The Effects of Computer Versus Paper-and-Pencil Administration on Measures of Anger and Revenge With an Inmate Population

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Abstract — A current issue in personality assessment is whether computer versions of personality tests are psychometrically equivalent to paper-and-pencil originals. A total of 52 male inmates were randomly assigned to computer or paper-and-pencil administration conditions. The following measures were administered to the inmates in either computer or paper-and-pencil formats: the trait section of the State-Trait Personality Inventory (Spielberger et al., 1979), the Anger Expression Scale (Spielberger et al., 1986), the Belief Scale (Malouff & Schutte, 1986), and the Vengeance Scale (Stuckless & Goranson, 1992). No mean or variance differences were found indicating that computer and paper-and-pencil versions of these instruments are essentially equivalent. Analyses which examined the effects of computer anxiety, preference for computer administration and social desirability also indicated equivalency. The findings of this study, although indicating the equivalency of a number of measures, do not support the use of computer versions of other paper-and-pencil instruments without prior demonstration of their equivalency with the population of interest. The pervasive social desirability contamination found in this study brings into question the validity of assessments of incarcerated individuals regardless of administration modality.

The use of computer-based assessment (CBA) has become widespread with the advent of microcomputers and it can be reasonably expected that CBA will continue to proliferate. This development has resulted in ethical and professional

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issues unique to CBA. Two of the more important issues are the validity of computer-based test interpretations and the equivalency of computer-administered instruments. In this article the focus will be on equivalence.

Many psychologists operate under the assumption that computerized versions are equivalent to paper-and-pencil counterparts. This assumption has been supported by numerous studies which indicate that the computer and paper-and-pencil versions are virtually equivalent for a varied assortment of instruments: the Jenkins Activity Survey — Form T (Holden & Hickman, 1987); the Matching Familiar Figures Test (Van Merrienboer & Jelsma, 1988); the Verbal scale of the Multidimensional Aptitude Battery (Harrell, Honaker, Hetu, & Oberwager, 1987); the Test Attitude Battery and the Test Anxiety Questionnaire (Wilson, Genco, & Yager, 1985); the Therapeutic Reactance Scale, the State-Trait Anxiety Inventory (STAI), and the Beck Depression Inventory (BDI) (Lukin, Dowd, Plake, & Kraft, 1985); the Piers-Harris Children’s Self-Concept Scale (Simola & Holden, 1992); the Strong-Campbell Interest Inventory (Vansickle & Kapes, 1993); and the Minnesota Multiphasic Personality Inventory (MMPI) (Lambert, Andrews, Rylee, & Skinner, 1987; White, Clements, & Fowler, 1985). However, the equivalency assumption has also been contradicted for a varied assortment of instruments (Davis & Cowles, 1989; Erdman, Klein, & Greist, 1985; Farrell, Camplair, & McCullough, 1987) including some measures listed earlier in this paragraph, the STAI and BDI (George, Lankford, & Wilson, 1992) and the MMPI (Schuldberg, 1988; Watson, Thomas, & Anderson, 1992).

The contradictory evidence is itself contradictory. Some studies indicate that CBA results in the disclosure of greater psychopathology whereas other studies report a tendency to “fake good”. More information was divulged in a computerized interview, especially when the information was potentially embarrassing (Erdman et al., 1985; Farrell et al., 1987) and George et al. (1992) found self-reports of depression and state anxiety were significantly higher in the CBA condition. Meanwhile, Davis and Cowles (1989) reported that subjects “faked good” on measures of anxiety in the CBA condition and Schuldberg (1988) found that undergraduate subjects reported less psychopathology and have generally less elevated profiles for computerized administrations of the MMPI. In a meta-analytic study, Watson et al. (1992) found that computer administration of the MMPI yielded significant underestimates on 8 of the 10 clinical scales when compared with paper-and-pencil administration.

It is clear that there is a need for clinicians and researchers to demonstrate the equivalence of computer-administered versions of paper-and-pencil instruments for any population being examined. Until this fundamental research is conducted, the validity of many computerized assessment instruments is in question.

At least in the province of Ontario, CBA is widely used in the criminal justice system. One implication is that many critical decisions such as classification and parole may be based, at least partially, on possibly invalid test results. In this context, it is especially pertinent to determine whether computerized measures of anger and revenge are equivalent to paper-and-pencil originals with an inmate population. There are no known studies which have examined the equivalency of computerized versions of anger and revenge measures with any subject population. In the present study measures of trait anger, anger expression, and revenge, as well as trait anxiety and irrational beliefs, will be examined for
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