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## **Exploring the Attractiveness of a Norwegian Rural Higher Education Institution Using Importance – Performance Analysis**

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**Abstract**

High school graduates in rural counties often move to urban areas to study at higher education institutions (HEIs). Because graduates from HEIs often settle in regions in which they graduate, the result is a permanent out-migration of young talent from rural areas. This study adds to the body of literature on student choice by addressing measures that can make a university located in a rural region more attractive to local high school graduates. Empirical data are gathered from potential students at the University of Nordland (UiN), located in northern Norway. Importance-performance analysis and gap analysis are applied to study the factors that are most important for students. As a result, this study serves as a good starting point for small rural universities in understanding local students and devising methods to increase attractiveness for this group so that more young talent might choose to remain in rural areas.

**Keywords:** higher education; university; student choice; rural.

## **Introduction**

The proportion of the global population living in urban areas has doubled since the 1950s (World Bank, 2014). This trend towards increasing urbanization is expected to continue, and the number of people living in urban areas in Europe is expected to increase by 52 million by 2050 (United Nations, 2012). That high school graduates in rural areas find it attractive to study at higher education institutions (HEIs) in urban areas contributes to this urbanization.

College-bound high school seniors might want to spend their adulthoods in rural areas, but many of these seniors believe that they will have to live elsewhere to find jobs (Howley, Harmon, & Leopold, 1996). Studies have also found that talent is drawn to urban areas because of the amenities that these areas provide (Glaeser, Kolko, & Saiz, 2001) and because of their diverse populations (Florida, 2002). Women, in particular, seem to focus on the lack of recreation and entertainment in rural areas (Pretty, Chipuer, & Bramston, 2003). Moreover, that urban areas tend to score higher than rural areas on indicators of general health and well-being, literacy, women's status, and social mobility contributes to their attractiveness (Cohen, 2006).

As a result, many high school graduates leave the rural regions in which they grew up as they approach 20 years of age. The decision of whether to return to their rural home districts depends on many factors, and constitutes a complex process (Rérat, 2014); empirical evidence suggests that graduates tend to settle in the counties in which they were registered students (Edvardsson, 2001; Røberg, 2014). Hence, by implementing measures that make HEIs in rural areas more attractive, stakeholders, such as regional and national authorities, and the HEIs themselves could reduce the outflow of young talent from rural to urban areas.

The market for higher education has been significantly affected by globalization (Hemsley-Brown & Oplatka, 2006). This has produced an international market for educational services and has increased competition to attract students (Bok, 2009). Because competition among HEIs has increased, they have adopted market-oriented strategies to differentiate themselves from competitors and to attract as many students as possible (Butt & Rehman, 2010). In Norway, competition between institutions has traditionally been low. However, Norwegian HEIs currently compete for students more fiercely compared to only a few years ago, and their marketing budgets have increased substantially over the last decade (Gauslaa & Harstad, 2014; Høyer, 2010). Consequently, it should be of interest for HEIs to understand students' choices.

The aim of this study is threefold. First, using empirical evidence gathered from high school seniors in a rural county in Norway, we explore the factors that are important for first-

time applicants from this particular rural county when deciding which HEI to attend. Second, we identify how the University of Norland (UiN) performs on a set of indicators that, according to earlier research, are considered important for potential students. Finally, an importance-performance analysis is conducted to make resource allocation recommendations for attracting and retaining a larger number of local students. Consequently, the overall research objective of this study is to reveal how this particular HEI can increase its attractiveness among potential students from the area in which the HEI is located.

The importance-performance analysis (IPA) framework presents the important factors of a rural university and its performance in terms of these factors. This framework is, to our knowledge, in contrast to earlier studies of student choice focusing purely on the importance of each factor and addressing students in urban settings. Such a research approach in which the importance of the factors are measured in an industrial setting and the performance of factors is measured for an individual firm is a well-known approach in IPA studies (Lai & Hitchcock, 2015) to determine how to improve competitiveness.

The remainder of this article is organized as follows. The next section presents the “Literature review” on students’ choice of HEIs and argues for the factors included in our study. Then the “Methodology” section accounts for the data collection and the framework applied for assessing the importance and performance of the relevant factors. The section on “Empirical data” provides assessments of the importance and performance of the selected factors for the choice of HEI. Subsequently, data are related to the framework in the “Analysis” section. The most important implications are emphasised in the “Lessons to be learned” section. Finally, the main results, limitations of the study and recommendations for future research are presented in the “Conclusions” section.

## **Literature review**

### ***Choice models***

There are generally three categories of choice models used in the literature: economic models, sociological models and combined models (Jackson, 1982; Obermeit, 2012). The economic models are based on the assumption that potential students at HEIs are rational and that they evaluate all available information and compare the costs and benefits of all options before choosing HEIs (DesJardins & Toutkoushian, 2005). The sociological models specify a variety of social and individual factors, such as the roles of family and friends, which influence the

educational aspirations of potential students. For example, Hanssen & Korneliussen (2016) found that approval by others to study at a HEI has a statistically significant impact on high school graduates intention to study. It is also argued that children with parents that have high ambitions with respect to their children's educational attainment are more likely to pursue higher education (e.g. Kintrea, Clair, & Houston, 2011). Moreover, Gemici et al. (2014) estimated, using data from Australia, that it is four times more likely for a high school graduate to attend university if he or she has friends who plan to attend university, compared to those who do not have such friends.

In addition to economic factors, our study also includes a number of social factors, such as students' social life on campus. It is therefore correct to categorise our model as a combined, socio-economic model. The combined models share the rational assumptions in the economic models while incorporating elements from the sociological models (Jackson, 1982). A major benefit of applying combined models is that they have greater explanatory power than studies applying only economic or social factors (Hossler, Braxton, & Coopersmith, 1999).

### ***Factors influencing choice of higher education institution***

The factors influencing choice of HEI are broadly classified in two categories according to whether the organization with the primary responsibility is: (1) the educational institution; or (2) the city where the educational institution is located; see Figure 1. This particular classification makes it easier to identify to whom the recommendations based on the result of the study should be directed. The factors are addressed in the next two sections and summarized in Table 1 (abbreviated title corresponding to Table 1 is indicated by italic).

Insert Figure 1 about here.

### ***Factors related to the educational institution***

Nine factors directly related to the educational institution are included in our analysis. Each factor is identified in the literature as important when an HEI is chosen. The study *program* is an important factor for the choice of HEI (Maringe, 2006; Price, Matzdorf, Smith, & Agahi, 2003). For example, McCarthy, Sen & Garrity (2012) find that the most important factor for Canadian students' choice of HEI in the United States is that they have the desired program of study. It is therefore not surprising that students consider information about the content of specific courses as being important information when choosing a university (Veloutsou, Lewis, & Paton, 2004). Furthermore, studies have found that students prefer institutions offering high

*quality* studies (Obermeit, 2012) and with faculties having *educators* of high academic quality (Briggs, 2006; To, Lung, Lai, & Lai, 2014). These preferences are reasonable because the utility gained from being a student at a “high-quality” institution likely exceeds that gained from being a student at HEIs with low quality studies and faculties of poor academic quality. The quality of both the study program and the faculty were found by Obermeit (2012) to be among the most important factors.

*Reputation* is the overall quality or character of an organization as judged by people in general (Barnett, Jermier, & Lafferty, 2006). It is a crucial issue for HEIs (Delgado-Márquez, Escudero-Torres, & Hurtado-Torres, 2013), and studies have found that academic reputation has an important role in students choice of HEI in both Scotland (Briggs, 2006) and South Africa (Imenda, Kongolo, & Grewal, 2004). Moreover, study program reputation is by To et al. (2014) found to be an important choice factor for students in the Greater China Region. Considering that the image of a university can, to a great extent, be predicted by the extent of news coverage (Arpan, Raney, & Zivnuska, 2003), it can be expected that students will prefer an HEI with high *visibility* in the public debate. It is, however, important to be aware that the reputation of a HEI is usually related to its earlier performance more so than to its current performance (Veloutsou et al., 2004).

More than half of all college-bound students in the US indicate that they are certain or fairly certain that they will study *abroad* (ACE, 2008), and approximately 14% of Norwegian students are registered at foreign HEIs (Norwegian State Educational Loan Fund, 2013). A large proportion of Norwegian students studying abroad are part of exchange programs organised by the HEI. Consequently, the opportunities available for students to conduct parts of their studies abroad depends on the HEIs in which they enrol.

Evidently, students do not consider academic factors only. In the mid-twentieth century, the main purpose for women of going to college was to attract a college-educated husband (Goldin, 1992). Although this is likely not the situation today, life on campus, social opportunities and the opportunities to form friendships are still important (Kallio, 1995). The social relationships developed in student houses significantly impacts how satisfied students are with their university education (Foubert, Tepper, & Morrison, 1998). Therefore, the social *communities* at the institutions, i.e., the social interaction among students, was included as a factor influencing the choice of HEI. Moreover, for most students, the time spent at universities or colleges represents a first opportunity to develop their professional *networks*, which they will need when applying for jobs (Fischer & Zigmond, 1998). Thus, the potential to establish a network that will be useful in working life might influence the choice of HEI.

Transportation costs and services are both related to transport distance, and the student's home place *proximity* to the educational institution has been identified as an important factor influencing the choice of HEI (Imenda et al., 2004; Soutar & Turner, 2002; Wright, 2012). For example, Jepsen & Montgomery (2009) found that if mature individuals (25-39 years of age) must travel a single additional mile from home to the nearest community college, enrolment would be reduced by 3 to 5%. The negative association between distance from home and the likelihood of applying and enrolling at a HEI, can according to Leppel (1993), be explained by five factors. First, information about a school lessens with distance. Although much information today is available via the internet, high school guidance advisors are probably still more likely to provide information about institutions that are nearby. Second, transport cost is likely to increase with distance, making it less desirable to attend a HEI far away from home. Third, as the distance from home to HEI increases, so does the number of competing institutions. Fourth, the psychological cost of studying may often be higher in areas that are unfamiliar and away from home. Finally, a bandwagon effect may explain the negative association between distance (from home to HEI) and enrolment rate. That is, it is more likely that friends and family of a high school graduate have attended a HEI nearby. This, in turn, makes it more attractive for the graduate to also study at the same institution.

*Factors related to the city where the educational institution is located*

Nine factors related to the host city of the educational institution are included in our analysis. The first factor regards whether the city in which the educational institution is located has many *inhabitants*. Larger cities are attractive for a number of reasons, e.g., a more diverse population and varied entertainment opportunities (Florida, 2002). However, it is also worth noting that some find spatial density (which tends to be highest in the largest cities) inversely related to interactional possibilities (Murphy-Lejeune, 2002). Hence, some students might find it easier to establish contact and make friends in a smaller, more personal environment.

As of autumn 2014, at the beginning of the semester at Norwegian HEIs, approximately 13 000 students waited for student housing because the supply is only sufficient to meet 13% of the demand (DN, 2014). Obeng-Odoom (2012) argued, with a special emphasize on international students in Australia, that accommodation is a difficult issue and that affordable student housing would improve the situation. Consequently, because the degree to which the supply of student housing meets demand varies from one university or college town to another, it is reasonable to expect that access to student *flats* influences the choice of HEI. Finally, students might have strong preferences with regard to leisure activities (Sá, Amado Tavares,

Justino, & Amaral, 2011). For that reason, *cultural* and *sports* offerings in the host city are considered in our study, along with the potential to engage in outdoor activities, such as hiking and skiing. The proximity and availability of *outdoor* recreational areas is often better in rural areas, where fewer people compete for space.

A number of factors influencing the choice of HEI relate to pecuniary characteristics. Like most people, students prefer to spend time doing things other than engaging in *transportation* (Button, 2010). It is therefore reasonable to expect that students prefer cities with good transportation services (i.e., high frequency, short transport times), particularly if the *travel cost* is low. Another important cost factor for students is the *rent* for housing (Christie, Munro, & Rettig, 2002). Considering that applying to a university with cheap living costs is a strategy to avoid student debt (Callender & Jackson, 2008), it can be seen to be a competitive advantage for a HEI to offer affordable housing. In general, land values are lower in smaller cities (Combes, Duranton, & Gobillon, 2012), which should lead to lower rents. In the Norwegian city with the most expensive student housing, the rent is 140% higher than in the city with the least expensive student housing (Guttormsen, 2014). Considering that most students have limited financial flexibility, it is reasonable to assume that housing costs affect the attractiveness of educational institutions. Finally, on the income side, To et al. (2014) found when studying the destination choice of cross-border Chinese students, that the ability of part-time *jobs* was important for choosing destinations for higher education.

### ***Summary***

Based on the literature review, the factors influencing choice of HEI are classified into two categories; factors directly related to the HEI; and factors related to the city in which it is located. In their review of research conducted using an IPA framework, Lai and Hitchcock (2015) recommended that researchers develop their own unique sets of factors for the studies they undertake. In agreement with this view, we have selected factors identified as important in earlier studies but also considered special features of the case in question. Table 1 summarizes the identified factors to be studied further in this article with the corresponding main sources in the literature. The majority of the studies referred to in Table 1 relate to HEIs located in urban areas. Consequently, our study seeks to provide a new dimension to the existing body of literature by relating these factors to a rural case. In accordance with the research objective, it is hypothesized that all of these factors influence local students' choices of HEIs.

*Insert Table 1 about here.*



## **Methodology**

### ***The Norwegian higher education sector***

The majority of HEIs in Norway are both owned and operated by the state. As of 2014, there were eight universities, 24 university colleges and several private HEIs with accredited study programs in Norway (Norwegian Ministry of Education and Research, 2009). Since 2003, Norway has followed the objectives of the Bologna process in European higher education. Consequently, the degree system comprises a three-year bachelor's program, followed by a two-year master's program, which then qualifies for researcher training in a PhD program. Participation in courses is credited according to the ECTS standard (Norwegian Ministry of Education and Research, 2005).

In the spring, students apply for a place at an HEI using a nationwide system. They make a prioritized list and are generally awarded status according to average grades. For some study programs, certain topics entitle the student to a bonus, e.g., mathematics for engineering. In general, tuition fees are not required at the public HEIs in Norway, except for professional programs, such as MBA. Hence, in the market of student recruitment, price is not part of the decision when students choose HEIs. Moreover, enrolment at all HEIs qualifies for the same type of financial support from the state. As a result, when analysing student preferences in this context, we are able to identify the central characteristics in school attractiveness when omitting price.

### ***Sample and participants***

Two factors had to be present for an individual to be included in the target sample of this study. First, he or she had to be a senior student at a high school in Nordland county, taking courses that fulfil the requirements for admission to Norwegian HEIs. Second, he or she had to have the intention to study at an HEI the year after graduating from high school.

Moreover, by distributing the survey around the time of the national deadline for applying for higher education, it was ensured that the respondents had finished, or were in the process of finishing, the three decision stages for attending college (see Hossler & Gallagher, 1987). In the first phase, i.e., the predisposition phase, the respondents chose to continue their education after high school. In the second phase, i.e., the search phase, they sought information about HEIs. During the third phase, when the respondents answered the survey, they evaluated their alternatives and made their choices of HEIs.

It is evident from the profile of the respondents in Table 2 that more females than males answered the survey. This outcome is expected because males choose a vocational education more often than females at Norwegian high schools (Statistics Norway, 2013). That is, instead of preparing for an academic career by following the courses required for admission to Norwegian colleges and universities, boys more often prepare for careers in specific trades or crafts. At the national level, 63% of young students are female. For the fields in which a large proportion of students at the UiN enrolled, such as health, teaching and social sciences, the proportions of female students are 79%, 76% and 62%, respectively. Consequently, the gender distribution of the respondents reflects in a good way the student body of the HEI in question.

*Insert Table 2 about here.*

We also see from Table 2 that 79% of the male respondents and 60% of the female respondents have at least one parent who has attended an HEI. Moreover, a closer inspection of the data reveals that 44% of the respondents' fathers and 47% of the respondents' mothers attended an HEI at some point. In Nordland, 25% of the male population and 36% of the female population aged 40-59 years old have attended an HEI (Statistics Norway, 2014). This suggests that high school students with parents educated at an HEI are more likely to follow courses required for admission to Norwegian colleges and universities.

In most European countries, more females than males attend undergraduate higher education and obtain degrees from HEIs (Lindberg, Riis, & Silander, 2011). Moreover, college enrolment rates vary considerably depending on parents' educational attainments (NCES, 2001). The level of parental education is particularly important with regard to high school students' choice of postsecondary education (Hossler, Schmit, & Vesper, 1999). Therefore, gender balance and social background are of current interest for higher education policy and are addressed in the Analysis section.

### ***Survey procedure***

The population of this study is all high school seniors in Nordland who intend to study at an HEI after graduation. The county council provided the e-mail addresses to 2 193 high school students who, after graduation, would fulfil the requirements for admission to Norwegian HEIs. An online questionnaire was distributed to these students in May 2014, which is when Norwegian high school students apply for admission to universities and colleges. In most cases,

there is no significant difference between the answers provided by respondents managed electronically and those obtained by the use of traditional mail (Lai & Hitchcock, 2015).

After two reminders, 462 students responded. As such, the response rate was approximately 21%. However, from this selection, 232 respondents reported that they did not intend to apply for higher education. These students were excluded from the survey to ensure that only students who were actively gathering information about HEIs were included in the analysis. The remaining 230 respondents form the basis for the analyses. It should be noted that the response rate would change if we considered that not all students initially contacted were part of the target sample for this study (i.e. high school seniors who intend to study at a HEI after graduation). In Norway, roughly 27% of Norwegian high school graduates are enrolled at a HEI 5 months after graduation (Raabe, 2002). As discussed in relation to Table 2, the sample reflects characteristics of the population in a good way since it contains a majority of females and has an average age of 20.

One questionnaire composed of two parts on importance and performance, respectively, was designed to collect the data to be analysed. A total of 18 measures were included in the questionnaire, based on the existing literature on student choice as accounted for in the literature review. The first part of the questionnaire was designed to reveal the importance of each factor in Table 1. The second part of the questionnaire was designed to reveal how the same respondents consider the performance of each of the factors in Table 1 to be related to UiN.

The students were asked to indicate the degree of importance and performance on a five-point Likert scale. Using a more detailed scale is not expected to change the distribution of answers (Lai & Hitchcock, 2015). Both importance and performance were quantified from 1 (very low importance/performance) to 5 (very high importance/performance). The numbers were accompanied by an explanation stating the meaning of each number. Such an ordinal scale has its limitations with regard to econometric analysis in that it produces non-metric data (e.g. Hair, Anderson, Tatham, & Black, 1998). It is, however, clear that grade 3 represents higher importance/performance than grade 2. In the following analyses, it is assumed that the respondents perceive the differences between the grades as equal so that average values can be calculated.

### ***Methodological Framework***

Importance performance analysis (IPA) was introduced by Martilla and James (1977) as a technique for developing effective marketing programs. This type of analysis applies a simple graphical technique, presented in Figure 2, to evaluate strategy and to make resource allocation

recommendations (e.g., Skok et al. (2001) and Magal et al. (2009)). Over the last few decades, importance-performance (IP) maps have been applied in many industries, such as health care, banking, transport, tourism and education. As such, the significance and reliability of the method have been widely tested. For a review of previous applications of the model, see, e.g., Magal et al. (2009) and Mikulić and Prebežac (2008).

*Insert Figure 2 about here.*

The performance and importance scores of the factors are, in an IP map, plotted along two dimensions and divided into four quadrants, each with a label attached to it:

1. High importance and low performance – “Concentrate here”;
2. Low importance and low performance – “Low priority”;
3. High importance and high performance – “Keep up the good work”; and
4. Low importance and high performance – “Possible overkill”.

A major shortcoming of the quadrant model in Figure 2 is that a small change in the position of a factor can imply substantial change in priority (Bacon, 2003). Different approaches have been suggested to address this weakness, e.g., the impact range-performance analysis by Mikulić and Prebežac (2008) and gradual transition between the ranges from low to high scores on importance and performance (see Bacon (2003) and Magal et al. (2009)).

To position the gridlines, it is common to use either the scale-centred approach or the grand means of the performance and importance scores (Mikulić & Prebežac, 2008). The scale-centred approach often implies that factors are grouped close to each other and fall into one part of the IP map. Consequently, due to a better dispersion of factors across the four quadrants, most IP maps apply grand means. It is, however, important to keep the original values in focus when suggesting the managerial implications when using the grand mean values. An example is the case where importance of all factors is ranked at the top of the scale so that factors falling below the grand mean are miscategorised as “Low priority” or “Possible overkill”.

Gap analysis is a tool for comparing actual importance with actual performance to improve resource allocation. This tool stipulates that the performance score is subtracted from the importance score. Such analysis has previously been applied to, for example, the education (Roszkowski, 2003) and transportation sectors (Mathisen & Solvoll, 2010). When considering the problems of positioning the grid lines, the dramatic change in priority due to small changes

in factor score and the properties of gap analysis lead to the use of the ISO-rating line in the IP map. As illustrated in Figure 3, the ISO-rating line is a 45-degree upwards-sloping line representing a perfect balance between importance and performance and a zero performance gap (e.g., Magal et al. (2009)). Along this line, importance equals performance, and all deviations indicate a need for change in strategy. Factors located below the ISO-rating line represent an opportunity for improvement because importance exceeds performance (Skok et al., 2001). Magal et al. (2009) suggested that resources should be allocated so that all factors approach the ISO-rating line.

*Insert Figure 3 about here.*

Whether importance and performance are independent of each other is a question that has been addressed previously, and there is growing evidence that the relationship can be asymmetrical and nonlinear (Magal et al., 2009). If importance depends on performance, then this dependence has implications for strategy recommendations because managerial implications derived from IPA might be misleading (Matzler, Bailom, Hinterhuber, Renzl, & Pichler, 2004)). A way to address the weakness of the dependency between importance and performance is to specify the path of the ISO-rating line.

The purpose of our study is to explore the factors influencing the choice of HEI for first-time applicants using IPA. Because we do not have any information about how the importance and performance of the factors are related, we apply the traditional IP map in the following analysis and introduce the 45-degree slope of the ISO-rating line.

## **Empirical data**

### ***Research context***

Nordland is located in Northern Norway and is one of 19 counties in the country (see Figure 4). Nordland has approximately 240 000 inhabitants spread over 38 500 square kilometres (km<sup>2</sup>). As such, the average population density is six inhabitants per km<sup>2</sup>. The city in Nordland with the largest population is Bodø, with 50 000 inhabitants and an average population density of 38 inhabitants per km<sup>2</sup>. In contrast, the capital Oslo has a population density of 1400 inhabitants per km<sup>2</sup>. Consequently, following the definition of the OECD (1994), Nordland county and its most populous city Bodø would, with their respective population densities, be

defined as rural areas.<sup>1</sup> This classification makes UiN, with its main campus in Bodø, a good case with which to identify the factors that could make rural universities more attractive.

*Insert Figure 4 about here.*

UiN is the only university in Nordland county, and it is the most recent HEI to receive university status in Norway. The university has approximately 6000 students and a staff of 640.<sup>2</sup> In 2014, 59% of the student body originated from the same county in which the university is located. The university offers degrees at the undergraduate, postgraduate and doctoral levels across the fields of professional studies, social sciences, business and management, and natural sciences.

### ***Assessment of importance***

The mean importance ( $Mi$ ) of the factors influencing high school seniors' choice of HEIs is presented in Table 3 (sorted according to  $Mi$ ). Table 3 also shows deviations in valuation with regard to gender and social background. The differences are analysed using an independent sample  $t$ -test, and only significant deviations are included. Both gender and social background are separated into two groups to evaluate the preferences of different segments of the data set (e.g. Lai & Hitchcock, 2015). The interpretation of gender is straightforward. Social background separates students with at least one parent who has completed higher education from those without.

*Insert Table 3 about here.*

The results suggest that the study program is the most important factor when high school seniors choose an HEI ( $Mi=4.58$ ), followed by the quality of the studies offered ( $Mi=4.55$ ) and the student community ( $Mi=4.40$ ). As argued in the literature review, these factors were identified in previous research as being important for the choice of HEI (see e.g. Armstrong, 1997; Maringe, 2006; Obermeit, 2012).

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<sup>1</sup> The OECD (1994) uses the following two-step approach, based on population density, to define rural areas. First, local units (e.g., municipalities) are defined as rural when the population density is less than 150 inhabitants per km<sup>2</sup>. Second, a region (e.g., NUTS3, which in Norway is a county) is considered predominantly rural if more than half of its population lives in local rural units (i.e., with fewer than 150 inhabitants per km<sup>2</sup>).

<sup>2</sup> As of January 2016, the university merged with two other HEIs. The name changed to Nord University and has about 12 000 students and a staff of about 1200.

The average importance of the factors related to the educational institution is 3.98, and the average mean importance of the factors related to the city where the educational institution is located is 3.62. Hence, the factors most important for the student's choice are within the domain of the institution itself. The variables *Inhabitants* and *Sports* were ranked less than 3, which was the middle of the scale and could be interpreted as indicating indifference. Hence, in contrast to the earlier results from urban settings by Glaser et al. (2001) and Sá et al. (2011), the size of the host city and availability of sport activities are not considered important by the local students in the rural region.

### ***Assessment of performance***

The mean performance ( $Mp$ ) of UiN, as perceived by high school seniors, is presented in Table 4 (sorted according to  $Mp$ ). The results show that the university is considered to perform best with regard to the distance between the student's home and the university ( $Mp=4.43$ ), the potential to engage in outdoor activities ( $Mp=4.03$ ), the quality of the studies offered by the institution ( $Mp=3.93$ ) and the student community ( $Mp=3.93$ ), i.e., students' social interactions.

*Insert Table 4 about here.*

The average  $Mp$  of the factors related to the educational institution is 3.78, and the average  $Mp$  of the factors related to the city where the educational institution is located is 3.36. Hence, high school students have the best perception of the factors that directly relate to the educational institution. However, the average  $Mp$  is less than the average  $Mi$  for both groups of factors.

### **Analysis**

The empirical data is analysed by three complementary approaches. First, we address the statistically significant deviations between groups of respondents identified in Table 3 and Table 4. Second, the traditional quadrant model of IPA is applied to address the scores for all factors listed in Table 1. Finally, the more refined ISO-model is applied to identify the factors with largest gap between importance and performance.

***The influence of gender and educational attainment of parents***

With respect to importance, see Table 3, four of the factors are significantly less important for males<sup>3</sup>. The statistical significance of the deviation for one of these factors, *Jobs*, is at the 1% level. It would therefore seem that the availability of part-time jobs is of less importance for male students. The reasons for this finding is unclear. However, it could indicate that boys receive more financial support from home, intend to focus more intensely on studying or that they are satisfied with a lower standard of living when studying. All three explanations reduce the need for part-time jobs.

The educational attainment of the parents of high school seniors has an impact on the importance of four factors: *jobs*, *proximity*, *inhabitants* and *outdoors*. For students with at least one parent with higher education, access to part-time *jobs* is significantly less important. Perhaps because highly educated people tend to have better-paying jobs (Hansen & Wiborg, 2010), they could be better able to support their children financially. The reason for *proximity* being more important for students with parents with low education levels could be that they can save money by living with their parents while attending HEIs (see e.g. Forsyth & Furlong, 2000). Moreover, it is evident that this group of students pays significantly less attention to the size of the city (*inhabitants*). This finding could be related to the generally lower level of education in rural areas. Hence, young adults whose parents have less higher education do, to a greater extent, grow up in rural areas and are more likely to continue living in such areas. Finally, the potential to engage in *outdoor* activities is significantly more important for high school seniors not having parents with higher educations.

Also, with respect to perceived performance of UiN, see Table 4, there are few significant deviations between males and females. Male students are significantly more satisfied with the availability and cost of housing in the city where the university is located.

High school seniors whose parents do not have higher education qualifications did not have a significantly better perception of UiN for any of the factors in the study. Students with highly educated parents have a significantly better perception of the transportation service between UiN and their homes. This finding, again, could be due to regional differences in the educational level of inhabitants and that highly educated people lives in areas with better transportation services. According to our data, there is also a significant difference in how these two groups perceive the sports offerings in the city where the university is located.

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<sup>3</sup> Note that since the female group is larger, it is possible to find significant deviations from mean for one group and not the other.



The average lifetime salary for Norwegian employees increases by 3% for each additional year of education (Kirkebøen, 2010). Hence, it is reasonable to assume that students with highly educated parents can more easily obtain financial support from home. This can explain why, as our data suggest, students with parents who do not have higher education from a university or college are significantly less satisfied with the cost of housing in the city where the university is located.

### ***The quadrant-model***

The mean scores reported for all of the respondents in Table 3 and Table 4 are used to construct a traditional IP map in Figure 5.

*Insert Figure 5 about here.*

This matrix offers a visual display of our findings and can function as a basis for strategy formulation. The horizontal line that passes through the matrix represents the grand mean of the perceived performance ( $Mp=3.57$ ), whereas the vertical line is the grand mean of the perceived importance ( $Mi=3.80$ ). These two lines produce four quadrants, and based upon the quadrant in which each factor is placed, strategies might be formulated regarding that particular factor. In the following, the importance-performance matrix is applied to provide strategy implications for HEIs in rural areas.

#### ***Quadrant 1***

The factors in this quadrant have high importance but low perceived performance. This quadrant constitutes four factors: *Flat*, *rent*, *travel cost* and *jobs*. This finding suggests that universities and other stakeholders, such as municipalities, counties and national authorities, should concentrate on efforts that can increase the availability of student housing. Economic theory would suggest that, by increasing the supply of housing, the rent would decrease (see e.g. Frank, 2010). Moreover, policies that reduce the travel cost between students' homes and the educational institution and that improve students' access to part-time jobs could make the institution more attractive.

#### ***Quadrant 2***

The factors in this quadrant have low importance and low perceived performance. This quadrant consists of five factors: *Visibility*, *culture*, *inhabitants*, *abroad* and *sports*. Because these factors

are of low importance, stakeholders should most likely not prioritize these factors when their limited resources are allocated.

### *Quadrant 3*

The factors in this quadrant have high importance and high perceived performance. Seven of the factors investigated in this study are placed in this quadrant: *Program, quality, community, educators, reputation, networking* and *transportation*. Because the performances of these factors are of high importance when high school students select the HEIs they prefer, the current high performance should be upheld.

### *Quadrant 4*

The factors in this quadrant have low importance and high perceived performance. Two factors are located in this quadrant: *Proximity* and *outdoors*. No additional resources should be invested in these factors, as they are of low importance, and the educational institution is already considered to perform well on these factors.

Overall, the factors allocated to the category institution are positioned in quadrant 3, while the factors related to the host city generally have lower importance.

### *The ISO-model*

A major weakness of the quadrant model is that considerable changes in strategy recommendations might result from small changes in the positioning of the factors included in the model (Bacon, 2003). For example, in Figure 5, small changes in the importance of rent could move this particular factor from being one that policy makers should improve upon, to being a factor that should be given low priority. In contrast, this factor is not as sensitive for changes in Figure 6, in which a 45-degree upwards-sloping ISO-line is drawn.

*Insert Figure 6 about here.*

It is evident from Figure 6 that, with regard to most factors, performance is lower than importance; performance is perceived as being higher than importance for only six factors. The factors with the largest gap between importance and performance, and therefore the factors to prioritize, are listed in Table 5. All the identified gaps represent significant deviations of performance from importance ( $p < 0.01$ ).

*Insert Table 5 about here.*

Factors with negative gaps, indicating that performance is higher than importance, are above a satisfactory level and should be given low priority. These factors, located in the top left corner of Figure 6, are mainly outside the domain of the institution. It would therefore seem that the host city has contributed positively with regard to attracting students. The exception is the two factors of *flats* and *rent*. The three remaining factors in Table 5 relate to the study *program*, *quality* and the *reputation* of the university.

## **Lessons to be learned**

In this section we study in depth the factors with the largest deviations between importance and performance and provide implications for the case in point. A visual inspection of Figure 6 and the ranking of the factors in Table 5 suggest, as was concluded based on Figure 5, that student housing (*flats* and *rent*), study *programs*, the *quality* of the studies offered and the *reputation* of the institution should be of primary concern for UiN stakeholders. With reference to the separation of factors into two groups, illustrated in Figure 1, the “lessons to be learned” for the host city and the university are discussed below.

### ***Responsibility of the city - Accommodation***

Because the housing market in small to medium-sized cities, such as the city in which the UiN is located, are likely to be smaller (i.e., with fewer apartments), it is reasonable to assume that they have less efficient housing markets than larger cities. Although the land value is lower compared to larger cities (Combes et al., 2012), it might be more difficult for students to find a suitable apartment once they arrive to begin their studies. In contrast, there are more students competing for the available apartments in larger cities. Hence, it is not clear whether these problems are greatest in smaller or larger cities. However, it is clearly a selling point for a HEI to support affordable student housing (see e.g. Obeng-Odoom, 2012), and this ability requires less resources to obtain when the number of students is relatively small.

The obvious solution to improve the housing situation for students would be to build more student houses. In Norway, it follows by law that all universities and colleges should be associated with a student welfare organization (Norwegian Ministry of Education and Research, 2007). These welfare organizations manage student welfare services, including housing. By

increasing the contribution from the government, which funds most of the activities of the welfare organizations, more student houses could be built. It is, however, relevant to consider the type of student housing to initiate. Paine (2008) addressed how academic and social performance depends on the type of residence. Despite some shortcomings in the data set, Paine (2008) concludes that students had the best experience in suite-style residence halls, followed by traditional and apartment-style residence halls. This is further supported by Khozaei et al. (2014) who found that students prefer to live in suites compared to traditional residence halls. Moreover, students tend to be more satisfied with their housing situation if they live on campus or near the city center (Thomsen & Eikemo, 2010). Hence, in order to maximize the academic and social benefits for students, the welfare organization should encourage the construction of suite-style accommodation on campus or near the city center.

In Norway, the municipalities regulate the use of land. Consequently, if insufficient land is made available for housing, as opposed to being regulated for businesses or even protected from human activities, it will be difficult to improve the housing situation for students even if funds for building student houses become available. Hence, authorities at the local and national levels will have to act to improve the housing situation for students. If these efforts are successful in increasing the supply of student houses, it is reasonable to assume that the price of housing will decrease. If prices persist at a high level, subsidized rent for students should be considered. This consideration is of particular importance for a rural HEI because providing financial aid to manage housing costs seems to lead to higher retention of students (Singell Jr, 2004).

### ***Responsibility of the university - Study programs***

Whereas the availability and cost of student housing can be influenced, to a greater degree, by policy makers, the performance of the three remaining factors with major gaps in Table 5 are primarily influenced by educational institutions themselves. The relative large gaps related to these factors indicate that UiN does not meet the expectations (see e.g. discussion on quality by Soutar and Turner (2002)).

Because HEIs in rural areas, on average, have fewer students and can be assumed to have smaller staffs than those located in urban areas, it would be impossible for them to diversify their study programs to the extent that they take the preferences of every potential student into

consideration. As such, a specialization strategy would most likely be preferable.<sup>4</sup> Such a strategy would indicate that the institution aims to be very good in a few selected areas, instead of being mediocre in many. Hence, students who wish to study within one of the fields on which the institution focuses will not leave the region to study elsewhere. If quality reaches a high level, it could also attract international students. The drawback is that students who wish to study within other fields of study will have to move. Whether these changes in total would lead to increased number of students is uncertain.

By implementing a strategy of specialization, i.e., focusing on a few key areas of expertise, rather than aiming to diversify and offer studies that satisfy all potential students, it might also be easier to develop research teams of a sufficient size to produce high-quality research. By offering attractive salaries and, in recruitment, emphasizing the alternative lifestyle often available in rural areas compared to urban areas, it might also be possible to attract recognized international researchers and scholars. These scholars could subsequently contribute to the development of an international network for the institution and higher quality research (Hanssen & Jørgensen, 2014).

Moreover, a focused strategy aimed at producing high-quality research and teaching in relatively few areas would likely contribute to improving the perceived quality of the studies offered. As the perceived quality increases, it is also reasonable to assume that the reputation of the institution will improve. Hence, a focused strategy can be expected to lead the institution into a positive cycle, which will improve the quality of the studies offered and, according to the relationship suggested by Delgado-Marquez et al. (2013), increase the reputation of the institution. Nevertheless, it should be noted that the quality of the study programs is not the only factor influencing the reputation (see e.g. Arpan et al., 2003).

## **Conclusion**

Globally, there is a tendency for people to leave rural areas and move to more densely populated areas. In Norway, many young people leave the countryside after graduating from high school to continue their studies at HEIs. Because graduates from HEIs tend to remain in the regions where they graduate, making rural HEIs more attractive and thus more likely to be chosen by more of the young people growing up in these regions, might reduce the draining of young

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<sup>4</sup> For a discussion of the topic of specialization versus diversification, we refer the reader to the literature dating back to, e.g. Rumelt (1982). A recent example of such a discussion is given by Cappelen (2015) suggesting specialization within the traditions of philosophical education.

talent from rural areas. In this context, the term “increased attractiveness” is understood as a factor making local HEIs better alternatives for students living in the same regions.

Using data collected from senior students at high schools in Nordland, a rural Norwegian county, the aim of this study has been threefold. First, the most important factors influencing high school seniors’ choice of institution have been identified: (1) the study program offered by the institution; (2) the quality of the studies; and 3) the student community at the institution. The results differed little with respect to gender and social class. All of the factors identified from previous literature that are included in this study, except for *Inhabitants* (i.e., size of city) and *Sports* (i.e., the presence of sports activities), have been found to be important for the choice of HEIs in rural areas as well.

Second, the perceived performance of the university in question is best with regard to the distance between the students’ home and the university, the potential to engage in outdoor activities where the university is located and, finally, the quality of the studies offered by the institution.

Third, based on an importance-performance analysis, the university and other stakeholders should focus on improving the availability and cost of student housing, the study programs offered to the students, the quality of the studies and the reputation of the institution.

It should be noted that, although benefits might be gained from improving one of the factors, decision makers should consider the resources associated with such an improvement. We have addressed that rural HEIs probably may not be able to perform highly in a broad range of fields, and if the costs are too high, then that perhaps the limited resources would be better applied to improving the performance of other factors.

Admittedly, our results, like most empirical studies, have weaknesses. First, the respondents might have answered tactically or lacked knowledge. Second, the study is based on a single case and draws some lessons to be learned from this limitation. The university in question has particular characteristics regarding small size, long distances to large cities and no tuition fees. Third, although widely used, the IPA framework is not without limitations (Lai & Hitchcock, 2015). For example, the results depend on the proper selection of factors. Although the factors were selected according to the previous literature, limitations had to be imposed to avoid making the questionnaire overly extensive.

The factors applied in this study have all been addressed in the literature. However, to our knowledge, they have not previously been assessed with regard to performance to enable an IPA approach nor directly linked to the goal of attracting and retaining local students at rural HEIs. A future study could gather information from a broader selection of rural HEIs.

Moreover, a qualitative approach could provide further explanation of the significant deviations identified between gender and the levels of parental education. Despite these limitations, this study represents a first attempt to analyse how an HEI located in a rural area might be developed to reduce the out-migration of young talent from the region.

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## **Figure captions**

Figure 1. Classification of factors influencing choice of HEI.

Figure 2. Typical importance-performance analysis.

Figure 3. IP map with ISO-rating line.

Figure 4. The location of the University of Nordland (Norway).

Figure 5. Importance-performance map - the quadrant-model. (Squares and triangles represent factors related to the institution and the host city, respectively.)

Figure 6. Importance-performance map - the ISO-model. (Squares and triangles represent factors related to the institution and the host city, respectively.)

## **Table captions**

Table 1. Factors influencing the choice of higher education institution.

Table 2. Data sample.

Table 3. Mean importance of factors influencing choice of higher education institution.

Table 4. The performance of UiN as perceived by high school seniors in Nordland. Mean values.

Table 5. The factors with the largest gaps between mean importance and mean performance.

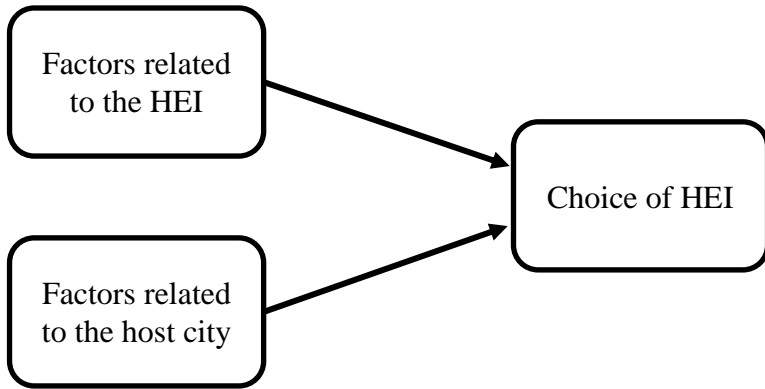


Figure 1. Classification of factors influencing choice of HEI.



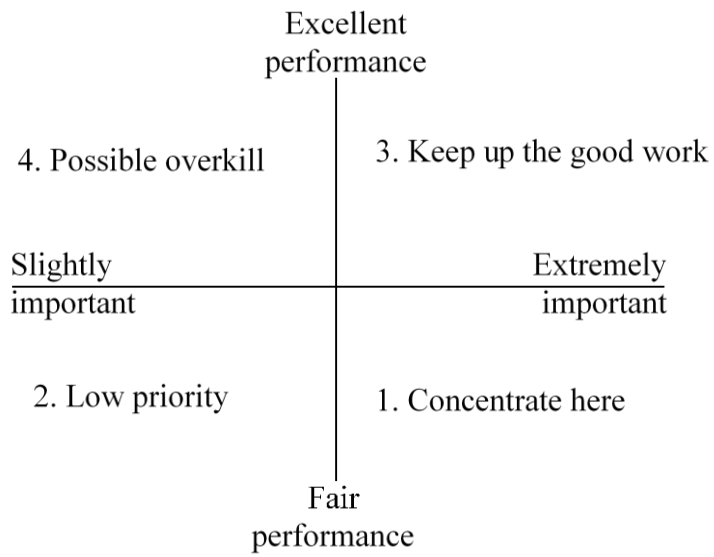


Figure 2. Typical importance-performance analysis.

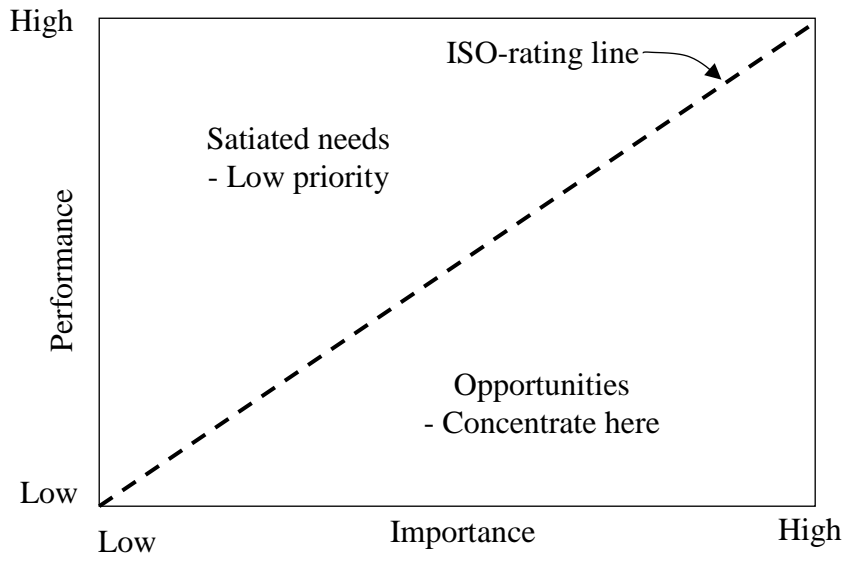


Figure 3. IP-map with ISO-rating line.



Figure 4. The location of the University of Nordland (Norway).

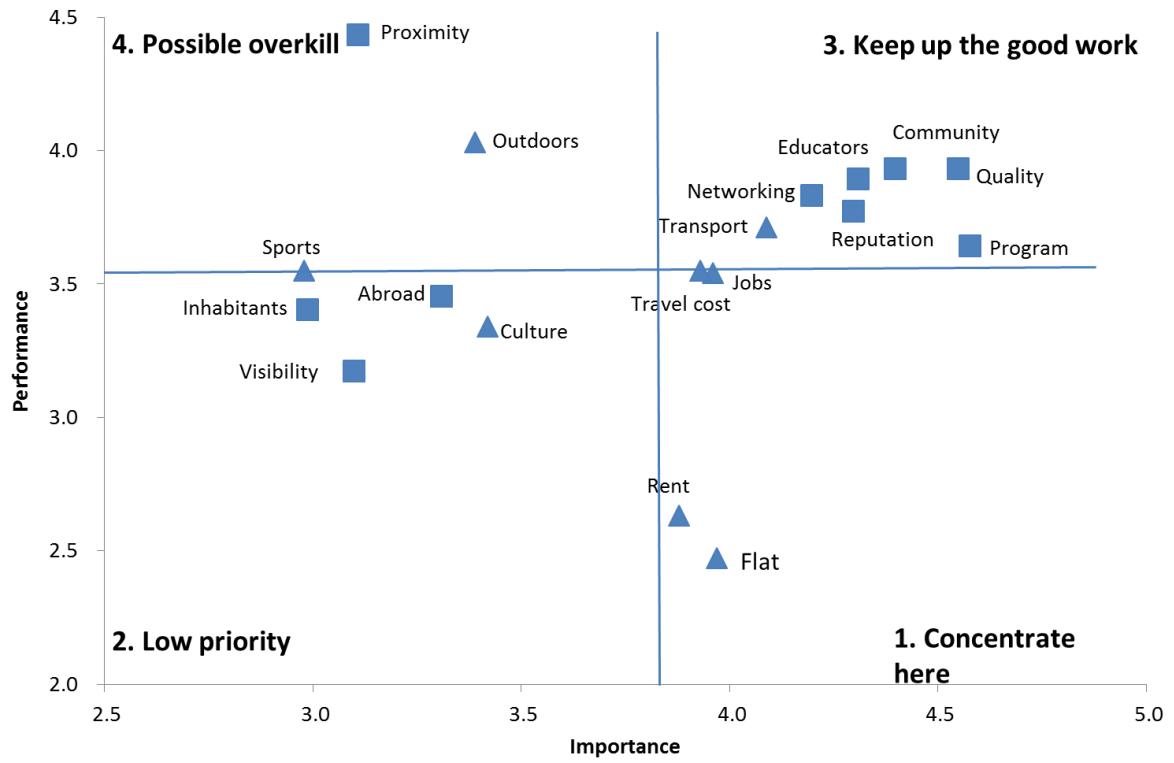


Figure 5. Importance-performance map, the quadrant-model. (Squares and triangles represent factors related to the institution and the host city, respectively).

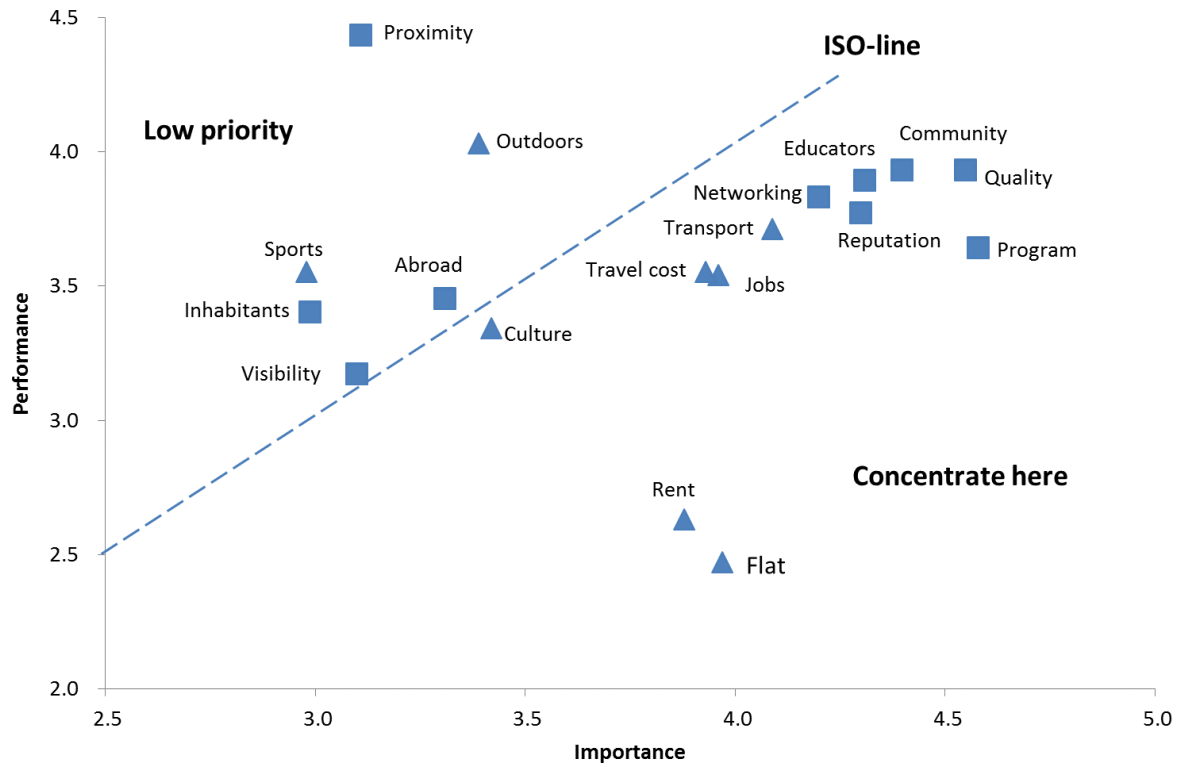


Figure 6. Importance-performance map, the ISO-model. (Squares and triangles represent factors related to the institution and the host city, respectively).

Table 1. Factors influencing the choice of higher education institution.

<i>Factor (abbreviated title)</i>	<i>Explanation</i>	<i>Supporting literature</i>
<i>Factors related to the educational institution</i>		
Program	The study programs at the institution.	McCarthy et al. (2012)
Quality	The quality of the studies offered.	Obermeit (2012)
Educators	The academic quality of the educators at the institution.	To et al (2014)
Reputation	The reputation of the institution.	Delgado-Marquez et al. (2013)
Visibility	The visibility of faculty in public debates.	Arpan et al (2003)
Abroad	The possibility to conduct part of the study abroad.	ACE (2008)
Community	Students' social interaction.	Foubert et al. (1998)
Networking	The potential to establish a network that will be useful in work-life.	Fischer and Zigmond (1998)
Proximity	The distance between the HEI and the students' home place.	Wright (2012)
<i>Factors related to the city where the educational institution is located</i>		
Inhabitants	The city where the HEI is located has many inhabitants.	Florida (2002)
Flat	The access to flats for students.	Obeng-Odoom (2012)
Culture	Cultural offers in the city where the institution is located.	Sá et al. (2011)
Sports	Sports offerings in the city where the institution is located.	Sá et al. (2011)
Outdoors	The potential for engaging in outdoor activities.	Sá et al. (2011)
Transport	The transport service between the institution and the students' home place.	Button (2010)
Travel cost	The cost of travelling between the HEI and the students' home place.	Button (2010)
Rent	The cost of housing.	Christie et al. (2002)
Jobs	The access to part-time jobs.	To et al. (2014)

Table 2. Data sample.

	<i>At least one parent attended HEI</i>		<i>Sum</i>
	<i>Yes</i>	<i>No</i>	
Male	45 [78.9%]	12 [21.1%]	57 [100%]
Female	104 [60.1%]	69 [39.9%]	173 [100%]

Table 3. Mean importance of factors influencing choice of higher education institution.

Attribute	Category	All (N=224)	Gender		Parent(s) attended HEI	
			Male (N=57)	Female (N=167)	Yes (N=147)	No (N=63)
Program	Institution	4.58				
Quality	Institution	4.55				
Community	Institution	4.40				
Educators	Institution	4.31				
Reputation	Institution	4.30				
Networking	Institution	4.20				
Transport	City	4.09	3.82*			
Flat	City	3.97				
Jobs	City	3.96	3.51***	4.09*	3.80*	
Travel cost	City	3.93	3.65*			
Rent	City	3.88				
Culture	City	3.42				
Outdoors	City	3.39			3.22*	3.63*
Abroad	Institution	3.31				
Proximity	Institution	3.11				3.57**
Visibility	Institution	3.10	2.85*			
Inhabitants	City	2.99				2.63**
Sports	City	2.98				

Note: 1 = Not important at all, 5 = Very important.

\* = Significant at the 10% level, \*\* = significant at the 5% level, \*\*\* = significant at the 1% level.



Table 4. The performance of UiN as perceived by high school seniors in Nordland. Mean values.

Attribute	Category	All (N=208)	Gender		Parent(s) attended HEI	
			Male (N=49)	Female (N=159)	Yes (N=141)	No (N=54)
Proximity	Institution	4.43				
Outdoors	City	4.03				
Quality	Institution	3.93				
Community	Institution	3.93				
Educators	Institution	3.89				
Networking	Institution	3.83				
Reputation	Institution	3.77				
Transport	City	3.71			3.87*	
Program	Institution	3.64				
Travel cost	City	3.55				
Sports	City	3.55			3.69*	3.16**
Jobs	City	3.54				
Abroad	Institution	3.45				
Inhabitants	City	3.40				
Culture	City	3.34				
Visibility	Institution	3.17				
Rent	City	2.63	3.11**			2.32*
Flat	City	2.47	2.88*			

Note: 1 = Does not perform well, 5 = Performs well.

\* = Significant at the 10% level, \*\* = significant at the 5% level, \*\*\* = significant at the 1% level.

Table 5. The factors with the largest gap between mean importance and mean performance.

<i>Factors</i>	<i>Mean importance (a)</i>	<i>Mean performance (b)</i>	<i>Gap (a-b)</i>
Flat	3.97	2.47	1.50
Rent	3.88	2.63	1.12
Program	4.58	3.64	0.94
Quality	4.55	3.93	0.62
Reputation	4.30	3.77	0.53