

The Increase of Brazilian Students in a Portuguese Engineering School: Motivations for International Mobility and the Key Educational Challenges

Mateus Reis¹, Teresa Duarte², Eduardo Marques³, Catarina Borges⁴,
Fernando Sousa⁵, Ricardo Carbas⁶, Lucas da Silva⁷




^{1,2,4,7}Department of Mechanical Engineering, Faculty of Engineering, University of Porto, Rua Dr. Roberto Frias, 4200-465 Porto, Portugal (mateusqreis@gmail.com); (tpd@fe.up.pt) ORCID 0000-0002-1262-6030; (catarina.dspb@gmail.com); (lucas@fe.up.pt) ORCID 0000-0003-3272-4591; ^{3,5,6}INEGI-Institute of Science and Innovation in Mechanical and Industrial Engineering (emarques@fe.up.pt) ORCID 0000-0002-2750-8184; (fcsousa@inegi.up.pt); (carbas@fe.up.pt) 0000-0002-1933-0865

Abstract

In the last fifteen years, the number of Brazilian students in Portugal has shown an increase of more than 600%. This trend was firstly driven by Portuguese economic recovery, which included investments in university education and incentives for receiving foreign students, through the international student statute, established in 2014. In the same year, Portugal started to accept the Brazilian national exams (ENEM) for the university admission, increasing the educational migratory flux once a directly access was established. Moreover, other secondary reasons led to this increase, such as the opportunity to study and live in a safer country and the possibility of obtaining a prestigious foreign degree. Currently, Brazilian students represent more than 33% of the foreign students in Portugal. However, the Brazilian students are highly concentrated in the top 3 Portuguese universities, Coimbra, Lisbon and Porto. In the specific case of the University of Porto, 73% of the foreign students are of Brazilian origin, with the Faculty of Engineering (FEUP) representing the largest contingent. This sharp growth in a specific group of foreign students on the engineering courses has created several important educational challenges, as the Brazilian students often exhibit higher failure rates in exams and curricular units as well as increased dropout rates when compared with Portuguese students. This is due to several factors, such as differences on the educational methodology, the quality of the high-school education, cultural differences, difficulty of adaptation and other socioeconomics aspects. The present work evaluates the causes behind the limited academic success of Brazilian students and introduces the measures and methodologies applied to the Brazilian students on the Faculty of Engineering of University of Porto, and on the Integrated Master's in Mechanical Engineering (MIEM) in particular, in the pursuit of maintaining educational equality and ensuring success for all enrolled students, independently of their origin.

Author Keywords. Foreign Students, Brazilian Students, Portugal, Inclusiveness Education.

Type: Research Article

 Open Access  Peer Reviewed  CC BY

1. Introduction

In the last years, the number of Brazilian students in Portuguese universities has shown a significant growth, now comprising the largest foreign student community in Portugal ([Iorio and Fonseca 2018](#)). These educational migration trends have been discussed in several works, and were found to occur due to several reasons, such as greater economy globalization,

foreign immigration stimulation policies in countries with low birth rate and also increased demand for high specialized workers and researchers (Salt 1997). Moreover, specifically for the foreign relations between Brazil and Portugal, other historical and cultural facts contribute for the migratory flux, such as the former colonial status, close cultures and the language similarities (Fonseca, Pereira, and Iorio 2016). The work of Mazzarol and Soutar (2016) was the first to explain these type of student migrations via the push-pull model, arguing that a combination of economic and social forces at the home country will effectively “push” students abroad, while the choice of the host country depends on distinct “pull” factors.

The number of Brazilian students in Portugal has increased by 540% between 2005 and 2015, followed by a growth of 86% in the last 4 years, resulting in a total of 13925 Brazilian students enrolled in Portuguese higher learning institutions in the 2018/2019 academic year. This drastic increase was mainly driven by the previous introduced sociocultural reasons, combined with the Brazilian economic growth that occurred between 2005-2014, which increased the number of Brazilian families who could afford to send their children to study in foreign universities.

In 2016, Fonseca, Esteves, and Iorio (2016) carried out a detailed analysis of the institutional framework that has facilitated the increased mobility of Brazilian students toward Portuguese higher learning institutions. This study was made by interviewing the students themselves (understanding their levels of academic reception, the quality of their accommodation and their life experience) and by using statistical data and interviews with personnel in leading universities. They report that the large flow of Brazilian students coming towards Portugal, between 2008 and 2012, was somewhat surprising, since it coincided with declining migration from Brazil to Portugal, driven by the economic crisis and the inherent reduction in demand for labour. It is shown that international policies adopted by the Brazilian government and strategies developed in Portuguese universities to attract Brazilian students were fundamental to drive this process. Between 2015-2019, an opposite phenomenon pressed the academic migratory flux. Due to diverse political and social reasons, the growth of the Brazilian economy slowed, followed by an economic recession which caused a reduction of investments in research and education. However, this did not stop the flow of students to foreign learning institutions. In fact, this reduction of funding to public institutions, led many students to desire a foreign degree from a country with better educational quality. As Portugal offers the aforementioned cultural and linguistical similarities, it thus still remained key destination for these students.

Another important reason behind the migration of Brazilians to Portugal, is due to the urban violence. Portugal is one of the safest countries in the world (Institute for Economics and Peace 2016) and several Brazilian students moved to Portugal to start their university studies and subsequent professional life in a more peaceful country. Another reason for the increase in the migratory flux of Brazilian students is related to population aging. The Portuguese population is one of the most aged in the world and the birth rate is not enough for replacing the workforce needs. To solve this issue, the government is stimulating the entrance of foreign students on universities, especially Portuguese speakers, to renew the work force. This includes the creation of the international student statute, which introduced special and exclusive access calls for foreign students, aiming to stimulate the migration of highly capable and qualified students.

In a contrasting case, Foster (2014) studied the ingress of Brazilian students in universities within the United Kingdom, highlighting that, generally, the interest of Brazilian students in studying in the UK is low. This is mainly attributed to a set of important barriers, such as the

high cost and the lack of any family ties, which are reduced in the case of Portuguese institutions. However, it is suggested that increased awareness and a context-sensitive approach do have the potential to entice Brazilian students to join more institutions within the United Kingdom.

When dealing with large numbers of students arriving at a new environment, the issue of integration and its relation to academic success becomes of major importance. The work of [Ramsay, Jones, and Barker \(2007\)](#) was devoted to the study of the factors that lead to a well-adjusted and integrated student. Their work found that students considered as well-adjusted did in fact show much higher levels of social companionship support than those considered as less adjusted. Nonetheless, the vast majority of the students did wish of more overall support, especially those that come from an international background. These students report that they would especially appreciate further emotional, practical and informational support. [Rienties et al. \(2012\)](#) have carried out a study on the academic performance of international students with different national backgrounds in Dutch universities, taking into account both the academic and social integration levels. In the case of students arriving from western ethnic countries, academic and social integration was quite successful, leading to a higher academic success than national students. However, when analysing students which arrived from countries considered as non-western, the issue of reduced integration arose. Nonetheless, there was no indication that the academic performance was significantly decreased as a result. In fact, for all groups under analysis (national students, international students from western backgrounds and international students from non-western background), the low academic performance of a student was found to correlate mostly with academic adjustment and not with social adjustment. That is, the differences in pre-university education curricula and teaching methodologies appear to weight more heavily on the academic performance than the lack of social integration. Even so, it was difficult to use this data for long term performance predictions of newly arrived students, as the academic and social integration processes are quite complex and non-linear.

This paper is focused on understanding the growth in Brazilian students the Faculty of Engineering of the University of Porto (FEUP). The main degree under study is the Integrated Master's in Mechanical Engineering (MIEM). It starts with a discussion of the admission process of Brazilian students and expands the reasons behind the growth of their numbers in recent years. This is followed by a detailed analysis of the academic results of Brazilian students, especially during the first year, where the difficulties faced by these students are highlighted. In Section 4 the academic and social issues the students have identified themselves are described and correlated with the low degree of academic success. Lastly, a set of measures proposed to improve the performance of Brazilian students is described, some of which are already implemented in the UPorto and FEUP.

Overall, this study shows that it is critical for the institutions must closely monitor the academic and social issues faced by these students and adapt some of its procedures, to ensure knowledge can be successfully transferred within an environment that strives to achieve maximum integration of the students.

2. The Admission Process of Brazilian Students in FEUP

The increased presence of Brazilian students in UPorto and FEUP is seen as a strategic step toward a greater degree of internationalization, in an effort to establish a truly world class academic institution that can attract the best students in the world. Although, as stated in the introduction, a large number Brazilian students is highly predisposed to study abroad and has

the necessary conditions to do so, the presence of this students is also the result of a set of dissemination actions undertaken by UPorto and FEUP. These actions, targeting Brazilian high schools and career fairs, promote the integrated masters and other degrees available at FEUP. Brazilian students are seen as ideal candidates for access since the spoken language is practically the same, minimizing this complex aspect of adaptation, and due to a large degree of similarity in many cultural aspects.

The admission process of Brazilian students in UPorto and the degrees of FEUP is possible via a special contingent, which is separate from that employed to accept the Portuguese students. This contingent is established by law. During the last few years, this contingent has increased significantly, as shown in Figure 1 for MIEM. This consistent growth was spurred by the fact that demand was always above the available positions, which led the UPorto to allow FEUP to enact gradual increases of the special contingent size every year.

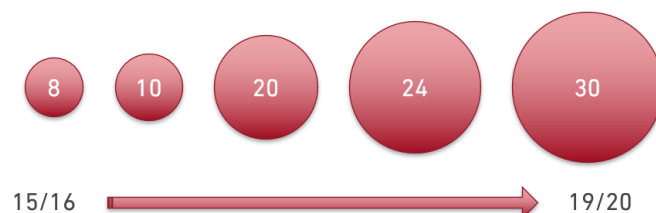


Figure 1: Evolution of the size of the special contingent for Brazilian students

The evolution of students being accepted for the MIEM closely follows that exhibited by all the other courses in FEUP, as shown in Figure 2.

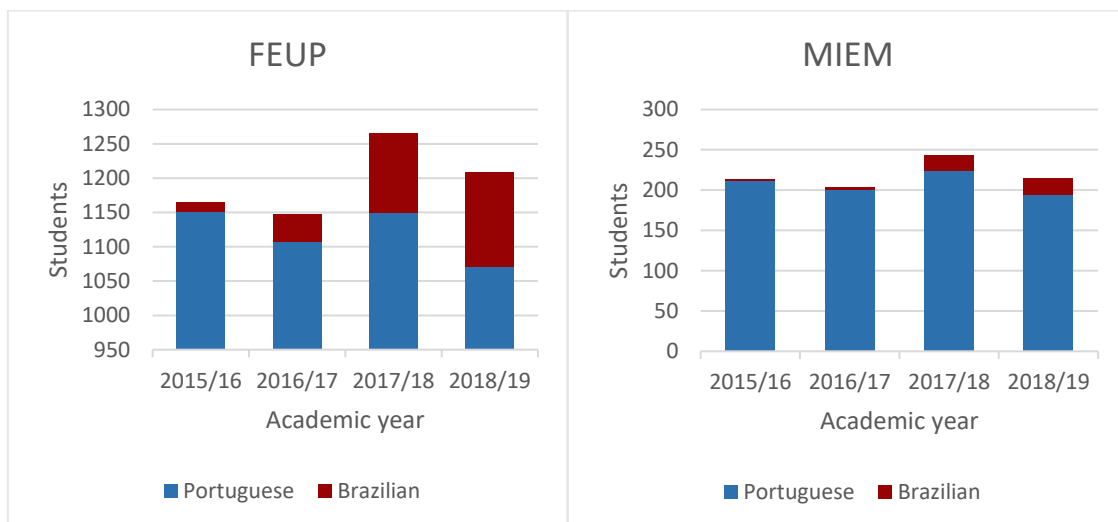


Figure 2: Evolution in the number of Brazilian students both at the FEUP and MIEM level

To apply for the special admission contingent, Brazilian students must first take the Brazilian ENEM (Exame Nacional do Ensino Médio) exam. The ENEM is a non-mandatory, standardized Brazilian national exam, which evaluates high-school students in Brazil. It has several different components. For admission to FEUP, these are the “Languages, codes and its technologies” (LCT), the “Human sciences and its technologies” (CHT), the “Natural sciences and its technologies” (CNT), “Mathematics and its technologies” (MT) and the “Essay” (R). These categories are weighted differently according to an admission formula (Equation 1), where most of the weight is given to the CNT and MT categories (85%).

$$Final\ grade = 0.05 \times LCT + 0.05 \times CHT + 0.4 \times CNT + 0.45 \times MT + 0.05 \times R \quad (1)$$

A minimum grade of 140 points in these components of the ENEM exam is necessary to allow admission to the degrees available at FEUP.

3. The Academic Achievement of Brazilian Students

The profile of the average Portuguese student joining FEUP, and particularly the MIEM must be first introduced and discussed, to allow for a fair comparison between the results and success of Portuguese and Brazilian students. Currently, the admission grade (AG) of Portuguese students joining FEUP is determined from Equation 2.

$$AG = 0.5 \times IA + 0.5 \times EA \quad (2)$$

where IA is the internal average and EA the examinations average. The internal average is the average of all subjects attended in high school and subjects that last one, two or three years have the same weight on the average. Additionally, subjects that are the target of national examinations (which, in the case of students joining FEUP, are usually Portuguese, Mathematics, Physics and Chemistry and Descriptive Geometry or Biology and Geology) are given by the sum of 30% of the examination grade and 70% of the grade obtained from the two of three years of classes. However, exams have their highest weight on the EA . To enrol in MIEM, this average is currently determined by the grade obtained in the Physics and Chemistry exam and in the Mathematics exam.

The admission average of a university degree (AA) is then given by the admission grade of the last student to be admitted on that course. Analysing the four academic years from 2015/16 to 2018/19, the admission average of Portuguese students to FEUP has been increasing, as shown in Figure 3. The admission grade of MIEM follows the same trend. Even when, in 2018/19, FEUP's admission average decreased, the admission average for MIEM remained constant.

It must be noted, however, that from this data it is not possible to infer that students entering FEUP, and the MIEM in particular, are increasingly better students for all the years considered, since that depends on several other factors, such as the difficulty level of the national exams which can fluctuate from year to year. However, it is still clear that the Portuguese students joining this course are indeed some of the best performing students in the country.

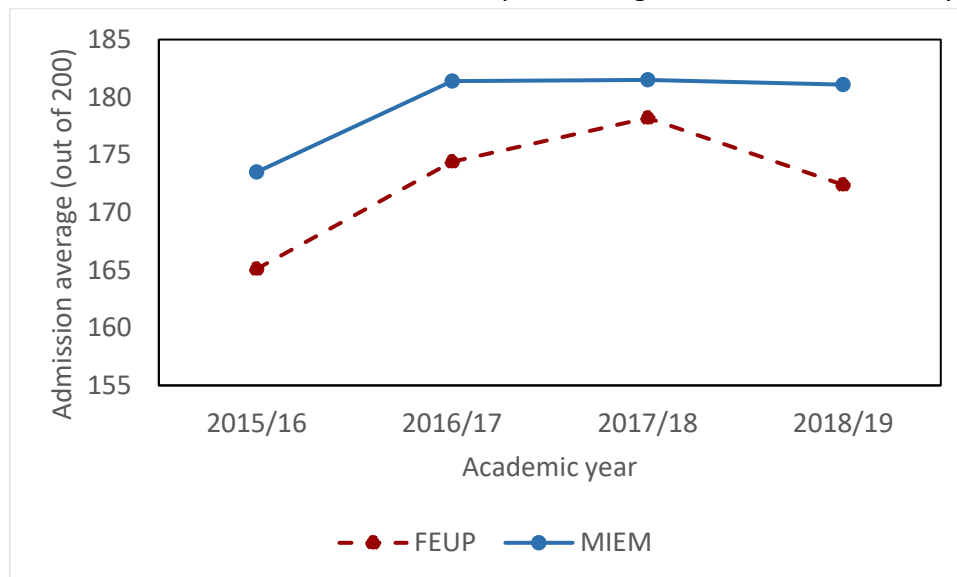


Figure 3: Evolution of the average admission grade to FEUP courses and the MIEM

Students enrolled in the integrated masters of FEUP must collect 60 a total of credits, recognized by the European credit transfer system (ECTS), to complete the first year of studies. To allow for a comparison of academic performance in the first year, the credits obtained by Portuguese and Brazilian students in their first year, are presented in Figure 4 for students that enrolled between 2015/16 and 2018/19.

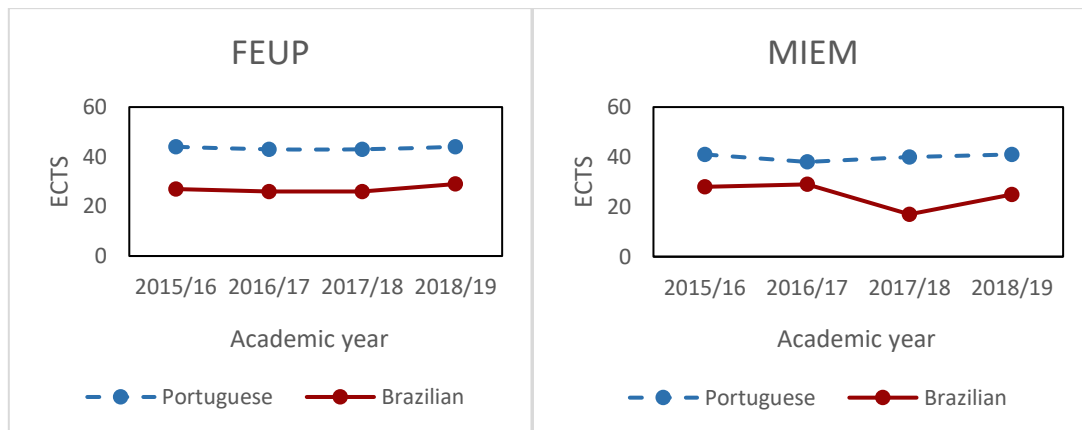


Figure 4: Evolution of the ECTS gained by Brazilian students both at the FEUP and MIEM level at the end of the first year

This data shows that Brazilian students have a significantly lower number of ECTS completed than Portuguese students. At FEUP level, the average of ECTS completed is 44 for Portuguese students and 27 for Brazilian students. For MIEM, those values drop to 40 and 25, respectively. Additionally, in the years considered, neither at FEUP or MIEM the average of ECTS completed by Brazilian students was found to be higher than 30, which is correspondent to one semester. Thus, Brazilian students both at the faculty level and enrolled in the MIEM are having significant difficulties in achieving the necessary ECTS to complete the course in a timely manner. This is obviously a major factor for a high dropout rate, which is the subject of analysis in the subsequent section.

3.1. Dropout rate

An analysis of the dropout rate, both at FEUP and MIEM level, is shown in Figure 5. The data clearly shows how the dropout rate has varied during the period ranging from 2015/16 to 2018/19.

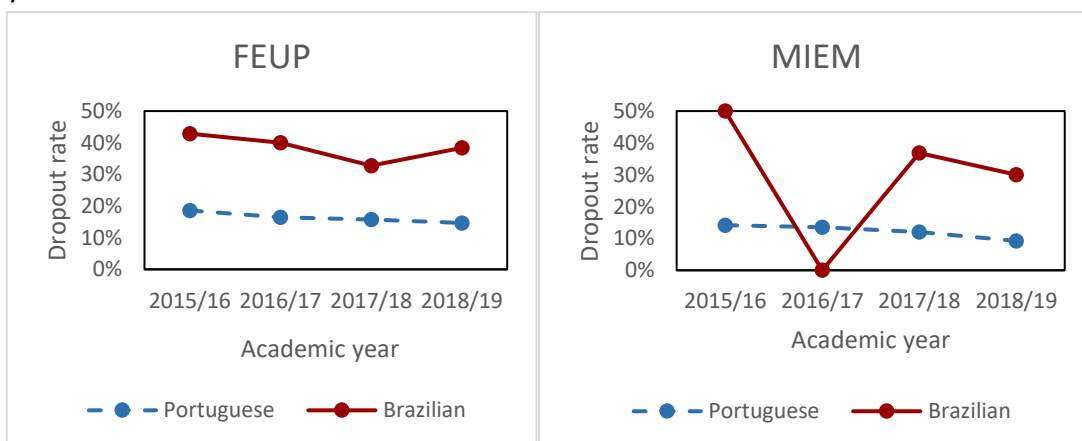


Figure 5: Dropout rate both at the FEUP and MIEM level in the first year

It is important to point out that in 2015/16 only two Brazilian students enrolled in MIEM, followed by a further three in 2016/17. Therefore, in these two years the values of dropout rate are highly affected by each student's individual performance, which is the reason behind the large fluctuations between 2015/16 and 2017/18. However, starting in 2017/18 a larger number of students enrolled in MIEM, and it became clear that the dropout rate of Brazilian students is in fact much higher than for Portuguese students, at 29% and 12%, respectively. An analysis of the results at FEUP level strongly corroborates this analysis, showing that the dropout rate of Brazilian students is significantly higher than that of Portuguese students, at

39% and 16%, respectively. Again, these are robust indicators that Brazilian students are having issues in their adaptation to this new academic environment.

3.2. Relationship between completed ECTS and ENEM grade

One of the causes of the high dropout rate of Brazilian students may be the lack of academic success and, therefore, it is important to understand if this low success rate can be related to the academic performance of each student exhibited in high school. For this, it is possible to resort to the plot shown in Figure 6, where the ENEM grade and the ECTS completed in the first academic year are shown for each Brazilian student that enrolled in MIEM between 2017/18 and 2018/19.

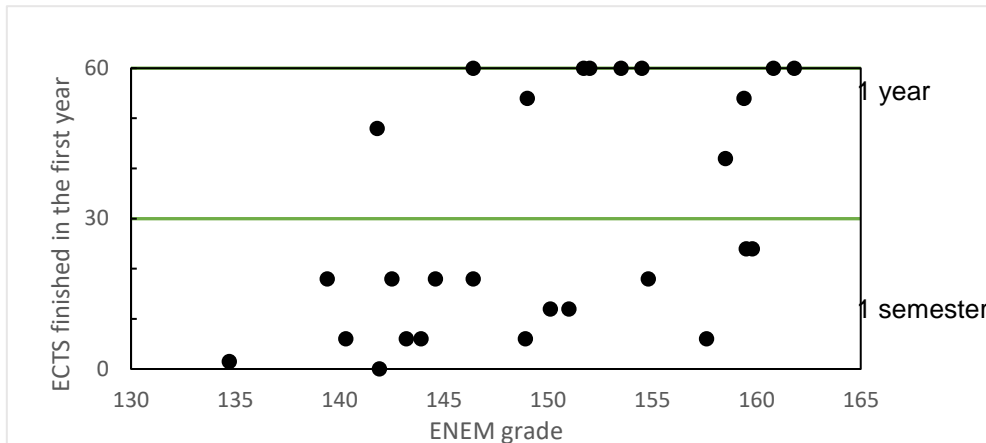


Figure 6: Distribution of the ECTS finished in the first year as a function of the entry ENEM grade for MIEM

A quick analysis shows that there is a limited degree of correlation between academic success in MIEM and the ENEM entry grade. Although it can be pointed out that the students with the highest ENEM grade finished the 60 ECTS necessary to complete the first year, there are many students with very similar grades that were unable to complete one semester (30 ECTS). Moreover, while the students with the lowest ENEM grade also completed a low amount of ECTS in the first year, there are also students with a ENEM grade of 142, which is close to the minimum grade required, that were able to complete 48 ECTS. In the range of values between 150 and 155 of the ENEM grade, there are students that successfully completed all subjects during the first year and others that completed only 12 ECTS. From this data, it can be pointed out that the ENEM grade of the students that finished the first year is between 146 and 162, at an average of 154. As such, this data suggests that there are many other factors at play behind the difficulties in reaching academic success for this group of students. To better understand those variables, the Brazilian students in MIEM were invited for individual interviews whose results are the subject of the following section.

4. Challenges and Issues of Brazilian Students

A key aspect to understand the challenges and issues faced by the students is to try to understand their points of view and closely listen to their experiences. For this reason, a set of interviews was conducted. A total of 17 students were interviewed, which corresponds to 32% of the 52 Brazilian students enrolled in MIEM at the time of the interviews. A large degree of freedom was given to the students to discuss their concerns and opinions. However, it should be noted that the students that have shown availability for the interviews were typically those with a better academic success level.

The issues mentioned by the Brazilian students can be subdivided into two different categories: academic issues and social issues. These will be separately discussed below.

4.1. Academic issues

Regarding the academic issues, four different difficulties were identified, as listed below.

- A. Difficulties in adapting to the teaching method and solving problems;
- B. Differences in the subjects studied in high school, especially in Mathematics;
- C. Difficulties in time management during exams;
- D. Difficulties in understanding Portuguese as spoken in Portugal.

The first issue (A) is related to the different approaches taken by the Portuguese and Brazilian students to solve exact sciences exercises. It was highlighted by the students that in FEUP both the teaching approach and the exercise resolution methodology follow stricter procedures. The evaluation criteria are thus more focused in a targeted methodology, which may penalize the Brazilian students that are usually used to more permissive rules. However, in Brazil's best universities there is also a high failure rate, mainly in the first-year subjects, which may be indicative of a large gap between the teaching methods in high school and university. This could be mitigated with exam preparation activities prior to the actual final exams, providing examples of exams and their resolution, highlighting the methodology necessary to solve these exercises.

The second aspect (B) mentioned by Brazilian students were the differences found between the high school systems and respective curricular programs from both countries, especially for the subject of Mathematics. There are two different aspects at play in this case. Firstly, the topics taught are not the same, which poses a disadvantage for the incoming Brazilian students, as it is assumed that some concepts are already mastered by all students. Secondly, the overall quality of the teaching system is different. This difference between the two countries is evidenced by the Pisa ranking (Schleicher 2019), where the two countries are in very different positions in the ranking, as shown in Table 1. The introduction of levelling courses would be of prime importance to fulfil the knowledge gaps between the students from the two nationalities and to assure that the Brazilian students have the necessary basic knowledge to succeed in the academic degree.

Subject	Portugal	Brazil
Science	26 th	64 th
Mathematics	28 th	70 th

Table 1: Pisa ranking in Science and Mathematics for Brazil and Portugal (Schleicher 2019)

Issue C is associated with the difficulty in successfully managing time during the exams. This point is, at some extent, similar to issue A given that the difficulties in adapting to the exercise type and resolution methodologies make the exam resolution more time consuming and forcing the student to work at an elevated pace. Another aspect pointed out during the interviews was that the exams in Portugal are very different in terms of structure and have a smaller duration. A very alarming aspect mentioned by the vast majority of the students interviewed was that they had never managed to fully complete an exam. This difficulty to timely solve exams is a common complaint among all students, irrespective of their origin, but it seems to have more severe consequences on the performance of Brazilian students. Once again students could greatly benefit from performing exam simulations in order to solve exams more efficiently. The last issue identified regarding the academic side of the problem (D), was that, initially, the Portuguese spoken in Portugal is not fully clear for Brazilian speakers. Brazilian students report that with time comprehension increases, especially due to the growing interaction with Portuguese speakers. However, in the beginning of the year, as

they adapt to the new city, and the new country, this can represent an additional setback to their academic journey.

4.2. Social issues

Brazilian students interviewed pointed out that not only academic issues can play an important role in their academic success. It was strongly implied that other issues, which can be classified as social issues, can play a key role.

One of the most often referred issues is related to the academic calendar. It was pointed out that the examination dates are not disclosed sufficiently in advance, which often hinders plans to visit home regularly. This return must be planned timely, since flights from Portugal to Brazil and back can be rather expensive if booked late.

The second issue is related to the adaptation to the new social environment of the city and country. Students enrol in university at a very young age and move to a different city and country, where they do not feel integrated, which can have a strong impact on their mental health and, therefore, academic performance. Within the academic environment, it has been also pointed out that the process of integration with Portuguese students can be initially quite difficult, with Brazilian students reporting that the establishment of solid work and personal relationships takes a long time, which also increases the difficulty in adapting to a new city and country. Nevertheless, most Brazilian students agree that after this initial process they eventually feel welcomed and integrated in study groups and develop friendships with its colleagues.

From these interviews with the Brazilian students it can be inferred that there is a cycle of events that eventually leads to the lack of academic success, driven by both social and academic issues. This cycle is shown schematically in [Figure 7](#).

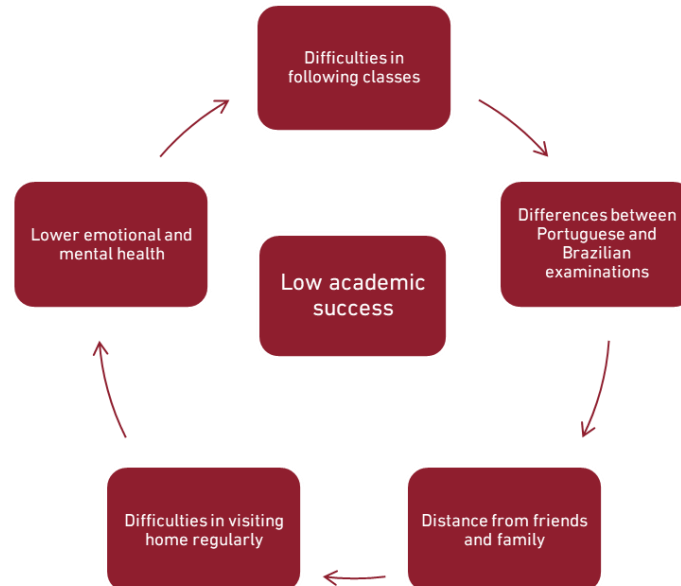


Figure 7: The main factors behind the low academic success of Brazilian students and how they are interconnected

This cycle starts as the Brazilian students begin to experience difficulties in following lessons during the first semester, which is aggravated by differences in the education and evaluation system. Unable to follow the subjects being taught and not used to the evaluation system, their academic performance soon suffers. Since they often fail at multiple subjects, they have to stay in Portugal for longer than expected, while preparing for a second exam. In many cases, if they fail at passing different courses, they will have to stay in Portugal for more years than

initially planned to finish their studies. These factors are aggravated by the relatively late disclosure of the evaluation calendar, which makes it increasingly difficult for these students to plan their return home. Away from their family and friends, which often stay in Brazil, and experiencing difficulties in planning their trips back to Brazil, their emotional and mental health starts to deteriorate. This lower mental health eventually leads to additional difficulties in paying attention and following classes, which further worsens the academic performance, feeding this cyclical negative feedback process.

5. Improvement Strategies

Several different strategies are available to improve the current outlook and the academic performance of the Brazilian students. One solution is, for example, to incentivize the students by providing awards to the best performing international students, which is a solution which is currently implemented in FEUP. In this specific case, the best performing students are awarded with a significant reduction in the tuition costs. In this section, four additional improvement strategies are described in detail, three of which are also already implemented in FEUP.

5.1. Uniformization program

The first approach is the establishment of short and intensive uniformization courses, targeting topics and subjects where the incoming international students face the most difficulties. FEUP currently offers an uniformization training course in Mathematics that provides support to international students, who join the FEUP degrees at 1st year, 1st cycle or Integrated Master level, providing them with a set of skills that favour their academic integration. The contents taught in this 44-hour, 10-day course, aim to be a complement to the mathematics topics which are known to be fragile or non-existent in foreign high school programs. For example, there is increased effort in teaching the mathematical subjects that are covered in the Portuguese high-school programs but are not taught in the Brazilian programs, including advanced equation solving techniques, derivatives and limits. Such targeted approach is an efficient methodology to provide basic competences that will be necessary during the first years of the engineering courses, which are quite heavy on mathematics. The students state that this effort is highly positive, but would prefer this course to last longer, spanning the whole semester. They also suggest that this course should be graded, as currently the tests are merely for diagnostic purposes and do not feature any quantitative evaluation. In addition, including some sort of examination to this activity would allow for an additional opportunity for familiarization with the exam processes and methodologies.

5.2. Peer to peer mentoring programs

Peer to peer mentoring is a powerful tool to support international students, creating the possibility for each student to have a direct contact with senior students who can provide one-on-one support for diverse matters related not only to academic success but also to integration in a new city and country. Several research works have identified that mentoring is highly successful in reducing stress levels in international students, easing their integration processes and reducing the dropout rate ([Park-Saltzman, Wada, and Mogami 2012](#); [Thomson and Esses 2016](#)). In FEUP, mentoring is carried out and coordinated at the Faculty level and at the integrated master levels. Brazilian students in their first year are assigned a mentor to help and guide them through the initial phase of their academic journey in Portugal, as a part of the faculty's mentoring program. Brazilian students describe this program as a very useful tool in the beginning of the year, where there is an overload of new information, which can be

difficult to process and hinders integration. However, they also state that mentors should better inform students about the high failure ratios of Brazilian students and dispel false expectations they may exist regarding their academic journey at FEUP. It is important to note that besides the support provided by FEUP, there are also international student associations that can provide additional support. One of the most active is INTERUP (<https://interup.org/>), which is active in UPorto and provides direct mentoring support.

5.3. Student meetings

One of the key support actions to ensure that newly arrived international students recognize the challenges of their new undertaking, is to ensure that there is a good degree of communication between junior students and senior students who have recently successfully traversed the exact same path. This process has some similarities to mentoring activities but is instead more directed at communication in larger groups. Higher learning institutions can actively promote this type of communication and experience sharing by helping with the organization of meetings where older international students can support the newly arrived students. In FEUP, this is now being implemented for the first time in the 20/21 academic year, especially for Brazilian students. The support process is schematically shown in Figure 8, highlighting the transfer of information between experienced and newly arrived students.

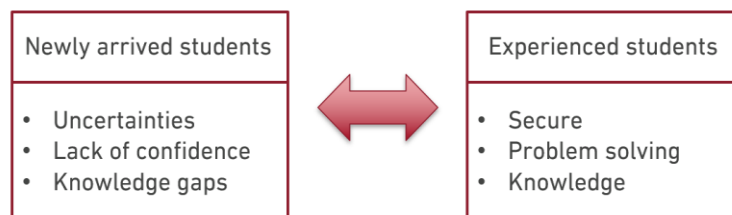


Figure 8: Example of a foundation year implementation in an integrated bachelor-master course

In these meetings, the newly arrived students are encouraged to share their uncertainties and the gaps in knowledge that they have detected to older students, which have demonstrated the availability to use their experience and knowledge to help with these issues.

5.4. Foundation year

An alternative proposal is the establishment of a longer, in-depth, uniformization program, that would take place over a full academic year and precede the bachelor and master studies, as shown in Figure 9.

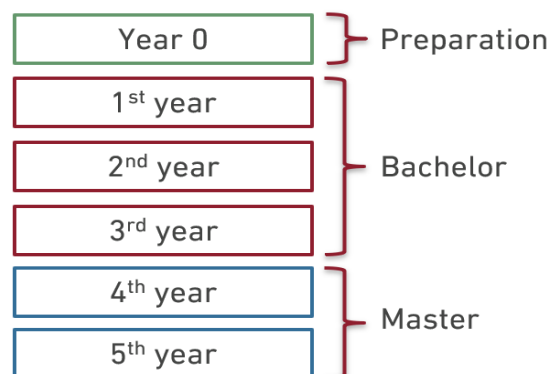


Figure 9: Example implementation of a foundation year in an integrated bachelor-master course

This foundation year would serve to the uniformize the knowledge of the incoming candidates through a wider range of subjects, allowing for an extensive range of preparation classes. However, it must be noted that such approach might present an additional barrier to entry, as it increases the time to graduation when compared to other alternatives where the student can access the course almost directly.

6. Conclusions

This work shows that major differences exist between the Portuguese and Brazilian high schools' programs and teaching philosophies, which often translates into difficulties following the subjects discussed in class, as well as solving the exams and other evaluations proposed. Although Brazilians often choose Portugal to study due to similarities in the spoken language, the distance from home and the associated difficulty to travel between Brazil and Portugal, coupled with difficulties in adapting to the new teaching methodologies often represent a cause for lower motivation which can eventually result into low academic performance and even lead to dropouts. This is found to occur somewhat irrespectively of the prior academic performance of the student, as no clear correlation exists between the ENEM entry grade and the first-year performance of the student.

After the identification of the key issues that underly this lack of success, several targeted activities have been suggested to reduce the problems and the issues felt by Brazilian and other international students. These include the creation of short preparation courses that ensure that the knowledge level is raised to the necessary levels, the establishment of strong mentoring programs, to ensure that no student is left alone during this harsh and dramatic transition period and establishing meetings between students at different stages, allowing older students to provide their valuable insight.

Overall, the lessons learned with these students can be used to expand the international reach of UPorto and FEUP. By fully understanding these integration difficulties, new programs can be created to attract students from additional countries, opening the door for welcoming students from countries which place a large number of their students abroad, such as China, India, etc. It is important to note that in this case the language barrier becomes greater and new problems can arise.

To conclude, it is shown that the institutions must not only adapt their curricula but also be vigilant with regards to the issues faced by these students to ensure that it can provide a high quality learning experience that strives to achieve maximum integration of the students.

References

- Fonseca, M. L., A. Esteves, and J. Iorio. 2015. "Mobilidade internacional de estudantes do ensino superior". In *Vagas Atlânticas: migrações entre Brasil e Portugal no início do século XXI*, 135-58. Editora Mundos Sociais.
- Fonseca, M. L., S. Pereira, and J. Iorio. 2016. "International mobility of brazilian students to Portugal: The role of the brazilian government and university strategies in Portugal". In *Global change and human mobility*, 265-84. Singapore: Springer. https://doi.org/10.1007/978-981-10-0050-8_14.
- Foster, M. 2014. "Student destination choices in higher education: Exploring attitudes of Brazilian students to study in the United Kingdom". *Journal of Research in International Education* 13, no. 2: 149-62. <https://doi.org/10.1177/1475240914541024>.
- Institute for Economics and Peace. 2016. *Global Peace Index 2016*. https://reliefweb.int/sites/reliefweb.int/files/resources/GPI%202016%20Report_2.pdf.

- lorio, J., and M. L. Fonseca. 2018. "Estudantes brasileiros no ensino superior português: Construção do projeto migratório e intenções de mobilidade futura". *Finisterra Revista Portuguesa de Geografia* 53, no. 9: 3-20. <https://doi.org/10.18055/Finis14556>.
- Mazzarol, T., and G. N. Soutar. 2002. "'Push-pull' factors influencing international student destination choice". *International Journal of Educational Management* 16, no. 2: 82-90. <https://doi.org/10.1108/09513540210418403>.
- Park-Saltzman, J., K. Wada, and T. Mogami. 2012. "Culturally sensitive mentoring for asian international students in counseling psychology". *The Counseling Psychologist* 40, no. 6: 895-915. <https://doi.org/10.1177/0011000011429831>.
- Ramsay, S., E. Jones, and M. Barker. 2007. "Relationship between adjustment and support types: Young and mature-aged local and international first year university students". *Higher Education* 54, no. 2: 247-65. <https://doi.org/10.1007/s10734-006-9001-0>.
- Rienties, B., S. Beausaert, T. Grohnert, S. Niemantsverdriet, and P. Kommers. 2012. "Understanding academic performance of international students: The role of ethnicity, academic and social integration". *Higher Education* 63, no. 6: 685-700. <https://doi.org/10.1007/s10734-011-9468-1>.
- Salt, J. 1997. "International movements of the highly skilled". *OECD Social, employment and migration working papers*, no. 3. <https://doi.org/10.1787/104411065061>.
- Schleicher, A. 2019. *PISA 2018: Insights and interpretations*. OECD Publishing. <https://www.oecd.org/pisa/publications/pisa-2018-results.htm>.
- Thomson, C., and V. Esses. 2016. "Helping the transition: Mentorship to support international students in Canada". *Journal of International Students* 6, no. 4: 873-86. <https://doi.org/10.32674/jis.v6i4.323>.