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The influence of biculturalism/integration attributes on ethnic food identity formation

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This paper investigates the extent to which biculturalism/integration attributes (food knowledge, food in media and food for social events) of the three primary races of Malaysia: Malays, Chinese and Indian foods influence the process of Malaysian food identity formation. The information for this study is obtained through surveys among the Malays, Chinese and Indian chefs/cooks who are working in the Malaysian food catering businesses. A total of 392 respondents were successfully interviewed. Through structural equation modelling (SEM), some useful insights were obtained. The result shows that biculturalism/integration attributes like knowledge on food, social events where various ethnic foods are a presence, and food media influence the food adaptation among ethnic groups and significantly contribute to the ethnic food identity formation. This promising indication undoubtedly is drawn several practical implications to relevant authoritative bodies, government agencies and catering operations.

Introduction

One of the early issues faced by all individuals, particularly during their childhood, is closely related to the self-identity formation. At this stage, individuals are searching for who they are and what they want to be. This identity formation continues until adulthood, and occasionally the individual is still puzzled or keeps searching for their identity. The issues of identity are central to a person's life and described identity as a collection of characteristics that make the individual self-aware of who they are [1]. As it is a complex concept, thus, it is essential and critical for self-understanding. In other words, identity is a collective aspect of the set of characteristics or the collection of behavioural or personal characteristics by which an individual is identifiable as a member of a group. It has also been

theorised that without a firm sense of identity, people tend to be lacking in the sense of autonomy and agency [2].

Identity formation has been explained in many social theories [3–6]. Erickson, a well-known scholar in the area of identity, championed the idea that identity is a construct with many aspects, including internal and external perspectives [7]. One of Erickson's important identity concepts is that people have both a personal (internal) and a social (external) identity. This idea has been accepted widely in the field, although the term group identity has come to supplant the term social identity in the works of later authors [8]. Moreover, he elucidated that lack of a sense of identity, and a consistent character will cause despair, confusion and lead to an identity crisis [4].

Identity formation issues transcend not only individuals but involve groups, organisations, societies, politics and even countries [9]. Many countries are reported to be struggling to develop their identity formation and social integration [10–12]. However, a nation cannot define its people from others. This is because each ethnic has a unique culture, and when an ethnic is very sure of its identity, it becomes clear and focused on what it wants truly and positively [13–16]. As reported, countless efforts in achieving the goal of country identity formation have been made by many countries through social integration, education, economy, politics and so on [17–19]. The case is similar in Malaysia. The continued initiatives undertaken since the racial tension in May 1969 indicate that the Malaysian government is serious in integrating the multiracial population politically, economically and culturally not only for national integration but also for national identity [20–22].

Other researchers claimed that education, language and media could be used to promote a peaceful nation, and directly boost the national economy [23–25]. Meanwhile, the social theorists suggested that identity formation, the way it develops, the factors that facilitate and inhibit it, and what results from it should not only be

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confined to individuals, groups, and organizations, but be further extended to culture, ethnicity and social aspects with food identity is being no exception [4, 5, 26].

Issues

Besides social integration, education, economy and politics, food identity formation is one of the essential matters in the pluralistic nations [13, 27–30]. Others referred to it as a process of learning the practices and customs of a new culture and acquiring the capability to function within the dominant culture while retaining one's original culture [31, 32]. Meanwhile, Cleveland and his co-authors argued that acculturation through knowledge of the food, media and food as a medium for social events, in the long run, creates the process of food identity formation [13]. Similarly, other researchers also claimed that in order to develop food identity within ethnic groups, they must share commonly acceptable foods and cuisines and understanding of each ethnic belief, skills, ethical norms, and their social attitudes [33–36].

Two distinct models: the linear model and a two-dimensional model have guided the possible acculturation process: assimilation (movement towards the dominant culture), biculturalism/integration (synthesis of the two or more cultures), rejection (reaffirmation of the traditional culture), or marginalisation (alienation from both cultures) [37]. Table 1 illustrates the possible outcomes of the acculturation process.

Out of these four, biculturalism/integration is the possible outcomes of the food acculturation process to be tested in a multiracial nation like Malaysia which consists of Malay, Chinese, Indian, and other ethnic groups. In this sense, during the pre-independence era, each ethnic group, particularly the Malays, Chinese and Indians, had distinctive and diverse types of food or culinary treasures [38, 39]. Each ethnic group was noticed to be more individualistic in cultural practices and food in particular [40, 41]. The cuisines and food cultures were largely confined within the respective communities, and ethnocentric attitudes towards other ethnic groups' food were very obvious [42]. Food habits in each ethnic group were seen as a culturally standardised set of behaviours within the individual's tradition [43–45].

The progression of acculturation and assimilation through government initiatives, plus others since the 1970s has gradually united those ethnic groups politically, culturally and economically [38, 42, 44, 46]. The integration process undertaken is also believed to create a dynamic growth of cross-culture and acculturation of food through the preparation and consumption across ethnic groups. This is evident in that many restaurants incorporate cuisines from each ethnic group and a unique Malaysian gastronomic heritage has been formed [39, 47]. In fact, many of these restaurants now do a little bit of everything to keep up with changing trends to satisfy customers' wide-ranging tastes [47].

Malay restaurants for instance are often described as serving spicy and flavourful food ranging from famous 'rendang', 'nasi lemak', 'masak lemak', 'masak asam pedas', 'masak chili' to a variety of noodle dishes and are no longer concentrating on their treasures of cuisines [48, 49]. It is similar in Chinese and Indian restaurants. Although their origins greatly influence the cuisines, most of them are broadening their horizons by combining the flavours and tastes to suit other ethnic favourites. Clear examples can be seen in chicken rice, sweet and sour soup, 'idli', 'prata', 'nasi kandar', 'mee goreng' and many more [50].

The Malaysian food identity is referred to as collective and accepted cuisine through either combination or adoption of the culinary diversity of the multiethnic population of Malaysia of which Malay is anchoring the cuisine [38, 41, 48, 50]. In this sense, the primary Malaysian ethnic foods, namely, Malay, Chinese, and Indian had been adjusted and adapted through preparation and consumption, and the acceptance of it longitudinally could create the food identity formation [38, 48, 49]. However, to what extent the biculturalism/integration activity took part had never been explored. Does it signify the process of developing its national food identity (Figs. 1, 2, 3, 4, 5, 6 and 7)?

Literature review

Food identity

Based on the very popular hierarchy pyramid developed by Abraham Maslow, food is served to satisfy biological needs. However, food consumption is not only to be

Table 1 Possible outcomes of the acculturation process

Outcome	Descriptions
Assimilation	Assimilation occurs when individuals reject their minority culture and adopt the cultural norms of the dominant or host culture.
Separation	Separation occurs when individuals reject the dominant or host culture in favour of preserving their culture of origin. Separation is often facilitated by immigration to ethnic enclaves
Integration	Integration occurs when individuals can adapt to the cultural norms of the dominant or host culture while maintaining their culture of origin. Integration leads to and is often synonymous with biculturalism
Marginalisation	Marginalisation occurs when individuals reject both their culture of origin and the dominant host culture.



Fig. 1 *Rendang* is rich and spicy meat or poultry dish that traditionally served at festive day or special occasions to honour guests



Fig. 3 *Ulam* and *sambal belacan* is an integral part of traditional Malay cuisine. It stimulates the appetite by adding a crunch and zest to a meal

considered as a simple act of fulfilling biological needs but serves beyond the boundary of the gastrointestinal tract and is more than just a nutritional fact and value. Food is one of the mechanisms of connection in daily life, bonding individual to individual and individual to society, playing a key role in human socialisation and acts as a social jelly that binds people together in many parts of the world [51, 52]. Thus, exploring the relationship between food and identity reinforces the notion that identity is a relational process, a kind of “psychosocial relativity” embedded in social, historical, and developmental contexts [53, 54].

Food identity formation begins with the process of sharing acceptable food among ethnic groups [55–57]. Food identity formation was formed through the understanding of each ethnic belief, skills, ethical norms and the social attitudes that are practised within their cultural settings [33, 36]. Other scholars generally agree that cross-culturing

among the ethnic groups through integration and assimilation processes in the multicultural countries will gradually create or form food identity [58–61]. The acculturation process through food knowledge/language, media and event are believed to significantly contribute to the formation of ethnic food identity [13, 28, 62]. The certification on the heritage and traditional foods, in the long run, could strengthen the ethnic food identity formation [63]. However, several sensitive issues on preserving each ethnic, cultural identity arise [58, 59].

Acculturation

As integration is part of acculturation, it is therefore essential reviewing the acculturation and its components. The term “acculturation” was first used in anthropology in the late 1800s [64] when early studies dealt with the patterns of Indian-Spanish acculturation in the Central and South America. There was also a cultural study of Haiti with derivatives of West African and French patterns [32,



Fig. 2: *Nasi Lemak* is a Malay breakfast dish cooked with coconut milk and Pandanus leaf, that makes rich taste and fragrant aroma. Served with boiled egg, fried anchovies, sambal, slice cucumber and fried groundnut



Fig. 4 *Roti Canai* the extremely loved food in Malaysia and is usually eaten with dhal, fish or chicken curry.



Fig. 5 Idli is a type of savoury rice cake, originating from the Indian subcontinent, popular as breakfast foods of Indian community in Malaysia.

65]. The concept of acculturation deals broadly with alterations in cultural attitudes between two distinct cultures [32, 66]. This concept not only could be applied to the individual but also suitable for the group.

Acculturation explains the process of cultural and psychological change that results in following meetings between cultures [67, 68]. Other researchers contended that acculturation is also a process in which members of one cultural group adopt the beliefs and behaviours of another group [69, 70]. At the group level, the effects of acculturation often result in changes to culture, customs and social institutions [71–73]. At the individual level, differences in the way individuals acculturate are associated not just with alteration in daily behaviour but with numerous measures of psychological and physical well-being [74–76]. Meanwhile, other researchers [77] defined three dimensions of acculturation: assimilation, (individuals reject the minority culture and adopt the cultural norms of the dominant or host culture), biculturalism or integration (individuals adopt the cultural norms of the dominant or host culture while maintaining their culture of origin) and observance



Fig. 6 Spring rolls are the crispy appetiser which is stuffed with tender-crisp vegetables, chicken, or shrimps.



Fig. 7 Egg drop soup is a healthy Chinese broth-based soup made with eggs, chicken broth and corn starch. It is a typical soup served at many Chinese restaurants

or marginalization (rejection of the dominant culture). Integration leads to and is often synonymous with biculturalism. Out of four outcomes of the acculturation processes proposed by Berry (1986) integration is suitable for the present study [78].

Biculturalism/integration as part of acculturation

Integration, which is also termed biculturalism occurs when individuals seek both to maintain their own culture as well as participating daily in becoming part of the larger host society [79]. Based on Berry's 2015 model, integrated individuals seek to maintain their own culture and identity and also to interact and adapt to the new and dominant cultural environment. Biculturalism/integration can be conceived of in a variety of ways, and more studies have attempted to understand it better [80–83].

It has been found that individuals who have adopted a bicultural or integrated strategy of acculturation adapt more cultural components of the host culture, along with those that have chosen assimilation, whereas those individuals with a separated acculturative strategy retain many of their traditional practices [84]. A bicultural or integrated acculturation strategy is seen as the adaptive intermediate of acculturation in which the host culture and traditional culture are navigated in a more equal way than separation or assimilation [79]. Research indicates that integration through the acculturation has an effect on personality, relationships, and cultural orientation [85]. Other researchers proposed that integration through acculturation and acculturative stress have an impact on mental health [86]. They also supported the idea that integration or bicultural acculturation is the most adaptive acculturative style and is associated with lower acculturative stress and fewer psychological problems [68, 79, 86].

Although a number of recognized attributes are associated with biculturalism integration as part of acculturation processes, such as values, sex roles and behaviours [87], the most widely used attributes of integration and indicators for capturing identity are knowledge, media and social interaction [9, 13, 28, 88]. With that, the subsequent sections review all those attributes.

Knowledge

Knowledge has been defined as the concepts of truth, belief and wisdom, and it is a combination of ideas or thoughts, rules, procedures and information [89]. In addition, knowledge is a set of structural connectivity patterns that are proven to be viable for the achievement of goals [90]. Researchers also developed a useful framework to classify knowledge which distinguished social, structured and human knowledge [91]. First, social knowledge is a tacit knowledge that arises out of relationships. An example of social knowledge from the perspective of this study is the way chefs on different levels of the kitchen hierarchy interact with other kitchen staffs. Structured knowledge is rooted in the system, processes, rules and routines of an organisation and is usually explicit knowledge. Human knowledge is what humans know or know how to do and know how to adapt it [92].

In relation to this study, it can be based on the experience of ethnic chefs/cooks who have many years of experience in preparing, assembling food and the ability to adapt different foods to achieve an acceptable product. Of all these three types of knowledge, human knowledge is considered the most appropriate in this study as it relates to the experience of knowing something, confident in understanding of a subject and potentially with the ability to adapt and to use it for a specific purpose [89, 90, 92]. Despite this, other researchers [93, 94] contended that knowledge is gained and achieved through educational learning, languages and reading that can develop the understanding of a particular individual, and the acquisition of knowledge involves the cognitive process that relates to perception, communication, association and reasoning that can influence the individual's confidence level.

Acculturation through food knowledge in a multicultural nation is believed in the long run create the process of its formation [13, 28]. Scholars accentuated that knowledge is gained and achieved through educational learning, languages and reading can develop an understanding of a particular individual, and the acquisition of knowledge involves the cognitive process that relates to perception, communication, association and reasoning that can influence the individual's confidence level [93, 94]. As per this study, knowledge through educational learning, language and reading were expected to expedite the exchange of food culture between ethnic groups in multiethnic countries.

Social events

In general terms, the social event is relating to activities in which people spend time talking, discussing to each other or doing an enjoyable thing with each other either in culture, business and many others. It is also related to the act of gathering to socialise, recreation, conversation or as part of a festival or other celebration of a special event. Social events like festivals, gatherings, functions or parties are always involving or with the presence of food and the amount of food preparation may depend on the size of the group or society [95, 96]. The presence of food in the social events symbolise values and bringing the important meanings to specific groups [97].

Through social events, people will start to interact, and food acts as the medium of interaction and the binding social facilitator. Even though social learning in relation to food behaviour has not been investigated significantly, evidence from other disciplines (e.g. economics and behavioural sciences) have shown that social learning process through events is one the influential and vital [98], beside the usual individual learning concept [99, 100]. They also inferred that the concept of individual learning suggests that an individual learns from his/her experience mingling with others and utilises an adaptive decision-making process to cope with uncertainty. Therefore, sharing or transferring and learning the food provisioning skills, techniques, eating decorum and cultural beliefs are beliefs occurring through social events [57, 62].

It is evidenced that our relationships with others influence what we eat, whether in the context of the family dinner table, a friend's choice of a lunch spot, the office cafeteria or in any gathering, festival or party or events [101]. We continuously learn about ways of eating from people around us and are more likely to adopt new behaviours from people we trust [102]. Psychologists have shown that the presence of friends and family affects the type of food, as well as how much of it we consume. This has been termed a "social facilitation" effect [103], and it is especially pronounced within friends and families [104, 105]

Researchers suggests that there are at least four major concurrent context effects that can alter an individual perception of food and beverages preference during consumption in tandem with social events [106]: its function as a meal component, social interaction during consumption, the environment in which food is selected and consumed, and freedom of food choice. Others argued that the increasing popularity and adaptation of foods from other ethnic groups and countries probably due to the increase of social interaction, especially during festivals, gatherings, partying or even eating in the restaurants [107]. Through those events, people are being exposed more to new food options and developing a comfort level.

The time and place in which people eat and who prepares the food also influence its acceptability and the propensity to consume other food [108, 109]. In this sense, the food itself symbolically take on a range of deeply embedded cultural meanings [110, 111] and shared tastes of food through social events serve as shorthand for the idea of a collective culture at the small group, community, society or even nation. In sum, all of the arguments presented to point out the importance of social events toward shaping and influencing the food preference and adaptation behaviour by an individual. It is clear that social event catalyses the food knowledge exchange especially in multi-ethnicity community [12, 95, 112].

Media

Undoubtedly, media products like television, radio, newspapers and the Internet provide important material in the pursuit of greater understanding on the study of food and society [113]. The concepts of cultural consumption; taste, style; characteristics of restaurants; hospitality; manners and etiquette; class and distinction; identity and belonging; historical and cross-cultural differences can be found in television and radio programmes [114]. There is a huge media industry producing a range of food-related materials that attracted huge audiences: television food programmes; radio food programmes; food journals; lifestyle journals; newspaper articles; restaurant reviews; food guides; supermarket promotional literature; recipe books, books and so on. The high level of public consumption for these food media products is a testimony to their acceptability. Media usage indicators have also served as proxy measures [114–116]. Researchers have implicated television as a key media source affecting people's food choices [117–120]. Besides television, in today's information technology age, the proliferation of internet access has also quickened the pace of food acculturation. The Internet has emerged as a major source of information, and its dynamic view would allow us to account for the effects of globalisation on the global and the local cultures [28].

Moreover, the proliferation of video-sharing site such as YouTube has changed the way people seek information online. Researchers noted that about half of the overall video content uploaded to the site is user-created content which promotes cultural sharing and understanding through a unique style of presentation and video content [121]. Cooking show and recipe sharing, as well as a documentary on food, could be easily found on the website thus encouraging knowledge transfer. Aside from video sharing, internet access has also enabled the sharing of food culture through writing especially in the form of a blog post [122, 123]. From the video sharing and blog post, it could be said that the Internet certainly has garnered ample attention as a new

source of information in this era including food and culture perspective.

For the past years, there is an increasing number of studies looking at the other identity formation, such as ethnic identity [12, 29, 52, 56, 82, 88, 123–125]. However, there still lack of available studies focus on the antecedents of food identity formation [56, 126] and none is using Malaysia as the contextual study setting [127]. Thus, this study investigates the extent to which integration attributes (food knowledge, food media and food for social events) of some of the Malay, Chinese and Indian foods influence the process of Malaysian food identity formation. The study objective is further support with four hypotheses as below:

- H₁: There is a significant relationship between biculturalism/integration and food identity formation;
- H_{1.1}: There is a significant relationship between food knowledge and food identity formation;
- H_{1.2}: There is a significant relationship between food social event and food identity formation;
- H_{1.3}: There is a significant relationship between food media and food identity formation.

Methodology

Sampling and instrument

A quantitative approach through a causal type of investigation and cross-sectional study opted for this study. The unit of analysis of this study was the individual Malays, Chinese and Indian chefs/cooks who were working in the medium/large food catering operations and had experienced in preparing the three Malaysian major ethnic cuisines. This approach was selected to make sure that the result would be based upon experience dealing with Malay, Chinese and Indian cuisines. In Malaysia, the Malays, Chinese and Indian chefs/cooks that engaged themselves in the food catering operations are normally responsible in preparing the combination of buffet menus in particular, which comprises Malay, Chinese and Indian food for either a large business and social events or functions compared to the restaurant and hotel. Owing to the huge populations of Malay, Chinese and Indian chefs/cooks who work in a catering operation in Malaysia, it could not be possible for researchers to collect the desired information throughout the country. For that reason and given many considerations, the Klang Valley with many major districts and cities, namely, Kuala Lumpur, Putrajaya, Kajang Petaling Jaya, Shah Alam and Klang and its vicinities are selected as the venues for data collection. These cities are chosen primarily because they are among the fastest-growing districts/cities in Malaysia and competitive in economic and business markets.

Research instruments

The independent variable in this study is biculturalism/integration attributes while the dependent variable is food identity formation. Section A focuses on the respondent demographic profile. Section B measures the respondents' view on biculturalism/integration elements that are knowledge, media and social events while section C focus on the food identity formation. The research instruments used a 7-type Likert scale ranging from 1 with "strongly disagree" to 7 "strongly agree". Instruments on biculturalism/integration were adapted from the previous related studies [28, 66, 124, 128] with minor modifications made on the wording accordingly to the scope of the study. For food identity formation, items were adapted from Berzonsky 1992's paper entitled "Identity style and coping strategies" [129]. A pilot study was conducted to confirm the reliability and validity of the research instruments.

Data collection

Based on the preliminary survey, 100 medium/large catering operations were identified in the Klang Valley. Phone calls to all respective catering managers or owners were made seeking permission to undertake surveys with their chefs/cooks. Some managers or owners of the food catering operations/services refused or are reluctant to allow the researchers to survey their chefs and cooks. Too busy is the main reason for refusal. Out of many dealings, only 40 catering operations/services granted permission and allowing their chefs/cooks to be surveyed. The dates, times for the surveys were then arranged based on the convenience of the catering chefs/cooks.

The researchers and three research assistants personally conducted the surveys. Catering chefs/cooks comprise of Malay, Chinese and Indian at each catering operation was approached and requested to complete the survey and were informed that their responses were anonymous and confidential. Besides that, the information sheet provided details about the researcher, the aim of the study and the purpose of the survey conducted. Most importantly, the information sheet highlighted that the responses would be kept strictly confidential and no single employee involved would be identified. In light of positive feedbacks, a total of 392 questionnaires comprise of 196 Malays, 109 Chinese and 87 Indians were successfully collected within 12 weekends of the 3 months of the surveyed.

Analysis and results

Respondents' profiles

The number of male respondents exceeded the female with 71.4% ($n = 280$) against 28.5% ($n = 112$). The majority of respondents were between 40 to 44 years of age, which made up 33.9% ($n = 133$), followed by 35 to 39 years old which represented 23.7% ($n = 93$), 30 to 34

years old represented 16.3% ($n = 64$). The smallest proportion of 10.9% ($n = 43$) were among the 50 years old and above. 91.3% ($n = 358$) were married compared to 20% ($n = 5.1$) who were single and 3.6% ($n = 14$) were among others. Malays constituted around 50.0% ($n = 196$) of the total respondents, with 27.8% Chinese ($n = 109$), and 22.2% Indian ($n = 87$). The rate for religion was similar in that Muslim represented about 53.6% ($n = 210$), 22.9% ($n = 90$) Buddhist, 15.3% Hindu ($n = 60$) and 8.2% Christian ($n = 32$). 2.8% ($n = 11$) of the respondents had only their primary school education. 41.6% ($n = 163$) had obtained a secondary school qualification, 52% ($n = 204$) was graduated from either college or universities and others 3.6% ($n = 14$) processed cooking professional training. The highest percentage of working experience among the respondents is from 5 to 10 years which accounted for around 40.1% ($n = 157$). Eleven to 15 years of working experience represented around 28.1% ($n = 110$). 15.3% ($n = 60$) having working experience between 16 and 20 years while 16.6% ($n = 65$) having more than 20 years of working experience.

Descriptive statistic

The following section provides a commentary on the outcomes of the descriptive analysis on three dimensions of the independent variables (knowledge, media and social events) and the dependent variable (food identity).

Knowledge

Based on the nine items of knowledge, respondents strongly agreed that education, language and reading contribute to their understanding of each other ethnic food ($M = 6.96$, item BL8). Respondents also agreed that education, language and reading create their understanding of ingredients of other ethnic food ($M = 6.17$, items BL2) and make them familiar with other major ethnic recipes ($M = 6.27$, item BL3). This is further confirmed as they reported that education, language and reading contribute to their understanding of how some major ethnic is prepared and served ($M = 6.21$, item BL5).

With that feeling, it is not surprising that education, language and reading are believed contribute to understanding of how other major ethnic food is being consumed ($M = 6.01$, item BL6), built their interest to consume some of the other popular major ethnic foods ($M = 6.99$, item BL7) thus create their interest to prepare ($M = 6.14$, item BL1). It is interesting to note and most remarkable finding that education, language and reading is giving the ability to at least prepare ($M = 6.99$, item BL4) and catalyst of sharing the major ethnic food ($M = 6.96$, item BL9). Together, these points indicate that the majority of the respondents probably had more knowledge of each other ethnics' foods through education, language and reading.

Social events

Mean scores above 6.00 indicate that the majority of the respondents agreed with all items. They agreed that social events create understanding each other ethnic cultures ($M = 6.45$, item CP1), food ($M = 6.32$, item CP2) and ingredients ($M = 6.38$, item CP3). They agreed that social events are enhanced their knowledge and understanding on how other ethnic foods are being prepared ($M = 6.30$, item CP4), how some major ethnic food is being served ($M = 6.36$, item CP5) and consumed ($M = 6.17$, item CP6). Social events developed their interest to consume ($M = 6.44$, item CP7) and prepare ($M = 6.17$, item CP8) some other ethnic foods. Social events also give them the exposure and the ability to at least prepare some of the acceptable ethnic foods ($M = 6.20$, item CP9), and this process is believed to catalyze the sharing of the other ethnic foods ($M = 6.36$, item CP10). Together, this point indicates that food for social events not only act as a medium for interaction and social bonding but open up an opportunity for each ethnic to learn and understand each other food.

Media

In this section, respondents agreed that they did gain knowledge of other ethnic food through television newspaper, magazines and the internet. Media like television, newspaper, magazines and internet contributes their understanding of how other ethnic food is being consumed ($M = 6.36$, item DMT1), built their interest to consume ($M = 6.02$, item DMT2) and influence them to consume ($M = 6.05$, item DMT3). They also believed television, newspaper, magazines and internet encourage them to prepare ($M = 6.29$, item DMT4) some other ethnic recipes. In essence, televisions newspaper, magazines and Internet play an important role in showcasing other ethnic food and thus encourage people to try them.

Food identity

The magnitude of the mean scores ranging from 5.52 to 5.59 indicating that the majority of the respondents agreed on the food identity formation items. Respondents believed that adaptation through preparation ($M = 5.52$, items ID1), consumption ($M = 5.53$, items ID2) and regular practice ($M = 5.59$, items ID3) of the selected major ethnic food in the long run moderates the food identity formation. Besides that, respondents believe that adaptation among the ethnic food create an acceptable food ($M = 5.50$, items ID4) and well-accepted major ethnic food can be classified as Malaysian food ($M = 5.27$, items ID5). In sum, what could be said that well accepted ethnic food through the preparation and consumption will contribute to Malaysian food identity formation?

SEM

Prior to reporting the outcomes of the proposed hypotheses, a multivariate analysis process using the structural equation modelling (SEM) with AMOS version 24 software was applied.

Measurement models evaluation

The assessment of the model fit which looking at the quality, validity and reliability of the measurements of the study constructs (endogenous and exogenous variables) was undertaken using the confirmatory factor analysis (CFA) [130]. Table 2 reports the results of measurement models evaluation.

Table 2 Results of measurement models evaluation

Variables	Loading	Critical ratio (t values)	Composite reliability	AVE	Cronbach Alpha
Food knowledge			0.949	0.865	0.950
BL8	0.83	----			
BL2	0.84	20.312			
BL3	0.84	23.685			
BL5	0.84	20.224			
BL6	0.79	24.108			
BL7	0.81	19.153			
BL1	0.81	19.258			
BL4	0.81	19.291			
BL9	0.81	19.115			
Food social events			0.920	0.676	0.922
CP8	0.88	----			
CP2	0.90	----			
CP1	0.70	17.355			
CP4	0.70	16.805			
CP5	0.75	18.008			
CP10	0.76	20.438			
CP9	0.70	19.266			
CP6	0.76	20.386			
<i>Items deleted: CP3, CP7</i>					
Food media			0.920	0.676	0.922
DMT1	.88	----			
DMT2	.90	----			
DMT3	.70	17.355			
DMT4	.70	16.805			
Food identity formation			0.859	0.607	0.869
ID3	0.79	----			
ID4	0.60	15.073			
ID1	0.85	20.458			
ID2	0.85	----			
<i>Items deleted: ID5</i>					

Based on the table above, nine items were proposed in the instrument relating to the food knowledge. This measurement model was statistically significant with a p value of less than 0.001. The factor loadings of all the measured items are higher than 0.70 which indicate that the convergent validity was obtained. The t values (critical ratio) associated with each measured item in the scale were significantly greater than ± 1.96 at 0.05 levels or 0.01 levels respectively. The Cronbach's α is more than 0.95, and therefore, they are convincingly above the stipulated threshold level of acceptance reliability. AVE values were greater than 0.5 (0.865) which posited that convergent validity exists.

Ten items were proposed in the instrument relating to the social events. The factor loadings all the measured items greater than 0.70 indicate that the convergent validity was obtained. With regard to the reliability, this dimension is reliable based on their composite reliability (0.920) score which is significantly higher than the minimum acceptable level of 0.60. AVE values for this factor were greater than 0.5 (0.676) which posited that convergent validity existed (Hair et al. 2010). Next, the critical ratios of the measurement model for media which also indicate the uni-dimensionality of the construct. The composite reliability of 0.957 and AVE of 0.762 which was calculated manually are satisfactorily high, hence, further validating that the existence of convergent validity (Hair et al. 2010). Finally, the assessment was made on the measurement model for food identity formation and five items were proposed in the instrument. The factor loadings of all the measured items are greater than 0.70 which indicate that the convergent validity was obtained. The composite reliability (0.859) score is significantly higher than the minimum acceptable level of 0.60. AVE values were greater than 0.5 (0.607) which clearly posited that convergent validity exists [130].

In sum, the values of the 10 goodness-of-fit indices for four measurement models suggest that the fit of the data to the measurement models are adequate (Astrachan, Patel and Wanzenried, 2014). This indicates that the measurement model for knowledge, social events, media and food identity formation exhibited strong evidence of unidimensionality, convergent validity and reliability. It has adequate measurement properties, thus qualified to be used in the second stage of the analytical process which is the path analysis. Table 2 shows the results of measurement models evaluation of the four measurement models.

Path analysis

The path analysis using SEM was carried out to assess all the hypotheses which are looking at a direct relationship between independents and the dependent variable. To estimate the path coefficients, a standardised

parameter with maximum likelihood estimation was used. Maximum likelihood has been the leading estimation method used since the creation of contemporary structural equation methodologies [131]. Table 3 illustrates the result of the path analysis.

H_1 proposed a causal relationship between the biculturalism/integration and food identity formation. This proposition is based on the belief that identity is formed based on the information gathered through the biculturalism/integration attributes. The result showed a significant relationship between them ($\beta = 0.835$, t value = 5.431; $p < 0.001$) which support this main hypothesis. To get a detailed picture, the results of the three sub-hypotheses of biculturalism/integration are reviewed. $H_{1.1}$ proposed a causal relationship between knowledge and food identity formation. The result showed a significant relationship between them ($\beta = 0.092$; t value = 2.456; $p < 0.001$). Thus, hypothesis $H_{1.1}$ is supported. As part of biculturalism/integration dimension, $H_{1.2}$ proposed that social events might contribute to the formation of food identity. The result of this hypothesis showed that social events involving foods produce a significant relationship, in which the strength of the relationship is ($\beta = 0.140$; t value = 4.224; $p < 0.001$). In another biculturalism/integration dimension, $H_{1.3}$ proposed a causal relationship between food media and food identity formation. The result of this proposed hypothesis showed a significant link between food media and food identity formation ($\beta = 0.237$; t value = 4.115; $p < .001$). Therefore, hypothesis $H_{1.3}$ is supported.

These results suggest that food knowledge, food presented in social events and food media play a significant role in food identity formation. This result is consistent with the conjectures made by several researchers [45, 102, 103, 113] that social interaction and events could have given a significant impact on food identity formation. This is also in line with other researchers which indicate that integrated individuals although seek to maintain their own culture and identity; however, through interaction and adaptation to the new or

Table 3 Summary of results for structural path analysis

No.	Structural path	Standardized estimate(β)	Critical ratio (t value)	p value	Results
H_1 :	Integration \rightarrow food identity formation	0.835	5.431	***	Supported
$H_{1.1}$	Knowledge \rightarrow food identity formation	0.092	2.456	***	Supported
$H_{1.2}$	Social event \rightarrow food identity formation	0.140	4.224	***	Supported
$H_{1.3}$	Food media \rightarrow food identity formation	0.237	4.115	***	Supported

***Significant at $p < 0.001$

**Significant at $p < 0.05$

dominant culture environment inadvertently form a new common identity [2, 42, 52, 126, 129]. In this sense, it could be said that biculturalism/integration as part of the acculturation contributes to the food identity formation.

Discussion and conclusion

Based on the literature, food identity formation is regarded as one of the vital subjects for research especially among western food sociologists or academic scholars [38, 42, 56, 57, 127]. However, there is still scarce of such available studies undertaken in the South-east Asian region. Thus, filling the gap by looking at the Malaysian food identity formation will be creating a new body of knowledge and extending the existing literature in the food sociology related studies. This study also acts as a standpoint and a fundamental basis for the direction of other similar nature of studies in the future.

From a practical perspective, although integral of having the integrated educational system, political and economical in a multiracial country like Malaysia, possessing nation food identity also cannot be ignored. Hence, revealing the antecedents of food identity formation will indirectly help the major ethnic groups in Malaysia to have a better understanding of the importance of having national food identity and the elements that accelerated the formation. Biculturalism/integration attributes like knowledge on food, social events where the variety of ethnic foods are a presence, and food media influence the food adaptation among the ethnic groups and longitudinally contribute to the national food identity formation [45, 102, 103, 113]. In this sense, perhaps the ethnics' chefs/cooks and those individuals who are directly dealing with food are prone to the process of adaptation of each ethnic food. They might not realise that their adaptations on the preparation of other ethnic food or creating a blending of new dishes in their workplace not only giving advantages for themselves, the business operation but also directly giving a significant impact to the society and the nation.

This phenomenon is occurring in Malaysia as adaptation positively increases the potpourri of acceptable food among the Malaysian ethnic groups [38, 42, 56, 57, 127]. Supposedly, these practices in support with various means like dining experiences publicised materials like recipe books, media and others will influence the public to practice those foods thus enriching and enhancing the Malaysia food image and gradually be recognised locally and internationally. Therefore, it could be informed all ethnics' chefs/cooks and those individuals dealing with food should continuously practice on what they are now doing as long maintaining each religious border. Besides that, as food identity formation is one of the main agendas for the Malaysian government, knowledge of food, social

events and media could be used in speeding up the formation. Therefore, it is important for authoritative bodies and government agencies, catering operations to harness the effort in promoting the acceptable variety of ethnic cuisines which can expedite the process of common acceptable food and food identity formation.

What could be said in the information flowing from this study is that do not look at food or cuisine to only provide symbolic nourishment to the eater, culinary perspective but the incorporated elements of gastronomy in food offers a path towards an understanding of the art and science of food and good eating and has high relevance to the society and culture. In other words, with the understanding, all the major ethnic groups hoped to always appreciate each other's food as it is not only creating a social bonding and harmonious but also strengthening the cross-culturing process among them. A robust social bonding and harmonious will, in fact, allow each ethnic to experience and understand the elements existing in each ethnic culture and food. Food, in particular, plays a part in the broader economy and nation construction.

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Authors' contributions

NI and MSMZ conceived of the presented idea. NI developed the theory and performed the computations. MHH and SAT verified the analytical methods. NI, MHH and MSMZ contributed to the interpretation of the results. All authors discussed the results and contributed to the final manuscript.

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