

Using a Kano-QFD analysis to understand what makes enrolling at a particular university and attractive prospect: How a case study from Australia demonstrates the impact of world university rankings on international student selection of universities

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Abstract

Purpose of the paper: To demonstrate how an integrated Kano-QFD analysis provides a nuanced understanding to universities regarding what learning experiences and services current and potential international students require for them to enroll and then successfully complete their studies at the selected institution.

Methodology: Application of Kano-QFD analysis at a university.

Main Findings: Student and institutional requirements for Arabic international students (AIS) in the Australian higher education sector reflect a triple helix relationship between federal government, universities and the global international education market. Reputation via world university rankings provides universities opportunities to increase the number and/or quality of international students or generate threats and identify weaknesses to university strategies for onshore international education.

Practical implications: Utilisation of an integrated Kano-QFD analysis provides universities with the ability to capture essential data to inform institutional recruitment, retention, persistence and risk tolerance strategies pertaining onshore international students. The data collected provides a fit-for-purpose perspective on existing practices in stable and unstable post-COVID-19 environments.

Originality/value: This study is one of the few utilizing an integrated Kano-QFD analysis is used to understand the influence of world rankings on onshore international student university selection.

Type of paper: This is a research paper based on findings from a study composed of three case studies conducted at Australian universities.

Keywords: globalization, integrated Kano-QFD analysis, internationalization, onshore international education, reputation, world university rankings

Introduction

The basis of the study on which this article is based was to find out the effectiveness of using an integrated Kano-QFD analysis for identifying what international students, particularly Arab international students (AIS) enrolled at Australian universities felt was needed and important for them to optimise their learning experiences. Implicit in this analysis was the identification of reasons for selecting the university they attend. This study was based on performing the analysis at three Queensland universities. One university was affiliated with the Group of 8 (Go8). These universities are considered to be the top eight universities in Australia and are consistently ranked to be in the top 100 to 150 universities in the world by different world ranking entities. The second university has no university grouping affiliation that, however, at the beginning of the study was part of the Australian Technology Network. The third institution is part of the Regional Universities Network, which are universities located outside the major metropolitan centres of over 250,000 inhabitants (Moodie, 2008) that are committed to having a role in the betterment of the regional areas of Australia (<http://www.run.edu.au/>).

Not surprisingly, *reputation* (institution wide for its teaching, research, courses of study and staff) was identified as an important student requirement because of the influence it has on enrolment choices by international students (Azmat et al., 2013; Foroudi et al., 2019; Harahap et al., 2018). University selection based on reputation is founded on the belief that reputation enhances career prospects because it reflects a high level of quality (Hemsley-Brown & Oplatka, 2006; Lillyman & Bennett, 2014; Taylor, 2011). Yet, the effect of reputation was not the same at the three universities upon the completion of the integrated Kano-QFD analysis. A SWOT analysis of the findings found reputation to be an *opportunity* and a *threat* at the Go8 university. For the unaligned or Independent university, reputation was found to be a *threat* while for the RUN institution reputation was a *weakness*. At the Go8 university these findings reflect the benefit of their approach toward world university rankings. This article discusses the implications of the identified benefits in light of challenges generated due to COVID-19.

Globalisation and internationalisation as creators and drivers of international education schemes

“Universities have always been international institutions, attracting students and staff from many countries and partnering with other institutions” (Altbach & de Wit, 2015, p. 5). Nonetheless, *globalisation* and *internationalisation* have changed the landscape of the higher education sector within nations and throughout the world considering its inclusion in the General Agreement on Trade in Services (GATS) in 1995. Expectations have changed and so have approaches within universities in learning and teaching at the course or program offerings level and delivery via traditional on-campus classes, online offerings or blended mode combining face-to-face and online learning experiences. Expectations have also

changed within universities in regard to research, with applied research becoming the preferred type with an eye out to economic and technological impact and institutional reputation building.

Government expectations also shifted policy and regulatory compliance mechanisms now more geared to workforce development and employability in the *knowledge economy*, where economic prosperity is increasingly linked to the skillsets of individuals within the society (Garmise, 2009). Simply, education and employment are the basis of workforce development because acquiring new skills often leads to better employment prospects (Holland, 2015). Massification has reshaped the relationship between higher education and the labour markets nationally and internationally, with government policies emphasising that higher education learning experiences increase the employability capacity of graduates (Tomlinson, 2012). Meanwhile, research is seen as a fungible good predicated on a linear view of the flows from science to technological developments and that funds expended on research can be recaptured (Stokes, 1997). Different governmental departments are working together to ensure legislated policy goals are met, although the challenge of regulatory overlap can make navigating the processes leading to successful enactment of the goals challenging (Padró & Green, 2018). Enactment of government preferences have taken what Marginson and Rhoades (2002) termed a *glonacal* approach reflecting global, national and local level interactions influencing university practices and strategies. Governments have also linked with international organisations in the shaping of the international education market that has also generated preferred outcomes for the two streams of international education offered at campuses in countries where the universities are located and learning opportunities set up abroad (Knight, 2004) or online.

Globalisation and *internationalisation* have also fomented commercialisation to international education due to higher education becoming a commodity and commercial forces have become influencers of this market (Altbach & Knight, 2007), sometimes also referred to as the *Global Education Industry* (GEI). Generally, GEI tends to be Western culture oriented, neoliberal and market based in scope (Fischer & Green, 2018; Silova, Rappleye, & Auld, 2020). One outcome from this commercialisation has been the rise of the importance of international rankings, controversial as these may be for numerous reasons (Altbach, 2012; Harvey, 2008; Marginson & van der Wende, 2007). Many universities use significant resources to become serious contenders in these ranking schemes as a mean to improve reputation, attract more and better students and funding from government sources (Mirkasimov et al., 2021; Yudkevich et al., 2016). International rankings of universities “simplify the complex world of higher education into two areas of great public and private interest: institutional performance and institutional status” (Marginson & van der Wende, 2007, p. 55). There is evidence that domestic and international students use these rankings to make decisions about which university to attend, with a preference towards institutions with high reputations (Altbach, 2012; Gonzalez et al., 2011; Harvey, 2008). Consequently, one of the questions universities either explicitly or tacitly ask themselves is: *How does the pursuit of rankings pay off for the institution?*

Globalisation and Internationalisation: distinguishing the meaning of the two concepts

Although interconnected and sometimes used interchangeably, the terms *globalisation* and *internationalisation* have different meanings, particularly within the higher education

environment (Altbach & Knight, 2007). Globalisation provides context of trends within national higher education sectors and international organisations dedicated to increasing national and personal capabilities through access and opportunity. Internationalisation, on the other hand, refers to choices made to navigate the global environment through policy-driven processes (Bartell, 2003).

Globalisation is a complex and contested concept encompassing many elements like globalisation as internationalisation itself, globalisation as universalisation or (cultural) westernisation, with each view colouring views ranging from the flow of ideas and knowledge to social justice concerns to economic concerns (Reich, 1998; Scholte, 2008; Stiglitz, 2006; Zajda, 2020). A prevailing element to globalisation is its multi-pronged approach based on deterritorialization, social interconnectedness, and acceleration of change in the economic, political, and cultural arenas of social interactivity (Scheuerman, 2018). Thus, Al-Rodhan and Stoudmann's (2006) definition of globalisation seems to capture the essence of international education, at least for the purpose of this article:

Globalization is a process that encompasses the causes, course, and consequences of transnational and transcultural integration of human and non-human activities (p. 5/21).

Internationalisation is also a term that does not have a universal definition because of the myriad of factors affecting the concept within the education sector and outside it (Knight, 2004). Yimini (2015) suggested a definition of internationalisation for the education sector that aligns with contextual practice of international education and fits within the Al-Rodhan and Stoudmann definition of globalisation:

... the process of encouraging integration of multicultural, multilingual, and global dimensions within the education system, with the aim of instilling in learners a sense of global citizenship (p. 21).

From operational and policy points-of-view, what is meant by internationalisation varies according to country and region based on priorities, capacity to engage, policies and practices (approach) used to attract and/or participate in the realm of international education (Knight & McNamara, 2017; Marginson & van der Wende, 2007; Teichler, 2017). Generally, however, internationalisation within the international education sector has meant “integrating an international, intercultural, and global dimension into the purpose, functions (teaching, research, and service), and delivery of higher education at the institutional and higher levels” (Knight, 2008, p. xi) in its various modes.

International education modes: onshore, transnational and online

The Australian government defines *onshore* students as “students studying at an institution within Australia” (<https://www.studyinaustralia.gov.au/Dictionary.aspx?FirstLetter=o>). UNESCO defines international/internationally mobile students as “[s]tudents who have crossed a national or territorial border for the purpose of education and are now enrolled outside their country of origin” (<http://uis.unesco.org/en/glossary-term/international-or-internationally-mobile-students>). This article focuses on onshore education of international students that can include English learning programs as well as enrolment in regular courses at the home university or special short courses for language acquisition or other discipline-based learning opportunities. However, there are other modes often bunched under the term

transnational education like branch campuses at a second country or cross-border collaborations with partnering universities or other post-secondary degree provider (Knight, 2004). Online offerings of individual classes and degrees also provide another approach, one that has taken on added importance to institutional capacity as a result of the turbulent environment upheavals and uncertainty (cf. Ramírez & Selsky, 2016) due to COVID-19 disruptions to international education in general.

University rankings

World rankings of universities have played a role in shaping university reputations from 2003 with the creation of the Academic Ranking of World Universities (ARWU), also referred to as the ‘Shanghai Ranking’ is the oldest ranking system. (Hazelkorn, 2015). From that time onwards, “[r]ankings ... [have become] an inevitable outcome and metaphor for the geopolitics of higher education” (Hazelkorn, 2017, p. 9). Most important to this paper is Hazelkorn’s (2008) conclusion that rankings have become a critical factor in underpinning as well as informing institutional reputation and influencing the selection process of international students.

Rauhvargers (2011) observed in the first of two reports for the European University Association (EUA) that “[s]ince the emergence of global rankings, universities have been unable to avoid national and international comparisons, and this has caused changes in the way universities function” (p. 68). One reason according to Tierney and Lanford (2015) is that ranking systems in a positional market such as that found within international education are essential tools varying stakeholders (students, administrators, policymakers, etc.) use to assess the value of any one institution and to benchmark it against others as a means to make and enact decisions. They have effectively become the international measure of institutional quality (Hazelkorn, 2017, 2018). It is therefore not surprising that Rauhvargers (2013) in a second report to the EUA further concluded that the impact of rankings is growing and changing behavioural patterns of individuals (and their families) regarding enrolment choices along with public policy making and decisions.

Consequently, many universities around the world have become obsessed with gaining status in one or multiple ranking schemes in a battle for excellence (Altbach & Hazelkorn, 2017; Hazelkorn, 2011). “Rankings allocate rewards, stratify institutions, establish hierarchies between nations, and impose agendas, norms, and values on all who come within their purview” (Pusser & Marginson, 2012, p. 87). Most ranking schemes are based on the assumption that research excellence equates with teaching excellence (Massy, 2016). Nevertheless, there are methodological concerns that have made them unpopular with academics and generate concerns regarding the influence they have on policy and student choice (e.g., Harvey, 2008; Hazelkorn, 2018). These concerns centre on what these rankings actually assess and what is being emphasised within these assessments (Pusser & Marginson, 2012). Some of these concerns are [1] how some of these schemes use a peer reputation-based survey and the ‘halo effect’ that the survey create (i.e. bias toward older, larger, well-established and better-known institutions) is overvalued in the formula weightings; [2] reputation surveys tend to provide a unidimensional representation of university performance and represent factors that universities can neither control or design for; and [3] the approach taken, the metrics used and the weightings used do not necessarily represent educational quality (Dill & Soo, 2005; Marginson & van der Wende, 2007; Moed, 2007; Vernon et al.,

2018). Prestige is largely based on English language journal publications, citations and other research outcome measures and has signified quality in traditional higher education sectors, often masking the reality of what is really happening within universities (Massy, 2016; Vernon et al., 2018).

The Australian higher education sector

At the time of this writing the Australian higher education sector is composed of 43 universities that have at least one main campus in one or more states and territories (Australian Government, 2020). Universities are established and recognised under the *Higher Education Supports Act of 2003* [HESOS] (<https://www.legislation.gov.au/Details/C2020C00197>). What defines what a university is can be found in Section B1.3 of the national regulator's (Tertiary Education Quality and Standards Agency [TEQSA]) *Higher Education Standards Framework Threshold Standards 2021* (<https://www.legislation.gov.au/Details/F2021L00488/Download>). Universities are allowed to [1] self-accredit courses leading to a degree in at least three broad fields of education (two if a specialised focus) and at least 75 per cent of courses have to undergo through at least one internal review and improvement cycle, and [2] deliver research doctoral degrees in at least three or at least 50 per cent of the broad fields of education offered for study or all broad fields of education in which it is authorised to self-accredit. Demonstration of performance quality requires universities to:

- exhibit at least five years of successful delivery of educational offerings with strong student outcomes;
- have mature and advanced processes “for the design, delivery, accreditation, monitoring, institutional quality assurance, review and improvement of courses of study, and the maintenance of academic integrity” (p. 19);
- provide systematic support for scholarship underpinning the dissemination and creation of knowledge;
- show how they identify and implement good practices and advances in learning and teaching and share these practices with the sector;
- possess breadth and depth of academic leadership and expertise in the fields of education taught “to guide teaching, learning, and academic governance” (p. 19);
- exhibit engagement with the different stakeholders and end-users within the areas where courses are taught; and
- demonstrate strong civic leadership and commitment to social responsibility to local and regional communities.

Because of its size and lack of institutional diversity (Coates et al., 2013), the Australian higher education sector is not segmented into different types based on formal classification indicators. The lack of diversity can be attributed to reforms from the late 1980s by the then Minister for Employment, Education and Training John Dawkins because it abolished the distinctions between universities and colleges of advanced education, setting off amalgamations of different post-secondary institutions to become universities or mergers with existing universities, creating the current basis for university identification. (Bessant, 2002; Department of Education and Training, 2015; Marginson, 1997). At present, 25 universities cluster themselves into four different groups (Dobson, 2018): the Australian Technology Network (ATN), the Go8, the Innovative Research Universities (IRU), and the

RUN. The remaining universities remain ungrouped or unaligned as it were. The ATN group consists of five ‘research intensive’ universities and the Go8, as already mentioned, are considered the eight ‘leading’ universities in Australia and show the largest research expenditures in the sector (Moodie, 2008). The IRU group consists of universities whose research is focused on issues of importance to the communities they serve (<https://www.iru.edu.au/>). Many RUN universities are major providers of distance education (<https://www.run.edu.au/resources/Regional%20Students.pdf>), with some of them having international reputations as online education providers.

The Dawkins Report (1988) set the groundwork for the current interest and approach by Australian universities regarding international students (Department of Education and Training, 2015). The current sectoral approach represents an entrenched neo-liberal government-institution-academic relations structure (Marginson, 1997) that underpins the *triple helix*-like relationship (Etkowitz & Leydesdorff, 1995; Leydesdorff, 2003) “overlay of communications between different and independent spheres of activity” (Smith & Leydesdorff, 2012, p. 2) that is facilitated through the rankings schemes and rationalises why universities use them as a strategic component in attracting international students. According to Megarrity (2007), the expansion in international student enrolments in Australia is due to governmental “policies which created and facilitated an international education market” (p. 39).

One unintended consequence of the cost-cutting mantra embedded with the Dawkins Report reported by both Marginson (1997) and Bessant (2002) has been the increasing reliance on international student fees to compensate for decreased government funding (Horne, 22 May 2020). Subsidies for international students were abolished in 1990; therefore, universities are allowed to set tuition fees for international students and are not restricted in how much they charge them (Department of Education and Training, 2015). On the other hand, quality has become the pressing concern for the Australian higher education sector (Coates et al., 2013; Lakomski & Marshall, 1998). The *Education Services for Overseas Students (ESOS) Act 2000* was passed to guarantee the quality of Australia’s educational experience and qualifications to international students by directly regulating the welfare of international students during their stay (Khan & Hancock, 2002; Ogawa, 2005; Ramia, Marginson, & Sawir, 2013). This view is articulated in section 1 of the *National Code of Practice for Providers of Education and Training to Overseas Students 2018* legislation: “The benefits of international education and training depend on the quality of the courses and services provided to overseas students, and on public confidence in the integrity and quality of the international education sector.” (https://www.legislation.gov.au/Details/F2017L01182/Html/Text#_Toc487026932).

Methodology

The purpose of this study was to use the integrated Kano-QFD technique to develop strategies to assist the Australian higher education sector recruit, retain and graduate onshore international students (OIS). QFD’s capacity to convert student requirements into technical characteristics of organisational performance (leading to the improvement of organisational quality) can be enhanced by using instruments such as the Kano model, SERVQUAL or its related instruments (Baki et al., 2009; Priyono & Yulita, 2017). There is also a concern the expectation scale used in SERVQUAL may generate biased results in university

environments (Brochado, 2009; Carrillat et al., 2007; Özcan, 2016; Teeroovengadum et al., 2016). SERVQUAL's limitation of linearity between service quality and customer satisfaction (Baki et al., 2009) can be reduced by using the Kano model (bin Saadon, 2012; Tan & Pawitra, 2001). The use of a Kano analysis as part of the QFD matrix allowed for a more in-depth capture of the "student voice" by classifying and ranking the requirements of the students to determine the requirement(s) with the highest priority based on respondent perception of five dimensions of perceived quality: [1] attractive, [2] one-dimensional, [3] must be, [4] indifferent and [5] reverse quality (Azizi & Aikhuele, 2015; Chaudha et al., 2011).

Four research questions were the basis of the research:

1. Which institutional requirements are the most important and which are the least important as per the requirements of the Australian HEI sector for the recruitment and retention of AIS at the three universities?
2. What are the needs of AISs at the three Australian universities? Which student needs require more attention or resources to improve the recruitment and retention of AIS at these universities?
3. What are the strengths, weaknesses, opportunities and threats identified by the Kano-QFD analysis regarding each of the three university's student and institutional requirements relating to the recruitment and retention of AIS?
4. What potential strategies emerge for the three universities as a result of the Kano-QFD analysis of AIS?

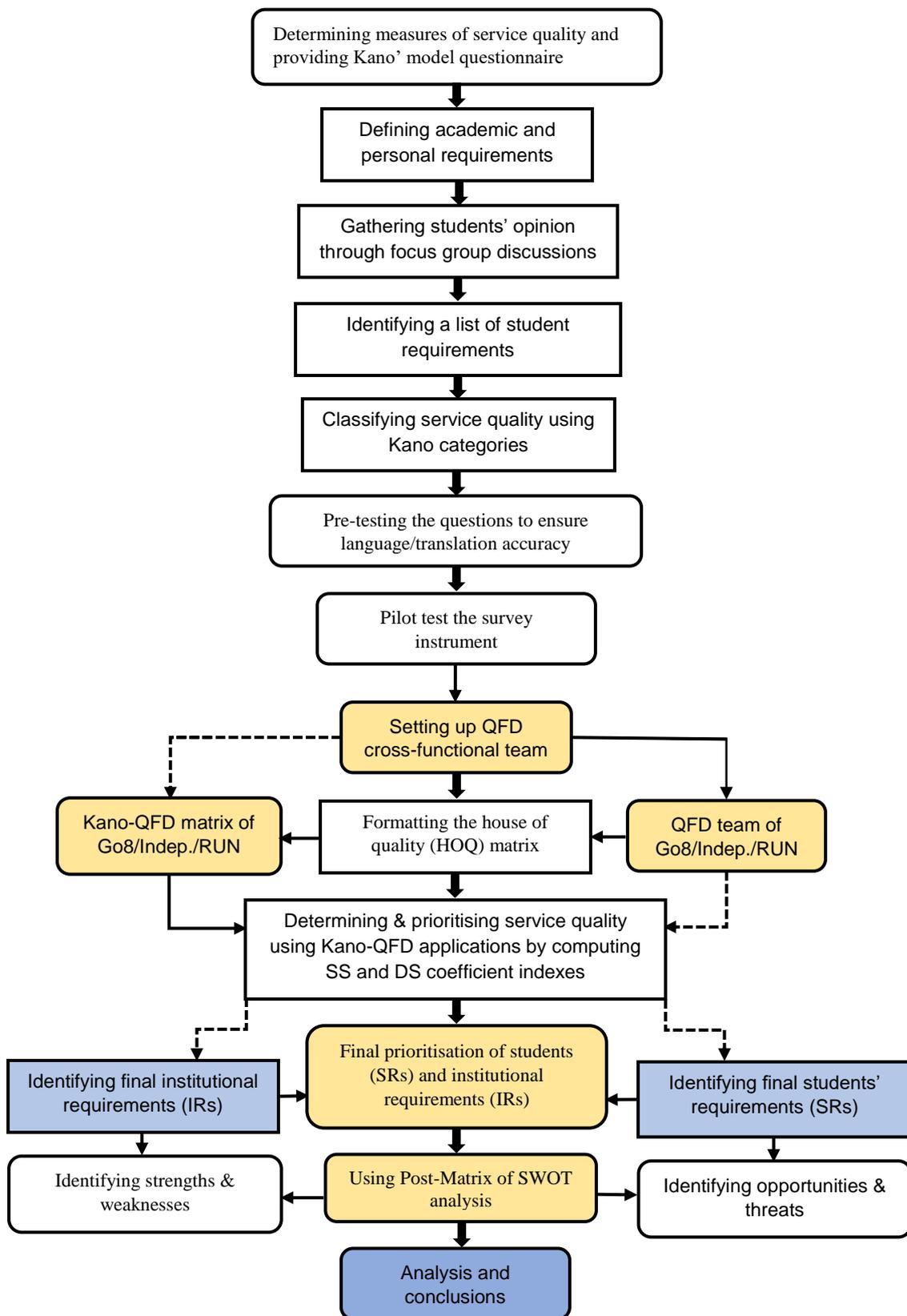
The reason for using AIS as the target group was sample size. This study was conceived as a *proof-of-concept* analysis to demonstrate the techniques effectiveness in assisting Australian universities develop strategies for the recruitment, retention and graduation of AIS. This group of OIS no longer constitute a large cohort of enrollees when compared to other cohorts from countries like China, India and Nepal (Larkins, 2018), possibly to the point of over-reliance (Babones, 2019). The number of AIS has been decreasing since the about 2015, with the AIS to all OIS enrolments dropping from 3.9 per cent in 2015 to 2.0 per cent in 2019 (Department of Education, Skills and Employment, 2020).

Figure 1 explains the steps taken in the study. Overall, the steps taken constituted the following stages: Kano survey development, university requirement interviews of key OIS unit staff and university officers, Kano instrument deployment, analysis of data and preparation of QFD matrix based on instruments and interviews, performance of a SWOT analysis to help identify critical requirements and provide guidance into the interpretation of results. AIS students making up the focus groups and who took the Kano survey were only those currently enrolled at the three universities and attending classes at the different campuses. Not included were AIS only enrolled online (and thus possibly residing in their home country or elsewhere) and students formally emigrated to Australia. The Kano survey was informed by focus groups when the instrument was initially designed and after the pilot test was conducted, with responses transcribed with *f4* version 2012 transcription software and coded using NVivo 12 and analysed through thematic analysis (Aronson, 1995; Creswell & Poth, 2018).

One challenge in getting appropriate information of OIS (and AIS in particular) about their views regarding university quality and requirements based on their expectations is the effects

of cultural difference and adjustment concerns on their perceptions (Alsulami, 2018; Mostafa, 2006). Consequently, the formation of the Kano survey was premised on the assumption that the instrument had to be specific to each OIS cohort or individual country (as appropriate) to

Figure 1. Process steps used for the study



Source: Created for this study

establish face validity and reliability of interpretation and responses (Chu, 2002; Materla & Cudney, 2018). A five-point Likert-style scale was utilised (Cudney & Elrod, 2011; Tontini, 2007) to meet requirements suggested by Menold and Bogner (2016). The wording of alternatives and the response scales was written in a manner to minimise task difficulty and maintain respondent motivation (Berger et al., 1993; Krosnick & Presser, 2010; Löfgren et al., 2011). The final Kano survey consisted of 14 items, grouped under 7 factors.

Based on focus group feedback, the Kano survey was written in both Arabic and English. The process included a reverse translation that was reviewed by native Arab speakers who did not participate in either the focus groups or responded to the instrument. The point was to ensure equivalence and minimise misunderstanding or misinterpretation (Eremenco et al., 2005). This provided rigour to overcoming face validity concerns. This approach also achieved Cronbach α results above 0.6, which are deemed to be acceptable (Nunnally, 1978; Tavakol & Dennick, 2011; Wortzel, 1979), as noted in Table 1.

Table 1. Cronbach α results of the various elements of the Kano survey

Student Requirements	Categories	Items in	Items out	Cronbach's Alpha Rate
Functional	Academic Requirements	8	8	0.876
	Personal Requirements	6	6	0.703
	Total Requirements	14	14	0.887
Dysfunctional	Academic Requirements	8	8	0.783
	Personal Requirements	6	6	0.679
	Total Requirements	14	14	0.819

Source: Created for this study

Institutional requirements were analysed using a two-step process. Thematic analysis was used for each of the information gathering stages. Interviews were conducted utilising a semi-structured questions formal based on phenomenographical practice to get participants to describe their conception (Svensson, 1997; Willing, 2008) of the issues, policies and strategies of OIS. One step was based creating a cross-functional QFD team of individuals identified by the universities themselves. Their task is to help create the QFD matrix through their assessment of the available information (e.g., Akao, 1990). These team members were interviewed either as part of focus groups or individually, depending on their schedules. Also, some senior administrators who were keen to discuss OIS strategies pursued by the respective universities. Overall, 17 interviews were conducted, which were deemed to be sufficient to identify the main institutional requirements from the viewpoints of each university (Guest et al., 2017). Seventeen individuals were part of this process.

The second step was to do a desktop analysis of all available policies at the three universities. These were set up in a grid format for applicability to OIS and to government regulations as set out by the *ESOS Act*. In addition, institutional guidelines, OIS handbooks provided them, university calendars and other pertinent government documents relating to visas and immigration were reviewed.

A QFD matrix was developed to identify student requirements and institutional requirements needed to satisfy the identified student requirements for each university. The study focused on the first phase matrix, the formation of a House of Quality (HoQ) representing a correlation matrix between student expectations and institutional requirements to describe how an university is able to meet AIS expectations (Camgöz-Akdağ, İmer, & Ergin, 2016).

Findings

Table 2 identifies the Go8 university's student requirements (SRs) derived from the AIS focus groups. These reflect what respondents considered important through the focus groups setting up the questions asked in the Kano survey for participants at all three universities. Table 3 provides the 20 institutional requirements (IRs) that were found to be applicable for all three universities as well. These are based on the *ESOS Act* that frame the quality parameters and hence the requirements universities must meet for compliance purposes. The language used in the HoQ matrix is based on the policy and procedure language found at the three universities, which were similar. Unlike SRs in Table 2, these do not fall into different factors, as the student factors represent a natural breakdown of AIS preferences and expectations. It must be noted that one identified IR is present because it is found in the *ESOS Act*, but it represents an exceptional case and normally does not come into play in most actual OIS situations. The IR of *Follow the university's international student's policy* applicable only to OIS under the age of 18 may not come into play often; however, it does register in the QFD matrix, making this IR more or less a false read.

Table 2. Student requirements identified through the Kano survey

Student requirement number	Student requirement	Focus factors
SR 1	Courses are delivered effectively at my university.	Courses
SR 2	The learning is conducive to my learning and research.	Courses
SR 3	My university degree provides me with more job opportunities.	University reputation
SR 4	The academic staff in my area of study at university have a good reputation.	University reputation
SR 5	Able to meet with supervisor and lecturer, and receive feedback.	Available resources
SR 6	Provides sufficient access to the library resources and online database.	Available resources
SR 7	Student services adequately enhance my learning experience.	Educational facilities
SR 8	Logistics and facilities support my learning experiences.	Educational facilities
SR 9	I feel welcome and integrated into the university community.	Culture activities
SR 10	I feel welcome and integrated into the wider community.	Culture activities
SR 11	Student support services made immigration regulations easy to understand and manage.	Student services

SR 12	I usually have no difficulty paying for education and living expenses.	Student services
SR 13	Support is available for students who have a financial hardship.	Other supports
SR 14	Support is available for my family if required.	Other supports

Source: Created for this study

Table 3. Institutional requirements for the three universities (framed by the *ESOS Act*)

Institutional requirement number	Institutional requirement
IR 1	Adhere to the university's enrolment policies and procedures.
IR 2	Have English proficiency to successfully complete university study.
IR 3	Have the capacity to pay university fees.
IR 4	Maintain/uphold the reputation of the university.
IR 5	Students shall not collude or plagiarize.
IR 6	Follow the student code of conduct.
IR 7	Do not discriminate, bully or harass when interacting with other students, staff or other individuals visiting the university.
IR 8	Not undertake unlawful activities of any kind.
IR 9	Follow the university's international student's policy (only for students under 18).
IR 10	Comply with examination or assessment instruction.
IR 11	Comply with rules of academic misconduct.
IR 12	Maintain and enhance the trust that exists between academic staff and students through feedback and consultation.
IR 13	Comply with the course, program requirements, research integrity and honesty.
IR 14	Maintain satisfactory progress through their HDR program and the undergraduate course.
IR 15	Attempt to resolve issues through informal discussion before taking formal action.
IR 16	Follow university requirements in the use of university-provided ICT, other resources and infrastructure.
IR 17	The ability to work and learn independently and effectively.
IR 18	Comply with requirements of intellectual property rights.
IR 19	The ability to engage effectively and appropriately with ICT.
IR 20	Ensure safety and the respect of property (University's and of others).

Source: Created for this study

The Kano component of the integrated Kano-QFD analysis distinguishes six types of requirements: must-be requirements (M), one-dimensional requirements (O), attractive requirements (A), indifferent requirement (I), questionable requirement (Q) and reverse requirement (R). For the AIS attending the Go8 University, two attractive quality SRs were identified: SR 13 (*Support is available for students who have a financial hardship*) and SR 14 (*Support is available for my family if required*). These are requirements not expected by OIS; yet, meeting these requirements increases satisfaction with the university, although not meeting them does not tend to diminish satisfaction. Of interest to this study was the identification of four one-dimensional SRs that AIS demand from the university. The top two

ranked SRs were both of the reputation factors: SR 3 (*My university degree provides me with more job opportunities*) followed by SR 4 (*The academic staff in my area of study at university have a good reputation*). The other two, in order of ranking were SR 2 (*The learning is conducive to my learning and research*) and SR 5 (*Able to meet with supervisor and lecturer, and receive feedback*), providing a utilitarian subset to the reputation SRs. Must-be SRs identified generating dissatisfaction while not increasing satisfaction when provided were: SR 9 (*I feel welcome and integrated into the university community*), SR 8 (*Logistics and facilities support my learning experiences*), and SR 11 (*Student support services made immigration regulations easy to understand and manage*).

The HoQ matrix for the Go8 university (Appendix 1) pinpointed that the four highest IR priorities were, in order: IR 2 (*Have English proficiency to successfully complete university study*), IR 17 (*The ability to work and learn independently and effectively*), IR 8 (*Not undertake unlawful activities of any kind*), and IR 1 (*Adhere to the university's enrolment policies and procedures*).

As a final step, a SWOT analysis was conducted to assist in the analysis and evaluation of institutional and student data to take into account the dynamics of the assessments made by the AIS (Mohammad, 2020; Raharjo et al., 2010; Sharma & Rawani, 2008). The *strengths* and *weaknesses* pertain to the institutional data influenced by internal assessment and market competitors. The *opportunity* and *threats* relate to the student data influenced by the external assessment and performance factors in the market. Figure 2 summarises the findings from the SWOT analysis for the Go8 university.

Figure 2. Go8 university SWOT analysis

	Strengths	Opportunities	
Strengths	<ol style="list-style-type: none"> 1. Have English proficiency to successfully complete university study. 2. The ability to work and learn independently and effectively. 3. Not undertake unlawful activities of any kind. 4. Adhere to the university's enrolment policies and procedures. 	<ol style="list-style-type: none"> 1. My university degree provides me with more job opportunities. 2. The learning is conducive to my learning and research. 3. The academic staff in my area of study at university have a good reputation. 4. Support is available for students who have a financial hardship 5. Able to meet with supervisor and lecturer, and receive feedback. 6. Support is available for my family if required. 	Opportunities

Weaknesses	<ol style="list-style-type: none"> 1. Follow the University's International student policy (only for students under 18). 2. Comply with requirements of intellectual property rights 3. Comply with examination or assessment instruction. 4. Follow the student code of conduct. 	<ol style="list-style-type: none"> 1. The learning is conducive to my learning and research. 2. I feel welcomed and integrated into the wider community. 3. The academic staff in my area of study at university have a good reputation. 4. Logistics and facilities support my learning experiences. 5. Able to meet with supervisor and lecturer and receive feedback. 6. My university degree provides me with more job opportunities. 7. Student support services made immigration regulations easy to understand and manage. 	Threats
	Weaknesses	Threats	

Source: Created for this study

Discussion

AIS perceptions of what a university needs to have centre on reputational issues based on international recognition that, in their view has to equate with better employability prospects. Reputation and the other two *Must-have* SRs are located in the *Opportunities* and *Threats* quadrants in Figure 2 above. Arguably, placement of these SRs can be discussed in terms of Expectancy-Value Theory that argues “that individuals’ choice, persistence, and performance can be explained by their beliefs about how well they will do on the activity and the extent to which they value the activity” (Wigfield & Eccles, 2000, p. 68). There is a utility value element that is embedded within this theory based on the usefulness of decisions and subsequent actions taken either reinforcing or potentially detracting from future plans and notions of self-efficacy (Cooper et al., 2017; Eccles & Wigfield, 2020; Wigfield & Eccles, 2000). Similarly, placement within the SWOT grid can be viewed from Vroom’s (1964) Expectancy Theory that defines expectancy from the viewpoint of the extent or probability of being motivated to pursue an action or making an effort leading to a desired result (outcome or performance). Under this theory the outcome depends on the extent of the activity is instrumental to its achievement, with affective orientations like importance, attractiveness, desirability, or anticipated satisfaction with outcomes impacting the enactment or operationalisation of outcome attainment (Van Eerde & Thierry, 1996). These judgments, particularly satisfaction, are susceptible to the challenges of expectation-performance discrepancy aligned with Discrepancy Theory emphasising how the disconfirmation of expectations through unmet anticipated outcomes (Oliver, 1997).

Reputation is an important calling card for the Australian higher education sector for AIS and OIS in general. The Bradley Review (2008) that reset the basis for the sector’s regulatory oversight scheme made it a point to say “[t]he reputation of Australia as a quality provider of international education depends on it being able to provide a clear and unequivocal statement about its intention to maintain a world-class university system” (p. 124). More pragmatically, the dependence on OIS fees to balance budgets and generate funds universities can direct toward research and other projects drives the sector to strive to be recognised as a world-class provider of higher education and why most Australian universities have opted to pursue a world rankings strategy (Sheil, 2016).

The Go8 university that was part of the study has done well in the world rankings over the years, consistently ranking as one of the top 100 universities in the world in numerous ranking agencies, topping out at number 31 in the 2020 CWTS Leiden Ranking and ranking no lower than number 62 (2020 THE World University Ranking). Actual performance in aggregate student satisfaction in the nationally collected and reported Quality Indicators for Learning and Teaching (QILT) show that the university performs at or above the national average in at least four out of the six indicators (Table 4). However, data released for 2020 showed the negative effects that COVID-19 has had on how all of its students feel about how the university has fared in these areas, a fate that has befallen all universities in the sector. COVID-19 restrictions leading to partial shutdown of operations, cancellation of on-campus attendance for all students, reduced OIS support and shutdown of international borders required this university, like all Australian universities, to change its organisational strategies pursuant reduced budget and consequent changes to operations, programming and staffing levels. These operational changes have nonetheless seemed to have had minimal impact on their world rankings.

Table 4. QILT – Student Satisfaction

Indicators	2017	2018	2019	2020
Skills development	81.4% (N.A. = 80.5%)	81.6% (N.A. = 81.2%)	81.7% (N.A. = 81.3%)	77.4% (N.A. = 77.9%)
Learner engagement	63.2% (N.A. = 62.8%)	65% (N.A. = 63.1%)	63.2% (N.A. = 59.9%)	44.1% (N.A. = 43.2%)
Teaching quality	83.3% (N.A. = 80.1%)	83.5% (N.A. = 81.3%)	83.6% (N.A. = 80.9%)	76.5% (N.A. = 77.6%)
Student support	71.6% (N.A. = 72.4%)	72.6% (N.A. = 73%)	71.9% (N.A. = 73.7%)	67.1% (N.A. = 73.1%)
Learning resources	87% (N.A. = 84%)	87.5% (N.A. = 85.1%)	79.2% (N.A. = 84.8%)	85.6% (N.A. = 76.4%)
Quality of entire educational experience	80.8% (N.A. = 78.5%)	81.1% (N.A. = 79.2%)	80% (N.A. = 78.4%)	66.3% (N.A. = 68.4%)

N.A.: National average.

Bold: Percent equalling or exceeding National Average.

Source: QILT (<https://www.qilt.edu.au/qilt-surveys/student-experience>)

In a way, the effects from COVID-19 demonstrate how reputation can be both an opportunity and a threat to the university. The *opportunity* comes from the data providing evidence of a linkage between reputation as demonstrated by world rankings and OIS enrolment, confirming the appropriateness of pursuing a strategy of at least maintaining, if not improving, their rankings as a top 100 university. This strategy has many components to it, many geared to sustaining an international orientation through international collaborations and revenue from international sources for different activities; enrolment of a high number of high quality undergraduate and higher degree students; research involvement and knowledge exchange reflected in staff research and project collaborations, proportion of research funding derived from industry sources, royalties, trademarks and licenses, and percentage of graduates in full-time employment; and a high number of course offerings demonstrating

high retention and completion rates (Coates et al., 2013). The *threats* emanating from the world ranking strategy is what could happen if AIS and possibly other OIS cohorts see their experiences not meeting expectation. University selection should be treated from the perspective of instrumentality, i.e., the means of enacting expectations of attaining a quality job and a desired quality of life. Staff performance, specifically that of academic staff, has to translate external recognition into an enhanced learning experience in terms of skill acquisition, at a minimum; otherwise, the overall reputation of the university could be brought into question and begin a chain of events that could chip away at the ranking measures.

Concluding comments

This study focused on AIS because of its aim to simply investigate how well an integrated Kano-QFD analysis is able to capture appropriate SRs and IRs relating to the relationship between OIS and universities to develop and implement strategies that will satisfy both students and institutions. Findings within the three universities can and probably be different for the various OIS cohorts attending these institutions because of contextual socio-cultural and socio-economic variance. What has been discussed in this paper is only part of what was found, suggesting the viability of using this approach when forming strategy within the international education arena.

COVID-19 and its effects have shown how an integrated Kano-QFD analysis can be useful in helping form and steer strategy at universities in stable (balanced competing interests – Padró & Hawke, 2003) and turbulent (unpredictable) environments (Ramírez & Selsky, 2016). Turbulence impacts the ability to be entrepreneurial in terms of branding, innovation, proactiveness and risk taking (Schwaiger & Sarstedt, 2011; Wong, 2014). According to Ansoff (2007), there is stability on one side of a continuum leading to turbulence that consists of going from stable, to reactive, to anticipatory, to exploring, to creative. Using an integrated Kano-QFD analysis provides a mechanism that allows universities to form strategies to overcome very uncertain environments.

In 2019, international education was Australia's fourth-largest export, contributing \$40.4 billion to the economy. Because of COVID-19 Australian universities could lose up to \$19 billion AUD in revenue by 2023 from their reliance on tuition fees from international students, many of whom are currently unable to travel to Australia (Hurley & Dyke, 2020). Between 2019 and May 2020, OIS enrolments have decreased from 4,608,520 in 2019 to just 708,671 in May 2020 (Department of Education Skills and Employment [DESE], 2020). In addition to making numerous permanent academic and professional staff positions redundant, casual academics, who comprise about 40 percent of staff and perform around 70 percent of undergraduate teaching, have already been jettisoned, impacting on the provision of services required by students (Doidge & Doyle, 2020). Although the data was collected prior to the onset of COVID-19, the data collected provides insights on what to consider when trying to recover from the losses universities have had to bear due to their over-dependence on OIS markets (Crawford et al., 2020; Thatcher et al., 2020), especially when there is concern that there is also over-reliance on OIS from only one or two countries.

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Appendix 1: Go8 university House of Quality (HoQ)

Direction of Improvement	Symbols
Maximize	▲
Target	◆
Minimize	▼
Not Applicable	N/A

Relationships Matrix	Symbols
Strong Relationship	● = 9
Moderate Relationship	○ = 3
Weak Relationship	△ = 1
Blank - No Relationship	

Student's Requirements (SRs)		Enrolment Policies								Student Conduct									
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8		
Academic Requirements (ARs)	Courses Content	Courses are delivered effectively at my university	●	●	○	○	●	●	●	○	○	○	○	○	○	○	○	○	
		The learning is conducive to my learning and research	●	●	○	○	●	●	●	●	○	○	○	○	○	○	○	○	○
	University Reputation	My university degree provides me with more job opportunities	●	●	○	○	●	●	●	●	○	○	○	○	○	○	○	○	○
		The academic staff in my area of study at university have a good reputation	●	●	○	○	●	●	●	●	○	○	○	○	○	○	○	○	○
	Available Resources	Able to meet with supervisor and lecturer, and receive feedback	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
		Provides sufficient access to the library resources and online database	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Educational Facilities	Student services adequately enhance my learning experiences	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
		Logistics and facilities support my learning experiences	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Personal Requirements (PRs)	Cultural Activities	I feel welcomed and integrated into the university community	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
			I feel welcomed and integrated into the wider community	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Student Services	Student support services made immigration regulations easy to understand and manage	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
		I usually have no difficulty paying for education and living expenses	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Other Supports	Support is available for students who have a financial hardship	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
		Support is available for my family if required	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Institutional Absolute Importance Weight (IAIW)		498.77	540.04	381.22	335.89	316.78	295.19	482.23	523.5										
Institutional Relative Importance Weight (%IRIW)		6.494	7.031	4.964	4.373	4.125	3.843	6.279	6.812										
Institutional Priority Rating																			
Technical Difficulty (TD) (1=Easy to Accomplish, 10=Extremely Difficult)		3	6	3	8	7	5	4	4										
Institutional Competitiveness Assessment		Current University (UQ)		9.5	9.5	9	10	9	10	9.5	9.5								
		QUT Performance *		10	9	10	9	9	10	9.5	9								
		USQ Performance *		8	7	8	6	7	8	8	9								
Target Values		10	9.5	10	10	9	10	9.5	9.5										
Ranking of Institutional Priorities		4	1	11	13	15	17	5	3										

