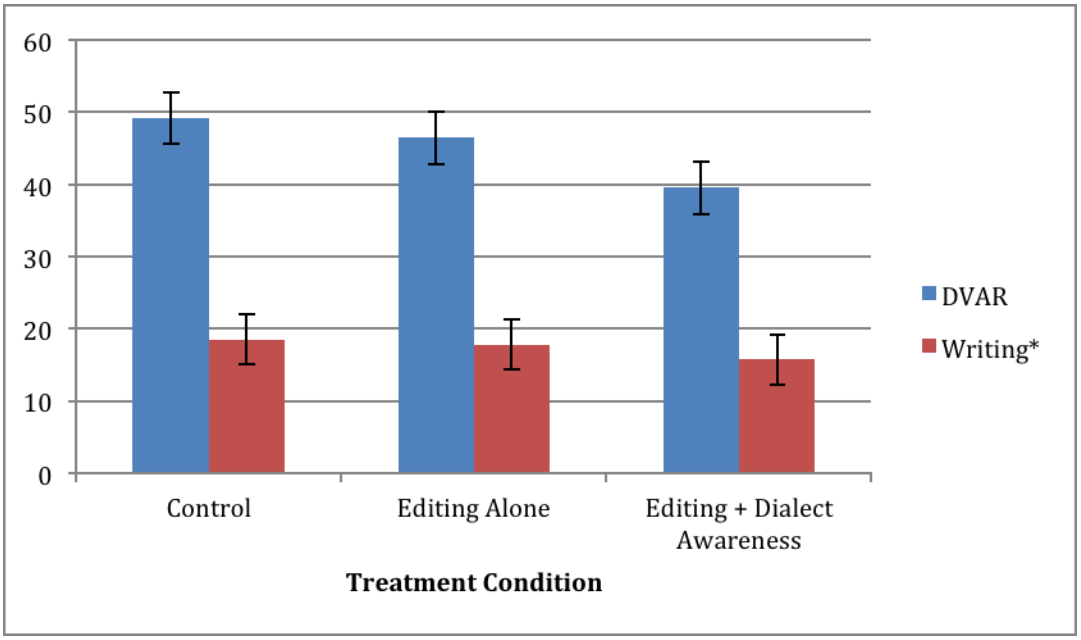


Figure 1. *Top*. Results for the Editing post-test by condition. Higher percentages correct reflect *greater* use of School English. *Bottom*. Results for use of Home English on the DELV- S, (DVAR, which is the percent of Home English forms used) and on the Writing task, which is the number of target Home English features used in responding to a writing prompt, by condition. *For the writing task, we multiplied the number of features by 10 to put the two test metrics on a

similar scale. Higher scores reflect *less* use of School English. Error bars represent standard errors.