Opinion Piece

Importance–performance analysis in tourism: A framework for researchers

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HIGHLIGHTS

- Offer a research framework and a straightforward guide for the use of IPA.
- Provide solutions for some critical issues in conducting IPA studies.
- Show how to perform IPA incorporating reliability and validity measures.
- Conduct experimental surveys to validate the research framework.

ARTICLE INFO

ABSTRACT

Importance–performance analysis (IPA) is extensively used in hospitality and tourism research because of its simplicity. However, due to the lack of critical statistical analysis, the traditional IPA framework is compromised by serious reliability and validity issues. Although many researchers have tried to address these problems, a comprehensive framework to guide researchers through the various stages of IPA is still needed. This study offers a research framework and a straightforward guide for the use of IPA. Experimental surveys are conducted to validate the proposed research framework.

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1. Introduction

Importance–performance analysis (IPA) has been applied to different areas in the services industries since it was introduced by Martilla and James (1977) in the 1970s. IPA is a simple but effective tool that analyses quality attributes on two dimensions: performance and importance. These two dimensions are then integrated into a matrix that guides firms to identify the most appropriate strategic options to enhance competitiveness. Partly because of its simplicity, the IPA approach has proved attractive to researchers, but this does not mean that it is necessarily reliable and valid (Oh, 2001). In particular, it has been criticized for its arbitrary measurement of importance, and its poor discriminatory and predictive validity (Azzopardi & Nash, 2013). Thus Azzopardi and Nash (2013) recommended that further study would be needed to develop a refined IPA framework aimed at enhancing the reliability and validity of IPA in this field.

This study aims to develop guidelines for researchers in hospitality and tourism who are interested in conducting IPA studies but who may have a limited knowledge of the various statistical approaches. As this paper is concerned with resolving a problematic issue, the literature review focuses on the process of IPA research and on common potential problems and specific technical issues that have arisen. The outcomes from three common importance–performance mapping (I–P mapping) methods will be evaluated by using experimental data collected from four experimental surveys. The proposed research framework will be revealed step by step using sample data collected from other three experimental surveys. Finally, the strengths and limitations of the proposed research framework will be considered.

2. Reliability and validity issues

The original IPA approach comprises three steps: firstly, a set of attributes describing a product or service is selected or developed; secondly, respondents are asked to rate each attribute's importance

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and performance; and thirdly, the means of importance and performance of each attribute are calculated and mapped on a two dimensional map. Then, different strategic actions are proposed for each quadrant in the map. Despite the longevity of IPA research in hospitality (e.g., Deng, 2007; Deng, Kuo, & Chen, 2008) and tourism (e.g., O'Leary & Deegan, 2005; Vaske, Kiriakos, Cottrell, & Khuong, 2009), some critical issues have been identified in published papers. Table 1 shows the kinds of data collected and the data analysis methods used in IPA studies of hospitality and tourism covering to topics such hotels, restaurants, destinations, parks, tour guides, sports centers, spa goers, conferences, exhibitions, meetings, and convention centers. In this study, critical issues are divided into two main areas: general questions and specific technical issues.

2.1. Seven basic questions

Due to the lack of comprehensive guidelines, researchers over the years have pursued IPA in various ways and this is illustrated in Table 1 above. Analysts of these studies have raised a variety of queries and the following seven questions have been identified in the literature:

Question 1: Some researchers have developed their own attributes (e.g., Lee & Lee, 2009), but some just borrowed them from previous studies (e.g., Aktas, Aksu, & Cizel, 2007). Is it necessary to build a new set of attributes?

Question 2: Some researchers used 4-point (e.g., Hultsman, 2001), 5-point (e.g., Frauman & Banks, 2011), 6-point (e.g., Mueller & Kaufmann, 2001), 7-point (e.g., Murdy & Pike, 2012), 9-point (e.g., Slack, 1994) and even 10-point (e.g., Rial, Rial, Varela, & Real, 2008) Likert-type scales to measure importance and performance in their questionnaire. Which scale is the best one for IPA studies?

Question 3: There is a big variation in sample size from 41 (i.e., Hultsman, 2001) to 1429 (i.e., Sheng, Simpson, & Siguaw, 2014) in previous IPA studies. What should be the appropriate sample size for IPA study?

Question 4: Some IPA studies have employed convenience sampling (e.g., Rial et al., 2008) whereas others have used probability sampling (e.g., Smith & Costello, 2009). Which sampling method is preferable? And how should data be collected?

Question 5: Some studies performed Exploratory Factor Analysis (EFA) to analyze the data (e.g., Kuo, Chen, & Lin, 2010) whereas others have used Confirmatory Factor Analysis (CFA) (e.g., Rial et al., 2008; Vaske et al., 2009), while other studies have used both (e.g., Chen, 2014). However, some studies did not perform factor analysis (e.g., Tafesse, Korneliussen, & Skallerud, 2010). In what situation(s) should factor analysis be performed? Should it be EFA or CFA?

Question 6: Some studies have used a *t*-test to calculate the differences between importance and performance (e.g., Tafesse et al., 2010); however some studies just provided the values of difference (e.g., Rial et al., 2008), and some studies did not even calculate the difference (e.g., Kuo et al., 2010). Is it necessary to calculate the difference between importance and performance with *t*-value? And if so, why?

Question 7: Some studies used I–P mapping to interpret the results of IPA (e.g., Novatorov, 1997), but some studies did not (e.g., Breiter & Milman, 2006). Some studies used the grand means of importance and performance for the cross-points in the I–P mapping (e.g., Kuo et al., 2010). Is I–P mapping an effective tool for setting strategic actions and how may it be presented graphically?

The above issues are commonly encountered in many kinds of quantitative studies; however, the literature review in Table 1 reveals that researchers conducted IPA studies in less structured ways that may cause reliability and validity problems. Also, some issues are specifically challenging IPA methodology. As a result of answering the above questions, researchers are enabled to plan their research in a more reliable and valid way.

2.2. Technical issues

2.2.1. I–P mapping partitions

Martilla and James (1977) suggested the I–P mapping presents research results in four quadrants and they set the means of the scale as the cross-points (as shown in Fig. 1a). Bacon (2003) referred to it as a 'scale-centered quadrants approach' and characterized them as follows: (I) concentrate here, (II) keep up the good work, (III) low priority, and (V) possible overkill. However, some researchers changed the cross-points of the I–P mapping in accordance with their own judgment such as the target-driven approach. For example, Go and Zhang (1997), using a 5-point Likert-type scale approach, selected point 3 on the importance rating and point 4 on the performance rating as the cross-point of their I–P mapping. The results of the majority of IPA research indicated that most attributes would be placed in the upper right quadrant (keep up the good work) (e.g., Tonge & Moore, 2007) and, as a consequence, the above cross-point selection method would suffer from low discriminative power and little utility in terms of management (Rial et al., 2008). Therefore, an alternative solution was proposed by Alberty and Mihalik (1989), Guadagnolo (1985) and Hollenhorst, Olson, and Fortney (1992) whereby they set the empirical means obtained from the data as the cross-points (as shown in Fig. 1b). Bacon (2003) referred to it as 'data-centered quadrants approach' and although this method offers a higher discriminative power, researchers are continually finding ways to refine the partitioning method.

Some researchers (Hawes & Rao, 1985; Slack, 1994) used a diagonal line to separate regions of differing priorities in which the region above the line represents a high priority for improvement and the region below represents a low priority (as shown in Fig. 1c). Bacon (2003) conducted an empirical study to compare the performance of the two quadrants approaches with a 'diagonal line model'. He concluded that the performance of the 'diagonal line model' was generally better than the quadrant models. This is because the diagonal line approach offers a more continuous transition in the inferred priorities (Abalo, Varela, & Manzano, 2007; Bacon, 2003; Eskidsen & Kristensen, 2006). Abalo, Varela, and Rial (2006) incorporated the concept of discrepancy and developed an alternative IPA representation. They combined the quadrant and diagonal-based schemes and consequently the 'concentrate here' quadrant was enlarged (as shown in Fig. 1d). However, in practice, they found that direct importance ratings placed by respondents were uniformly high in keeping with Bacon's (2003) argument that most attributes crowded together at the 'concentrate here' quadrant of the I–P mapping. Therefore, Abalo et al. (2007) proposed two mathematical equations to transform importance measures to achieve a good spread among both performance values and importance values. Due to the complexity of the equations, researchers seldom chose to follow this approach. Rial et al. (2008) simplified this method using empirical means and a diagonal line with discrepancies (as shown in 1e). The discrepancy of the attributes (distance to the diagonal) is considered as an indicator for prioritizing the improvement of services.

2.2.2. Indirect measurement methods

The major strengths of the above direct measurement method are its simplicity and effectiveness especially for junior researchers.