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RESEARCH ARTICLE

Investigating the impact of university image on international students' participation behavior: An empirical study [version 1; peer review: 2 approved with reservations]

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V1 First published: 25 Oct 2021, 10:1083
<https://doi.org/10.12688/f1000research.73403.1>
 Latest published: 25 Oct 2021, 10:1083
<https://doi.org/10.12688/f1000research.73403.1>

Abstract

Background: The competition among higher education institutions (HEIs) around the world coupled with the rising mobility of international postgraduate students has created challenges for universities to maintain their competitive advantage. There is continuous emphasis from higher education administrators and governments on internationalization and creating global prominence in this sector. As an emerging hub in southeast Asia, Malaysia is no exception to this. Realizing this need for internationalization, this study has attempted to analyze the impact of university image as a higher-order formative construct on international students' participation behavior as a multidimensional construct.

Methods: The sample of this study comprised 150 international students from public and private HEIs in Malaysia. The study focused on this group of students as their participation in university life and face-to-face interactions with university personnel have been significantly affected due to the restrictions on global travel during the COVID-19 pandemic. Purposive sampling was employed to select the respondents. A structured questionnaire based on a seven-point Likert scale was used to collect the responses. The hypothesized relationships of this cross-sectional study were examined using partial least square-based structured equation modeling (PLS-SEM).

Results: The results showed that all the four hypotheses developed in relation to the dimensions of participation behavior were supported. This research outcome has evidenced that university image

Open Peer Review

Approval Status

	1	2
version 1
25 Oct 2021	view	view

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can influence international students' participation behavior such as information seeking, and information sharing behavior that can be perceived as positive behavioral outcomes towards their respective HEIs.

Conclusions: Since the present study was conducted in one country, future studies may reproduce this in other southeast Asian countries. While cross-validation to local students lies outside the scope of this study, this empirically tested behavior model offers practical implications for universities, particularly in this uncertain period where HEIs are going through tremendous challenges to uphold their strong rapport with international students.

Keywords

Higher Education, International Students, Students' Participation Behavior, University Image

This article is included in the **Research Synergy Foundation** gateway.

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Author roles: **Manzoor SR:** Conceptualization, Data Curation, Formal Analysis, Writing – Original Draft Preparation; **Malarvizhi CAN:** Data Curation, Supervision, Validation; **Al-Mahmud A:** Writing – Review & Editing; **Mahdee J:** Visualization

Competing interests: No competing interests were disclosed.

Grant information: The author(s) declared that no grants were involved in supporting this work.

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How to cite this article: Manzoor SR, Malarvizhi CAN, Al-Mahmud A and Mahdee J. **Investigating the impact of university image on international students' participation behavior: An empirical study [version 1; peer review: 2 approved with reservations]** F1000Research 2021, 10:1083 <https://doi.org/10.12688/f1000research.73403.1>

First published: 25 Oct 2021, 10:1083 <https://doi.org/10.12688/f1000research.73403.1>

Introduction

The rising number of international students can have strong social effects such as creating diverse communities as well as an economic effect through educational investment in the form of paying their tuition fees, thus contributing to the host country and the home country's wellbeing (Kumi-Yeboah & James, 2014). International students predominantly come from developing nations, pursue higher education with internationally recognized accreditations and seek lucrative jobs upon returning to their home countries (Ahrari *et al.*, 2019). However, HEIs are currently under immense pressure from the decline of student enrolment and funding grants (Lee *et al.*, 2018) as a result of the ongoing pandemic. Middle-class students in particular are likely to be affected most by the post-COVID-19 higher education situation, with a severe revenue crisis and uncertain impacts upon HEIs (Altbach & de Wit, 2020). In the last decade, the enormous investments from South Korea, Singapore, Taiwan and Hong Kong in higher education projects to create "the best education hub in Asia" (Munusamy & Hashim, 2019, p. 2293) demonstrate the significant competition approaching Malaysia, a country that entices successful international students. To stabilize economies during and after the effects of COVID-19, a strict tightening of the future budget allocations to HEIs is very likely in Malaysia and elsewhere, which will make the universities more reliant on international student intake.

However, the usual mobility of Asian international students is towards Organization for Economic Co-operation and Development (OECD) countries (OECD, 2014). This trend undoubtedly drives Malaysia, as Munusamy & Hashim (2019) state, towards rethinking and rebuilding their HEIs' identity in terms of their image, reputation and ranking on a global platform. The concern is also a result of scholars' prediction that in the post-COVID world, 20% of institutions may face closure (Altbach & de Wit, 2020). In this context, Manzoor *et al.* (2020) have defined university image as, "the result of an aggregate process using students' mental perceptions of their own reality, based on the evaluation of various university attributes through the expression of their feelings, ideas, beliefs, impressions, and real-life experiences at the university" (p.2). As such, high-image universities with stable income streams might have better chances to survive due to their strong identity compared to their lower-performing counterparts.

Williams & Leahy (2020) point out in the U21 report that Malaysia is still ranked only 31st out of 50 countries in terms of connectivity despite its substantial investment in the higher education sector. Therefore, Munusamy & Hashim (2019) have expressed the necessity of taking extensive initiatives and forming strategies to make Malaysia's approach towards internationalization more successful in establishing itself as the new global education hub. The trend also creates a challenge for the country to establish and sustain itself as an education hub in Asia and compete with other emerging hub nations such as South Korea, Singapore, Taiwan, and Hong Kong.

The meta-analysis of Lafuente-Ruiz-de-Sabando, Zorrilla and Forcada (2018) reveals that university image is not only multi-dimensional but also that it needs to be viewed as a

higher-order formative construct (HOFC). According to Hair *et al.* (2017), higher-order structures contain two layers of concrete constructs that capture separate attributes. Referring to Manzoor *et al.* (2020), the university image model in this study is considered as a higher-order construct containing three lower-order constructs (LOCs). These LOCs such as 'External communication and values', 'National and international awareness and facilities', and 'Economic values' possess formative relationships with university image as a higher-order construct thus termed as a HOFC.

Past researchers have viewed students as a direct and vital source of funding and survival for HEIs (Tamer, 2016). Manzoor & Al-Mahmud (2021) have acknowledged the importance of students' participation considering their roles as active participants for service improvement and creating competitive effectiveness for HEIs, particularly during uncertain times such as the COVID-19 pandemic. On the other hand, Frassetto-Deltoro, Alarcón-del-Amo and Lorenzo-Romero (2019) have emphasized the need for further research related to customer participation behavior in the service setting (such as that of students in the university context).

Hence, there is a serious need for a student-centered relational model that integrates the concept of 'students as coproducers' that can lead to international students' prosocial behavior such as participation behavior (Elsharnouby, 2015). The importance and relevance of customer participation in service settings are endorsed by a lot of evidence (Eisingerich *et al.*, 2013). Realizing this need in the current situation, this study explores how the university image as a HOFC influences students' participation behavior. To address this central question, the current study analyzes the impact of the university image model developed by Manzoor, Ho and Al-Mahmud (2020) and its impact on international students' participation behavior as a multidimensional concept based on Yi & Gong (2013).

Literature review and hypotheses

Ahrari, Krauss, Suandi, Abdullah, Sahimi, Olutokunbo and Dahalan (2019) have mentioned that international students are vital to universities and the host and source countries in today's neoliberal environment of global competition. Various researchers have considered students, and particularly university students, as the primary customers because they consciously choose and buy the services of their desired university. This modified view underscores viewing students "not only as customers who seek personalized services and high-quality outcomes but also as active players in shaping the university experience" (Tamer, 2016, p.680). The service firms' capability for better quality service depends on a key step in the co-creation process, which is customer participation (Yi & Gong, 2013).

Firstly, this study is based on the social identity theory (SIT) (Borş, 2008). According to this theory, organizational identification is "a form of social identification, whereby a person comes to view him- or herself as a member of a particular social entity - the organization" (p.2). Customers, who identify with the organization, have prosocial behavior (such as participation behavior) toward the organization and other stakeholders

(Gruen *et al.*, 2000). The meta-analysis done by Santini *et al.* (2017) reveals that one of the important constructs, which is image, is associated with the identity of HEIs. Customers, who identify with the organization, have prosocial behavior (such as participation behavior) toward the organization and other stakeholders (Gruen *et al.*, 2000).

Various researchers (e.g. Azoury *et al.*, 2014; Duarte *et al.*, 2010; Wilkins & Huisman, 2013) have defined university image using various dimensions and as a first-order construct. However, Manzoor *et al.* (2020) have defined university image as a higher-order formative construct (HOFC) consisting of three dimensions: ‘external communication and values’, ‘national and international awareness and facilities’ and ‘economic value’. This means that a university’s image is formed by its national and international name and brand, academic practices and facilities, and psychological environment. The large influence of rising digital media has allowed “constant and active information flow from the inside of an organization to the outside” (Lee *et al.*, 2018, p. 311). Therefore, as well as the course image, there is a clear connection between communications and a university’s image (Duarte *et al.*, 2010). Azoury, Daou and Khoury’s (2014) research on university image shows that ‘cost to quality ratio’ is one of the cognitive factors of image that has the utmost positive impact. According to these researchers, students tend to evaluate if the tuition fees they pay truly complement the quality of their education and if the university support facilities are QS World University Rankings (2021) worth their value for money.

In this study, social exchange theory has also been used to analyze the role of students’ participation behavior as an exchange and expected outcome due to the impact of the positive image of HEIs. According to Blau (1964), social exchange theory postulates that the relationship between an individual and his or her partner is an exchange. The researchers in this study postulate participation behavior as an exchange in the higher education context.

According to Mursid & Wu (2021), customer participation is significantly influenced by the image of the institutional services.

Moreover, Cheng & Xue (2014, June) have also argued that, through a strong company image, service firms can influence customers’ participation behavior. Also, recent study findings by Manzoor *et al.* (2020) illustrate university image as a higher-order construct that influences prosocial behavior such as satisfaction and extra-role behavior.

Therefore, we propose the following main hypothesis based on the above literature review:

H1: University image (as HOFC) positively related to students’ participation behavior.

As suggested earlier, based on Yi & Gong’s (2013) ideas, the present study conceptualizes student participation behavior as a multidimensional concept that has four broad dimensions: information seeking, information sharing, personal interaction, and responsible behavior. In university settings, students seek information in various ways, such as asking other persons (e.g. students or employees). Likewise, information sharing in service settings includes providing employees with essential information that enables them to perform their roles better. Personal interaction between customers [or students] and service providers [or a university] is crucial for successful service delivery (Ennew & Binks, 1999). Customers must demonstrate responsible behavior accepting their duties (Deltoro *et al.*, 2019) as a part of participation behavior (Yi & Gong, 2013). Accordingly, we postulate the H1 expansion and conceptual model (Figure 1) as follows:

H1(a): University image as a HOFC is positively related to students’ information seeking.

H1(b): University image as a HOFC is positively related to students’ information sharing.

H1(c): University image as a HOFC is positively related to students’ personal interaction.

H1 (d): University image as a HOFC is positively related to students’ responsible behavior.

Figure 1. The conceptual model.

The above conceptual model illustrates the relations of university image as a HOFC and its relationship with students' participation behavior as a multidimensional construct consisting of elements such as information seeking, information sharing, personal interaction, and responsible behavior.

Methods

Ethics statement

Ethical approval was obtained for this project from the Multimedia University Research Ethics Committee (REC) (approval Number: EA0272021). The questionnaire was accompanied by a cover letter stating the purpose of the study and confirming confidentiality of participant data. Each respondent was given adequate time to go through the cover letter prior to filling in their survey questionnaire. Participants who wanted to proceed with the survey could then advance to the next page by clicking a button. This study therefore ensured that the participants intended to continue with the survey voluntarily after reading the cover letter.

Study design

Data were collected from questionnaires conducted at three public and three private universities in Malaysia. International students were chosen due to their multiplicity in terms of university experience, background, and cultural diversity which could offer deeper insights for this study's findings. The responses from international students in selected Malaysian HEIs were used as data for analysis. However, in a quantitative study such as this, non-responses are likely to persist, despite the survey design (Dillman, 1991). To reduce non-responses in this study, the questionnaire was pretested to ensure that respondents could clearly understand each question, thus increasing their response rate.

Data collection

This cross-sectional quantitative study used a structured questionnaire for data collection. These were conducted both face-to-face and online from November 2018 to February 2019. Three fellow research students and several Student Representative Council (SRC) members in the respective universities helped to facilitate the survey distribution. The face-to-face questionnaire copies were distributed by fellow research students with the help of SRC members and the online copies were disseminated through the Google Forms link. Reminder emails were sent through SRCs at two-week intervals as suggested by Toepoel & Schonlau (2017) to increase the response rate for this study.

The questionnaire included a one-page front cover informing the respondents about the purpose of the study and assuring them about data confidentiality and anonymous use. A seven-point Likert scale ranging from "1-totally disagree" to "7-totally agree" was used to collect the responses. The items for the three lower-order constructs to measure the university image were adapted from Manzoor *et al.* (2020). Thus, 'external communication and values' was measured using five items, 'economic value' using two items, and 'national and international awareness and facilities' using eight items. The items used to measure four

dimensions of students' participation behavior were adapted from Yi & Gong (2013). 'Information seeking' comprised three items, 'information sharing' four items, 'personal interaction' five items, and 'responsible behavior' four items. To guarantee the content validity and relevance of the method, the questionnaire was pre-tested beforehand by two academics with several years of experience in the HE sector and three international students with over a year of study experience in Malaysia. The pre-testing was conducted with these experts in their respective university settings. No major feedback was reported regarding the clarity of the questionnaires.

Henceforth, a miniaturized walk-through pilot study (n=35) was conducted among the randomly selected international students who were enrolled in either public or private universities in Malaysia. After the pilot respondents provided positive feedback about the overall structure and presentation of the questionnaire, the final questionnaire was distributed among the actual survey participants.

The final questionnaire consisted of three sections. The first section comprised demographic information such as nationality, gender, program of study, and marital status. The second section comprised 15 items measuring the university image. The last section consisted of 16 items measuring the dimensions of participation behavior. A copy of the questionnaire can be found here (Manzoor, 2021).

Study population

Purposive sampling was used in this study, as non-probability sampling is commonly employed for sampling from international students in the context of Malaysia (Singh & Jack, 2018). The sample of this study comprised 150 existing undergraduate and postgraduate international students of both public and private HEIs in Malaysia with a response rate of 60%. The HEIs were selected for this study due to their higher number of international students and their competitive positions in the QS World University Rankings, 2021 report. Out of the 158 responses, 150 were maintained and the remaining eight responses were excluded due to a 'straightlining' issue (Kim *et al.*, 2019). The sample size was acceptable for structural equation modeling (Hair *et al.*, 2010). Moreover, the missing value is less than 15%, thus not creating any issue for this study (Sarstedt *et al.*, 2014). For each answer to the Likert scale questions, participants were removed if their responses scored a standard deviation of <0.3. The accompanying dataset can be found here (Manzoor, 2021).

Analysis

SPSS (Statistical Package for the Social Sciences) Version 23 was used to organize and refine the data for further analysis. To control the common method bias (CMB), this study used the unrotated factor analysis known as Harman's Single Factor test following Lowry & Gaskin's (2014) study to ensure the single-source data is not an issue for this study. This study also used Cronbach's Alpha coefficient to estimate the internal consistency of the measures based on the threshold value suggested by Nunnally (1978).

This study then employed SmartPLS 3.2.9 (also available as a 30-days downloadable trial version) for model estimations and analyzing the structural paths to illustrate the relationships between the university image (HOFC) with participation behavior dimensions and the predictive value to interpret such image as perceived by the international students. According to [Hair et al.'s \(2019\)](#), PLS-SEM is adopted when there is a concern for testing a theoretical framework from a prediction aspect and one is required to use latent variable scores to pursue further analyses.

The evaluation of PLS-SEM results starts with analyzing the measurement models and then the structural model. Following [Hair et al. \(2017\)](#), convergent validity for PLS-SEM has been examined from the measurement by evaluating their indicator reliability and average variance extracted (AVE). As a part of assessing the indicator reliability, the composite reliability was used where the items are weighted based on the construct indicators' individual loadings. Subsequently, AVE was assessed as it represents the commonality of the constructs (grand mean value of the squared loadings of the indicators). To analyze the discriminant validity, this study used heterotrait-monotrait (HTMT) ratio proposed by [Henseler et al. \(2015\)](#).

Following [Hair et al.'s \(2017\)](#) recommendation, a two-stage approach was used to assess the structural model validity for the university image as the higher-order formative construct (HOFC). Variance inflation factor (VIF) and bootstrapped outer weights were used to assess the validity of the university image as HOFC. While assessing the HOFC measurement model for collinearity issues, the outer variance inflation factor values were derived using the latent variable scores (LVS) ([Hair et al., 2010](#)). Structural model relationships (i.e. the path coefficients that represent the hypothesized relationships among the constructs) are obtained in this study by means of bootstrapping and assessing the t-value as suggested by [Hair et al. \(2017\)](#), as coefficients ultimately depend on their standard error. Subsequently, the R² value has been reported as an indicator of the model's explanatory power as it measures the variance of the endogenous constructs ([Rigdon, 2012](#)) such as the participation behavior dimensions in this study. Finally, combining the aspects of out-of-sample prediction and in-sample explanatory power as input, the blindfolding procedure was applied to derive the Q² value to evaluate the predictive accuracy of the PLS path model analyzed in this study.

Results

Data were checked for common method bias (CMB) that used Harman's Single Factor test as a statistical fix ([Podsakoff et al., 2012](#)) as this study is based on cross-sectional data. No CMB issues were found as 48.98% of the variance is explained by just one factor ([Podsakoff et al., 2003](#)). The Cronbach's alpha values in this study are greater than 0.7, thus indicating the stability of the scale ([Nunnally, 1978](#)).

Looking into the demographic profile of this study, the nationalities of the respondents broadly represented the international

student population in Malaysia, with 35.1% from Bangladesh, 20.2% from Pakistan, 15.8% from Yemen, 12.6% from India, 8% from Indonesia, and 8.3% from other countries. The samples consisted of 70.5% male respondents and 29.5% female respondents. 55% of the students were postgraduate students and the rest (45%) were undergraduate students. The majority of the respondents (65%) were single and 35% of the respondents were married.

For the measurement of model validity, all the constructs reached the satisfactory level of average variance extracted (see [Hair et al., 2017](#)) with a value greater than 0.5 and composite reliability (CR) >0.8, thus ensuring the convergent validity. For discriminant validity, the values of the Heterotrait-Monotrait ratio (HTMT) also met the essential threshold of HTMT.85 (see [Henseler et al., 2015](#)), thus establishing discriminant validity for the constructs in this study.

By following [Manzoor et al. \(2020\)](#), university image was considered a higher-order construct in this study which also comprises three lower-order constructs, namely 'external communication and values', 'national and international awareness and facilities', and 'economic value' (p. 29). According to [Hair et al. \(2017\)](#), a two-stage approach is used "to assess the structural model validity for the higher-order formative construct" (p.23). In order to evaluate the validity of university image as a HOFC, this study used variance inflation factor and bootstrapped outer weights. The outer variance inflation factor (VIF) values for all indicators using the latent variable score (LVS) are less than 5 and the t-values for all the other indicators' outer weights are significant (t-values>1.96) (see [Hair et al., 2010](#) for the requirements) ([Table 1](#)).

The structural model validity was evaluated using a bootstrapping analysis to assess the direct effects of H1(a)-H1(d). The bootstrapping procedure is administered based on 5000 samples. The t-values of the bootstrapped results of above 1.645 at a 5% level of significance (one-tailed) show that all four hypotheses are supported ([Table 2](#)).

The hypotheses results show that there is a positive relationship between 'university image' and 'information seeking' (H1a: t-value=3.735, p<0.05); 'university image' and 'information sharing' (H1b: t-value=5.252, p<0.01); 'university image' and 'personal interaction' (H1c: t-value=2.554.735, p<0.03); 'university image' and 'responsible behavior' (H1d: t-value=6.121, p<0.01). The R² values for the four dimensions of participative behavior are 0.26, considered substantial based on the threshold recommended by [Cohen \(2013\)](#). The Q² values are obtained from the blindfolding procedure to examine the model's predictive relevance. In a structural model, Q² values larger than zero indicate that "exogenous constructs have predictive relevance for endogenous constructs" ([Hair et al., 2017](#), p.37). The results of this study revealed that all Q² values range from 0.001 to 0.398 and are more than 0, thus indicating that the model's predictive relevance is satisfactory.

Table 1. Summary of outer weights, variance inflation factor (VIF), and significance testing results.

Higher-order construct	Formative indicators (Lower order LVS)	Outer weights (outer loadings)	VIF	t-value	Confidence interval
University image	External communication and values	0.457(0.891)	1.934	5.895***	(0.331,0.587)
	National and international awareness and facilities	0.522(0.918)	1.989	6.120***	(0.373,0.652)
	Economic value	0.185(0.611)	1.290	2.504**	(0.068,0.307)

Note: Bootstrap confidence intervals for 5% probability of error ($\alpha = 0.05$), ** $p < 0.05$, *** $p < 0.001$

Table 2. Summary of the hypotheses.

Hypotheses	Relationship	Std. Beta	Standard Error	t Value	P-Value	Decision
H1(a)	University Image -> Information Seeking	0.178	0.048	3.735***	< 0.050	Supported
H1(b)	University Image -> Information Sharing	0.288	0.055	5.252***	< 0.010	Supported
H1 (c)	University Image -> Personal Interaction	0.126	0.049	2.554***	< 0.030	Supported
H1(d)	University Image -> Responsible Behavior	0.386	0.063	6.121***	< 0.010	Supported

Discussion

The aim of this study was to analyze the university image as a higher-order formative construct and its impact on international students' participation behavior in HEIs in Malaysia. The results have revealed that there are positive associations between university image and the dimensions of participation behavior such as information seeking, information sharing, personal interaction, and responsible behavior. This study's outcomes complement the findings of [Mursid & Wu \(2021\)](#) that institutional image positively influences the customers' participation (such as that of HEIs on student participation). Thus, HEIs having a sound image can ultimately encourage international students to interact openly and enhance the latter's information exchange and spontaneous participation behaviors with their personnel or staff.

This study has revalidated the implications of social exchange theory, particularly in the higher education context. The relationship-oriented model used in this study addresses the importance of focusing on university image as a higher-order formative construct consisting of three lower-order constructs (i.e., 'external communication and values', 'national and international awareness and facilities' and 'economic value') enhancing a strong identity based on the underlying assumptions of social identity theory for the HEIs. This higher-order image model can then act as a relationship enhancement catalyst and encourage students in participation behavior that is defined by

[Yi & Gong \(2013\)](#) as multidimensional. This indicates that the higher education practitioners need to develop their regional and global image through analyzing its multidimensional nature beyond one factor for the sustainability of other factors as well such as their ranking, facilities, and communications with various stakeholders.

Furthermore, the results of this study show that HEIs' image can positively influence information seeking, information sharing, personal interaction, and responsible behavior as parts of students' participation behavior. The study thus confirms the positive relationship between university image and participation behavior dimensions which is compatible with the views of [Cheng & Xue \(2014, June\)](#). In line with the fundamentals of social exchange theory, students' participation behavior is the outcome of their prosocial behavior derived as a reciprocal exchange between the customer and an organization.

Therefore, higher education administrators can create a flexible platform (both online and offline) to facilitate international students' participation behavior in university service provision and equip them with knowledge of the university's services, something that provides students with a 'sense of belonging'. This ultimately helps the HEIs to nurture a relationship with their students even in cases of uncertainty such as during and post-pandemic situations ([Manzoor et al., 2020](#)).

Conclusion

By considering the competitive situation of HEIs around the world, this study has investigated the impact of university image on the participation behavior of international students in Malaysia. In this regard, the study has taken 'image' as a higher-order construct on the multidimensional participation behavior of students. International students have been concentrated particularly due to the imposition of travel restrictions worldwide due to the COVID-19 pandemic that has largely affected their mobility and interactions with university personnel. The study has confirmed the positive associations between university image and the multiple dimensions of participation behavior such as information seeking, information sharing, personal interaction, and responsible behavior. Future studies can assess this model of university image and students' participation behavior among local students to perform the multigroup analysis to assess if any variability exists in their behavior. Moreover, the relationship-based behavioral model explored in this study could be tested with a larger sample size incorporating private colleges and community colleges to enhance the generalizability of the research findings. The outcome of this research has evidenced that university image can encourage students' participation behavior such as information seeking, information sharing, and responsible behavior, which are perceived as positive behavioral outcomes towards their respective HEIs. This empirically tested behavioral model in the present study offers practical implications for universities particularly in this current period of uncertainty following the COVID-19 pandemic where HEIs are facing tremendous challenges to uphold their strong rapport with international students.

Data availability

Underlying data

Mendeley: University image and participation behavior data. <https://data.mendeley.com/datasets/fn2kdnbv4j/2> (Manzoor, 2021)

This project contains the following underlying data:

- Main study with full data entry 04011920.csv
- University image and participation behavior latest.csv

Extended data

Mendeley: University image and participation behavior data. <https://data.mendeley.com/datasets/fn2kdnbv4j/2> (Manzoor, 2021)

This project contains the following extended data:

- Questionnaire

Data are available under the terms of the [Creative Commons Attribution 4.0 International license](#) (CC-BY 4.0).

Author contributions

This paper is an outcome of the shared concept and contribution of the four authors. The first author formulated the idea, conducted the data curation, completed the analysis and the writing; the second author helped with data collection, validation, and supervision; the third author edited and formatted the manuscript, and the fourth author was involved in visualization and networking.

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Open Peer Review

Current Peer Review Status: ? ?

Version 1

Reviewer Report 16 May 2022

<https://doi.org/10.5256/f1000research.77051.r136419>

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Rosalind Latiner Raby

California State University, Northridge, Chatsworth, CA, USA

This manuscript is relevant to the field of Comparative and International Education because it highlights a critical issue facing universities - that of image, status, and student orientation. The authors point out that the aim of this study was to analyze the university image as a higher-order formative construct and its impact on international students' participation behavior in HEIs in Malaysia. The article is firmly organized within empirical research standards. However, there are revisions that I suggest for the introduction, methodology, and discussion.

The manuscript does acknowledge a range of literature and uses that literature to help support the authors' thesis that attrition is complex. The authors use very current literature and literature representing the voices of Malaysian researchers. A solid description of the theoretical framework is also provided. However, I would suggest making that a sub-heading.

In terms of methodology, there is a solid discussion on why methodological choices were made. However, the choice to access international students in all the universities in Malaysia is not explained in the introduction. It is also curious why so few international students were included in the sample given that all the universities were assessed. This needs to be further explained. The use of international students also seems contradictory to the literature that talks about domestic student orientations. These need to be better explained in the introduction that addresses a) why international students make a good sample; b) why all universities were chosen; c) why both public and private were chosen; and d) how many international students are in Malaysia and how that relates to the sample size. This then needs to be summarized at the beginning of the methods section.

I am not convinced that a hypothesis model is needed. The research is not really testing anything, which is a criterion for using the hypothesis. I would suggest using research questions instead. That also fits better with your discussion section as you can then dive deep into the responses given.

Overall, this is an interesting article and brings out some issues for future discussion. I do believe

that this article has the potential for being a strong article with minor revisions.

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

No

Are sufficient details of methods and analysis provided to allow replication by others?

No

If applicable, is the statistical analysis and its interpretation appropriate?

Partly

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 26 April 2022

<https://doi.org/10.5256/f1000research.77051.r129135>

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Purificación Alcaide-Pulido

Departamento de Comunicación y Educación, Universidad Loyola Andalucía, Córdoba, Spain

Current literature:

- Please cite the original research on the development of the university image model by Alcaide-Pulido, Alves & Gutierrez-Villar, 2017¹.
- "Past researchers have viewed students as a direct and vital source of funding and survival for HEIs", and "Hence, there is a serious need for a student-centered relational model that integrates the concept of 'students as coproducers' that can lead to international students' prosocial behavior such as participation behavior" - Please cite recent research:

- This article by Alcaide-Pulido, O'Sullivan, & Chapleo, 2021² addresses the links between the importance of students and a relational model in the context of HEIs. It addresses an important topic, especially given ongoing management on this and other studies and research throughout the topic. There is an important reference to students as a vital source of survival for HEIs. The findings highlight areas of commonality as well as differences between the different cultures and nationalities examined as part of the study. They show areas that brand managers from each country should concentrate on, making recommendations that could help to shape the marketing direction of universities in each of the nations included in the research.
- In addition, the role of students satisfaction and student trust related to a relational model should be explained by Abdelmaaboud, Peña & Mahrous, 2021³. The results also confirm the presence of the significant indirect effect of student-university identification on students' advocacy intentions via student satisfaction and student trust.
- The role of brand experience and brand effect should be connected to Farhat, Mokhtar & Salleh, 2021⁴. The findings showed the critical rule of brand interactivity towards brand engagement behavior. The study suggests leveraging the power of brand experience and brand interactivity to drive brand engagement behavior through the critical role of brand effect in HEIs.

Study design:

- Abstract and conclusion indicate: "*The study focused on this group of students as their participation in university life and face-to-face interactions with university personnel have been significantly affected due to the restrictions on global travel during the COVID-19 pandemic.*" However, the study design presents the data collection: "*This cross-sectional quantitative study used...were conducted both face-to-face and online from November 2018 to February 2019*", it is not a pandemic period. It is a mistake.
- Statistical analysis: In my opinion, it is necessary for the figure resultant of the model with factors and charges after applying the analysis. It is important to detect the weights in the model analysis SmartPLS.
- Recommendation of a larger sample size in future research and real period of uncertainty due to the COVID-19 pandemic.

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Is the work clearly and accurately presented and does it cite the current literature?

Partly

Is the study design appropriate and is the work technically sound?

No

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Partly

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Higher Education

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

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