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The analytic hierarchy process of the decision-making factors of African students in obtaining higher education in the United Arab Emirates

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ABSTRACT

The mobility of African students beyond national territories has become common worldwide. However, the underlying reasons motivating students to leave their countries of origin in pursuit of higher education in other developing nations and why these factors are important have not been fully explored. This study attempts to explore why and how African students travel to the United Arab Emirates for higher education. A push-pull factor theory of the international student's choice of destination is developed to identify factors influencing the choices made by these students. The analytic hierarchy process is used to examine the relative importance of these factors. The findings of this quantitative study indicate that learning environment and geographic proximity are the two most important factors for African students, while other factors have a moderate impact. The findings contribute to a deeper and more comprehensive understanding of the needs and choices of existing and potential students from this continent, with a view to applying a segmentation approach to attract these students.

KEYWORDS

Student decision making process; international education; push and pull model; analytic hierarchy process (AHP); United Arab Emirates

Introduction

Growth in economic prosperity, increased populations, improved governance, demographic shifts and political influence in the African continent have seen an increase in the number of African students choosing to study abroad (ICEF Monitor 2013). Of the 4.5 million international students recorded in 2013, 12% were from African countries (OECD 2013), and this number has continued to increase (UNESCO 2012). The key driver for African students seeking tertiary education across national borders was a belief that it would provide opportunities for increased wealth, cultural interactions, migration and employment (Maringe and Carter 2007). Shinn (2002) found that of those who left Africa for higher education, 30% sought professional development, while less than 7% left for political reasons.

The United Arab Emirates (UAE), being a wealthy and culturally diverse country, has stable economic growth, a fast-growing population and a changing education landscape, factors that make it an attractive option for African students (QAA 2014). Like other developing countries, the government of the UAE has aggressively promoted higher education through the establishment of private institutions and fully-fledged international branch campuses (Wilkins, Balakrishnan, and Huisman 2012). As a result of the government's strategic initiatives and investment in capacity-building, the UAE is gaining an increasing number of international students from various parts of the world (Gulf Business 2014).

Despite growing interest in research on international students and their choice of destination for higher education (Ahmad 2014; Forsey, Broomhall, and Davis 2012; Naidoo 2012), little is known about the factors influencing the movement of students from other parts of the world to the UAE. Research in this field has tended to concentrate on the choice criteria of students opting to study in countries of the Organisation for Economic Co-operation and Development (OECD), such as the UK, the USA, Australia, Germany and France (Maringe and Carter 2007; Wilkins, Balakrishnan, and Huisman 2012). Growth in the number of international students choosing to study in newly emerging educational hubs such as the UAE has created a new development. The purpose of this study is to investigate: (1) the factors that may influence the decision-making process of African students to select the UAE as their country of destination for higher education and (2) the relative importance of these factors when making this critical decision. An initial step towards answering these research questions was made by employing the push-pull model to understand the mobility of international students. This theory has been gaining prominence, has proven effective and has been regarded as an important contribution to the research on categorising student motivation and decision-making in a variety of contexts (Ahmad 2014; Lee 2014; Maringe and Carter 2007).

Literature review

The push-pull model of destination choice for international students

Research on the destination choice of international students for higher education have tended to focus on the movement of international students from developing countries to OECD countries, which has been influenced by several push and pull models. These models have been used to understand international flows and reasons for the choices of international students to pursue tertiary education beyond their national boundaries (Eder, Smith, and Pitts 2010; Mazzarol and Soutar 2002). The decision to study beyond national territories includes a complex and dynamic set of factors, including the decision to explore the idea of studying abroad and selecting the country and institution of learning, and this can be explained by employing the push-pull model (Eder, Smith, and Pitts 2010).

The push-pull model was originally used to explain the factors influencing the flow of people for migration (Lee 1966), but has now been extended by educational researchers to investigate the flow of international students for higher education abroad (Chen 2007; Lee 2014). Push factors are factors associated with the home country environment considered by students as being unsatisfactory, thus influencing them to leave their country to look elsewhere for tertiary education. These include: lack of capacity and opportunities provided by the local educational institutions in the home country; lower quality of education; the non-availability of specialisation programmes; limited access to funding; and a preference for overseas qualifications by employers (Ahmad 2014; Altbach 2004; Chen 2007; Lee 2014). The pull factors in the host country that potential students consider attractive include: the reputation of the institution and/or country; the exchange rate; lower costs/fees and cost of living; opportunity to experience a new and different culture; an English-speaking environment; the policies of the government of the host country concerning the recruitment of international students; and the quality of the programme and course being offered (Maringe and Carter 2007; Pimpa 2005; Singh, Schapper, and Jack 2014; Wilkins, Balakrishnan, and Huisman 2012). Other factors that have emerged in more recent literature include the strong influence of past social relations and family ties (Foster 2014).

One of the earliest studies on the factors that influence the international flow of students was by McMahon (1992), who explained the movement of international students from 18 developing countries to the USA during the 1960s and 1970s by testing an outbound or 'push' model and an inbound or 'pull' model. The economic strength of the developing country and the non-availability of educational opportunities in the home country were identified as push factors, while pull factors included those such as the economic, political or cultural links between the home and host countries, and the host nation's support of international students via scholarships and other types of assistance. One of the most cited studies in this field is that of Mazzarol and Soutar (2002), which examined the motivations of 2485 international students from Indonesia, Taiwan, China and India who moved to Australia to

pursue their higher education. Mazzarol and Soutar concluded that there were various reasons why students choose to pursue their studies abroad. The push factors identified were: the perception that an overseas course of study was better than a local one; difficulty in gaining entry in the home country; the non-availability of the programme of study at home; interest in gaining a better understanding of the West; and an intention to migrate after graduation. The pull factors most often mentioned in the study included: the reputation or profile of the host country; parental influence and personal recommendation; the costs of studying and living; environmental aspects of the host country, namely the climate and the lifestyle; geographical proximity; and social links. The findings of the research by Mazzarol and Soutar (2002) suggested that for host governments and their institutions of higher education to attract a greater number of international students, they needed to consider the importance of these 'push-pull' factors that influenced students in the destination choice for their studies.

Maringe and Carter (2007) researched the push and pull factors of African students choosing the UK as their study destination for higher education. The findings of the study revealed that the push factors considered important included: uncertainty in economic conditions; political instability; and lack of local capacity in the country of origin. They also claimed that the inadequate opportunities for higher education in African countries had resulted in African students choosing to study overseas either willingly or unwillingly. On the other hand, the primary pull factors for studying in the UK for higher education were: international recognition; an easy application process; an excellent teaching and learning environment; and the availability of part-time work to support their studies financially. Despite highlighting new findings regarding the push-pull model of decision making for student destination, Maringe and Carter also reported that the main obstacles and enabling factors for student mobility were: costs; visa restrictions and frequent changes in regulations; fear of not being able to find suitable part-time work; failure to meet course targets; fear of failure; and negative aspects of the environment. The research developed a synthesis model that incorporated the dynamic decision making process and suggested six elements influencing the decision of international students to study abroad. These are: push factors; key influencers; pull factors at the country level; pull factors at the institutional and course programme level; risk and anxieties; and experiential dissatisfiers.

Eder, Smith and Pitts (2010) also explored the push and pull factors in influencing the decision making process of international students from Austria, Germany, Japan, Brazil, Spain, Poland, Thailand and Slovakia to study in the USA. The results indicated that personal growth, language and future career emerged as the primary push factors. Studying abroad gave the international students an opportunity to be more independent and to gain experience in a foreign country. These skills and experiences created a competitive edge and added value to their résumés. On the other hand, three primary pull factors were identified as attracting international student enrolments, namely: the overall image and prestige of the institution; the physical and learning environment; and the US culture and climate. These underlying pull factors were found to be interrelated. The institution was important because it provided students with their academic and social environment. The geography framed the living environment and presented opportunities to travel while studying. Finally, the climate and culture were significant as they shaped the actions of the people with whom the students interacted, including the professors, administrators and colleagues. The study concluded that an institution that intended to attract more international students needed to develop effective and specific marketing programmes and extensive promotional strategies to target potential students.

Rudd, Djafarova and Waring (2012) explored the factors influencing international students at a Business School in the UK and offered some insights into why Chinese students choose the UK as their study destination. The research findings revealed: the significant influence of the UK and its reputation with respect to education; the need to gain an understanding of Western culture to support their career aspirations; the appeal of the institution; and the image of the school and the city as push-pull factors influencing the student's choice. This was congruent with research conducted by Cubillo, Sanchez and Cervino (2006) and Mazzarol and Soutar (2002). However, the small sample size from one business school in the UK did not make it possible to generalise the findings of Rudd, Djafarova and Waring's (2012) study to other business schools. It could nonetheless be extended across a wide range of universities to gain some general conclusions.

Zheng's (2014) analysis of a large panel dataset of the flow of international students from 42 countries to the UK for higher education offered interesting results. The findings revealed that the home country's economic condition and demographics, the relative exchange rate, UK export performance compared to the home country, historic/linguistic links and the preferential policies of the UK government were important aspects that attracted the flow of international students to the UK. However, these factors varied between two types of home-country groups. A wide variety of economic, social and political factors were important to international students from developing countries, while home country economic wealth and trade links were more important than the other factors for students from developed countries. Despite the new findings regarding the push-pull model for destination choice for students, analysis of aggregate data at the country level was not able to identify how the factors relating to the individual or university (e.g. university quality and academic reputation, course structure and tuition fees) influenced the decisions of international students in the UK.

The literature mentioned above explored the study of the destination choice of international students to Western or English-speaking countries, such as the UK, the USA and Australia. In examining international students who chose to study in emerging economies, such as Hong Kong, Malaysia and Singapore, Kell and Vogl (2012) identified the push-pull factors as being: cheaper alternatives to the American, European and Australian universities; safety and security; the strong reputation of these nations; countries and locations where English was widely spoken; and opportunities for work, settlement and migration. Another study showed that linguistic and cultural connections, as well as geographical proximity, could explain the increase in the number of international students who chose to study in Malaysia, many of whom came from Indonesia, China and the Arab countries (Singh, Schapper, and Jack 2014).

Although the push-pull model has been applied as a theoretical framework by many studies and has proven to be an effective model for examining the movement of international students, it has neglected the nature of the mobility process at the micro level and the personal characteristics of students (Lee 2014; Li and Bray 2007; Wilkins, Balakrishnan, and Huisman 2012). International students responded to different push-pull factors in different ways (Hemsley-Brown 2001). The decision criteria and choice to study abroad varied among national and ethnic groups and their socioeconomic status, which led to a unique set of influences and considerations that affected their choice of destination and institution for their study.

In a comparative study of students from Taiwan and the European Union (EU), Davey (2005) found that Taiwanese students chose to study abroad because they considered the international acceptability and recognition of the quality of education in the UK to be a tremendous benefit for their future employment. On the other hand, students from the EU chose to go to the UK mainly because it provided them with an opportunity to improve their English and to learn British traditions. The outcome of the decision-making was a choice influenced by a variety of aspects including the broad context in which the decision was made and the environmental, organisational and individual preferences that marked the individual's internal value system and perception (Maringe and Carter 2007). The study upon which this paper is based was inspired by the recent flow of international students to non-English-speaking countries, particularly to the UAE as a new emerging destination for international students. These motivational divergences have important implications for strategic marketing, recruitment and retention of international students. Although little has been written about the movement of international students to non-Western countries, it is apparent that a greater number of students have chosen to study in the Middle East, and research in this area has become imperative because this trend has continued to rise annually (Lane-Toomey and Lane 2013).

Research methodology

The research context

The UAE has implemented a substantial number of policies to promote itself as a hub for knowledge and education in the region (QAA 2014). These policies were developed as the country was in the

process of moving from an oil-based to a knowledge and service-oriented economy. The desire to be globally competitive in the knowledge economy and the goal of becoming a regional hub for higher education led the UAE to target the development of international branch campuses in the country. One of the aims was to attract international students from around the world. According to the Knowledge and Human Development Authority Report (KHDA 2014), most international students study in Dubai and the majority of them enrol in private institutions. Since experiencing a growth in the number of international students coming to the UAE for the purpose of higher education, there has been little research to address factors influencing their destination choice, and more specifically why they have chosen the UAE to pursue their tertiary education.

An overview of the analytic hierarchy process (AHP)

The decision to study abroad was a complex process, which included the decision to explore the possibility of studying abroad, the choice of country and programme of study, and the selection of the institution (Eder, Smith, and Pitts 2010; Maringe and Carter 2007). The importance of each of these factors differed as international students reacted differently to push and pull factors. The choice was time-consuming, sophisticated, multi-staged, involved significant expenses, had high personal risks and required an evaluation of a wide range of alternatives (Pimpa 2005). The AHP provides a means of prioritising the various elements in the hierarchy, thereby helping governments and industry practitioners to focus on the most important matters (Cheng and Li 2001). The AHP, proposed by Saaty (2008), aids managerial decision-making in a structured way to generate priorities in the following steps:

- structure a problem as a hierarchy or as a system with dependent loops;
- elicit judgments that reflect ideas, feelings and emotions;
- represent those judgments with meaningful numbers;
- synthesise results;
- analyse sensitivity to changes in judgments.

The AHP structured the decision making process into a hierarchy, and decision making involved choosing an option from different alternatives. Through a set of pairwise comparisons at each level of the hierarchy, a matrix could be developed, where the entities indicated the strength with which one element dominated over another with respect to a given criterion. The AHP was a principle of measurement through pairwise comparisons and relied on the judgment of experts to derive the priority scales, which measured the intangibles in relative terms. Comparisons were made using a scale of absolute judgment that represented how much more one element dominated over another with respect to a given attribute. The main concern of the AHP was dealing with inconsistencies arising from the judgment and improving the judgment (Saaty 2008). The AHP judged and selected the elements/concepts that had a greater influence on a pre-determined objective. The AHP had been used to accurately evaluate the influence of the criteria in terms of goals.

Recently, there has been renewed interest in the AHP as an emerging solution to the complex real-world and multi-criteria decision making problems (Drake, Lee, and Hussain 2013; Yang and Shi 2003). It has been successfully implemented in various fields and is widely used in industry settings, such as: logistics management (Ghodspour and O'Brien 1998; Korpela, Lehmusvaara, and Tuominen 2001; Lee and Hsu 2004); manufacturing (Bertolini and Bevilacqua 2006; Braglia, Gabbriellini, and Miconi 2001; Çebi and Bayraktar 2003); healthcare management (Kwak and Lee 2002; Lee and Kwak 1999); environmental management (Kurttila et al. 2000); marketing (Kwak, Lee, and Kim 2005; Radasch and Kwak 1998); and knowledge management (Grimaldi and Rippa 2011; Ngai and Chan 2005). Over the years, the AHP had become one of the most widely used tools for decision support for researchers and decision-makers (Ahmad and Hussain 2015). Given that the results of this method were more accurate and informative than the numeral assignment method (Cheng and Li 2001), the AHP was considered the most appropriate method for this study.

Developing the hierarchical structure

The purpose of the research was to identify and prioritise the factors determining the choice of African students to pursue their higher education in the UAE. As the push-pull model of destination choices for international students was used as the theoretical framework for this study, a list of 23 factors influencing the destination choice of international students was identified and generated from various studies (e.g. Chen 2007; Cubillo, Sanchez, and Cervino 2006; Lane-Toomey and Lane 2013; Lee 2014; Maringe and Carter 2007; Mazzarol and Soutar 2002; Zheng 2014). These were then integrated under five dimensions (factors or attributes): the learning environment, costs, institutional reputation, key influencers and geographic proximity. The multi-criteria attributes were organised in a hierarchical structure, with the highest level of the hierarchy being the overall goal (i.e. to identify and prioritise the factors determining a student's choice). The five factors were represented as the criteria in level 2 and each factor was further divided in level 3 (sub-criteria) to illustrate common manifestations of the proposed model. A simple three-level hierarchical structure is constructed in Figure 1.

The questionnaire was developed on a scale of 1 to 9, as shown in Table 1 and the pairwise technique, as suggested by Saaty (2008), was employed. Saaty also recommended the geometric mean approach over the arithmetic mean to combine the individual pairwise comparison judgments and to obtain the consensus pairwise comparison judgment matrices for the entire team.

Sampling design, administration and questionnaire development

The target respondents comprised African students who were defined in this study as students who: (1) had crossed the national border of their home country and moved to the UAE for the purpose of tertiary education, (2) had not attended secondary or preparatory education, (3) were not domiciled in the UAE. The students were also currently undertaking formal education courses or programmes of study at an institution of higher education in the UAE. The Office of Student Advisors that was in charge of support and advisory services for students at the university was contacted by telephone to reach the target population. Following this agreement to participate in the project, they contacted the African students and discussed the subject area with them, and provided us with a list (names and

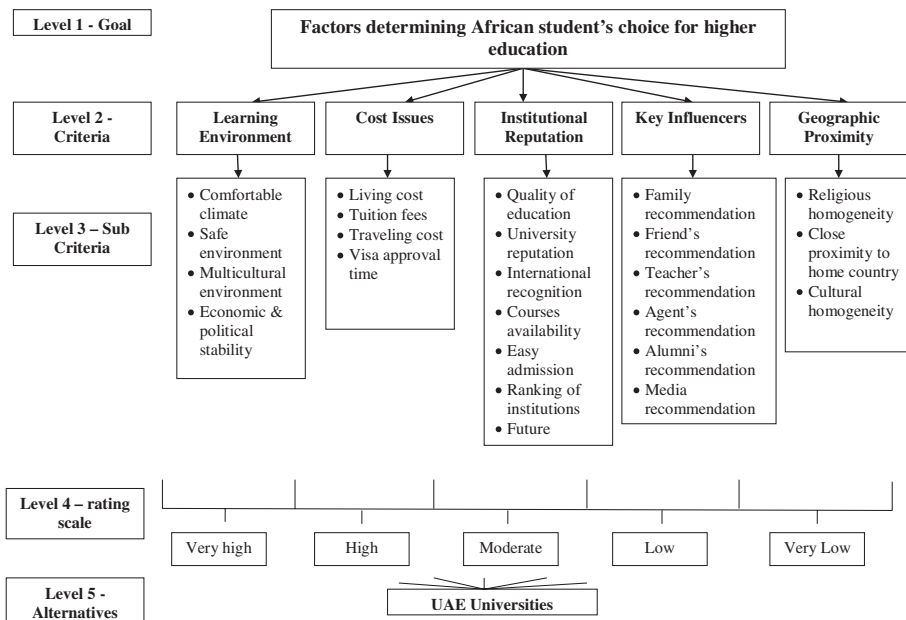


Figure 1. The analytic hierarchy process model for prioritising the student's choice for higher education.

Table 1. Scale of 1 to 9 for the analytic hierarchy process preference.

Intensity of importance	Definition	Explanation
1	Equal importance	Two criteria contribute equally to the objective
3	Moderate importance	Judgment slightly favours one over another
5	Strong importance	Judgment strongly favours one over another
7	Very strong importance	A criterion is strongly favoured and its dominance is demonstrated in practice
9	Absolute importance	Importance of one over another affirmed on the highest possible order
2,4,6,8	Intermediate values	Used to represent compromise between the priorities listed above

telephone contact number) of the students who agreed to participate in this research. To deal with ethical issues, the language and contents of the questionnaire were approved by the appropriate committee in the University. Since the AHP questionnaire mainly presents tables of pairwise comparison, no ethical issues were identified. Four private institutions of higher education agreed to participate in this study, two from the capital city of Abu Dhabi and two from Dubai, the financial centre of the country. These institutions were among the largest private institutions hosting a high number of international students, particularly from the African continent. The respondents were selected through purposive and snowball sampling to ensure a specific nationality, discipline of study and gender of the students used for this study. Fifteen African students from both the undergraduate and postgraduate degree programmes were selected from each of the institutions.

According to Cheng and Li (2001), a small sample size was acceptable from the methodology perspective of the AHP. The AHP solved the survey fatigue problem by asking participants to compare the importance of only two needs at a time. These comparisons were called judgments; a judgment of two items was much easier for the participant to complete than comparing a list of 20 items. The judgements applied in making paired comparisons combined with logical thinking and experience. Pairwise comparisons generated more information and improved consistency of judgment (Saaty 2012). As a result, the sample size of 30 respondents was considered satisfactory for this research (Drake, Lee, and Hussain 2013; Saaty 2012).

In the AHP, the respondents were asked to choose between various pairs of statements for each of the criteria. For defining pairwise comparison, Saaty (2012) suggested a nine-point scale, as shown in Table 1. The questionnaire was designed based on the five factors identified for determining the student's choice of higher education and at least three common indicators for each factor. For example, if a respondent identified that costs were moderately more important than institutional reputation, then the former was rated '3' and the latter as '1/3' in this comparison, and so on. The consistency index (CI) was applied to check for consistency. Saaty (1990) defined consistency as follows:

$$CI = (\lambda_{\max} - n) / (n - 1) \quad (1)$$

Where, $\lambda_{\max}$ is the Maximum Eigenvalue of the matrix of the importance ratios and n is the number of factors. The consistency ratio (CR) was also used to assess whether a matrix was sufficiently consistent. This was the ratio of the CI to the random index (RI), which was the CI of a matrix of comparison that was randomly generated:

$$CR = CI / RI \quad (2)$$

Random pairwise comparisons have been simulated to produce average random indices for different matrix sizes. The values of RI are given in Table 2. According to Saaty (1990), if the value of CR was smaller or equal to 0.10, the inconsistency was acceptable.

Table 2. Random index (RI).

N	1	2	3	4	5	6	7	8	9	10
RI	0.00	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.48

Note: N = number of factors.

Table 3. Geometric means of pairwise comparison of main criteria.

	Learning environment	Costs	Institutional reputation	Key influencers	Geographic proximity	Priority vector
Learning environment	1.00	3.00	3.00	2.00	1.00	0.27
Costs	0.33	1.00	0.50	1.00	3.00	0.13
Institutional reputation	0.33	2.00	1.00	1.00	3.00	0.17
Key influencers	0.50	1.00	1.00	1.00	3.00	0.19
Geographic proximity	1.00	0.33	0.33	0.33	1.00	0.24

Note: Consistency ratio = $0.06 < 0.10$ (consistent).

Table 4. Geometric means of pairwise comparison of the learning environment.

	Comfortable climate	Safe environment	Multicultural environment	Economic and political stability	Priority vector
Comfortable climate	1.00	6.20	5.80	4.60	0.40
Safe environment	0.16	1.00	5.40	5.40	0.17
Multicultural environment	0.17	0.19	1.00	6.00	0.14
Economic and political stability	0.22	0.19	0.17	1.00	0.29

Note: Consistency ratio = $0.04 < 0.1$ (consistent).

Table 5. Geometric means of pairwise comparison of costs.

	Cost of living	Tuition costs	Travel costs	Visa costs	Priority vector
Cost of living	1.00	5.40	6.20	5.80	0.34
Tuition costs	0.19	1.00	5.80	5.40	0.14
Travel costs	0.16	0.17	1.00	5.40	0.29
Visa costs	0.17	0.19	0.19	1.00	0.23

Note: Consistency ratio = $0.09 < 0.1$ (consistent).

Results

Table 3 presents the geometric means of pairwise comparison for the five main criteria. The next step was to define the relative priorities of the criteria (the last column in Table 5) by computing ‘priority vectors’. Saaty (1990) introduced a ‘consistency principle’ for calculating the priority vectors. The consistency principle says that:

$$a_{ik} = a_{ij} \cdot a_{jk}$$

and subsequent arguments for using the special case of the consistency matrix formed by elements:

$$a_{ik} = w_i / w_j$$

where w_i and w_j are the elements of the priority weight vector corresponding to criteria i and j .

Table 6. Geometric means of pairwise comparison of institutional reputation.

	Quality of education	University reputation	Institutional recognition	Courses availability	Easy admission	Institutional ranking	Future prospects	Priority vector
Quality of education	1.00	6.40	6.00	6.20	6.20	6.8	5.80	0.25
University reputation	0.16	1.00	6.40	6.20	5.60	6.4	5.40	0.17
Institutional recognition	0.17	0.16	1.00	6.80	6.20	7.6	6.80	0.19
Course availability	0.16	0.16	0.15	1.00	5.00	5	4.00	0.26
Easy admission	0.16	0.18	0.16	0.20	1.00	5	4.40	0.17
Institutional ranking	0.15	0.16	0.13	0.20	0.20	1	6.00	0.05
Employment prospects	0.17	0.19	0.15	0.25	0.23	0.17	1.00	0.02

Note: Consistency ratio = $0.03 < 0.1$ (consistent).

Table 7. Geometric means of pairwise comparison of key influencers.

	Family	Friends	Teachers	Agents	Alumni	Media	Priority vector
Family	1.00	6.20	5.20	6.80	5.80	6.40	0.42
Friends	0.16	1.00	4.60	6.20	6.00	6.00	0.25
Teachers	0.19	0.22	1.00	7.00	7.00	7.00	0.18
Agents	0.15	0.16	0.14	1.00	5.60	6.20	0.11
Alumni	0.17	0.17	0.14	0.18	1.00	7.00	0.07
Media	0.16	0.17	0.14	0.16	0.16	1.00	0.03

Note: Consistency ratio = $0.07 < 0.1$ (consistent).

Table 8. Geometric means of pairwise comparison of geographic proximity.

	Religious homogeneity	Close to home country	Cultural homogeneity	Priority vector
Religious homogeneity	1.00	4.80	4.80	0.42
Close to home country	0.21	1.00	5.80	0.38
Cultural homogeneity	0.21	0.17	1.00	0.20

Table 3 reveals that the learning environment was considered the most important issue influencing the African student's decision-making process when selecting the UAE as their study destination with a priority weight of 27%, followed by the geographic proximity, which had a competitive priority of 24%. Key influencers, institutional reputation and costs were ranked third, fourth and fifth, respectively. The priority vector column in Table 3 reveals that the learning environment and geographic proximity together constituted more than 50% importance when making the decision for higher education in the UAE. It is pertinent to note that the consensus responses in Table 5 fulfilled the acceptable CR requirement. To gain a better understanding of the priorities reported in Table 3, a pairwise comparison of the sub-criteria within each criteria was also undertaken based on the consensus responses of the respondents (Tables 4–8).

Table 4 gives the priority listing of the consensus pairwise comparison for the learning environment sub-criteria. The biggest concern was the comfortable climate (40%), followed by economic and political stability (29%) and a safe environment (17%).

Similarly, within the issue of costs (Table 5), the cost of living was considered very important, with a priority score of 34% followed by travel costs (29%). Both of these cost parameters constituted almost 65% of the weight when deciding on a university on the basis of the cost criteria.

Tables 6–8 present the geometric means and priority vectors of the remaining four criteria and associated sub-criteria. The CR values showed that the results were consistent.

Findings and discussion

The results of this study suggested that the decision to study abroad was a complex process that was influenced by personal and situational factors, as well as the characteristics of the institution and programme. The key findings of the AHP analysis could be summarised as follows. Firstly, not all factors should be viewed as being of equal importance in influencing the African student's decision to study abroad, as reported in previous studies (Cubillo, Sanchez, and Cervino 2006; Eder, Smith, and Pitts 2010; Mazzarol and Soutar 2002; Rudd, Djafarova, and Waring 2012). In this study, the top three ranking factors that contributed to the African student's decision to study in the UAE were the learning environment, geographic proximity and key influencers. Secondly, studying in the UAE was becoming an increasingly attractive option for African students as the country was known to be a safe, hospitable and peaceful place to study, accommodating a diverse and multicultural student population from different countries. This indicated that the personal preferences of African students were aligned with the unique features and social philosophy that the UAE had to offer. In addition, the economic and political stability of the country, together with the rapid growth of Dubai and Abu Dhabi, meant that there were ample career opportunities upon graduation. Students studying in the UAE could choose from a variety of fields to begin their careers, which added to the appeal of the UAE as a destination for education within the Arab region. Thirdly, institutional reputation was found to be an important factor by African students in their decision making process for selecting the UAE as a destination choice. The respondents rated three factors – the quality of education, the university's reputation and the recognition of the degree – as the primary criteria for their decision making. This corresponds with the findings of Cubillo, Sanchez and Cervino (2006) and Rudd, Djafarova and Waring (2012) that students would have a stronger motivation to study abroad if the chosen institution offered high-quality tertiary education and if its academic qualifications enjoyed widespread international recognition and prestige, as this was an investment opportunity of a lifetime. Many institutions of higher education in the UAE had been encouraged to seek international accreditation from specialised accreditation bodies, such as the Accreditation Board for Engineering and Technology (ABET), the Association to Advance Collegiate Schools of Business (AACSB), the European Quality Improvement System (EQUIS) and other regulatory bodies, to ensure higher education programmes of international quality (Ministry of Higher Education and Scientific Research 2012). This accreditation was important as it could give the degree added credibility when it came to applying for jobs upon return to the student's home country. As noted by Urgel (2007), accreditation provided a seal or label that differentiated the institution from its peers at the national or international level. This differentiation could propel the institution to gain wider recognition and greater appreciation of its brand name. International students would be attracted to study in a host country where the education standards were high and the qualification was recognised in their home country, which in turn would provide longer-term social and economic benefits (Ahmad 2014). Geographic proximity was also identified as an important factor for African students and this finding was in accordance with previous studies (Bodycott 2009; Singh, Schapper, and Jack 2014).

Interestingly, costs in the UAE represented another important factor in determining the motivation and decision of African students to travel to the UAE for tertiary education. It was surprising as the UAE was considered one of the countries with higher cost of living and university fees. However, the cost of studying in the UAE could be significantly less than studying in Western countries, such as in the UK, Canada, Australia or the USA (Sadaqat 2014). These results are consistent with the findings of Wilkins, Balakrishnan and Huisman (2012), who found that international students sought to study at international branch campuses located in the UAE due to the lower educational cost compared to their home campuses. It is worth noting that tuition fees did not necessarily discourage prospective international students as long as the quality of education provided was high (OECD 2014).

Conclusion and implications

The UAE has launched a strategic education plan to position itself as a hub for education in the Middle East (Knight 2013). One of its aims is to attract international students, particularly those from the African continent. This study focused on the determinants of the decision making process of African students to study abroad and offered some insights into factors influencing the choices of international students to undertake tertiary education in the UAE. This research provided understanding on a population of students that has not been studied previously and could set the stage for research concerning the motivation to study abroad in an increasingly important region of the world.

The findings of this study provided both the theoretical and practical implications in an area that has not received much attention, as current research tends to focus on the flow of international students to Western or English-speaking countries. From the theoretical perspective, using the push-pull model of destination choices for international students as the theoretical framework, this study supported the findings of existing literature on the field of international education. It highlighted the factors determining the decision-making process of African students in selecting higher education and destination choices in the UAE, which had not been researched previously. Additionally, the scholarly bias towards a Western and English-speaking setting relating to the flow of international students overlooked the experiences of international students in an emerging education hub in the Middle East. This study contributed to the body of knowledge by focusing on research of a specific country and of a group of international students currently enrolled in institutions of higher education in the UAE. Sharing the UAE experience and the lessons learned from this study could assist other emerging education hubs, particularly in developing countries, to strategise their educational policies to attract international students. This is particularly important in light of the shift in the flow of students from developed countries to developing countries, seeking higher education. New educational hubs, such as the Asia-Pacific region, have been major witnesses of this new trend. Thirdly, previous studies have focused on the level of satisfaction of the learning experience of students studying in the UAE (Ahmad 2014; Wilkins, Balakrishnan, and Huisman 2012). With the exception of a study by Lane-Toomey and Lane (2013), other empirical research has not focused on the UAE as the international student's choice of destination. This is the first published study investigating the factors influencing a student's choice to undertake higher education at an institution of higher learning in the UAE. The relative importance of the factors involved in the decision to study in the UAE was also identified. This study, which complements previous studies in the area of transnational higher education, could enable the development of the student decision-making theory and provide information for planning a strategy.

The findings of this study also have significant practical implications. Firstly, higher educational authorities and institutions should understand the decision-making process, needs and preferences to attract international students, particularly from Africa, to travel to the UAE for higher education. Practices designed for recruiting and admitting international students from other countries should not just be extended to include this unique and emerging segment of international students from Africa. Secondly, understanding the choice factors of African students enables higher educational authorities and institutions to position themselves effectively in the market to increase the attraction of the system of higher education in the UAE. Thirdly, given that the cost of living in the UAE is higher than that of other developing nations, the government could provide scholarships or other related financial support to African students planning to pursue their higher education in the UAE. Finally, student recruitment strategies should be customised in response to the priority concerns of international students. For example, seeing that the learning environment, costs and the reputation of the institution were perceived as the top three criteria for African students choosing to study in the UAE, recruitment strategies should include extensive promotional and aggressive marketing strategies to highlight these components.

Limitations and prospects for future research

This research is not without its limitations. Firstly, the current data were collected from four private institutions of higher learning in the UAE. Increasing the span of respondents to include other institutions of higher learning that host a significant number of international students could provide a clearer picture of the issues being explored in this study. Secondly, this study collected data from African students. Most of the institutions of higher learning in the UAE have a standardised admission and marketing policy for international students from the different regions in the world. Clustering the students into different regions (Asia, Europe, Africa and the USA) and prioritising the factors determining the choices of the students from each region could help policy makers and the institutions identify the needs and choices of these students. The findings could also guide policy makers and the institutions to differentiate their admission, scholarship and marketing policies accordingly. Another possible dimension for the extension of this study is to prioritise the choices of international students using the criteria of different academic or degree programmes.

Disclosure statement

No potential conflict of interest was reported by the authors.

References

- Ahmad, S. 2014. "Evaluating Student Satisfaction of Quality at International Branch Campuses." *Assessment and Evaluation in Higher Education* 40 (4): 488–507.
- Ahmad, S., and M. Hussain. 2015. "An Investigation of the Factors Determining Student Destination Choice for Higher Education in the United Arab Emirates." *Studies in Higher Education*. doi:<http://dx.doi.org/10.1080/03075079.2015.1099622>.
- Altbach, P. 2004. "Higher Education Crosses Borders." *Change* 36 (2): 18–25.
- Bertolini, M., and M. Bevilacqua. 2006. "A Combined Goal Programming: AHP Approach to Maintenance Selection Problem." *Reliability Engineering and System Safety* 91 (7): 839–848.
- Bodycott, P. 2009. "Choosing a Higher Education Study Abroad Destination: What Mainland Chinese Parents and Students Rate as Important?" *Journal of Research in International Education* 8 (3): 349–373.
- Braglia, M., R. Gabbrielli, and D. Miconi. 2001. "Material Handling Device Selection in Cellular Manufacturing." *Journal of Multi-Criteria Decision Analysis* 10 (6): 303–315.
- Çebi, F., and D. Bayraktar. 2003. "An Integrated Approach for Supplier Selection." *Logistics Information Management* 16 (6): 395–400.
- Chen, L.-H. 2007. "East-Asian Students' Choice of Canadian Graduate Schools." *International Journal of Educational Advancement* 7 (4): 271–306.
- Cheng, E., and H. Li. 2001. "Analytic Hierarchy Process: An Approach to Determine Measures for Business Performance." *Measuring Business Excellence* 5 (3): 30–37.
- Cubillo, J., J. Sanchez, and J. Cervino. 2006. "International Students' Decision Making Process." *International Journal of Educational Management* 20 (2): 101–115.
- Davey, G. 2005. "Chinese Students' Motivations for Studying Abroad." *International Journal of Private Education* 2: 16–21.
- Drake, P., D. Lee, and M. Hussain. 2013. "The Lean and Agile Purchasing Portfolio Model." *Supply Chain Management: An International Journal* 18 (1): 3–20.
- Eder, J., W. Smith, and R. Pitts. 2010. "Exploring Factors Influencing Student Study Abroad Decision Choice." *Journal of Teaching in Travel and Tourism* 10 (3): 232–250.
- Forsey, M., S. Broomhall, and J. Davis. 2012. "Broadening the Mind? Australian Student Reflections on the Experience of Overseas Study." *Journal of Studies in International Education* 16 (2): 128–139.
- Foster, M. 2014. "Student Destination Choices in Higher Education: Exploring Attitudes of Brazilian Students to Study in the United Kingdom." *Journal of Research in International Education* 13 (2): 149–162.
- Ghodsypour, S., and C. O'Brien. 1998. "A Decision Support System for Supplier Selection Using an Integrated Analytic Hierarchy Process and Linear Programming." *International Journal of Production Economics* 56–57: 199–212.
- Grimaldi, M., and P. Rippa. 2011. "An AHP-Based Framework for Selecting Knowledge Management Tools to Sustain Innovation Process." *Knowledge and Process Management* 18 (1): 45–55.
- Gulf Business. 2014. *UAE College Students Contributed \$66 M to US Economy in 2013*. Accessed November 09, 2014. <http://gulfbusiness.com/2014/04/uae-college-students-contributed-66-m-us-economy-2013/>

- Hemsley-Brown, J. 2001. *Education Decision-Making under Scrutiny: The Impact of Local Government Modernisation*. Slough, UK: National Foundation for Educational Research.
- ICEF Monitor. 2013. *A Closer Look at African Student Mobility*. Accessed November 09, 2014. <http://monitor.icef.com/2013/07/a-closer-look-at-african-student-mobility/>
- Kell, P., and G. Vogl. 2012. *International Students in the Asia Pacific: Mobility*. Springer, New York: Risks and Global Optimism.
- Knight, J. 2013. "Education Hubs: International, Regional and Local Dimensions of Scale and Scope." *Comparative Education* 49 (3): 374–387.
- Knowledge and Human Development Authority (KHDA) Report. 2014. *Dubai Private Education Landscape 2013/2014*. Dubai International Academic City, Dubai, United Arab Emirates. Accessed February 29, 2016. <http://www.khda.gov.ae/CMS/WebParts/TextEditor/Documents/LandscapePEEnglish.pdf>
- Korpela, J., A. Lehmusvaara, and M. Tuominen. 2001. "Customer Service Based Design of the Supply Chain." *International Journal of Production Economics* 69 (2): 193–204.
- Kurttila, M., M. Pesonen, J. Kangas, and M. Kajanus. 2000. "Utilizing the Analytic Hierarchy Process (AHP) in SWOT Analysis — A Hybrid Method and Its Application to a Forest-Certification Case." *Forest Policy and Economics* 1 (1): 41–52.
- Kwak, N., and C. Lee. 2002. "Business Process Reengineering for Health-Care System Using Multicriteria Mathematical Programming." *European Journal of Operational Research* 140 (2): 447–458.
- Kwak, N., C. Lee, and J. Kim. 2005. "An MCDM Model for Media Selection in the Dual Consumer/Industrial Market." *European Journal of Operational Research* 166 (1): 255–265.
- Lane-Toomey, C., and S. Lane. 2013. "U.S. Students Study Abroad in the Middle East/North Africa: Factors Influencing Growing Numbers." *Journal of Studies in International Education* 17 (4): 308–331.
- Lee, E. 1966. "A Theory of Migration." *Demography* 3 (1): 47–57.
- Lee, C. 2014. "An Investigation of Factors Determining the Study Abroad Destination Choice: A Case Study of Taiwan." *Journal of Studies in International Education* 18 (4): 362–381.
- Lee, C., and S. Hsu. 2004. "Outsourcing Capacity Planning for an IC Design House." *International Journal of Advanced Manufacturing Technology* 24 (3/4): 306–320.
- Lee, C., and N. Kwak. 1999. "Information Resource Planning for a Health-Care System Using an AHP-Based Goal Programming Method." *Journal of the Operational Research Society* 50 (12): 1191–1198.
- Li, M., and M. Bray. 2007. "Cross-Border Flows of Students for Higher Education: Push–Pull Factors and Motivations of Mainland Chinese Students in Hong Kong and Macau." *Higher Education* 53 (6): 791–818.
- Maringe, F., and S. Carter. 2007. "International Students' Motivations for Studying in UKHE: Insights into the Choice and Decision-Making of African Students." *International Journal of Educational Management* 21 (6): 459–475.
- Mazzarol, T., and G. Soutar. 2002. "'Push-Pull' Factors Influencing International Student Destination Choice." *International Journal of Education Management* 16 (2): 82–90.
- McMahon, M. 1992. "Higher Education in a World Market: An Historical Look at the Global Context of International Study." *Higher Education* 24: 465–482.
- Ministry of Higher Education and Scientific Research. 2012. *Indicators of the UAE Higher Education Sector*. Abu Dhabi United Arab Emirates: Center for Higher Education Data and Statistics. Accessed February 29, 2016. <http://www.google.ae/url?sa=t&rct=j&q=&esrc=s&source=web&cd=12&ved=0ahUKewjT9-r3oZ3LAhXLVRQKH5dcAAE4ChAWCCewAQ&url=http%3A%2F%2Fwww.cheds.ae%2FReports%2Fmain.doc&usq=AFQjCNEbLL0vz1Sb4EEFiqJG9wgYRjX7WA>
- Naidoo, V. 2012. "Research on the Flow of International Students to UK Universities." *Journal of Research in International Education* 6 (3): 287–307.
- Ngai, E., and E. Chan. 2005. "Evaluation of Knowledge Management Tools Using AHP." *Expert Systems with Applications* 29: 889–899.
- Organisation for Economic Cooperation and Development (OECD). 2013. *How is International Student Mobility Shaping up?* Accessed November 19, 2014. [http://www.oecd.org/education/skills-beyond-school/EDIF%202013-N%C2%B014%20\(eng\)-Final.pdf](http://www.oecd.org/education/skills-beyond-school/EDIF%202013-N%C2%B014%20(eng)-Final.pdf)
- Organisation for Economic Cooperation and Development (OECD). 2014. *Education at a Glance 2014*. Accessed November 19, 2014. <http://www.oecd.org/edu/eag.htm>
- Pimpa, N. 2005. "Marketing Australian Universities to Thai Students." *Journal of Studies in International Education* 9 (2): 137–146.
- Quality Assurance Agency for Higher Education (QAA). 2014. *Review of UK Transnational Education in United Arab Emirates: Overview*. Accessed November 19, 2014. <http://www.qaa.ac.uk/en/Publications/Documents/Review-Transnational-Education-UAE-14.pdf>
- Radasch, D., and N. Kwak. 1998. "An Integrated Mathematical Programming Model for Offset Planning." *Computers and Operations Research* 25 (12): 1069–1083.
- Rudd, B., E. Djafarova, and T. Waring. 2012. "Chinese Students' Decision-Making Process: A Case of a Business School in the UK." *International Journal of Management Education* 10 (2): 129–138.
- Saaty, T. 1990. "How to Make a Decision: The Analytic Decision Process." *European Journal of Operations Research* 48 (1): 9–26.

- Saaty, T. 2008. "Decision Making with the Analytic Hierarchy Process." *International Journal of Services Sciences* 1: 83–98.
- Saaty, T. 2012. *Decision Making for Leaders: The Analytical Hierarchy Process for Decision in Complex World*. Pittsburgh, PA: RWS Publication.
- Sadaqat, R. 2014. *High Education Costs Challenge UAE Parents*. Accessed November 09, 2014. http://www.khaleejtimes.com/kt-article-display-1.asp?xfile=data/educationnation/2014/October/educationnation_October6.xml§ion=educationnation
- Shinn D. 2002. *Reversing the Brain Drain in Ethiopia*. Accessed December 09, 2014. <http://chora.virtualave.net/brain-drain8.htm>
- Singh, N., J. Schapper, and G. Jack. 2014. "The Importance of Place for International Students' Choice of University: A Case Study at a Malaysian University." *Journal of Studies in International Education*. 18 (5): 463–474. doi:<http://dx.doi.org/10.1177/1028315314523990>.
- Urgel, J. 2007. "EQUIS Accreditation: Value and Benefits for International Business Schools." *Journal of Management Development* 26 (1): 73–83.
- United Nations Educational, Scientific and Cultural Organisation (UNESCO). 2012. *New Patterns in Student Mobility in the Southern Africa Development Community*. Accessed November 09, 2014. <http://www.uis.unesco.org/Education/Documents/ib7-student-mobility-2012-en.pdf>
- Wilkins, S., M. Balakrishnan, and J. Huisman. 2012. "Student Choice in Higher Education: Motivations for Choosing to Study at International Branch Campus." *Journal of Studies in International Education* 16 (5): 413–433.
- Yang, J., and P. Shi. 2003. "Applying Analytic Hierarchy Process in Firm's Overall Performance Evaluation: A Case Study in China." *International Journal of Business* 7 (1): 1–18
- Zheng, P. 2014. "Antecedents to International Student Inflows to UK Higher Education: A Comparative Analysis." *Journal of Business Research* 67: 136–143.