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In Defense of Quantitative Methods: Using the "Master's Tools" to Promote Social Justice

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Abstract

Empiricism in the form of quantitative methods has sometimes been used by researchers to thwart human welfare and social justice. Some of the ugliest moments in the history of psychology were a result of researchers using quantitative methods to legitimize and codify the prejudices of the day. This has resulted in the view that quantitative methods are antithetical to the pursuit of social justice for oppressed and marginalized groups. While the ambivalence toward quantitative methods by some is understandable given their misuse by some researchers, we argue that quantitative methods are not inherently oppressive. Quantitative methods can be liberating if used by multiculturally competent researchers and scholar-activists committed to social justice. Examples of best practices in social justice oriented quantitative research are reviewed.

Keywords: quantitative methods, social justice, cultural competence

Introduction

For years feminist scholars and scholars of color have challenged the epistemological tenets of quantitative methods such as logical positivism, specifically challenging the idea of verifiability through the use of experimentation and limited definitions of evidence (Banks, 1992; Carroll, 2008; Carruthers, 1972; Mies, 1983; Stanley & Wise, 1983). Quantitative methods represent the dominant methodology used by the social and natural sciences, yet unfortunately quantitative

methods have sometimes been used to hurt marginalized communities. The quantitative methods of science have at times resulted in ethical tensions with collectivist culture communities (Lyons, Bike, Ojeda, Rosales, Johnson, Flores, 2013). These and related criticisms have led to quantitative methods being seen as "a tool of refutation and a shield of obstruction" rather than "a tool of revelation and verification" (Banks, 1992, p. 265). As a result, science and its dominant methodology are viewed by some as inherently oppressive, resulting in a tension between a social justice oriented philosophy of liberation and the perception of a methodology of oppression (Carruthers, 1972). This epistemological debate extends beyond feminists and scholars of color to the larger intellectual movements of modernism and postmodernism. Modernism emphasizes an objective, knowable truth where universal psychological processes can be discovered using the scientific method. On the other hand, postmodernism rejects modernist claims of an objective truth via method and instead emphasizes perspectivism and the social construction of all reality using contextually appropriate methods (Gergen, 1992). Quantitative methods represent the dominant methodology used, for example, by counseling psychologists. A recent study found that approximately 80% of almost 900 empirical studies published in *The Counseling Psychologist*, the *Journal of Counseling Psychology*, and the *Journal of Counseling and Development* relied on quantitative methods (Ponterotto, Kuriakose, & Granovskaya, 2008). Yet, multiculturalism is a core part of the identity of counseling psychologists, and counseling psychology is among the most active promoters of social justice among psychology specialties (see Toporek, Gerstein, Fouad, Roysircar, & Israel, 2006). To some there would seem to be a contradiction in a discipline so committed to multiculturalism and social justice by primarily using a methodology with a history of sometimes being used to oppress marginalized groups. The critiques of quantitative methods are not new. Critiques of science and empirical quantitative methodology have a long history in the discourse of the philosophy of science (e.g., Carruthers, 1972; Habermas, 1972; Mills, 1959). For example, Habermas provided a critical methodological reflection on positivism within science. However, even in his critique of the methodology utilized in what he called the "empirical-analytic" sciences, Habermas did not categorically dismiss the methodology, but rather cautioned us to be more aware and self-reflective of the role that human interests play in the construction of knowledge.

In this article we examine the belief that quantitative methods are antithetical to social justice. In short, we argue that quantitative methods are not inherently oppressive. When quantitative methods are employed correctly, they usually serve as a self-correcting system of checks and balances. C. Wright Mills, a critical theorist, alludes to this in *The Sociological Imagination* (1959) when he argues that good science cannot be achieved by one empirical study, but rather by a series of good studies. We are aware that a scientist does not necessarily need to have a social justice orientation to conduct methodologically sound research that can be used to promote social justice. Nevertheless, it is our contention that quantitative methods can be, have been, and should be used by scientists (along with other methods) to achieve the goals of social justice.

First we provide definitions of quantitative methods, multiculturalism and social justice research. Next we provide a brief historical context for the mistrust of quantitative methods. The convergence of quantitative research with social justice is discussed, and examples of how social justice may be incorporated into quantitative research are provided. We conclude with some words of caution about the challenges inherent in pursuing a social justice agenda in quantitative research.

Defining Quantitative Methods, Multiculturalism and Social Justice Research

In this article, quantitative methods refer to designs that are correlational, quasi-experimental, and experimental (Kazdin, 1980). Correlational designs include the use of surveys, classification and data reduction techniques, and assessments of relations among variables. Quasi-experimental research refers to designs that manipulate variables for study but do not employ random assignment. Experimental designs, on the other hand, utilize highly controlled environments and random assignment to conditions. In addition to types of analysis, quantitative methodology may differ from other methodological strategies in terms of question formation, sampling procedures, and interpretation of results. For the purposes of this article, multiculturalism is defined as a philosophy that respects and embraces diverse experiences inclusive of race, ethnicity, gender, sexual orientation, socioeconomic status, religious orientation, and other cultural dimensions.

Defining social justice is a more difficult task, primarily because it is contingent on the eye of the beholder. For example, anti-abortion demonstrators believe themselves to be carrying out social justice on behalf of the unborn, while pro-choice individuals believe themselves to be carrying out social justice on behalf of the right of women to control their own bodies. Conservatives such as Glenn Beck cynically offer a "progressive" definition of social justice as "forced redistribution of wealth with a hostility towards individual liberty rights under the guise of charity and/or justice" (Andros, 2010). For example, based on the values of counseling psychology, counseling psychologists have identified several elements of social justice including (a) advocating for the elimination of systems of exploitation, inequality and oppression, and (b) ensuring equal rights and fundamental liberties for all individuals through the equitable distribution of resources (Crethar, Torres Rivera, & Nash, 2008; Vera & Speight, 2003). These values are not exclusive to counseling psychology, and are also consistent with counselor education. Our definition of social justice is consistent with the aforementioned elements. We define social justice research as a two-pronged approach to research wherein investigators (a) examine circumstances and systems of exploitation, inequality, and oppression and how they adversely impact individuals and groups who are marginalized and disempowered, and (b) actively use the outcomes of research to change the material conditions and positively impact the psychological well-being of marginalized and disempowered individuals, with the ultimate goal being to transform society into a more just place for everyone. Adopting the four critical principles of social justice counseling that were identified by Crethar, Torres Rivera, and Nash and applied to qualitative research in the preceding article in this issue (Lyons et al., 2013), socially just quantitative researchers should focus on principles of *equity*, *access*, *participation*, and *harmony*. Before discussing how quantitative methods and social justice can converge, a brief historical context for why quantitative methods are mistrusted is provided.

Historical Context

Why have quantitative methods been viewed by some as oppressive and antithetical to the pursuit of social justice? Perhaps the most poignant example of the egregious violations to human rights and social justice was the Tuskegee Syphilis Study conducted with 399 African Americans in Alabama from 1932 to 1972. These individuals were not treated for syphilis in the hopes of understanding the long-term effects of the disease (Cozby, 2004, Reverby, 2000). Because these disenfranchised individuals were harmed in the name of science, the National

Commission for the Protection of Human Subjects of Biomedical and Behavioral Research was formed and produced the Belmont Report in 1979. This report highlighted basic ethical principles that must be abided by when studying human subjects such as justice, respect for persons, and beneficence. These principles usually guide regulations set forth by institutional review boards. The second reason why quantitative methods may be viewed as oppressive is the misuse of such methodology to try to support the belief that women and minorities were inferior to men and whites. For example, Samuel Morton used quantitative methodology to test his hypothesis that Caucasians were superior to groups of color in intelligence by ranking their cranial size (Gould, 1996). Similar studies were conducted comparing men and women in brain size which led to the conclusion that women's brains were more similar to those of gorillas than to the brains of men (Crawford & Unger, 2004; Gould, 1996). A more recent and psychologically relevant example can be found with the publication of *The Bell Curve* (Herrnstein & Murray, 1994), where the psychologist Richard Herrnstein and political scientist Charles Murray argued that there are racial differences in intelligence which are rooted in genetic differences in IQ. Many studies have been conducted with an agenda to "prove" the superiority of Whites and men but as Gould (1996) astutely points out, these studies were usually extremely flawed methodologically. Stephen Gould, who many would argue espoused a strong social justice orientation, set out to reanalyze Morton's data where Morton concluded that groups of color were inferior. After reanalyzing Morton's data, Gould found systematic biases in Morton's approach. After reanalysis of the skulls used in the study, Gould found no statistically significant difference in cranial capacity (Gould, 1996). Nevertheless, some individuals still argue that quantitative methods are inherently problematic.

The oft-cited quote "The Master's Tools Will Never Dismantle the Master's House" by Audre Lorde (1984) has been misinterpreted and used as a rationale for not utilizing quantitative methodology because of the belief that these methods are inherently oppressive (Unger, 1996). Lorde's now famous dictum was, in fact, referring to the master's tools being 1) to divide and conquer, and 2) keeping the oppressed occupied with the master's concerns. Lorde was chastising White feminists for failing to recognize the differences among women based on social class, sexual identity, race and age, and she was arguing that this failure to theorize racist feminism was essentially the first patriarchal lesson. She was not advocating that women (or other oppressed groups) should not use quantitative methods. Nevertheless, some feminist scholars were calling for the discontinued use of experiments and surveys in favor of more qualitative approaches (Peplau & Conrad, 1989). Those in support of banning quantitative methods went as far as to say that these methods are inherently patriarchal and sexist. Proponents of the feminist positivist empiricism tradition argued for reshaping scientific practices to be commensurate to the goals of feminism (Harding, 1986; Peplau & Conrad, 1989). Proponents of empirical methods have argued that quantitative methodology provides feminist psychologists with the tools to critique mainstream psychology (Wilkinson, 2001). Similar to Gould, feminist researchers have used good scientific practices to unearth the poor use of quantitative methodology. For example, they have uncovered issues related to ideological biases, representativeness of samples, and replicability of studies.

Banks (1992) also notes the belief among African American scholars that "empirical research is inherently destined to prove pernicious claims about African American people." (p. 263). It is noted here that although empirical research includes both quantitative and qualitative methods, in reality empirical is often interpreted and/or used as code for quantitative (Drisko, 2011). This is the apparent meaning being used by Banks. He later argues that African American

researchers may find themselves "susceptible to arguments that empiricism…and logical positivism are just good doctrines put to ill-purpose, when they may be no less than ill doctrines put to degenerate purposes" (Banks, 1999, p. 4). Here Banks appears to be specifically referring to experimental methods which are usually touted in psychology as the most rigorous quantitative methodology. Thus, experimental methodology draws the ire of marginalized scholars for being the vehicle of science through which the systematic denigration and oppression of marginalized groups occur. We want to be clear that quantitative methods also include non-experimental approaches that have led to invaluable psychological discoveries.

Given the history of quantitative methods being used to justify and perpetuate existing prejudices, the idea that quantitative methods can be used in a multi-culturally competent manner to promote social justice does not always come easily. However, the clarion call for promoting social justice in quantitative research is certainly not new. For example, Oakley (1998), in commenting on the use of quantitative methods by feminist social scientists, stated that "there is much work to be done collecting and integrating examples of 'good practice' and providing guidelines for future research" (p. 723). Oakley further argues, as others have before her (see Boykin, 1975; Boykin, Franklin, & Yates, 1979), that the pursuit for an emancipatory social science (what we are referring to broadly as social justice) need not require throwing out the proverbial "baby" of validly produced knowledge using quantitative methods with the "bath water" of bad research (e.g., sexist, racist, classist). In spite of the racist, sexist and homophobic history of psychology (Guthrie, 2004; Herek, 2009; Pickren & Dewsbury, 2002; Winston, 2004), there is a history of psychologists who have used quantitative methods to challenge injustice and inequality in society.

Using Quantitative Research for Social Justice

Regarding social justice and research, there is "an important role that the creation and dissemination of knowledge through research must play" (Vera & Speight, 2003, p. 265). Borrowing from the social justice research framework presented by Vera and Speight, we believe that social justice quantitative research should not be focused on producing knowledge for knowledge's sake, but instead should be relevant to the community, impact public policy or have public policy implications. Researchers who use quantitative methods should not naively believe that those methods are value free, but rather "should be explicit about aligning with values that promote social justice, liberation, and community empowerment" (Vera & Speight, p. 266).

There is no one "correct" way of using quantitative research for social justice. One example of quantitative research that promotes social justice is the introduction of empirical constructs which are rooted in the values and realities of a marginalized and/or oppressed population. The constructs are conceptualized as a way to help empirical researchers conduct more culturally competent research which will be responsive to the unique needs of a given population. The conceptualization of the construct *cultural mistrust* by Terrell and Terrell (1981) is a good example of this, whereby the construct was created to de-pathologize the attitudes and feelings that many African Americans have toward the dominant White culture. It should be noted that counseling psychology was among the first sub-specialties within psychology to recognize the importance of the construct, as evidenced by the *Journal of Counseling Psychology* being the second APA journal to publish a study that focused on the construct (Watkins & Terrell, 1988).

Given that examples of social justice oriented quantitative research can be found in various stages of research studies, our approach was to identify articles that had strengths in multicultural competence and promoting social justice in some (not necessarily all) stages of the research. Thus, we opted for depth in reviewing fewer studies over breadth in reviewing many studies. We proceed with identifying select articles that serve to illustrate the aforementioned points.

Preparation/Design

Bias in research sometimes starts with the research questions. One common example of bias is the implementation of a comparative research framework. The utilization of this framework may be explicit (e.g., comparing different groups in the same study) or implicit (e.g., couching findings in a comparative manner through deficit conceptualizations). For years deficit thinking has dominated analyses and discussions of ethnic minority students' achievement (Valencia, 1997). Along with African American students, Mexican American students have been characterized as not valuing education (Valencia & Black, 2002). The lower academic achievement and non-persistence of many Mexican American students have made them targets of conservative academics (i.e., those who endorse socially, politically, and fiscally conservative policies) making controversial commentaries based on decontextualized statistics. The well-known economist Thomas Sowell (who ironically is also African American) made the following statement: "The goals and values of Mexican Americans have never centered on education" (Sowell, 1981; p. 266; cited in Valencia & Black). Sowell made this statement based on statistics showing that Mexican Americans had the lowest high school completion rate; a fact which unfortunately still holds true for most Latina/os (Solorzano, Villalpando, & Oseguera, 2005). Equally offensive was a statement made by the University of Texas law professor Lino Graglia that Mexican American and "Black" students have a culture that appears to not encourage achievement, and where failure is not seen as a disgrace (cited in Valencia & Black).

Such statements unfortunately reflect commonly held beliefs by educators and others in society. These statements reflect a complete lack of awareness of the educational inequities faced by Latino/a students, and underscore the importance of a commitment to social justice (Solorzano et al. date). The use of simple statistics such as high school completion rates to draw inferences or conclusions about Latino/a students' academic motivation is woefully inadequate and reflects a lack of sophistication and understanding of the multiple influences that impact students' achievement. Fortunately, counseling psychology's historical connections to education has resulted in some counseling psychologists conducting multiculturally competent quantitative research with a social justice oriented agenda to promote educational equity among ethnic minority students. A good example can be found in the study by Gloria, Castellanos, Lopez, and Rosales (2005). In this study, Gloria et al. used quantitative methods to examine the academic non-persistence decisions of Latino undergraduates. According to the Pew Research Center, there has been a sharp increase in college enrollment. Latino students lead the growth with a 15% increase in college enrollment between 2007 and 2008 (Fry, 2010). This rapid growth of Latino students requires college campuses to be better equipped to meet the needs of this population. In the first paragraph of the article Gloria et al. (2005) establish their social justice orientation quickly by repeating the sentiments of Valencia and Black (2002) that research should go beyond blaming Latino students or their culture for their undereducation, and should

also go beyond grade point average and standardized test scores. Instead, they advocated a more "integrated assessment of racial and ethnic minority (REM) students' educational experiences" (p. 203) that moves beyond focusing on the individual and instead examines the psycho-social-cultural contextual factors that impinge upon the individual.

As noted earlier, a culturally competent, socially just quantitative study may, if necessary, introduce empirical constructs that are rooted in the values and realities of a marginalized and/or oppressed population. In the Gloria et al. article, three constructs were included that meet this condition: university comfort, social support, and cultural congruity. While these constructs are not solely salient for Latina/o students, the constructs are recognized as being especially important for students who may be alienated from the campus culture because of reasons related to language or generation status. By incorporating these constructs in her program of research, Gloria recognizes that ethnic minority students face challenges above and beyond those challenges which all students face in college. Using regression analyses, Gloria et al. found that social support and university comfort were the strongest predictors of academic nonpersistence decisions. In the discussion Gloria et al. talk about the importance of social support, and implementing peer-mentor programs that will enhance the sense of *familismo*, and making Latina/o students feel at home. What stood out in the discussion was their recommendation that faculty could modify their mentorship style to be more personal and engaging, because these are styles that parallel *familismo* and *personalismo*. This is a great example of a recommendation rooted in social justice, because the authors placed the onus of change on the environment, not the students struggling to adjust. It must be remembered that social justice does not always require an act of civil disobedience or other demonstrative act to be impactful. The promotion of social justice in quantitative research can occur in both large and small ways.

Data Collection

One of the most challenging aspects of conducting quantitative research with marginalized populations is getting access to them and getting sufficient numbers of the population to participate. Quantitative research relies heavily on the ability to generalize from an adequate sample, making sampling methods and data collection very important. The ideal scenario is to randomly select a sample in order to minimize or eliminate bias (i.e., probability sampling); however, random selection is often difficult to achieve and impractical. Szymanski and Chung (2001) were faced with the challenge of getting sufficient numbers of lesbians to participate given the requirements needed to construct a scale. In non-experimental research, convenience sampling (e.g., psychology subject pools) is often the most common method of data collection. However, given the population they were interested in, convenience sampling alone likely would not have yielded the necessary numbers of participants. So, they recruited participants by means of an academic list serve as well as friendship networks. Individuals who were interested in participating in the study were asked to distribute surveys to their lesbian friends.

In other words, they used a combination of convenience sampling and snowball sampling. Snowball sampling is used to "obtain a sample by locating one of these participants and then developing a referral network to locate other likely participants." (Erford, 2008, p. 32). Snowball sampling, like convenience sample, is considered non-probability sampling and thus more prone to bias and lower in generalizability; however, with certain populations that are hard to access,

it is a useful and often necessary method to employ. In this instance snowball sampling combined with convenience sampling allowed Szymanski and Chung to collect over 300 surveys. It should also be pointed out that snowball sampling was likely made easier by the fact that both researchers are members of the sexual minority community. Being members of marginalized groups undoubtedly helps foster a trust in research involving marginalized populations.

After collecting the data, Szymanski and Chung utilized factor analysis to identify five dimensions of internalized homophobia. In their conclusion Szymanski and Chung state that the scale "can be used as a research tool to further the understanding of lesbian psychology and as an aide in helping mental health professionals assess the degree of internalized homophobia in their clients so that they can implement appropriate interventions" (p. 50). The resulting scale has made a significant impact in the literature as evidenced by its number of citations. Recognizing the worth and human dignity of oppressed and marginalized people is clearly consistent with a social justice orientation, and this study demonstrates that quantitative research need not be explicitly labeled as social justice research to promote a social justice agenda.

Another understudied group within psychology is Middle Eastern/Arab Americans. Awad (2010) investigated the impact of religious identification, ethnic identity, and acculturation on the perceived discrimination of Middle Eastern/Arab Americans. As a result of the events of September 11, 2001, many Middle Eastern Americans were highly suspicious of anyone asking them questions about their experiences in the United States. Stories of Arab Americans unjustly detained under suspicion of terrorism were rampant. Arab Americans were justified in their suspicion of researchers and individuals asking questions about their practices. One of the challenges Awad faced was the building of trust in this population. Because she could speak Arabic and was seen as an "insider" she was allowed access to this very suspicious population. She also took the time to outline the purposes of the study so that participants understood that the aim of the research was to help provide more information and increase knowledge about their understudied group. She explained the lack of research on Arab Americans and told them that their responses would help psychologists further understand and debunk misunderstandings of Arab Americans. Awad (2010) went to great lengths to ensure anonymity of the participants. She employed snowball sampling procedures and allowed participants to either complete the survey online or on paper. She was very accessible and open to questions and comments about the study. As a result, many were happy to pass the survey on to others.

Interpretation

Using quantitative methods, proponents of Western empiricism have been responsible for creating and perpetuating a host of theoretical ideas about African Americans that have come to be accepted as conventional wisdom. These ideas include having a negative self-concept, external locus of control, lack of motivation, and low aspirations (Banks, 1993) as well as being less intelligent (Herrnstein & Murray, 1994). These types of ideas have been characterized as promoting deficit thinking (Valencia, 1997). Researchers examining issues of equity in education must address the conventional wisdom that African American students have negative and oppositional attitudes toward school.

One study that promotes social justice and illustrates a multiculturally competent interpretation of data is Cokley (2003). In this study, Cokley explicitly used quantitative methods to challenge the idea that African American students are anti-intellectual. The study was placed within the context of publication of the controversial book "Losing the Race: Self-Sabotage in Black America" by the African American scholar John McWhorter (2000). In this book McWhorter argued that 1) African Americans are invested in seeing themselves as victims, and 2) this victimhood ideology leads to a separatist mentality whereby African Americans disassociate themselves from all activities associated with White people, and 3) the separatist mentality has resulted in a pervasive strand of anti-intellectualism among African Americans. The book sparked a national conversation about African American academic achievement, and was embraced by conservatives such as Ward Connerly and featured in numerous media outlets including Fox News and Time magazine. What was particularly striking about the book was that it was primarily anecdotal, with very little quantitative data to support McWhorter's claims. In fact, McWhorter had collected no empirical data (quantitative or qualitative) to support his claims. In spite of this and the fact that McWhorter was a linguist who had never conducted a single empirical study of African American academic achievement, he was treated by the media as an expert on this topic. This was the context in which Cokley (2003) wrote the article.

Using quantitative data collected from 396 African American students and 291 European American students on measures of academic self-concept, intrinsic motivation, extrinsic motivation, amotivation (i.e., the lack of motivation), self-esteem, and grade point average, Cokley was able to statistically test the idea that African American students are anti-intellectual. He posited that the anti-intellectual assumption would be supported if intrinsic motivation was not related to academic self-concept or self-esteem in the hypothesized model. First, Cokley examined mean differences and found that while there were significant differences in GPA (with European Americans reporting higher GPAs), there were no differences between African American and European American students in intrinsic motivation, which is a key assumption of the anti-intellectual argument. Furthermore, there were also no differences in academic self-concept. Using path analysis, Cokley then tested three models of processes contributing to academic self-concept. He found that intrinsic motivation predicted self-esteem but not academic self-concept. Cokley indicated that this finding might explain why there is a perception that African American students are anti-intellectual. He pointed out that learning for learning's sake (i.e., intrinsic motivation) contributed to African American students' self-esteem but ironically not their academic self-concept. He interpreted the findings as suggesting that learning for learning's sake may not be important for how African American students see themselves as students, which was also supported by a non-significant relationship with GPA. This was important to point out because of his data that indicated that, contrary to African American students, intrinsic motivation was a predictor of GPA for European American students (Cokley, 2003b). Cokley goes on to state that intrinsic motivation appears to serve different functions for African American and European American students, and that teachers are likely to make negative judgments about African American students whose academic self-concept is not connected to intrinsic motivation. Therefore, he notes that African American students with a high academic self-concept that is not contingent upon intrinsic motivation might "come across as overly confident, not serious about school, and ultimately anti-intellectual" (Cokley, 2003; p. 551).

This study was selected because a different interpretation of the data could have perpetuated the belief that African American students are anti-intellectual. For example, Cokley could have interpreted the lack of a relationship between intrinsic motivation and GPA for African Americans but not European American students as evidence that African American students are anti-intellectual because they do not follow the conventional notions of academic motivation. Instead, he sought to be culturally competent in interpreting data, and he was committed to countering the negative, deficit-oriented thinking about African American students.

Recommendations for Quantitative Social Justice Research

Research methods and statistics courses often do not explicitly address issues related to the socio-political context of conducting research with marginalized and oppressed groups. For quantitative researchers engaging in social justice research, we offer the following recommendations:

1. Involvement of stakeholders and population of interest in the research process. Many times the exclusion of groups of interest in the research process increases suspicions among those being studied. Including individuals who are familiar with the norms and values of the target population may help prevent and alleviate issues arising from distrust or misinformation on the part of the researchers. Involvement of stakeholders is often necessary to gain access to the population under study. Individuals who are members of target groups may also serve as liaisons between the primary investigator and population of interest, and may help provide culturally appropriate interpretation of the data.

2. Pilot testing. In addition to decreasing suspicions, members of the group under study can also help identify issues related to question formation, design implementation, and data interpretation. Problems with design implementation may be recognized when instruments and methods are initially piloted with the population of interest. If something is unclear or offensive it can usually be caught during a pilot run of the study. During the pilot phase of a project, it is imperative that researchers are open to feedback by the target population.

3. Avoid unnecessary comparisons between groups. Azibo (1988) has cautioned against using the comparative research framework to study African Americans. This argument can be extended to any group that has been oppressed or disenfranchised (e.g., women, the LGBT population, individuals from lower SES backgrounds). If a researcher is implementing a comparative research framework, the purpose of the comparison should be clearly articulated so that comparisons are not conducted for the sake of proving superiority of one group over another. There should be a clear research question that necessitates the use of the comparison. For example, the insistence that whites or men should be used as a "control" or comparison group in studies that focus on minorities or women is still suggested by grant and journal reviewers today.

4. Implement proximal as opposed to distal variables in research. When studying phenomena that may be attributed to group membership, the use of more proximal variables allows for deep level interpretations. Often group membership (e.g., sex, race,

sexual orientation, income) is used to explain differences between groups. The use of distal variables should be avoided in favor of deeper level process variables such as gender identity, cultural variables (e.g., collectivism), and socio economic status (See Cokley & Awad, 2008, for an in depth discussion).

Concluding Thoughts and Words of Caution

In this article we have presented a brief philosophy of science discussion about quantitative methods, and presented a case for the importance of using quantitative methods to promote social justice. Recognizing how quantitative methods have been used to legitimize social prejudices and perpetuate oppression, we have argued that the problem lies not with the methods themselves, but rather the users of the methods. Our perspective is not new, and has been argued for years by both feminist scholars and scholars of color (e.g., Boykin et al., 1979; Oakley, 1998). There are many benefits to using and mastering quantitative methods, not the least of which is that quantitative methods still dominate graduate courses in public policy and inform policy professionals (Morcol, 2001; Morcol & Ivanova, 2010). For better or for worse, quantitative methods will likely continue to have a disproportionate influence on public policy.

We have presented just a few of many examples of how quantitative methods can be used by multiculturally competent researchers to advance the interests of social justice. However, we would be remiss to not address some of the potential negative consequences of this work. A few years ago we published a study examining predictors of attitudes toward affirmative action. We believed (and continue to believe) that affirmative action is a controversial public policy that nevertheless promotes social justice in the form of the equitable distribution of opportunities to individuals who have historically been denied equal access (i.e., distributive justice). The rationale for the study was to investigate which of three reasons (i.e., self-interest, prejudice, or concerns about fairness) would be the strongest predictor of affirmative action attitudes. Self-interest was operationalized using the demographic items of race and sex. Prejudice towards minorities was operationalized using the *Modern Racism Scale (.i.e., the belief that racism a thing of the past and prejudice complaints by minorities are unfounded)* (McConahay, 1983), and concerns about fairness was operationalized using the *Color-Blind Racial Attitudes Scale* (i.e., the belief that one should ignore race and race does not impact major life outcomes) (Neville, Lilly, Duran, Lee, Browne, 2000). We hypothesized that modern racist and color-blind attitudes would be predictive of affirmative action attitudes above and beyond race and sex, and that color-blind attitudes would be a stronger predictor than modern racist attitudes. We used hierarchical multiple regression to test our hypotheses, and all of the hypotheses were supported. In the discussion, we stated that it is important to understand the reasons why individuals differ in their endorsement of affirmative action. We concluded that "Public opinion about affirmative action is as likely to be influenced by appeals to fairness and justice as appeals to a particular group's self-interests or desire to not be prejudiced" (Awad, Cokley & Ravitch, 2005, p. 1396).

The first author of this article (who was the second author on the affirmative action paper), was very excited about the paper and, against the advice of the first author, forwarded news about the article to the university's media and press office. Shortly after the press release of the study, individuals began commenting about it on blog sites. The comments were biting and acerbic, and revealed a level of sarcasm and disdain that was unsettling. We share this

anecdote as a cautionary tale about the potential repercussions that can result from conducting quantitative research with a social justice agenda. One of our colleagues (who is European American) has shared her experience about receiving threats from other European Americans because of her research which shows that European American parents are socializing their children to have racist beliefs. While these experiences are certainly not equivalent to the real harmful material consequences that can and do occur when individuals stand up and fight for social justice, they still caused emotional duress for the authors. Nevertheless, we continue to believe in the good that can result from the judicious and socially conscious use of quantitative methods in our research.

As this article goes to press the Supreme Court is deliberating on the use of affirmative action in the *Fisher v. University of Texas* case. One of the arguments being made is that affirmative action results in students, especially ethnic minority students, being mismatched with elite schools where their abilities fall below the median level of ability of all enrolled students. This theory of mismatch has gained widespread attention by an article published in the Stanford Law Review (Sander, 2004). Using quantitative analysis, Sander argued that students admitted to law school through affirmative action are likely to struggle and have more attrition and lower pass rates on the bar than non-affirmative action beneficiaries. However, some critics pointed out that mismatch theory is flawed because unknown variables could not be accounted for in a formula, while other critics made quantitatively based arguments that similarly qualified Black students actually perform equally well on the bar regardless of where they attend law school. What is evident from this example is that descriptive statistics and the use of quantitative methods, and not simply ideological or philosophical arguments, will play a central role in shaping this important, albeit controversial, public policy.

In closing, we believe that having facility with quantitative methods is important in a society where public policy is informed by quantitative data. Our hope is that counselors and psychologists will continue to lead the way in demonstrating that all of the methods of psychology can (and should) be used in a liberatory fashion to promote equity, access, participation, harmony, and welfare for all people.

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