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Exploration of VR Acceptance and Ethnicity: A National Investigation

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The reported study examined whether African Americans, European Americans, Native Americans/Alaskan Natives, and Asians/Pacific Islanders with disabilities would differ in their rates of vocational rehabilitation (VR) acceptance in the United States. The test statistic revealed that a significant difference existed regarding ethnicity and VR acceptance. Moreover, a small but significant association emerged between ethnicity and VR acceptance (Cramer's V = .023). The results revealed that in the United States, European Americans are more likely to be accepted for VR services than are African Americans. The author discusses possible barriers to VR acceptance for underserved and underrepresented groups in the United States.

In recent decades, the "complexion" of the United States has reflected its increasingly diverse population. In 1996, The U.S. Census Bureau announced that the physical appearance of the typical U.S. citizen appeared certain to change as people of color increased steadily in numbers (see Note 1). In fact, by the year 2010, European Americans seem certain to be a distinct numerical minority (U.S. Department of Labor, 1987). Moreover, Leong (1991) reported that the U.S. population appears destined to include increasing numbers of both individuals of diverse ethnicities and women in vocational settings. Thus, the workplace as we now know it will soon be transformed from a composition of mainly European Americans to mainly women and individuals of other racial and ethnic groups.

As a growing segment of society, customers who traditionally have been underserved and underrepresented in the vocational rehabilitation (VR) system (i.e., African Americans) will inevitably present with both typical disabilities (Brown, 1993; Ficke, 1992; Marshall, 1987) and significant disabilities (Marshall; Walker, 1988). Evidence has suggested, however, that people of color are less likely to be accepted for VR services when compared to their European American counterparts (Feist-Price, 1995; Herbert & Martinez, 1992). In short, ethnicity appears to influence and be associated with the overall disability rate in the United States (Allen, 1976; Bowe, 1984; Hayes-Bautista, 1992; U.S. Department of Education, 1992; Walker, Adbury, Maholmes, & Rackely, 1992). Variables besides ethnicity can, of course, influence eligibility determination (Bolton & Cooper, 1980; Peterson, 1996; Wheaton; 1995; Wilson, 2000); however, recent legislative mandates like the 1992 and 1998 amendments to the Rehabilitation Act of 1973 suggest that discrepancies in VR acceptance remains an issue in many states (Wilson, 2000).

ETHNICITY AND VR ACCEPTANCE

The seminal study by Atkins and Wright (1980) first addressed VR outcomes among African Americans and European Americans in the United States. The authors found that African Americans were accepted less frequently for VR services than were European Americans in most Rehabilitation Services

Administration (RSA) regions. After recalculating the Atkins and Wright data, however, Bolton and Cooper (1980) questioned whether the 5.5% difference in acceptance rates was sufficient to support the conclusion that African Americans and European Americans receive unequal treatment in VR. Although Atkins and Wright had failed to apply an inferential statistical test to ethnicity and VR eligibility to see whether the proportions between the two groups were statistically significant, the reasons for eligibility determination discrepancies remained a passionately debated issue in the 1980s.

More than a decade after Bolton and Cooper (1980) challenged the conclusions reached by Atkins and Wright (1980), Herbert and Martinez (1992) investigated whether ethnicity (Native American/Alaskan Native, Asian/Pacific Islander, African American, or European American) when correlated with case service Statuses 08 (closed not accepted for VR services), 26 (rehabilitated), 28 (closed other reason after the Individual Plan for Employment [IPE]), and 30 (closed other reasons before the IPE) would show differences. Confirming the results produced by Atkins and Wright, Herbert and Martinez reported that European Americans were more likely to be accepted for VR services than were their African American counterparts. They also found that African Americans and Hispanics were more likely to be found ineligible for VR services than any other underserved and underrepresented group under investigation. Although Herbert and Martinez used a more inclusive sample of ethnic groups, their results concurred with those adduced earlier by Atkins and Wright—that African Americans tended to be accepted less often for VR services than European Americans.

In 1993, Dziekan and Okocha explored the accessibility of VR services for various underrepresented groups (African Americans, Hispanics, Native Americans, and Asian Americans) and European Americans. They reported that the African Americans' experiences coincided with those reported earlier by Atkins and Wright (1980) and Herbert and Martinez (1992)—that is, African Americans were less likely to be found eligible for VR services than their European American counterparts. Feist-Price (1995) reported these same results 2 years later. Thus, the results reported by four of five research teams investigating VR acceptance and ethnicity between 1980 and 1995 strongly suggested that ethnicity influences VR acceptance. The reasons for this apparent discrepancy remained, however, unclear.

In 1995, shortly after the Feist-Price study, Wheaton became the latest researcher to investigate acceptance rates among African Americans and European Americans, and he concluded that "the proportions of European Americans and African Americans found eligible for VR services are not significantly different statistically" (p. 228). Unlike past investigators, Wheaton employed a different hypothesis (symmetrical) and sampling procedure (homogeneity of proportions). Although he found no statistically significant difference, he still reported that European Americans had a higher acceptance rate (52.7%) than did African Americans (47.3%). Like Wheaton a year later, Peterson (1996) concluded that VR acceptance rate differences among African Americans, European Americans, Native Americans, Eskimos or Aleuts, Asians/Pacific Islanders, Hispanics, and "others" were not statistically significant. In concert with both Wheaton and Peterson, Wilson (1999) reported no differences between African Americans and European Americans in VR acceptance. The Wheaton, Peterson, and Wilson studies all revealed some hesitancy (African Americans may not be accepted less for VR services than European Americans), and the authors all stated a need for more eligibility research throughout the United States. Wheaton and Wilson noted a need for replicating VR studies that examined acceptance rates that seems obvious. Meanwhile, it remains unclear whether VR acceptance is influenced more by ethnic group membership as such, or by variables associated with a lower socioeconomic status (e.g., education or vocation), which is a point Bolton and Cooper first made in 1980.

Tackling the challenge of study replication, Wilson, Harley, and Alston (in press) replicated the Wilson (1999) study. Wilson et al.'s results were similar to those reported by others (e.g., Atkins & Wright, 1980; Feist-Price, 1995): namely, European Americans are more likely to be accepted for VR services than are African Americans. The results reported by Wilson et al. challenged earlier findings reported by Wilson (1999), Wheaton (1995), and Peterson (1996), in that ethnicity and VR acceptance were independent (see Table 1 for a chronology of these studies).

Finally, addressing the limitations presented in earlier VR eligibility studies that relied on univariate analysis (chi-square) to investigate ethnicity and VR acceptance, Wilson (2000) included four predictor variables (ethnicity, education, work status, and source of support at application) and used logistic regression and the stepwise method of entry to determine which variables would predict VR acceptance. Primary source of support at referral (entered first) and ethnicity (entered second) were the only two variables to emerge as statistically significant in the regression model. Although Wilson employed a different methodology (multivariate analysis) from that used by other researchers (e.g., Atkins & Wright, 1980; Wheaton, 1995), his results proved congruent with what other researchers reported: African Americans appeared, overall, less likely than European Americans to be accepted for VR services (Atkins & Wright; Dziekan & Okocha, 1993; Feist-Price, 1995; Herbert & Martinez, 1992).

Most of the earlier eligibility research drew upon state RSA-911 data when investigating ethnicity and VR acceptance. The exception was the Atkins and Wright (1980) study (see Table 1). It seemed appropriate, however, to seek national data to generate findings about the national VR population. More important, the actual data used in the groundbreaking study by Atkins and Wright

TABLE 1. Chronology of VR Studies Addressing Ethnicity and VR Acceptance

National Vocational Rehabilitation Investigation

Atkins and Wright (1980)—Groups studied: African Americans and European Americansa

State Vocational Rehabilitation Investigations

Herbert and Martinez (1992)—Groups studied: African Americans, White Hispanics, Hispanics, Asian Pacific Islanders, and European Americansa

Dziekan and Okocha (1993)—Groups studied: African Americans, Hispanics, Native Americans, Asian Americans, and European Americansa

Feist-Price (1995)—Groups studied: African Americans and European Americansa

Wheaton (1995)—Groups studied: African Americans and European Americansb

Peterson (1996)—Groups studied: African Americans, European Americans, Native Americans, Eskimos/Aleuts, Asians/Pacific Islanders, Hispanics, and othersb

Wilson (1999)—Groups studied: African Americans and European Americansb

Wilson (2000)—Groups studied: African Americans and European Americansa

Wilson, Harley, and Alston (in press)—Groups studied: African Americans and European Americansa

aPeople of color are more likely to be found ineligible for VR services (6 studies). bNo statistical difference between ethnicity and VR eligibility (3 studies).

is now 25 years old (fiscal year 1976), and given the many mandates and legislations geared to fusing service quality and equity for non-White populations seeking VR services in the 1990s, these data may

be inapplicable to the current state of affairs in VR. Indeed, even if all previous VR studies had reported that African Americans were less likely to be found eligible for VR services than were European Americans, we currently lack data from 41 states to generalize such a finding to the entire U.S. VR population. Thus, one cannot generalize these results to a particular state unless a sample was taken from that state. More important, some of the researchers for the earlier studies (Bolton & Cooper, 1980; Wheaton, 1995; Wilson, Jackson, & Doughty, 1999) have suggested that the proportional difference of 5.5% in the Atkins and Wright study may have been statistically insignificant. This considerable lacuna explains the rationale and purpose for a national study on VR acceptance. Simply stated, the literature reveals no national study of ethnic group membership and VR acceptance that applied a statistical test to ethnicity and VR acceptance. Furthermore, the majority of the research teams that investigated ethnicity and VR acceptance failed to include other ethnic groups (e.g., Asians/Pacific Islanders) in their statistical analyses.

THE RESEARCH QUESTION

Does a difference exist in the VR acceptance rates between people of color and European Americans in the United States? My first hypothesis (H0) was that vocational rehabilitation acceptance and ethnicity is independent in the United States. My second hypothesis (H1) was that vocational rehabilitation acceptance and ethnicity is dependent in the United States.

METHOD

Data Collection

The data for this study (ex post facto design) came from the national RSA-911 database. The coding procedures for the RSA-911 data conformed to federal guidelines RSA established in 1995. I assigned any coding error to be random and unbiased; to decrease the possibility of further coding error, I used the personal computer version of the Statistical Package for the Social Sciences (SPSS, 1997) to calculate all descriptive and inferential statistics for all variables in the study. Finally, I used the SPSS to examine the data for outliers and suspicious patterns. None were found.

Variables

Racial/Ethnic Membership. This explanatory variable was categorical, with four levels (African American, European American, Native American/Alaskan Native, and Asian/Pacific Islander). *Race/ethnicity* was defined as the race/ethnic group reported by customers on their application for VR services (RSA, 1995; see Note 2). The 1995 RSA manual did not list a racial/ethnic category for the Latino/Hispanic population.

Acceptance for VR Services. This was the criterion variable. Because all the closure statuses from the national RSA-911 data were labeled 1 through 6, it became necessary to group the categories by the 1995 RSA definitions of acceptance and nonacceptance for VR services. Thus, the criterion variable of VR acceptance included two levels: Status 08 from 02 and Status 08 from 06 were coded as 0 (not accepted for VR services). Statuses 38 from 04, 28, and 30 were coded as 1 (accepted for VR services).

Participants

The original population consisted of 599,444 customers who sought VR services in the United States from October 1, 1997, through September 30, 1998. (Both VR and Bureau of Visual Service agencies were included in the random samples.) At the first step in the sampling process, participants were identified who had no missing data on the explanatory and criterion variables of ethnicity and VR acceptance, respectively. Because the inclusion of customers at Statuses 02 (applicant), 04 (preservice listing), and 06 (extended evaluation) would have biased the analysis, these statuses were excluded from the calculations. The subsample of customers with no missing values on the variables under investigation consisted of African Americans (*n* = 58,658), European Americans (*n* =194,250), Native Americans/Alaskan Natives (*n* = 3,191) and Asians/Pacific Islanders (*n* = 3,635). Because "representativeness is the most important consideration in selecting a sample" (Ary, Jacobs, & Razavieh, 1990, p. 179), I decided to draw random samples based on the percentage of each ethnic group represented in the national population of VR customers. Thus, because African Americans represented 22% of the national population of VR customers, I drew a national random sample of 22% (28,929) from the African American population, 76% (344,135) from the European American population, 1% (69) from the Native American/Alaskan Native population, and 1% (83) from the Asian/Pacific Islander population. Not only did the final sample mirror the proportions of the national VR population in the United States, it also ensured the inclusion of other ethnic groups usually excluded from VR eligibility research because of inadequate sample sizes (see Wheaton, 1995; Wilson, 1999, 2000). Descriptive statistics revealed that slightly more men (91,082 [55%]) than women (71,508 [45%]) were included in the final sample.

Data Analysis

The chi-square test of independence was used as the statistic to analyze the dichotomous data. As Fraenkel and Wallen (1993) observed, "The chi-square test is based on a comparison between expected frequencies and actual, obtained frequencies. If the obtained frequencies are similar to the expected frequencies, then researchers conclude that the groups do not differ" (p. 201). Because the analyzed data were dichotomous (criterion variable of VR acceptance) and multinomial (ethnic status), SPSS (1997) recommended Cramer's *V* to measure the association between the explanatory and criterion variables. Because of the relatively large sample size in this study (162,590) and the additive effect of samples (as the sample size increases, the probability of finding statistical significance will increase), I decided to use a more stringent significance level (.001; see Patterson, Allen, Parnell, & Beardall, 2000; Wilson, 2000).

RESULTS

An initial cross-tabulation analysis revealed that the chisquare test of independence violated two basic assumptions reported by SPSS (1997): A cross-tabulation analysis should not contain more than 20% of the cells with expected values of less than 5, and no cell should have an expected value less than 5. SPSS reported that if chi-square assumptions are not met, the probability could be misleading and possibly distort the test statistic. Because of the two reported cell violations produced by the relatively small sample sizes of the Native American/Alaskan Native and Asian/Pacific Islander ethnic groups, subsequent samples of Native Americans/Alaskan Natives (*n* = 1,596) and Asians/Pacific Islanders (*n* = 1,816) were randomly drawn from both populations (see Note 3). Subsequent analyses revealed no violations in the crosstabulation table for ethnic status and VR acceptance. As Table 2 shows, ethnicity and VR acceptance emerged as dependent (statistically significant) of each other $X2(3, N = 162,590) = 88.87$, $p < .001$. More specifically, the analysis revealed that African Americans with disabilities are less likely to be accepted for VR services than are European Americans with disabilities. The Native American/Alaskan Native and Asian/Pacific Islander ethnic groups were not found to be

statistically significant. Thus, the chi-square null hypothesis of independence was rejected. Although it was necessary to oversample the Native American/Alaskan Native and Asian/Pacific Islander ethnic groups for inclusion in the study, the final sample closely paralleled ethnic group proportions reported in the national population of VR customers during fiscal year 1998. The Cramer's *V* coefficient was = .023; when squared, it accounted for .1% of the variance in acceptance by ethnicity.

DISCUSSION

This study revealed a statistically significant difference between ethnic group membership and VR acceptance in

TABLE 2. Acceptance Decision by Ethnicity in the United States

	Not accepted		**Accepted**		**Total**	
Ethnic group	***n***	**%**	***n***	**%**	***n***	**%**
African Americans	714	5.3	12,777	94.7	13,491	100
European Americans	5,359	3.7	140,328	96.3	145,687	100
Native Americans/Alaskan Natives	69	4.3	1,527	95.7	1,596	100
Asians/Pacific Islanders	66	3.6	1,750	96.4	1,816	100
Total	6,208	3.8	156,382	96.2	162,590	100

Note. X2(3, *N* = 162,590) = 88.87, *p* < .001. Cramer's *V* coefficient = .023. Cramer's *V*2 = .1.

the United States and a significant association between ethnicity and VR acceptance. In particular, European Americans are more likely to be accepted for VR services than are African Americans. There is also evidence, based on the variance accounted for by the criterion variable, that VR counselors may be making eligibility decisions based on ethnicity; however, because of the negligible amount of variance explained in the criterion variable by the explanatory variable (.1%), it is untenable to state that VR eligibility decisions in the United States are based solely on ethnicity. As past investigations have revealed (Wheaton, 1995; Wilson, 1999), ethnicity accounts for a negligible amount of variance in VR acceptance. Because some of the reasons for acceptance discrepancies remain unclear, researchers conducting future studies on ethnicity and VR acceptance in the United States may want to consider qualitative methods of inquiry.

The results of the study at hand stand in contrast to what several earlier studies found regarding ethnicity and VR acceptance (e.g., Peterson, 1996; Wheaton, 1995; Wilson, 1999) in that ethnicity and VR acceptance are independent. In contrast to the study at hand, the Peterson, Wheaton, and Wilson investigations used state RSA-911 databases, and the variances explained by ethnicity reported by Wheaton and Wilson were 3% and less than 1%, respectively. The Peterson study did not indicate a relational statistic to calculate the variance accounted for by ethnicity. Because it was necessary to categorize closure statuses by the 1995 RSA definitions of acceptance and nonacceptance for VR services, there was no way to determine whether these groupings might have influenced the amount of variance in VR acceptance accounted for by ethnicity.

Although there are various possible reasons as to why African Americans are less likely to be accepted for VR services than are European Americans, the reasons elaborated upon in this article appear most often in the VR acceptance literature (see Wilson, Harley, McCormick, Jolivette, & Jackson, 2001). One must address the issue of possible discrimination, as Herbert and Martinez (1992), Wilson (2000), and Wilson et al. (2001) noted. The current U.S. VR demographics indicate that about 93% of VR counselors

and 92% of VR administrators classify themselves as European American (Whitney-Thomas, Timmons, Gilmore, & Thomas, 1999). Meanwhile, how one is perceived when seeking VR services has been and remains an issue in the state–federal system. On this point, Rosenthal and Kosciulek (1996); Sue, Arrendondo, and McDavis (1992); and Middleton et al. (2000) reported that ethnic group stereotypes can lead practitioners to hasty conclusions and unsound postulations about customers. Devine and Elliot (1995) concluded that the stereotypes of African Americans tend to be extremely negative, and Dziekan and Okocha (1993) reported that the counselor's perception of the customer's level of involvement may produce an inaccurate determination of the customer's ability to benefit from VR services. Thus, negative perceptions of ethnicity or abilities to complete a job or task may explain why some underrepresented customers may be found ineligible for VR services. Referring to yet an earlier study, and carrying this line of reasoning a step further, Boski (1988) reported that when African Americans present themselves in ways that are consistent with negative stereotypes held by European Americans, they tend to trigger or exacerbate negative evaluations. I believe that the recent study by Rosenthal and Berven (1999) supports the prior observations by Dziekan and Okocha and Boski in that VR counselors, like other health-care professionals, bring their biases and prejudices with them when they are assisting customers. Not only are VR counselors and counselors in training likely to prejudge people of color based on prior negative stereotypes, when they receive information contradicting these stereotypes, they tend to resist changing their preconceived stereotypes (see Rosenthal & Berven). Although these negative perceptions of African Americans (and others) may or may not be intentional, one can logically contend that some eligibility decisions are based on impressions of a person's ethnic or racial group status in the United States.

Intergroup Relations

Because counselors and clients tend to have different worldviews (Mahalik, Worthington, & Crump, 1999), it is also arguable that underrepresented customers reject presented treatment options (level of involvement) due to strained interactions with European American VR counselors (Wilson et al., 1999). For example, the recent national survey on intergroup relations by Smith (2000) confirmed that out of all the groups in the study (Blacks, Jews, Hispanics, fundamentalist Christians, Asians, Muslims, atheists, people with disabilities, Native Americans, gays and lesbians, Whites, immigrants, the poor, the elderly, illiterate people, and people on welfare), Whites and Blacks held the most variant views on issues such as levels of discrimination, group tension, and educational parity. Chideya (1995) reached similar conclusions to those asserted by Smith. Because the attitudes and behaviors of VR system personnel form a fairly accurate microcosm of the general society (Feist-Price & Ford-Harris, 1994; Sue, 1994; Thomas & Sillen, 1972; Wilson et al., 1999; Wilson et al., 2001; Wise, 1988), Smith and Chideya's findings are particularly relevant to any discussion of intergroup tension regarding eligibility determination that occurs within this system. Addressing the VR eligibility discrepancy between people of color and European Americans, Dziekan and Okocha (1993) reported that European American middle-class values could be perceived as covertly biased against some underrepresented groups, an observation that supports the possibility of tension between the VR counselor and customer. Wilson and his colleagues also suggested that these tensions can be elevated by different worldviews. The worldview assertion is based primarily on the use of "Eurofocused" training models in most counseling training programs. VR counselors must be open to all types of differences (e.g., gender and sexual orientation). It is, however, also important to acknowledge what Smith (2000) noted:

[I]ntergroup relations go well beyond race relations. While race relations are an important component of intergroup relations, they are merely part of the larger whole. Moreover, race relations do not always represent the greatest problems in intergroup relations. On some dimensions, non-racial/ethnic groups

such as Muslims, gays and lesbians, and the disabled are judged to be [the] more extreme circumstance. (p. 9)

Increased Contact

Increasing the amount of contact is another way to decrease harmful attitudes toward and perceptions of groups different from one's own. To support this contention, Smith (2000) concluded that a strong relationship existed between interracial and interethnic contact, feelings of closeness, and views regarding intergroup relations. On the same point, Locke and Parker (1994) also reported that cultural empathy of ethnic groups requires direct involvement with groups that are different from one's own group. In short, the more contact one has with different ethnic groups, the more likely one will understand the perceptions of other group members. This key finding in the Smith study speaks to the value of group understanding and an associated reduction in group tensions between those seeking VR services and their counselors. Although the findings of the Smith study indicate that increased contact by European Americans tends to be associated with increased empathy for African Americans, it is not clear whether rehabilitation counseling programs are providing students with enough exposure to make this happen.

As previously noted, other variables besides ethnicity influence VR acceptance (see Bolton and Cooper, 1980; Wheaton, 1995; Wilson, 2000; Wilson, Alston, & Harley, this issue). Thus, researchers using the RSA-911 national database or other national databases should insert ethnicity (one of several explanatory variables) and VR acceptance (criterion variable) into a multivariate equation to determine which variables might explain variance in VR acceptance. For example, using a multivariate (logistic regression) methodology, Wilson found ethnicity and source of support at application to be statistically significant. It is important to note, however, that Wilson used a state's RSA-911 database as opposed to the national database. Because most of the variables in this RSA-911 database were categorical, Wilson's use of logistic regression to predict VR acceptance from a host of explanatory variables may provide a guide for future researchers looking at VR acceptance and ethnicity.

Study Limitations

Although this study improves on the methodology Atkins and Wright (1980) used for the first national study on ethnicity and VR acceptance, some possible limitations must be addressed. A strength of the present investigation was its use of (a) a more stringent significance level to detect whether differences existed between ethnicity and VR acceptance in the population of VR customers in the United States and (b) a relatively large random sample, but a different significance criterion (e.g., .0001) might have yielded a different result.

Although there was no way to control for the RSA-911 classification feature, another possible limitation of this investigation was the way the closure statuses were coded on the national RSA-911 reporting form. Because all closure statuses were labeled (categorized) 1 through 6, it became necessary to collapse some of the criterion variables into categories as defined by RSA (1995). As a result, not only were customers who were accepted for VR services included in Category 2 but also customers who had their cases closed before and after the IEP. The methodology used in this study departed from other studies that used state data in which the explanatory and criterion variables of Status 08 (not accepted for VR services) and Status 10 (accepted for VR services) were used (e.g., Wheaton, 1995; Wilson, 1999). The results of this study might have been different if the national RSA-911 database included these two

separate closure statuses in the RSA-911 data reporting form. Notwithstanding the coding of the criterion variable used in this study, it was not clear how the only other national study on ethnicity and VR acceptance (Atkins & Wright, 1980) coded its explanatory and criterion variables of ethnicity and VR acceptance.

Another threat to external validity was that this study investigated ethnicity and VR acceptance for only 1 year—1998—although 1-year studies do appear to be the norm (see Dziekan & Okocha, 1993; Wheaton, 1995; Wilson, 1999). Investigating ethnicity and VR acceptance across several years might yield different results. One can hardly guarantee that the results from fiscal year 1998 would be similar if the 1997 and 1996 data were combined. However, it is possible that results from years so close together would yield similar results (see Wheaton, 1995; Wilson, 1999).

Because this was an ex post facto investigation, I feel safe in concluding only that a correlation existed between ethnicity and VR acceptance in the United States. A serious lack of control exists in ex post facto research; therefore, there are also limitations related to internal validity. For example, because the explanatory variable has already occurred, one cannot manipulate and attribute a cause and effect to outcomes (i.e., causality cannot be inferred in ex post facto investigations: e.g., a person's ethnicity does not cause a person to be accepted or not accepted for VR services). "As with correlation studies, relationships can be identified, but causation cannot be established" (Fraenkel & Wallen, 1993, p. 319). Although not investigated in the study at hand, perhaps a vocation and a disability that present a vocational handicap may predispose some customers to acceptance or rejection. For example, a person with a vocation and a nonsignificant disability may need only minimal assistance from VR to become successfully rehabilitated (Status 26). Such a customer would presumably be more "marketable" to the VR counselor. Although it is speculative, certain disability categories (for example, a severe disability) might predispose a counselor to reject a customer for VR services. The pressure on VR counselors to increase the number of successful rehabilitation closures (Status 26), as noted by Wise (1988), lends credence to this assertion that disability severity may predispose some customers to acceptance or rejection in the VR system despite the recent legislative mandates to serve people who have significant disabilities. More research is needed to determine other possible relationships between VR eligibility and ethnicity.

Finally, beyond the general need to statistically control for such explanatory variables as type and severity of disability and socioeconomic status, this investigation also included limitations related to the external validity of populations studied. In particular, this study was limited to African Americans, European Americans, Native Americans/Alaskan Natives, and Asians/Pacific Islanders who sought VR services in the United States. Many questions require further examination. I do, however, agree with what Bolton and Cooper (1980) noted regarding the elucidation of test statistics: "interpretation of a simple statistical difference can actually be a very complex issue" (p. 47). Because it was possible to have different versions of the national RSA-911 data for the same year, results may vary depending on the version distributed.

FUTURE RESEARCH

Although the results reported here indicate discrepancies in acceptance rates among ethnic groups seeking VR services in the United States, this study did not sort out particular states that fit this eligibility profile. On this point, Allen, Parnell, Crawford, and Beardall (2000), in a recent study examining equitable treatment in the rehabilitation process, asserted that "Although significant differences

between European Americans and African Americans in terms of expenditure and cases closed as rehabilitation were found on a state-wide basis, statistically significant differences did not exist in all districts" (p. 16). Future researchers might usefully examine the states individually to ascertain which states are prone to results similar to those found in this national investigation. Evidence indicates, however, that African Americans with disabilities are more likely to be found ineligible for VR services than are European Americans, and in view of the proportional sampling procedure used in the study at hand, one might expect to find similar results in most states. Future researchers might look at all RSA regions to determine which ones are most likely to reveal discrepancies in VR acceptance.

Principal differences between this study and the three prior studies that found ethnicity and VR acceptance to be dependent were the use of methodologies and populations. For example, Wheaton (1995) and Peterson (1996) tested proportions, whereas this study tested independence of ethnicity and VR acceptance. The sampling methodologies used by Wheaton or Peterson might have yielded different results, and it is recommend that other researchers use different methodologies when investigating ethnicity and VR acceptance.

Because most of the research teams that investigated ethnicity and VR acceptance used only African Americans and European Americans in their research design, future research might need to include other ethnicities, as did the study at hand. Although this was not a replication of the Atkins and Wright (1980) investigation, the only nationally reported study located on VR acceptance and ethnicity; they too only used African Americans and European Americans in their final subsample.

CONCLUSIONS

The intent of this study was to see whether African Americans, European Americans, Native Americans/Alaskan Natives, and Asians/Pacific Islanders with disabilities would differ in terms of rates of VR acceptance. Ethnicity and VR acceptance were found to be dependent, and a significant association was found between ethnicity and VR acceptance. In particular, African Americans tend to be accepted less for VR services than European Americans. Although some reasons for these discrepancies are speculative, qualitative and quantitative methods of inquiry remain available to future researchers investigating ethnicity and VR acceptance. Wong-Hernandez (1993) so eloquently summarized the fate of rehabilitation in the following quote:

Attitude and behavioral changes will have to occur in both the (rehabilitation) professional and the consumer, but the greater adjustment will have to be made by the rehabilitation professional. The rehabilitation professional as a service provider has a professional and ethical responsibility to accommodate the consumer, and to try to obtain the best possible outcome for the consumer's best interest. (p. 32)

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NOTES

1. For the purposes of this article, we defined several terms as follows: *people of color*—"Non-White ethnic minority groups, such as [Native Americans] and African Americans, are often called people of color" (Banks, 1997, p. 66); *race*—because of the complexity and various definitions of race (Banks, 1997), the term *race* will include all groups (e.g., African Americans, European Americans, Native American/Alaskan Natives, and Asians/Pacific Islanders); and *ethnicity*—"Although an ethnic minority group, like an ethnic group, shares a common culture [e.g., behaviors patterns, values, symbols], a historic tradition, and a sense of peoplehood, it also has unique physical and/or cultural characteristics that enable individuals who belong to other ethnic groups to identify its members easily, often for discrimination purposes" (Banks, 1991, p. 64).
2. The federal government still uses the term *race* when referring to African Americans, European Americans, Native Americans/Alaskan Natives, and Asians/Pacific Islanders (Rehabilitation Services Administration, 1995).
3. The author included 50% of the Native American/Alaskan Native and Asian/Pacific Islander ethnic groups in the final subsample.

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