The Complicated Pig Speaks: A Reply to Gore and Brown and Tinsley

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Responses are made to comments regarding Eggerth and Andrew (2006) by Gore and Brown (2006) calling for simplification of the modified C index and by Tinsley (2006) questioning the logic of the modified C index (all articles in this issue).

Keywords: C index, Holland types, Holland codes, RIASEC, person-environment fit, congruence

I cannot help but begin this response with the admission that I stand surprised that the editor of this journal solicited comments from vocational psychologists of the stature of Steven Brown, Paul Gore, and Howard Tinsley on what I thought of as a modest methods paper. However, I have long since learned not to question the judgment of journal editors—at least not publicly or in print. I am even more surprised that this paper served as a starting point for a debate regarding the ongoing worth of the Holland RIASEC model. Despite being sorely tempted to wade into this debate myself, I will resist the urge to do so and will limit myself to responding to comments regarding the modified C index proposed in Eggerth and Andrew (2006 [this issue]).

It must surely be clear to readers that the comments offered by Gore and Brown (2006 [this issue]) are far more congruent with my own views than are those of Tinsley (2006 [this issue]). Consequently, I will address Gore and Brown first.

GORE AND BROWN (2006)

Although acknowledging that the modified C index proposed by Eggerth and Andrew (2006) is "conceptually on target," Gore and Brown (2006) suggest that it "is too computationally cumbersome" and offer their own modification that is

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JOURNAL OF CAREER ASSESSMENT, Vol. 14 No. 2, May 2006 289–291
DOI: 10.1177/1069072705283783

simpler to calculate. Rather than use a weighted composite to "substitute" for a "missing" Holland type as proposed in Eggerth and Andrew, Gore and Brown suggest that one should simply substitute the primary Holland type for any missing types, thereby extending all codes to three letters in length and allowing congruence to be calculated using the C index as originally proposed (Brown & Gore, 1994). They present a number of examples that indicate that this method will produce congruence estimates very close in size to those produced using the modifications proposed in Eggerth and Andrew.

I concede that in some instances the Gore and Brown (2006) method is simpler to calculate than that proposed in Eggerth and Andrew (2006). However, in the era of powerful desktop computers and friendly interfaces, I have to question whether ease of calculation means quite as much as it once did. Beyond the arithmetic, conceptually the method proposed by Gore and Brown gives all weight to the primary Holland type and none to the secondary type. Consequently, the influence of the primary type is exaggerated above and beyond its weight in the original C index (Brown & Gore, 1994). The composite proposed by Eggerth and Andrew weights the relative contributions of the primary and secondary types using a ratio of 3:2. I believe that this is more consistent with the logic of the C index as originally proposed by Brown and Gore. In addition, the contribution of the secondary type, however modest, is not lost in this method as it is with Gore and Brown. Ultimately the question of whether the greater mathematical rigor of Eggerth and Andrew will outweigh the computational ease of Gore and Brown is one that must be answered empirically.

TINSLEY (2006)

In his response to Eggerth and Andrew (2006), Tinsley (2006) suggested that the proposed modifications were logically inconsistent by our own standards. By way of illustrating this inconsistency, Tinsley offers several examples comparing profiles of unequal length (RIA and RI, RIA and R, and RI and R), calculates C index scores (16.4, 14, and 15.6, respectively) for these comparisons, and suggests that "the unstated assumption in the case of profiles having differing numbers of codes is that congruence is not perfect unless data are available to show otherwise" (pp. 286-287). Tinsley argues that because profiles of unequal length will never reach the maximum possible value of 18 that is attainable for profiles of equal length, our approach is damned by its own logic.

I respectfully disagree that we have been logically inconsistent. The statement from Eggerth and Andrew (2006) that Tinsley (2006, p. 287) quotes in support of his argument, "it makes no sense that a perfect fit between two letter profiles should count for less (15) than a perfect fit between three letter profiles (18)" was part of a rationale for using a scaling constant to place the 2×2 comparisons on the same metric as 3×3 comparisons. As is noted in Eggerth and Andrew, the use of a scaling constant was an effort to simplify the calculation of several of the cases. The very same results can be obtained by using the weighted composite approach that Gore and Brown (2006) considered too mathematically complex. Tinsley's argument is based on a statement that was intended solely to provide readers with a conceptual shortcut around several pages of equations that in the end would produce the same congruence estimates as could be obtained using a scaling constant.

It is implicit in this approach to congruence that to have a perfect match, both profiles must contain the same code letters, in the same order. When comparing the profiles of RIA and RI, one would not expect perfect congruence because one profile was lacking A. Similarly, for the comparison of RIA and R, with one profile lacking both I and A, one would also not expect an estimate of perfect fit. It is unclear to me why it would be desirable for a fit index to work otherwise.

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