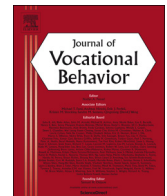


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## Response latency in interest assessment: An added tool?

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## ABSTRACT

In this study, we used reports of and response times to vocational interest assessment from 989 adults on the Personal Globe Inventory-Short (PGI-Short) and Personal Globe Inventory-Mini (PGI-Mini) to examine the associations between item response and response latency and the potential additive effects of response latency on interest assessment. Findings revealed a curvilinear relation between item response and mirrored response latency such that individuals responded to interest items more quickly when they strongly like or dislike an activity and took longer time to respond when their interests were ambivalence. Further, reflected response latency were found to enhance reliability for both the PGI-Short and the PGI-Mini, and the fit between the combined item response and responding latency vocational interests had additional predictive effects on vocational certainty, over and beyond the effects of regular item responses, but only for the PGI-Mini. Applications and implications of item response latency to interest and other assessments were discussed.

## 1. Introduction

The assessment of response time has a long history in psychology. One manifestation of response time has been the concept of semantic priming, which is central to much of the research in memory, language and emotion (Jones & Estes, 2012; Klauer & Musch, 2003; Lerner, Bentin, & Shriki, 2012; McNamara, 2005; Neely, 1991; Storbeck & Clore, 2008). It implies that concepts that are more semantically or affectively related are responded to more quickly than those less related. This speed of response pattern is viewed as related to associative connections and/or semantic similarity where items more related are thought to share a stronger link in memory and thus decisions based on such a link is easier and quicker. Assessing response time between objects can thus provide a reliable and implicit assessment of the association between those objects (Neely, 1991). This general approach has been actively adopted in many areas of psychology via implicit measurement (Nosek, 2007), mostly prominently by the Implicit Association Test (IAT) (Greenwald, McGhee, & Schwartz, 1998). Using such performance approaches (i.e., response time) have been viewed as assets over self-report measures in that they may obviate many problems associated with self-report, such as dissimulation (although see Gawronski, LeBel, and Peters (2007) for a counter view).

Interest measurement has always relied on self-report measures where the individuals usually rate whether they like an activity or not (dichotomous scale) or how much they like an activity on a Likert type scale. Such responding requires that the respondents have at least some understanding of the activity being rated and then assess their degrees of liking or preferences. However, the existing approach of assessing matching of liking to an activity has largely focused on individual's explicit preference of the activity but overlooked the underlying cognitive and affective processes, such as individuals' clarity or certainty regarding their liking or preference. As a result, we would interpret findings on the interest measure identically between those who are certain about their likings

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and take a relatively shorter amount of time to complete the assessment and those who may be ambiguous and take a much longer time to provide their ratings. Drawing from evidence of the incremental reliability and validity of response latency to attitude, mood, and personality assessment in laboratory and naturalistic settings (e.g., Akrami, Hedlund, & Ekehammar, 2007; Cunningham, Preacher, & Banaji, 2001; Lischetzke, Angelova, & Eid, 2011), we were interested in exploring if response time to interest inventory items would augment the normal self-report scoring, specifically tapping into individuals' implicit interest preferences. Given that the majority of interest assessments are administered via computer or the Internet, it is plausible to adopt priming assessment in interest assessment as it is similarly done in affective priming studies (Klauer & Musch, 2003) by assessing the time taken to respond to each item. Thus, response time may provide a separate, implicit, measure of how much the specific item content and liking are associated. The more an activity is liked, the shorter the response time. So if the degree of liking is being assessed, then those activities that are highly liked are responded to quickly and those that are less liked will take longer to respond. Hence the relation between the implicit measure of response time and self-report measure of liking should be, linear, negative (higher liking associated with shorter response time) but not isomorphic.

However, the literature on emotions presents a different possibility for response time as it relates to liking of activities. Interests have been conceptualized as motivations that are tied to emotions (Savickas, 1999; Silvia, 2006). As emotions are crucial for the determination of likings, assessment using interest inventories evokes an emotional response. The research on emotional responding has demonstrated that there are only two core fundamental dimensions: that of valence and arousal (Barrett, 2006; Mauss & Robinson, 2009; Russell, 2003; Yik, Russell, & Barrett, 1999). Core affect thus involves making a very quick distinction on whether something feels good or bad and whether it is energized or enervated. The assessment of liking then would get sorted along these two basic affect dimensions. If one clearly likes an activity and is also energized by it, the liking of the activity should be responded to very quickly. Those less favorable and less energizing would, on the other hand, be responded to less quickly. However, this basic valence distinction presents the possibility that an individual could respond based on disliking an activity where the valence is bad. If an activity is perceived as bad and energizing, then it too can be responded to quickly. Taken together, according to this emotion-based model of processing liking, one can respond quickly to items based both on having a great liking and great disliking. Longer responses would thus be associated with having less defined or clear valence and lower arousal. Said differently, the relation between self-report liking and implicit response time would be curvilinear in an inverted-U pattern with fast response times associated with items being highly liked or disliked and longer response times being associated with less certainty of valence and/or low arousal (Akrami et al., 2007).

Drawing from the implicit, performance-based nature of response time, studying activity item liking response time may provide additional reliability and construct validity of interest assessment from an integrative framework by providing unique information on beyond individuals' explicit self-knowledge of vocational interests, such as their implicit attitudes toward activities, responding patterns toward interest inventories, and further, valuable variance regarding interests uncaptured by the standard self-report format (Fekken & Holden, 1994). Specifically, we hypothesized that adding response time assessment to our self-report scales would improve our measurement reliability as we would be adding information without asking any more items and also improve our validity. Moreover, response latency can serve as an important indicator of the combination of individuals' self-awareness of explicit and implicit attitudes toward an activity item (Fekken & Holden, 1994). As traditional interest assessment has predominantly focused on the explicit awareness of interests, the examination of response latency can then more fully tap into the integrative process of individuals' inclinations toward a myriad of vocational interests (Cunningham et al., 2001). Therefore, one of focuses of this research was on examining the relation of item response time to self-report of liking on an interest inventory. If there was a linear, negative relation between response time and item liking, there would be support for degree of liking being the basis of item evaluation. If there was a curvilinear relation between response time and self-reported item response, then the bipolar emotional valence being the key feature of responding would be supported. Given the extensive literature on the core affect basis of valence (e.g., Barrett, 2006), we hypothesized that there would be a curvilinear relation between item responding and response time (Akrami et al., 2007).

Besides yielding information on how individuals respond, examination of implicit response time may provide added information that is not captured by or standard self-reports, thus improving the construct validity of an interest inventory. One of the key values of interest assessments is their ability to relate to environmental (i.e., occupational and educational) factors. Matching one's interests with environments is associated with greater occupational or career certainty (Durr & Tracey, 2009; Tracey, 2010b), an indicator of the degree to which one feels certain about their choice of an occupation or career. Occupational certainty has received increasing attention and was found to be associated with individuals' greater motivation in exploring a vocational identity (Schulenberg, Vondracek, & Kim, 1993), higher career decision making self-efficacy (Kim et al., 2014), career maturity (Creed & Patton, 2003), and stronger intent to persist in their major or career path (Singaravelu, White, & Bringaze, 2005). Given its negative relation to career indecision (Ma & Yeh, 2005), occupational certainty may play an important mediating role on the well-documented associations between person-environment fit and higher educational attainment (Tracey, Allen, & Robbins, 2012; Tracey & Robbins, 2006), greater satisfaction (Wille, Tracey, Feys, & De Fruyt, 2014) and performance (Nye, Su, Rounds, & Drasgow, 2012, 2017). Therefore, we chose occupational certainty as the criterion for this study and examined whether interest-occupational match is related to occupational certainty using both self-report interests and response time interests. It was hypothesized that interests response time, like other implicit psychological measures, would capture overlapping but separate variance and this unique variance would add to the prediction of the interest-occupation match with occupational certainty above and beyond that obtained using self-rated interests alone. These findings on the incremental validity of response time interests on occupational certainty can then be extended to additional aforementioned vocational outcomes.

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