



An enhanced examination of Holland's consistency and differentiation hypotheses

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ABSTRACT

The research support for Holland's concepts of consistency and differentiation has been equivocal (Nauta, 2010). To provide a reexamination of these concepts, a new method of operationalizing Holland's constructs of consistency and differentiation using the cosine fit function to the RIASEC score profile is proposed. The relation of these new indices to career certainty, congruence and the moderation of the congruence–certainty relation were examined in a sample of 118 college students (study 1). Support was found for the superiority of the cosine fit definitions of consistency and differentiation over the traditional representations. The cosine fit indices were further examined in a second study on 167 adults examining interest stability over 15 years. The cosine fit indices of consistency and differentiation were related to both occupational stability over 15 years and career satisfaction. The results suggest that the concepts of differentiation and consistency may still have merit but only with more exact methods of specification.

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1. Introduction

Holland (1973, 1985, 1997) has become the primary model in vocational psychology and the most extensively studied (Brown & Lent, 2005). His contributions to the field are huge, especially his model of personality and environmental types, which have been incorporated into almost every interest assessment tool and intervention. People and environments can be characterized by using six different types: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (collectively referred to as RIASEC). Many of his hypotheses have received empirical support such as the hexagonal (circular) structure of RIASEC types (e.g., Tracey & Rounds, 1993) and the congruence of interests and environments being related to satisfaction, persistence and performance (see Betz, 2008; Donohue, 2006; Holland, 1997; Spokane & Cruza-Guet, 2005; Spokane, Meir, & Catalano, 2000; Tsabari, Tziner, & Meir, 2005). However the two hypotheses of consistency and differentiation have yielded equivocal support calling into question their validity. Further, much of this research is rather dated and the constructs need to be examined anew (Betz, 2008). The current investigation is focused on the examination of these two hypotheses using new methods in hope of demonstrating their utility.

Holland's calculus hypothesis (Holland, 1973, 1985, 1997) is a key component of his model where the six types can be arranged in a hexagon (or circle) and the distance between the types represents the degree of similarity. Tracey and Rounds (1993) noted the similarity between this hexagon and broader circumplex models and how the hexagon was a subset of circular models. The research has supported this circular structure of RIASEC interests for individuals (Darcy & Tracey, 2007; Gupta, Tracey, & Gore, 2008; Tracey & Rounds, 1993) as well as for occupations (Tracey & Rounds, 1992). Holland also sought to apply this circular model to individuals through his construct of consistency. Consistency reflects the degree of relatedness among an individual's or environment's profile of RIASEC scores. If an individual had RIASEC scores that better fit the circular structure, then that individual would be better able to find commensurate environments (i.e., congruent). Thus, individual consistency is

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hypothesized to relate to persistence and achievement. The research support for consistency however has been equivocal with some studies finding support for the relation of consistency with major persistence and achievement (Barak & Rabbi, 1982) and others not (Frantz & Walsh, 1972). In an examination of employed adults, Hughes (1972) and more recently Wille, De Fruyt, and Feys (2010) found no relation of consistency with job stability and satisfaction. O'Neil, Magoon, and Tracey (1978) found support for consistency stability over seven years. But overall, the pattern of research results does not provide strong support for the concept of consistency (Carson & Mowesjian, 1993).

The other concept related to RIASEC scores is that of differentiation which refers to the variation in scores. Holland (1985) hypothesized that individuals with more differentiated profiles (i.e., greater variability in scores) would have clearer likes and dislikes and would thus be better able to make career decisions and thus have better outcomes (e.g., satisfaction, persistence, achievement, and well-being). But again the research support has been equivocal. Differentiation has been found to be related to occupational decision making (Holland, Gottfredson, & Nafziger, 1975) and occupational choice stability (Holland, 1968; Villwock, Schnitzen, & Carbonari, 1976) but not career certainty (Lowe, 1981), actual job moves (Wille et al., 2010) or psychological functioning (Cotter & Fouad, 2011; Loughhead & Reardon, 1989). Given the tepid support for the concepts of consistency and differentiation, Holland downplayed them in his more recent, 1997 model (Nauta, 2010). However one of the problems with this research is the limited means of operationalizing consistency and differentiation, which could explain the lack of empirical evidence demonstrating their predictive utility.

2. Cosine operationalizations of profile consistency, differentiation, and elevation

Consistency has typically been operationalized using the relative match between the top two scores in a RIASEC profile. If the top two scores are adjacent on the RIASEC circle, then a score of 3 was given. If the top two scores were separated by one other type, then a score of 2 would be given. If the top two scores were opposite, then a score of 1 would be given. So the 1–3 consistency index represented the similarity of the top two scores to the RIASEC circular structure. However this method runs into several operationalization issues. First it is not at all clear what should be done with ties (De Fruyt, 2002) either for the top spots or for types in the second spot. There also is no account taken on the degree of ranking. A profile with R and I separated by only a point is identical in consistency to a profile that has R and I separated by 30 points. Finally, the index only accounts for two scores and ignores the information provided by the full profile. So with respect to a clear and complete representation of the RIASEC profile and how it matches the normative structure, such a simple top two approach, is lacking. To correct for these issues, several competing indices have been proposed, which utilize three of the scale scores (Iachan, 1984; Strahan, 1987; Strahan & Severinchaus, 1992) but there is no clear empirical support for these. The same issues pertain to the assessment of differentiation where the lowest RIASEC score is subtracted from the highest RIASEC score. There are still only two scales and several alternatives have been proposed (Alvi & Khan, 1990).

To remedy these problems with the current measures of consistency and differentiation, we sought measures that would use the entire profile and include information on the relative differences in the scale scores. Given that RIASEC scores can be well fit by a circumplex structure, we adopted the cosine function used in personality (Gurtman & Balakrishnan, 1998) which provides information on the extent to which the scores of each individual adhere to the circular ordering. This approach involves fitting the following equation to each RIASEC profile.

$$Y_{ij} = e_i + a_i * \cos(\theta_j - \delta_i) + d_{ij} \quad (1)$$

where: Y_{ij} is the score of individual i on scale j , e_i is the *elevation* of the profile (the mean level across all scales) for individual i , a_i is the *amplitude* of the best fitting cosine function for individual i , θ_j is the angle of each of the j scores (for six type scales this would

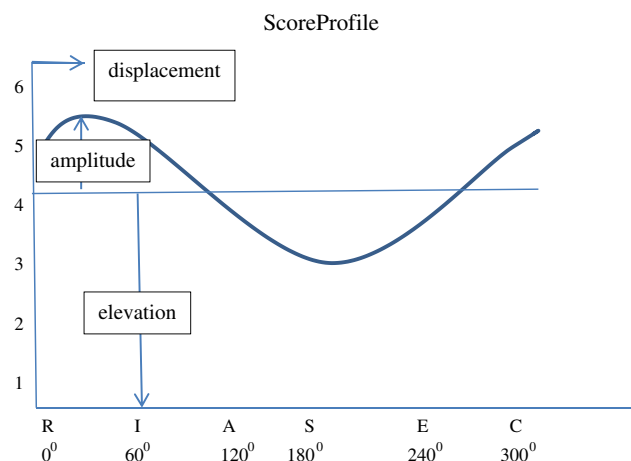


Fig. 1. Graph of cosine function for a score profile.

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