



Outcome Results From Yo Veo: A Visual Intervention for Teachers Working With Immigrant Latino/Latina Students

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Abstract

Objective: This study reports results from the outcome evaluation of Yo Veo, a visual intervention with schoolteachers, which structures conversations about challenges that teachers face teaching Latino/Latina immigrant students. **Method:** The intervention was delivered to teachers at two middle schools in the southeastern United States, one with a large and another with a growing proportion of Latino/Latina students. Questionnaire data were collected from 46 teachers at baseline, posttest, and 9-month follow-up. Measures were adapted at the second school as part of the pilot process. **Results:** Results show improvements in teachers' scores on cultural competency, multicultural teaching practices, positive classroom management strategies, beliefs about parental involvement, mental health competency, knowledge of barriers to mental health service access, and attitudes toward undocumented immigrants. Measures on which there was no change or changes in the negative direction are also discussed. **Conclusions:** Yo Veo is a promising approach for promoting awareness, attitudes, and understanding among teachers working with Latino/Latina immigrant students and families. Further research is required to prepare the intervention for wider testing and dissemination.

Keywords

intervention, teacher attitudes, Latino, immigrants, diversity training

The United States is experiencing one of the largest immigration waves in its history, with Mexican immigrants comprising the largest proportion of new arrivals (Camarota, 2012). Southeastern states have become popular destinations for immigrants, although this region historically has not been a hub for newcomers. Between 1990 and 2010, North Carolina experienced a 525% increase in its immigrant population, which was the greatest percentage increase of any state (Camarota, 2012), with the majority of immigrants coming from Mexico and other Latin American countries.

Migration and settlement in the United States can be challenging for children and families. Immigrant families often experience traumatic migration journeys only to face prejudice and discrimination in the receiving communities. In addition, after their arrival in the United States, immigrant families experience the challenges of cultural adjustment, poverty, and difficulties related to documentation status (Passel, 2006; Pew Hispanic Center, 2007; Pumariega, Rothe, & Pumariega, 2005; Villenas, 2002). These stressors likely contribute to educational and mental health disparities among Latino/Latina youth, such as lower reading and math proficiency; high dropout rates; and high rates of depression, suicidal ideation, anxiety disorders, and alcohol use (Aud et al., 2012; Centers for Disease Control and Prevention, 2010; Fry, 2003; Gandara & Contreras, 2009; Garcia, 2001; Huber, 2010; Merikangas et al., 2010; Pumariega et al., 2005).

Educators in new receiving communities often have no experience with immigrant families and lack the preparation needed to support this vulnerable population (Katz, 1999; Smith-Adcock, Daniels, Lee, Villalba, & Indelicato, 2006; Stamps & Bohon, 2006). Moreover, these educators are often embedded in communities that are ambivalent about newcomers (Donnelly, 2005). In combination, a lack of preparation and knowledge about their new immigrant students can substantially diminish a teacher's ability to have an impact on student success and well-being (Anderson, 2004; Villalba, Brunelli, Lewis, & Orfanedes, 2007).

The typical antidote to such deficits is in-service training programs focused on diversity and multiculturalism; however, empirical support showing such programs are effective is scant (Bunch, 2007; Holladay & Quiñones, 2005; Paluck, 2006; Paluck & Green, 2009). This lack of program effects might be accounted for by the programs' lack of innovation and superficial efforts to tackle ingrained beliefs or implicit

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attitudes that professionals hold regarding a population group considered “less than” or “outsiders” (Chapman, Hall, Colby, & Sisler, 2014a; Chapman, Hall, & Sisler, 2014b; Haidt, 2001).

Yo Veo, which means “I see” in Spanish, is an in-service teacher training that uses visual materials as the intervention’s “active ingredient” to both engage ingrained attitudes and create a space that enables professionals to incorporate new information and reconsider their attitudes (Chapman & Colby, 2014c). *Yo Veo* draws upon the experience of an immigrant child and her family as captured in an award-winning photo documentary, illustrating migration realities such as family separation, economic hardship, acculturative stress, and other threats to well-being. *Yo Veo* was developed to help teachers understand the life experiences of new immigrant populations, especially Latino/Latina students, and to offer teachers ways of enhancing their work with these students and families. Thus far, *Yo Veo* has been delivered twice at two middle schools in North Carolina.

This article reports the results from the outcome evaluation of *Yo Veo*. Other findings from our process evaluation as well as qualitative analysis of the intervention process and experience have been published elsewhere (Chapman et al., 2014a, 2014b). Analyses for the current investigation were driven by a primary research question, that is, for schools with high or growing proportions of Latino/Latina immigrant students, does a visually based training program for middle school teachers contribute to improved teacher attitudes toward immigrants, enhanced empathy for ethnic minorities, positive strategies for classroom management, and improved attitudes toward parent involvement in children’s education?

Study Design and Intervention Methods

Study Design

Two separate pilot tests were conducted at two middle schools in North Carolina in the same school district which is not identified here by prior agreement. School 1 received the intervention in 2011 and School 2 in 2012. Both pilots took place on scheduled teacher workdays in August before the opening of the academic year. Using a single-group repeated measures design, outcome data were collected at each school via a battery of paper-and-pencil self-report questionnaires at pretest, immediate posttest, and 9-month follow-up. Prior to implementing the pilot at School 2, the project team revised some of the outcome measures to better reflect the intended effects of the intervention (i.e., multicultural attitudes, empathy, and attitudes toward undocumented immigrants). Given these revisions, the findings from each pilot are reported separately.

All study procedures were approved by the authors’ institutional review board. Teachers’ participation in data collection was voluntary, although participation in the intervention was required by the principal at School 1 and highly recommended by the principal at School 2. Data were collected confidentially at both schools to minimize social desirability bias and to protect individuals from risks posed by identification. Each

participant received a US\$40 gift card after completing the follow-up questionnaire.

Intervention Settings

Both middle schools were located in a school district in North Carolina that had experienced a dramatic increase in Latino/Latina immigrant families over the past two decades. The school district is located in a primarily rural county. School 1 had a high proportion of Latino/Latina immigrant students and School 2 had a growing proportion of Latino/Latina immigrant students. In addition, school leaders at each school had expressed an interest in having the training conducted in their school, and these leaders valued the research and evaluation components of the pilot program.

The first pilot was conducted at School 1, which was located in a small town in a rural area. The principal investigator (PI) had ongoing relationship with the school administration and teachers because she had been conducting collaborative, community-based research with this school since 2007 (see Chapman et al., 2014b). The principal of School 1 approached the PI about conducting a staff training to improve teacher interactions with Latino/Latina immigrant students and parents.

School 1 had 33 teachers, all of whom participated in the *Yo Veo* program, but only 25 participated in the data collection. The School 1 student body consisted of 429 students (55% male and 45% female) in Grade 6 through Grade 8. The racial/ethnic breakdown of the student body was 64% Latino/Latina, 17% Black, 12% White, 5% multiracial, and 1% Asian. Across all grades, 53% of students scored at or above grade level in reading and 72% scored at or above grade level in math on state-required end-of-grade tests.

The second pilot was conducted at School 2, which was a new school—the study year was the second year of the school’s operation—located at the crux of a rural area and the outskirts of a college town. School 2 has a rapidly growing Latino/Latina population; and Latino/Latina students comprised 12% of the student body in 2011, 16% in 2012 (study year), and nearly 35% in 2014. The research team had not been working in School 2 and the PI approached the school principal about implementing *Yo Veo* with his staff because of the school’s growing Latino/Latina student population.

School 2 had 23 out of 29 teachers who participated in the *Yo Veo* program, of whom 21 participated in data collection. *Yo Veo* participation was not required but highly recommended by the school’s principal and took place on an optional teacher workday prior to the start of the academic year. Teachers who did not participate were unable to attend because of the pre-existing commitments. The School 2 student body consisted of 555 students (49% male and 51% female) in Grades 6 through 9. During the study period, the racial/ethnic makeup of the student body was 68% White, 16% Latino/Latina, 11% Black, 5% multiracial, and 1% Asian. In School 2, 79% of students scored at or above grade level in reading and 87% scored at or above grade level in math in end-of-grade tests.

All data collection was done via pencil-and-paper surveys. Pretest data were collected prior to the training. Posttest and follow-up collection packets were distributed in school by the school administration. In School 1, these packets were put in teacher mailboxes for teachers to return through the mail. In School 2, the follow-up data collections were distributed during meetings with time provided for completion.

Intervention Description

Yo Veo is a 2-day, visually based teacher-training program that aims to (a) raise awareness about the migration experiences of Latino/Latina students and their families; (b) inform teachers about the challenges these families face related to mental health needs, poverty, and documentation status; (c) create a positive shift in teachers' attitudes and beliefs about Latino/Latina immigrants; (d) elicit teachers' empathy for Latino/Latina immigrant students and parents; and (e) motivate supportive and culturally sensitive behaviors among teachers.

Yo Veo centers on an award-winning series of photographs, *Crossings: Dream of the Rich North* (Jarman, 2007), which chronicles the story of a young girl and her family as they choose to emigrate from Mexico and adjust to life in the United States. Jarman granted the project team permission to use her photographs. Jarman's photographs and accompanying captions prompt thought and discussion about issues related to culture and immigration, including family pressures, economic realities, prejudice, acculturation, legal concerns, and education.

The training uses an image-based facilitation method based on visual thinking strategies (VTS; Housen, 2002; Yenawine, 1999). VTS employs the following three open-ended questions to prompt observation and reflection: "What do you see going on in this image?" "What is it you see that makes you say that?" and "What more can we find?" Through facilitated group speculation about individual images, combined with more information provided from the photographer's captions and information on Latino/Latina immigrants' migration experiences, participants are able to reconsider preexisting notions of their students and incorporate new information that increases the likelihood of more constructive teacher-student relationships. Interested readers can view Jarman's photographs at www.janetjarman.com. Please contact the first author for further information about the training protocol.

Pilot at School I

Method

Participants

Of 33 teachers who completed the pretest, 25 (75.8%) also completed posttest and follow-up assessments. Thus, the School 1 final sample used for data analysis included 25 participants (76% female and 24% male). The average age of participants was 39.2 years (standard deviation [SD] = 13 years).

The racial/ethnic breakdown of the sample was 88% White American, 8% African American, and 4% Latino/Latina American. In terms of educational level, 68% of participants had a bachelor's degree and 32.0% had a master's degree. The mean years of teaching experience was 13.2 (SD = 10.5).

Outcome Variables and Measures

The outcome variables and measures selected for this pilot were based on those used in the Bridges teacher-training program (Calzada & Bridges Team, 2007), which is designed for elementary school teachers working with Afro-Caribbean immigrant and refugee children. The outcome variables included assessment of eight areas of teachers' perceptions or competencies: positive strategies for classroom management, beliefs regarding the importance of parental involvement in children's education, perceptions of parental involvement behaviors or practices, cultural competency, multicultural teaching practices, awareness of mental health symptoms, mental health competency, and knowledge of barriers to mental health services.

Cultural competency. Teacher cultural competency was measured using the Bridges Teacher Questionnaire (BTQ; Calzada, 2010). The 27-item survey asks respondents to rate their awareness, knowledge, beliefs, skills, and behaviors regarding multiculturalism in their school (e.g., How well do you know the prevailing beliefs, customs, norms, and values of the cultural groups in your school?). All items use a 4-point Likert-type response scale ranging from *not at all* (= 1) to *very well* (= 4). A cultural competency score was calculated by averaging responses, with higher scores indicating higher levels of cultural competency.

Multicultural teaching. Teachers' classroom use of multicultural teaching practices was measured using the BTQ (Calzada, 2010). Participants rated 17 multicultural teaching practices (e.g., I talk to my students about how important it is to know about their ethnic/cultural backgrounds) using a 5-point Likert-type response scale ranging from *not at all* (= 1) to *very much* (= 5). A multicultural teaching practices score was attained by averaging responses, with higher scores indicating more frequent classroom use of multicultural teaching practices.

Positive classroom management. Teachers' use of positive strategies for classroom management was measured using the Positive Strategies subscale of the Teacher Strategies Questionnaire (Webster-Stratton, 2005). Participants rated how frequently they used the 17 positive strategies (e.g., reward good behavior with incentives) using a 5-point Likert-type response scale ranging from *rarely or never* (= 1) to *very often* (= 5). An overall score for positive teacher strategies score was calculated by averaging responses, with higher scores indicating more frequent use of positive strategies.

Importance of parental involvement. Teachers' beliefs about the importance of parental involvement in their child's education were measured using the school–family–community partnerships survey (SFCPS; Epstein, Salinas, & Horsey, 1994). Participants rated the extent to which they agreed or disagreed with the 18 statements about the importance of parental involvement (e.g., Parent involvement can help teachers be more effective with more students) using a 5-point Likert-type response scale ranging from *strongly disagree* (= 1) to *strongly agree* (= 5). An overall score was attained by averaging responses, with higher scores indicating stronger beliefs in the importance of parental involvement in the child's education and school.

Parental involvement practices. The SFCPS (Epstein et al., 1994) was also used to measure the teachers' perceptions of the importance of their behaviors on parental involvement. Participants rated the importance of the 13 behaviors teachers could perform to encourage parental involvement in their children's education (e.g., Request information from parents on their children's talents, interests, or needs) using a 4-point Likert-type response scale ranging from *not important* (= 1) to *very important* (= 4). An overall score was attained by averaging responses, with higher scores indicating stronger beliefs in the importance of teachers' behaviors on parental involvement.

Awareness of mental health symptoms. The variable for teacher awareness of symptoms of mental health problems was measured using the BTQ (Calzada, 2010). Participants rated the extent to which they were aware of symptoms of attention-deficit hyperactivity disorder, oppositional defiant disorder, posttraumatic stress disorder, conduct disorder, depression, and anxiety using a 4-point Likert-type response scale ranging from *strongly disagree* (= 1) to *strongly agree* (= 4). A score for mental health symptom awareness was attained by averaging the six responses; higher scores indicated greater awareness of symptoms of mental disorders.

Mental health competency. The teachers' mental health competency was measured using the BTQ (Calzada, 2010). Participants rated 6 items based on their abilities to address student mental health issues (e.g., I know how to use strategies in the classroom that help children with mental health problems) using a 4-point Likert-type response scale ranging from *strongly disagree* (= 1) to *strongly agree* (= 4). A final score was attained by averaging the responses, with higher scores indicating higher levels of teacher competency to address issues related to student mental health.

Knowledge of barriers to mental health services. Items on the BTQ (Calzada, 2010) were also used to assess teachers' knowledge of barriers preventing students and their families from accessing mental health services. Participants gave dichotomous *yes/no* responses to indicate the presence of the following five barriers to services: misunderstanding of mental health problems, culture or religious beliefs, lack of information, mistrust

of mental health service providers, and embarrassment or shame. A score for teachers' knowledge of barriers to mental health services was obtained by summing the number of barriers endorsed.

Results

The data were analyzed with SPSS version 19. We examined the data for patterns of missing values. Only 0.8% of values were missing, and missing responses appeared to be missing at random. Missing data were handled using the expectation maximization algorithm (Dempster, Laird, & Rubin, 1977; Little & Rubin, 1987; McLachlan & Krishnan, 1997). We also examined the distributions of the outcome variables, all of which were normally distributed.

Table 1 displays the means, standard deviations, and internal consistency reliability values for the outcome variables. To test the within-subject effects or the equality of means across the three time points (i.e., pretest, posttest, and follow-up), we performed a series of one-way repeated measures analysis of variance (ANOVA).

With single-group repeated measures, correlations can exist between variables across time, and such correlations violate the assumption of sphericity. Mauchly's test of sphericity produced nonsignificant results for all outcome variables with the exception of multicultural teaching practices. In this instance, the Greenhouse–Geisser correction was applied to correct for the violation of the sphericity assumption (Vasey & Thayer, 1987). We then used Bonferroni post hoc pairwise comparisons to identify significant differences in scores across time points. The partial eta square values (η_p^2) indicate the proportion of the variance in each outcome variable that is attributable to the effect of change over time. These estimates of effect size are useful for comparisons across studies with similar designs; however, they may overestimate the effect size (Levine & Hullett, 2002). Nonetheless, until other, less biased estimates of effect size for within-subjects repeated measures ANOVA (e.g., generalized ω^2) are incorporated into statistical software packages, the reporting of partial eta square is recommended (Lakens, 2013).

Pilot Replication at School 2

Method

Participants

Of the 23 teachers who completed the pretest, 21 (91.3%) also completed posttest and follow-up assessments. Thus, the final sample used for data analysis included 21 participants (68.2% female and 30.4% male). The average age of participants was 39.1 years ($SD = 9.9$). The racial/ethnic breakdown of the sample was 82.6% White American, 4.5% African American, 4.5% American Indian or Native American, and 4.5% multiracial/multiethnic. In terms of educational attainment, 40.9% of participants had a bachelor's degree and

Table 1. Means, Standard Deviations, Internal Consistency Reliabilities, and One-Way Repeated Measures Analyses of Variance for the Effects of Yo Veo on the Outcome Variables at School 1.

Variable	1. Pretest		2. Posttest		3. Follow-up		F(2, 48)	p	η^2_p	Post hoc
	M (SD)	α	M (SD)	α	M (SD)	α				
Teacher cultural competency	2.72 (0.46)	.93	2.93 (0.39)	.91	2.94 (0.43)	.91	8.41	.001	.26	I vs. 2*
Multicultural teaching practices	2.94 (1.05)	.96	3.29 (0.83)	.92	3.39 (0.88)	.92	7.39	.005	.24	I vs. 2*
Positive strategies for classroom management	3.42 (0.34)	.65	3.66 (0.46)	.83	3.68 (0.43)	.77	4.60	.015	.16	I vs. 2*
Beliefs about the importance of parental involvement	3.44 (0.41)	.76	3.62 (0.42)	.78	3.69 (0.42)	.78	7.48	.001	.24	I vs. 2**
Beliefs about the importance of parental involvement practices	2.67 (0.57)	.91	3.02 (0.42)	.83	2.94 (0.44)	.84	8.15	.001	.25	I vs. 2*
Awareness of mental health symptoms	2.43 (0.44)	.69	2.49 (0.43)	.72	2.63 (0.46)	.83	2.85	.068	.11	I vs. 3**
Teacher mental health competency	2.33 (0.48)	.75	2.34 (0.41)	.79	2.59 (0.44)	.81	7.43	.012	.24	I vs. 3*
Knowledge of barriers to accessing mental health services	2.84 (1.77)	.80	4.00 (1.29)	.66	3.40 (1.87)	.85	4.16	.022	.15	I vs. 2*

* $p < .05$. ** $p < .1$. Only statistically significant or marginally significant post hoc comparisons are shown.

59.1% had a master's degree. The mean of teaching experience was 11 years ($SD = 7.3$).

Outcome Variables and Measures

Based on our experience with the pilot in School 1, the research team decided to revise the outcome measures to better capture the intended effects of *Yo Veo*. The following outcome variables were retained for the pilot in School 2: teacher beliefs about the importance of parental involvement, teacher beliefs about the importance of parental involvement practices, teacher mental health competency, and teacher knowledge of barriers to accessing mental health services. In addition to the retained variables, the following variables and associated measures were added to the questionnaire for the School 2 pilot: teacher multicultural attitudes, teacher attitudes toward undocumented immigrants, and teacher ethnocultural empathy. Each added measure is described subsequently.

Multicultural attitudes. Teachers' multicultural awareness, attitudes, and sensitivity were measured using the Teacher Multicultural Attitude Survey (Ponterotto, Baluch, Greig, & Rivera, 1998). Participants rated their level of agreement with 20 items using a 5-point Likert-type response scale ranging from *strongly disagree* (= 1) to *strongly agree* (= 5). Thirteen items were positively worded (e.g., I find teaching a culturally diverse student group rewarding) and 7 items were negatively worded (e.g., Students should learn to communicate in English only). An overall score was attained by averaging all of the items, with higher scores indicating higher levels of cultural sensitivity and awareness.

Attitudes toward undocumented immigrants. The teachers' attitudes toward undocumented immigrants were measured using the Illegal Aliens Scale (Ommundsen & Larsen, 1997).

Participants rated their level of agreement with 30 items using a 5-point Likert-type response scale ranging from *strongly disagree* (= 1) to *strongly agree* (= 5). Sixteen items were negative statements about undocumented immigrants (e.g., Illegal immigrants should not benefit from my tax dollars) and 15 items were positive statements (e.g., Illegal immigrants are not infringing on our country's resources). An overall score for attitudes toward undocumented immigrants was attained by averaging the 30 responses, with higher scores indicating attitudes that were more positive.

Ethnocultural empathy. Ethnocultural empathy (i.e., empathy toward people whose racial/ethnic backgrounds differ from the respondent's) was measured using the Scale of Ethno-cultural Empathy (Wang et al., 2003). This scale consists of 31 items divided into four subscales, including empathetic feeling and expression (15 items), empathetic perspective taking (7 items), acceptance of cultural differences (5 items), and empathetic awareness (4 items). Participants rated their level of agreement with 31 statements (e.g., I can relate to the frustration that some people feel about having fewer opportunities due to their racial or ethnic backgrounds) using a 6-point Likert-type response scale ranging from *strongly disagree* (= 1) to *strongly agree* (= 6). Twelve of the items were reversed coded so that higher scores would indicate greater levels of ethnocultural empathy. An overall ethnocultural empathy score was attained by averaging the 31 items.

Results

Only 0.9% of values were missing, and missing responses appeared to be missing at random. Missing data were handled using the expectation maximization algorithm (Dempster et al., 1977; Little & Rubin, 1987; McLachlan & Krishnan, 1997). In addition, all of the outcome variables were normally distributed

Table 2. Means, Standard Deviations, Internal Consistency Reliabilities, and One-Way Repeated Measures Analyses of Variance for the Effects of *Yo Veo* on the Outcome Variables at School 2.

Variable	1. Pretest		2. Posttest		3. Follow-up		<i>F</i> (2, 40)	<i>p</i>	η_p^2	Post hoc
	<i>M</i> (<i>SD</i>)	α	<i>M</i> (<i>SD</i>)	α	<i>M</i> (<i>SD</i>)	α				
Teacher multicultural attitudes	4.05 (0.41)	.85	4.14 (0.39)	.86	3.27 (0.23)	.82	86.82	.00	.81	1 vs. 3*
Attitudes toward undocumented immigrants	3.24 (0.42)	.91	3.48 (0.44)	.91	2.82 (0.19)	.93	26.09	.00	.57	1 vs. 2*
Ethnocultural empathy	4.77 (0.54)	.90	4.81 (0.52)	.89	3.85 (0.31)	.91	58.86	.00	.75	1 vs. 3*
Beliefs about the importance of parental involvement	3.88 (0.31)	.69	3.96 (0.35)	.77	3.92 (0.28)	.59	0.87	.43	.04	
Beliefs about the importance of parental involvement practices	3.14 (0.60)	.91	3.12 (0.58)	.83	3.09 (0.56)	.84	0.18	.77	.01	
Teacher mental health competency	2.93 (0.43)	.80	2.96 (0.42)	.84	2.96 (0.42)	.79	0.10	.90	.00	
Knowledge of barriers to accessing mental health services	3.90 (1.37)	.76	4.52 (1.17)	.84	4.10 (1.37)	.76	1.63	.22	.08	

**p* < .05. Only statistically significant post hoc comparisons are shown.

except for teachers' knowledge of barriers to accessing mental health services. The skewness and kurtosis for the knowledge of barriers variable are -1.3 and 1.7 at pretest, -3.3 and 12.0 at posttest, and -1.7 and 2.7 at follow-up. Although these values do not fall within the normal range of -1.0 to $+1.0$, the ANOVA is robust to deviations from normality (Glass, Peckham, & Sanders, 1972; Harwell, Rubinstein, Hayes, & Olds, 1992; Khan & Rayner, 2003; Lix, Keselman, & Keselman, 1996).

Table 2 displays the means, standard deviations, and internal consistency reliability values for the outcome variables. We performed a series of one-way repeated measures ANOVA to test the within-subject effects or the equality of means across the three time points.

Results of Mauchly's test of sphericity were significant for the following five outcome variables: multicultural attitudes, attitudes toward undocumented immigrants, ethnocultural empathy, beliefs about the importance of parental involvement practices, and knowledge of barriers to accessing mental health services. Thus, the Greenhouse-Geisser correction was applied to correct for the violations of the sphericity assumption (Vasey & Thayer, 1987). Bonferroni post hoc pairwise comparisons were used to identify significant differences in scores between time points.

Discussion and Applications to Social Work

The evaluation of the pilot at School 1 detected significant improvements on measures of cultural competency, multicultural teaching practices, positive strategies for classroom management, beliefs about parental involvement, mental health competency, and knowledge of barriers to mental health service access. Equally important, these improvements were maintained through the 9-month follow-up. Awareness of mental health symptoms was the only variable where there were no statistically significant changes.

The evaluation of the second pilot at School 2 detected statistically significant improvements between the pre- and posttests of attitudes toward undocumented immigrants. There were also nonsignificant improvements (i.e., higher posttest scores that did not meet the cutoff for statistical significance) in measures of multicultural attitudes, ethnocultural empathy, beliefs about parental involvement, and knowledge of barriers to mental health service access. However, improvements in scores in the hoped-for direction did not hold across the three time points. Statistically significant declines between posttest and 9-month follow-up were found for multicultural attitudes, attitudes toward undocumented immigrants, and ethnocultural empathy.

The contexts of the two study schools were quite different and thus examining the differences can provide important insight for understanding both the mixed findings across schools and guiding future research efforts. First, comparison of baseline data showed significant differences existed across schools on teachers' characteristics and experience. Approximately 32% of the teachers at School 1 had a master's degree, whereas nearly twice that number of teachers at School 2 had a master's degree (60%). Thus, a greater number of teachers at School 2 were likely to have completed graduate course work on cultural diversity, multicultural teaching, and educational psychology; perhaps giving teachers with master's degrees higher levels of proficiency on the outcome measures. Indeed, comparison of measures used at both schools (i.e., beliefs about the importance of parental involvement, mental health competency, and knowledge of barriers to mental health service access) revealed higher baseline scores for teachers at School 2.

In addition, although the two schools are in the same county and school district, the student bodies have substantially different demographic profiles. At baseline, School 1 had a majority of Latino/Latina students (64%), whereas Latino/Latina students in School 2 (16%) represented a minority of the student body. Thus, teachers at School 2 might have been less invested in the *Yo Veo* training, given that it

applied to a small proportion of the student body; whereas teachers at School 1 might have been highly invested in the training as it applied to a large proportion of the student body. Further, students' academic proficiencies in reading and math also differed, with School 2 having higher proportions of students at or above grade level; these proportions were well above the average for both the school district and the state. Thus, teachers at School 2 might have felt validated in that their students, in general, were performing at a high academic level and, again, saw less need to focus on one particular subgroup of students.

Both School 1 and School 2 were responding to changing demographics among their student bodies. However, the schools were at different points in adjusting to this change. The Latino/Latina population at School 1 began increasing in the mid-1990s, whereas School 2 was just beginning to experience an increase in Latino/Latina students. For example, at the time we collected data, School 2 had experienced a 4% increase in Latino/Latina students from the previous academic year but experienced a 19% increase in Latino/Latina students the following academic year. Teachers at School 1 had more experience with the community's Latino/Latina population at baseline and, because they chose to remain teaching in that school, may have developed an openness and sensitivity that made the *Yo Veo* training particularly meaningful to them. In contrast, teachers in School 2 might not have been motivated to learn about new immigrant students who comprised a relatively small subgroup in their school, and thus making these teachers less receptive to the *Yo Veo* training. Indeed, parent involvement at School 2 is very high, and the immediate community surrounding School 2 boasts one of the highest levels of household incomes in the county. The county's growing population of impoverished Latinos/Latinas comes from a series of trailer parks interspersed among highly affluent gated communities. Perhaps most important, the training provided at School 1 grew out of a multiyear project that placed additional mental health services in the school that were targeted to the newly arrived immigrant Latino/Latina population. Having these services in place meant that as the *Yo Veo* training helped teachers become more sensitive to the issues their students were dealing with, help was readily at hand to support teachers' desires to translate changed attitudes into changed behavior. In contrast, School 2 did not have support services in place, which might have created frustrations as teachers became sensitized to issues but found they had limited options for accessing support personnel.

At School 1, qualitative data were collected and analyzed, which has been published elsewhere (Chapman et al., 2014a). These findings indicated that the images initially engaged the teachers in the story of the immigrant child and her family as depicted in the photography series. The images and VTS questions also prompted discussion among the teachers in what were called "critical" and "difficult conversations." The images, captions, and discussions seemed to raise teachers' awareness about the life experiences of Latino/Latina immigrant families and elicited empathic emotional connections. Findings also indicated shifts in attitudes among some teachers

and motivation to interact with Latino/Latina students and parents in more sensitive and understanding ways (Chapman et al., 2014a). Taken together, findings from our qualitative study and these two pilot studies indicate that the visual approach to professional training aimed at facilitating reflection and conversation used in *Yo Veo* was effective in influencing educators' attitudes, knowledge, and behavior regarding Latino/Latina immigrants; however, the effects may be moderated by the school context.

Limitations and Implications for Future Research

The current research design and available data do not allow us to definitively accept these explanations for the differing results between the two pilot tests of *Yo Veo*. A rigorous test of these hypotheses would require a multisite, multilevel model study with sufficient power to detect contextual differences. Nevertheless, our findings provide support for visually based interventions.

Other limitations stem from the use of repeated measures, including possible selection bias and testing effects. First, the study design is vulnerable to selection bias and testing effects because the schools were not chosen at random and not every teacher participated in the data collection. In addition, all measures were self-reports of attitude and knowledge. We do not know whether or to what extent the study participants' responses were influenced by social desirability. Future research should include implicit measures to ascertain change in attitudes that might be influenced by automatic processing versus self-report questionnaires that are heavily influenced by knowledge of what answers are socially acceptable. Further, it is possible that maturation and history effects could account for changes between time points, and such changes might be the result of other influences outside of the *Yo Veo* intervention. Alternatively, teachers' attitudes might have changed over time while working with a predominant Latino/Latina population. However, our findings at each school and our comparison of the two schools suggest the *Yo Veo* intervention might be effective over time with certain contextual supports in place.

In the current study, the small sample sizes did not allow for covariate analysis. In future work, larger sample sizes should be obtained to allow researchers to determine the subgroup of teachers for whom the intervention is most effective. Going forward, research should evaluate the *Yo Veo* intervention using a rigorous experimental design, such as a randomized controlled trial or a cohort study with the matching propensity score from a comparison group. Future studies should also compare schools with varying proportions of Latino/Latina immigrant students to determine the tipping point at which teachers become open to and receptive of *Yo Veo*.

Implications for Social Work Practice

As social workers continue to advocate for marginalized populations, a critical part of such advocacy remains finding ways to influence host systems, attack institutional racism,

and facilitate difficult conversations. As innovative intervention strategies are developed and implemented, evaluation studies are needed to understand what works, for whom, and under what conditions.

Our outcome evaluation of the two pilots of *Yo Veo* demonstrates the potential impact that systematic use of visual images can have in changing attitudes and facilitating discussion. Further, this work raises important questions about contextual influences on intervention effectiveness and highlights the critical partnership between community members, practitioners, and researchers. Without long-standing community partnerships, we would not have had the opportunity to experiment with new ways of addressing teachers' needs for training after the original adaptation attempt was unsatisfactory.

Our divergent findings between the schools, and our hypothesis that the lack of support services in School 2 might be to blame, point to the interdependence between intervention levels. In contrast to the School 2 pilot, we hypothesize the School 1 *Yo Veo* training triggered aspirations in teachers that the educators were able to immediately put into practice because they had the support of a bilingual/bicultural mental health professional already positioned in the school. Having a way to move teachers' desire to more fully support their new immigrant students might amplify and sustain the positive results from the *Yo Veo* experience. Although this hypothesis requires further testing, it fits with the systems thinking that characterizes our profession.

As our pilot testing of *Yo Veo* demonstrates, visually based interventions show tremendous promise for facilitating difficult conversations and changing attitudes and behavior. Maintaining these changes appears to be enhanced by having strong supports in place, enabling changed attitudes to be easily converted to changed behaviors. In future research, we hope to demonstrate that it is not only possible to initiate behavioral changes with a visual intervention but also possible to maintain those changes over time.

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References

- Anderson, K. V. (2004). Educating America's Latino youth: A critical review of drop-out prevention literature. *Dissertation Abstracts International: Section B: Sciences and Engineering*, 65, 3142.
- Aud, S., Hussar, W., Johnson, F., Kena, G., Roth, E., Manning, E., & Zhang, J. (2012). *The condition of education 2012* (NCES 2012-045). Washington, DC: National Center for Education Statistics.
- Bunch, K. J. (2007). Training failure as a consequence of organizational culture. *Human Resource Development Review*, 6, 142–163.
- Calzada, E. J. (2010). *Bridges Teacher Questionnaire*. Retrieved from <http://www.healthinschools.org/media/NYU/Teacher%20Survey.ashx>
- Calzada, E. J., & The Bridges Program Development Team. (2007). *Bridges: A training manual for school-based mental health services*. New York: New York University.
- Camarota, S. A. (2012). *Immigrants in the United States, 2010: A profile of America's foreign-born population*. Center for Immigration Studies. Retrieved from <http://www.cis.org/2012-profile-of-america-s-foreign-born-population#state>
- Centers for Disease Control and Prevention. (2010). Youth risk behavior surveillance—United States, 2009. *Morbidity and Mortality Weekly Report*, 59, 1–142.
- Chapman, M. V., Hall, W. J., Colby, R., & Sisler, L. A. G. (2014a). How images work: An analysis of a visual intervention used to facilitate a difficult conversation and promote understanding. *Qualitative Social Work*, 13, 456–476. doi:10.1177/1473325013496597
- Chapman, M. V., Hall, W. J., & Sisler, L. A. G. (2014b). Adapting an empirically supported intervention for a new population and setting: Methodological issues and lessons learned from *Proyecto Puentes*. *Journal of Evidence-Based Social Work*, 11, 30–42. doi:10.1080/15433714.2013.837340
- Chapman, M. V., & Colby, R.G. (2014c). Image-based facilitation: Theory and application. Manuscript in preparation.
- Dempster, A. P., Laird, N. M., & Rubin, D. B. (1977). Maximum likelihood from incomplete data via the EM algorithm. *Journal of the Royal Statistical Society, Series B* 39, 1–38.
- Donnelly, R. A. (2005). *Immigrants and health agency: Public safety, health, and Latino immigrants in North Carolina*. San Diego, CA: Center for Comparative Immigration Studies.
- Epstein, J. L., Salinas, K. C., & Horsey, C. S. (1994). *Reliabilities and summaries of scales: School and family partnership surveys of teachers and parents in the elementary and middle grades*. Baltimore, MD: Center on Families, Communities, Schools and Children's Learning and Center for Research on Effective Schooling for Disadvantaged Students, Johns Hopkins University.
- Fry, R. (2003). High school dropout rates for Latino youth (ERIC Identifier ED482920). *ERIC digest*. Retrieved from http://iume.tc.columbia.edu/i/a/document/15764_Digest_192.pdf
- Gandara, P. C., & Contreras, F. (2009). *The Latino education crisis: The consequences of failed social policies*. Cambridge, MA: Harvard University Press.

- Garcia, E. E. (2001). *Hispanic education in the United States: Raíces y alas*. New York, NY: Rowman & Littlefield.
- Glass, G. V., Peckham, P. D., & Sanders, J. R. (1972). Consequences of failure to meet assumptions underlying the fixed effects analyses of variance and covariance. *Review of Educational Research*, 42, 237–288. doi:10.3102/00346543042003237
- Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review*, 108, 814–834. doi:10.1037/0033-295X.108.4.814
- Harwell, M. R., Rubinstei, E. N., Hayes, W. S., & Olds, C. C. (1992). Summarizing Monte Carlo results in methodological research: The one-and two-factor fixed effects ANOVA cases. *Journal of Educational and Behavioral Statistics*, 17, 315–339.
- Holladay, C. L., & Quinones, M. A. (2005). Reactions to diversity training: An international comparison. *Human Resource Development Quarterly*, 16, 529–545.
- Housen, A. (2002). Aesthetic thought, critical thinking and transfer. *Arts and Learning Research Journal* 18, 99–132.
- Huber, L. P. (2010). *Falling through the cracks: Critical transitions in the Latina/o educational pipeline: 2006 Latina/o Summit Report*. University of California Los Angles Chicano Studies Research Center. Retrieved from http://www.chicano.ucla.edu/files/ccr_07March2006.pdf
- Jarman, J. (2007). *Crossings: Dream of the Rich North* [Photography documentary]. Retrieved from <http://janetjarman.com>
- Katz, S. R. (1999). Teaching in tensions: Latino immigrant youth, their teachers, and the structures of schooling. *Teacher College Record*, 100, 809–841. doi:10.1111/0161-4681.00017
- Khan, A., & Rayner, G. D. (2003). Robustness to non-normality of common tests for the many-sample location problem. *Journal of Applied Mathematics & Decision Sciences*, 7, 187–206. doi:10.1155/S1173912603000178
- Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: A practical primer for t-tests and ANOVAs. *Frontiers in Psychology*, 4, 1–12. doi:10.3389/fpsyg.2013.00863
- Levine, T. R., & Hullett, C. R. (2002). Eta squared, partial eta squared, and misreporting of effect size in communication research. *Human Communication Research*, 28, 612–625. doi:10.1111/j.1468-2958.2002.tb00828.x
- Little, R. J., & Rubin, D. B. (1987). *Statistical analysis with missing data*. New York, NY: Wiley.
- Lix, L. M., Keselman, J. C., & Keselman, H. J. (1996). Consequences of assumption violations revisited: A quantitative review of alternatives to the one-way analysis of variance F test. *Review of Educational Research*, 66, 579–619.
- McLachlan, G. J., & Krishnan, T. (1997). *The EM algorithm and extensions*. New York, NY: Wiley.
- Merikangas, K. R., He, J., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., ... Swendsen, J. (2010). Lifetime prevalence of mental disorders in U.S. adolescents: Results from the National Comorbidity Survey Replication – Adolescent Supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry*, 49, 980–989.
- Ommundsen, R., & Larsen, K. S. (1997). Attitudes toward illegal aliens: The reliability and validity of a Likert-type scale. *Journal of Social Psychology*, 137, 665–667. doi:10.1080/00224549709595488
- Paluck, E. L. (2006). Diversity training and intergroup contact: A call to action research. *Journal of Social Issues*, 62, 577–595.
- Paluck, E. L., & Green, D. P. (2009). Prejudice reduction: What works? A review and assessment of research and practice. *Annual Review of Psychology*, 60, 339–367.
- Passel, J. S. (2006). *The size and characteristics of the unauthorized migrant population in the U.S.* Washington, DC: Pew Hispanic Center.
- Pew Hispanic Center. (2007). *2007 National Survey of Latinos: As illegal immigration issue heats up, Hispanics feel a chill*. Washington, DC: Author.
- Ponterotto, J. G., Baluch, S., Greig, T., & Rivera, L. (1998). Development and initial score validation of the teacher multicultural attitude survey. *Educational and Psychological Measurement*, 58, 1002–1016. doi:10.1177/0013164498058006009
- Pumariega, A. J., Rothe, E., & Pumariega, J. B. (2005). Mental health of immigrants and refugees. *Community Mental Health Journal*, 41, 581–597.
- Smith-Adcock, S., Daniels, M. H., Lee, S. M., Villalba, J. A., & Indelicato, N. A. (2006). Culturally responsive school counseling for Hispanic/Latino students and families: The need for bilingual school counselors (ERIC No.EJ767374). *Professional School Counseling*, 10, 92–101.
- Stamps, K., & Bohon, S. A. (2006). Educational attainment in new and established Latino metropolitan destinations. *Social Science Quarterly*, 87, 1225–1240. doi:10.1111/j.1540-6237.2006.00425.x
- Vasey, M. W., & Thayer, J. F. (1987). The continuing problem of false positives in repeated measures ANOVA in psychophysiology: A multivariate solution. *Psychophysiology*, 24, 479–486. doi:10.1111/j.1469-8986.1987.tb00324.x
- Villalba, J. A., Brunelli, M., Lewis, L., & Orfanedes, D. (2007). Experiences of Latino children attending rural elementary schools in the Southeastern US: Perspectives from Latino parents in burgeoning Latino communities. *Professional School Counseling*, 10, 506–509.
- Villenas, S. (2002). Reinventing education in new Latino communities: Pedagogies of change and continuity in North Carolina. In S. Wortham, E. Murillo, & E. Hamann (Eds.), *Education in the new Latino diaspora: Policy and the politics of identity* (pp. 17–35). Westport, CT: Greenwood.
- Wang, Y. W., Davidson, M. M., Yakushko, O. F., Savoy, H. B., Tan, J. A., & Bleier, J. K. (2003). The scale of ethnocultural empathy: Development, validation, and reliability. *Journal of Counseling Psychology*, 50, 221–234. doi:10.1037/0033-295X.108.4.814
- Webster-Stratton, C. (2005). *Teacher strategies questionnaire for the incredible years project*. Retrieved from www.incredibleyears.com
- Yenawine, P. (1999). *Theory into practice: The visual thinking strategies*. Retrieved from http://www.vtshome.org/system/resources/0000/0031/theory_into_practice.pdf