Toward Understanding the Psychology of Unfolding

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The ideal point or unfolding conception of psychological responses to personality and attitudinal items offers many advantages over the dominance model, as outlined by Drasgow, Stark, and Chernyshenko (2010). Past research involving those and other authors (Chernyshenko, Stark, Drasgow, & Roberts, 2007; Stark, Chernyshenko, Drasgow, & Williams, 2006; Weekers & Meijer, 2008) has demonstrated empirically the utility of unfolding models. However, the psychology of unfolding models has yet to be addressed directly in the published literature. In this commentary, we present an agenda toward an increased understanding of the psychology of unfolding items by describing some of our own research in progress as part of the Personality Measurement Research Group at Bowling Green State University.

Drasgow et al. propose that introspection is the mechanism that causes responses to fit the unfolding model, whereas items that do not require introspection should be fit better by the dominance model. We agree that introspection is a key component for differentiating between the types of items that would require one model versus the other. However, we believe that the mechanisms behind unfolding items are much more complicated than just introspection or not. We address three issues involved in unfolding models: (a) individual differences in the use of the ideal point process, (b) item/stimulus content and administration modality, and (c) the nature of the attribute being measured.

Individual Differences

Research has demonstrated that there are individual differences in the processes that people use to respond to psychological items, and we expect that individuals will differ on whether they are likely to use the dominance or ideal point processes. We also believe based on some prior experiences that many individuals have been trained to respond to items in a dominance perspective and will do so regardless of the content of items. In one survey administration, we had a respondent raise his hand and demand to know how he was supposed to respond to the item “I like to go to parties some of the times.” He was frustrated because the quantifier “some of the times” was odd from his perspective, and he was unsure how to fit his level of extraversion onto this item. Meanwhile, the rest of the students completing the survey had no issues and responded to all items in a quick fashion.

We developed a measure of literal-mindedness to capture the individual difference that likely caused that respondent to become frustrated. Individuals who are high in literal-mindedness will respond to the
content of items, whereas people who are low in literal-mindedness will respond in ways that they think the test makers intend. In one study (Lin et al., 2009), we found that those who responded to the overt literal wording in the items on a workplace attitudinal scale (Workplace Drug Testing) were less likely to follow the expected response pattern for unfolding than were those who attempted to interpret the deeper meaning of items.

In a follow-up study (Lake & Zickar, 2010), we administered two measures of mental effort: one assessing the amount of thought put into responding and the other assessing the amount of cognitive effort expended. Small relationships emerged between thought, effort, and person misfit similar to that of Lin et al. (2009). Respondents with extremely high and extremely low thought and effort scores were less likely to follow the expected response pattern for unfolding than those with moderate scores. Taken together, the results of these two individual differences studies suggest that a moderate amount of item interpretation and thought leads individuals to follow the expected response pattern for unfolding, whereas too much or too little interpretation may lead to divergence from this response pattern.

**Item Content and Administration**

In addition to individual differences, we believe that more research is needed to understand the features of items that relate to unfolding. The published research provides anecdotal evidence about the features of items that lead to unfolding, although more research is needed to understand features that cause some items to unfold and others not to. On the basis of studies of context effects in scales, we believed that respondents might look to nearby scale items when they encountered confusing intermediate items. Looking at nearby extremely worded items might promote the use of a dominance (rather than unfolding) response pattern.

In an attempt to reduce the potentially biasing effects of nearby items, we administered the attitudinal scale items to participants one at a time online (Lake & Zickar, 2010). Respondents in this experimental condition were only able to view the item they were currently responding to, thereby reducing any biased responding occurring as a result of a respondent looking at nearby items. Results from this administration were compared to results obtained from a paper-and-pencil administration where respondents were presented all the items in block format and could easily look at nearby items. At the item level, the results of this manipulation were mixed; some items showed increased unfolding in the experimental condition, whereas others showed decreased unfolding. At the scale level, however, there appeared to be some advantage to administering items one at a time. Model-data fit appeared to be better in the experimental condition. Additionally, the scale had a smaller standard error of measure in the experimental condition across most of the attitude continuum.

Some items used by Chernyshenko et al. (2007) that were unfolding contained words we refer to as “vague quantifiers” (e.g., “not exactly,” “about,” “not always”; see p. 100, Table 4). Past research has shown vague quantifiers to have very different meanings to different people, leaving room for interpretation (a similar rationale to the development of our literal-mindedness construct). Therefore, we wondered whether the use of vague quantifiers in typical personality items would be helpful in forcing items to unfold by making them appear less extreme in wording.

To understand the influence of vague quantifiers on item location, we analyzed data from three groups, the first a control group taking 20 Conscientiousness items from the International Personality Item Pool (IPIP; e.g., “Am always prepared”). For each item, we determined a way to alter it with the word “sometimes,” attempting to change little or nothing else about the item (e.g., “Am sometimes prepared”). One group took a form where the manipulation (i.e., those with “sometimes” in the stem) was used on the even-numbered items;
Figure 1. Item 4, International Personality Item Pool Conscientiousness for the control and experimental groups.

another took a form with “sometimes” in the odd-numbered items (Carter, Dalal, & Zickar, 2010).

Figure 1 shows the item “Get my chores done right away” when not manipulated and an overlay of the item when it reads “Sometimes get my chores done right away.” Comparing these curves, we can see the manipulation worked. In fact, we found that the manipulation showed shifts toward unfolding with medium to large effect sizes. However, we found that only about half the manipulated items in either group showed unfolding to a level that was significant. This suggests that although vague quantifiers tend to make items less extreme, there is more to writing an unfolding item than just sticking the word “sometimes” in the stem (Carter et al., 2010).

Taken together, we believe these results indicate that item content and administration modalities show some covariation with the extent to which persons’ responses follow an unfolding model. Of course, these studies have limitations in generalizability; however, they are explorations that may hint at future possibilities for uncovering how items unfold.

Esoteric Constructs and Rating Targets

In addition to the people and the content involved in measuring attributes, the nature of the construct itself could have an influence on the unfolding of items. In other words, what is the influence of the nature of the thing we are asking respondents to rate? For example, attributes differ from one another in regard to how esoteric or abstract they are. We believe that measures of more esoteric and abstract attitudinal and personality constructs may show more unfolding than more grounded, realistic constructs.

One particular study spurned our thinking in this regard. Carter and Dalal (2010) analyzed the five scales of the Job Descriptive Index (JDI), a measure of job satisfaction, in which persons respond Yes or No to adjectives such as “Boring.” Of the five facet scales, only the Work Satisfaction scale showed a considerable number of unfolding items. Comparing this scale to the others in the JDI (pay, promotions, supervisor, and coworkers), we thought it striking that of these facets work seems to be different than the others in that ratings on the items for the work scale have no clear target. In other words, the concept of work may be more abstract or esoteric than the others.

One of the current authors (Carter) is currently working on a project that involves scaling a series of traits on the continua of esotericism and abstractness. For example, Conscientiousness may be viewed as more grounded and realistic than other constructs such as Machiavellianism. Additionally, it may be that certain items are more removed from reality. This study will investigate whether more esoteric or abstract traits and items tend to have a larger proportion of unfolding items in current IPIP measures by examining whether respondents’ post hoc judgments of items and traits are correlated with the number of items that show unfolding in a scale. We also plan to investigate whether persons who view certain traits or items as esoteric or abstract show response patterns that are not what would be expected in unfolding items.

Conclusions

These three streams of research into the determinants of unfolding are by no means
exhaustive or comprehensive. As Drasgow et al. have noted, the reemergence of ideal point models via item response theory modeling has opened an exciting and interesting area of inquiry. Much more research is needed to understand when unfolding can be expected and more appropriate than dominance models.

References


