

Examining Residents Perceived Measures of Positive Event Impact using Item Response Theory

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Aim

The evaluation of event impact is practical and helpful in increasing event quality. From residents' positive point of view, hosting sport events brings the community and country together, increases investment, and stimulates administrative pollution controls (Prayag, Hosany, Nunkoo, & Alders, 2013). As such, scales were developed to assess various impacts associated with sport events (Ma, Ma, Wu, & Rotherham, 2013; Prayag et al., 2013). However, typical approach of studying positive impact is through the lens of CTT, however, sample and item dependence in CTT may limit the utility of the scale interpretations. Another limitation is that the reliability and validity of positive event impact measures may be overstated through CTT. Recently, and across domains, researchers made use of item response theory (IRT) to evaluate scale's psychometric properties, since the IRT approach models the response of each respondent at different individual characteristic levels to each item in the scale. Thus, the current study is designed to use one of the models in IRT, Samejima's (1996) graded response model (GRM), to examine how well the items developed by both Prayag et al. (2013) and Ma et al. (2013) measure the positive event impact and to establish the psychometric properties of positive event impact measures for the sport event.

Literature Review

The positive event impact scales from Prayag et al. (2013) and Ma et al. (2013) have been frequently used to evaluate the impact of the event. Prayag et al. (2013)'s scale contains 16 items that are rated on a 5-point scale with the anchors strongly disagree and strongly agree to measure the positive event impact of the 2012 London Olympic Games. Ma et al. (2013)'s scale contains 18 items that are rated on a 5-point scale to measure the positive impact of the Kaohsiung 2009 World Games. An example item is "The Games will provide locals employment opportunities." They reported the composite reliability, factor loadings, average variance extracted (AVE), and correlations among the latent variables to assess reliability, convergent validity, and discriminate validity.

Methodology

The 2014 Nanjing Youth Olympic Games was selected as a case to examine IRT to establish the psychometric properties. Between May 14 and May 31, 2014, a mall-intercept survey was conducted among Nanjing's numerous mass gathering locations, which included subway stations, bus stations, theaters, and major grocery stores. The survey was completed before the commencement of the Games. A total of 423 residents living in Nanjing completed the survey. Residents' perceived event impacts were phrased into a 7-point Likert scale, ranging from 1 = strongly disagree to 7 = strongly agree. The GRM in IRT is used to fit Likert rating scales. Twenty items were adapted from previous studies to measure positive event impact (Ma et al., 2013; Prayag et al., 2013). Each item is defined by a slope parameter and category thresholds. When examining benefits from GRM solutions, item location (based on category boundaries) and item discriminations are of interest. All IRT analyses were conducted with mirt package in R software.

Results

The item discrimination parameters ranged from 1.61 to 3.21. The smallest three discrimination parameters of items 3, 6, and 9 indicated that these items were somewhat less discriminating between individuals at different levels of positive event impact than were the other seventeen items. Thresholds for the strongly disagree category (b_1) ranged from -4.11 (item 9) to -2.5 (item 11), indicating extremely disagree positive event impact for residents who endorsed the strongly disagree category. The threshold for the strongly agree category (b_6) ranged from 0.85 (item 17) to 1.63 (item 18), indicating that residents who are neutral or slightly agree endorsed the strongly agree category. Also, these thresholds reflected good discrimination of low event impact perception. The test information curve indicated that existing measures of positive event impact are less precise for residents who agree the event brings positive impact than for those residents who disagree.

Contributions

The study makes methodological contributions by demonstrating the usefulness of IRT in verifying reliability and validity at different individual characteristic levels without reporting the composite reliability, factor loadings, average variance extracted (AVE), and correlations. In the current study, we found that the widely-used resident perceived positive impact scales (Ma et al., 2013; Prayag et al., 2013) are less useful and less precise in measurement for residents who strongly agree that the event can bring positive impact, such as residents who are loyal fans of the event. On the other hand, the items can differentiate between individuals who disagree that the event can bring positive impact and therefore may be the most useful in discriminating assessment and counseling residents who oppose bringing sport events to their home cities. These findings also have practical implications for practitioners who can use these measures to better assess resident perceptions associated with hosting sport events.

References

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