

THE CIVIL'IN PROGRAMME

A PEER MENTORING PROGRAMME FOR FIRST-YEAR STUDENTS OF CIVIL ENGINEERING

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Conference Key Areas: *Diversity and inclusiveness*

Keywords: *Peer Mentoring; Integration; Teamwork*

ABSTRACT

In 2015/2016, the CIVIL'in mentoring programme was created to better integrate new first-year students of the Master of Civil Engineering (MIEC) at the Faculty of Engineering of the University of Porto (FEUP).

Since then, the programme has a peer mentor assigned to each new student to accompany him from the beginning until the end of the first academic year. Every mentor is always associated with a professor for support and orientation. Mentors receive actions of specific formation in the beginning of the year. As expected, according to results obtained from a survey, mentors expressed the benefits achieved from this programme, namely positive attitude, teamwork, leadership and communication skills that will be relevant for their future integration in the professional environment.

Evaluation of CIVIL'in has been done by daily observation, analysis of surveys by both mentors and students and by academic marks results when compared to a

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control group. The overall results have been satisfactory and it is believed that adjustments in routines and some particular practices have contributed to steady improvements of the programme. This methodology still remains essential for CIVIL'in to fulfil the initial established purposes.

1 INTRODUCTION

At the beginning of the current decade, economic and social crisis in Portugal had a large impact in the industry and particularly in civil construction. This was reflected in the demand for engineering courses, either in quantity or in quality, with drastic results in what concerns Civil Engineering. The number of candidates to this course dropped and also did their average marks as a consequence. Thankfully, students with strong motivation and high marks kept applying to this course.

National wide, the number of Civil Engineering candidates decreased in successive years, without any vacancies filled in several schools. In Portugal, only the universities of Lisbon and Porto always managed to fill the places available, however with a different average profile of the students when compared to pre-crisis situation: lower marks of access, less top private schools as background and a majority of students having Civil Engineering as a second, a third and even a further option. In the early years of the 2010 decade, the FEUP Department of Civil Engineering started dealing with a different "average student" of those nearly two hundred admitted to the first year: with lower scientific preparation and economic resilience and, above all, less motivated. This was confirmed by the difficulties of students dealing with the courses subjects, and some of the best students changing in the second year to other study cycles.

For the benefit of the future of Civil Engineering in Portugal and, most of all, for the success and well-being of those students, special actions must arise. However, some specific features of Portuguese education should not be neglected.

As a rule, admission to higher education is regarded as a very important step in student's life and traditionally represents the achievement of one of the greatest dreams of the youngsters. On the other side, and particularly in FEUP, this phase is accompanied by intense personal and social challenges which, in general, students are not entirely prepared. Adaptation to a new daily routines, a new social environment, and even a new city and residence, may require a positive contribution from that new community. The question is always how to build a collective programme to provide that kind of help.

Simultaneously, in Portugal, the idea that the only "mission today of the University is to feed and sustain the knowledge society" remains very entrenched [1]. This drawback must be urgently changed since, in addition to training professionals with extensive scientific and technological background, higher education must also be concerned with the education of citizens as a whole. In this way, the University must have a leading role in training students to the new world and thus provide the necessary conditions to make this transition in a more balanced way and without major difficulties.

2 PEER MENTORING AND OTHER TEACHING / LEARNING THEORIES AND MODELS

Having all this in mind, it was necessary go through education publications to be aware of the procedures that could respond to that imperative mission of adding something new to the established routines. Some innovative materials and new tools for teaching and latest educational technologies (such as e-learning and virtual labs) were already used with some success in different study cycles of FEUP. These experiences have the classroom as their natural habitat and it seemed too hard to implement them on a needed larger scale.

With a broader scope, new outside classroom technologies, such as gamification, MOOC, OER, are emerging and were also considered, but those kinds of breakthroughs would consume lots of time and resources and undermine a necessary quick prompt response.

Peer monitoring stood up as very reasonable option. Across the world [5, 6, 7] and already in a few Portuguese institutions [8], peer mentoring had proofed to be a positive way to support new students in their academic integration. All these experiences were reflected by [7], evaluating "peer mentoring as the most effective strategy to increase retention and satisfaction". In Católica-Lisbon School of Business & Economic a mentoring programme was adopted, gathering first year students with alumni, so that since the beginning of the academic course, students can be related with professional environment [10]. In Griffith University, each course provides different mentoring programmes fulfilling expectations of their academic choice, increasing the sense of belonging in a supportive network [11].

Also to teachers is important to engage in the projects to spread knowledge and a holistic well-being and ongoing development [12].

It came up as a low-level resources consumer, mainly based on a competency, learning skills and dedication from the participants. Peer mentoring performed by students from advanced years seemed to be a good strategy for the young mentees to enhance integration in the school, expand social connections and improve academic results.

As a standard model, mentoring is supposed to be conducted by tutorial during the first academic year, being assigned to the new student a single mentor, who has the responsibility of helping him in his integration from the beginning of the study cycle until the end of the first academic year, on his didactic, logistic or personal challenges. Experience would validate this model, but also acknowledge adjustments to less expected situations.

3 GOALS AND TARGET EXPECTATIONS

The goal of the CIVIL'in programme was, from its beginning, to create a collaborative academic environment among first-year students, mentors and academics, favourable to the students' integration, personal and academic development. Consequently, a global improvement of results for the study cycle was expected.

This initiative, in addition to allowing a better integration of the new students, should enable the mentors to develop soft skills such as positive attitude, teamwork, leadership and communication skills that will be relevant for their future integration in the professional environment. A professor is assigned to monitor the performance of the mentor, assessing his difficulties, observing the progress of the students and giving advice to the mentor.

As referred, this programme was specially designed for students who, for the first time, attend the first year of the MIEC study cycle, and "often feel anonymous, insecure and isolated." [7] The success of the programme depends therefore, in a large measure, on the selected way to enhance the commitment of those students to their own achievements. It is then important that they are prepared, or helped, to share their expectations and difficulties and have an open mind to the hard and new challenges. An early diagnose of students difficulties and drawbacks is crucial to a prompt intervention.

Within a wishful thinking, one would expect that the new student is responsible and receptive to welcome help from the older colleagues.

Having these qualities as a behavioural basis, it will be expected that the new MIEC student acts as follows:

- a) relates to older course students in a healthy and collaborative way;
- b) understands the course's activities;
- c) discusses and receives guidance on the most appropriate study methods;
- d) gets help to access educational materials;
- e) develops planning, teamwork and decision-making abilities;
- f) feels encouraged to academic success.

It was accepted that would be very difficult to achieve such high standards and lots of work should be well done, under the right methodology, to come somehow close to that target.

4 METHODOLOGY

The methodology is about the way to find answers to research questions. In this programme, the raised questions were:

What is the effect of the mentors' intervention on the mentees?

Was the intervention programme helpful to different actors (mentors, mentees and teachers) of this programme?

To answer the first question, inquiries, interviews and direct questions were made in the beginning and in the end of the experience. The results achieved in each year were an instrument to adjust the implementation programme for next years. Applying appropriate adjustments on the mentee and mentor relation, on metee and teacher relation as well as the performed activities, it was possible to improve the results during the last four years of experience. One of most relevant effect of the programme was the involvement of the new mentors, that were mentees in previous editions, by helping new students. These new mentors exhibit a complete identification with the programme and incorporation in communitie.

Concerning the second question, it can be said that important benefits were brought by programme granting a balanced transition between high school and university. The first-year students were able to quickly understand university organization and routine, get to know the campus and its infrastructures, and most of all, can easily contact and work with the pairs. It is also helpful an early stage integration process where direct contact between first-year student and teacher in charge of each team, helps to demystify pedagogical relationship paradigm, teacher-student. Contact with students from different academic years is also an advantage promoting academic community inclusion broaden the relationship between all the students, no matter the academic route.

5 IMPLEMENTATION

5.1 Starting up

Faced with the challenges referred as motivation for this project, the MIEC at FEUP, has implemented since the academic year 2015/2016, a programme to support new students, called CIVIL'in [9], which aimed to integrate and mentor the new first-year students by colleagues attending more advanced years.

CIVIL'in promoters were aware of the importance of this programme as a contribution to the recovery of Civil Engineering as honored field of knowledge and economy and to the encouragement of students who have not Civil Engineering as their first choice and may find a rewarding profession after all.

Since its first edition, the programme has a single mentor (one of the older students) assigned to the new student, who will accompany him from the beginning of the course until the end of the first academic year. Each mentor, sometimes working along with other first-year students, is always associated to a professor who gives him support and orientation to each of the mentor/mentee activities requested by the mentor/student and monitors the development of that association.

After four years of experience, this form of collaborative working still remains essential for CIVIL'in to fulfil the purposes for which it was established.

Procedures applied by the CIVIL'in programme, in the beginning of each academic year, are meant to gather as soon as possible the good will of all participants, either mentees, mentors and academics.

The promotion of the programme was included, since 2016, in the school routines for the formal inscription of first year students. Professors and future mentors of the CIVIL'in team provide first information about the programme, enhancing the didactic, logistic and integration contributions to be delivered. Hard copies, online information and personal attendance in the CIVIL'in prepare the first year students to formalize their interest in participating in the CIVIL'in programme by filling an online application form.

Promotion continues throughout the academic year, with the presence of a CIVIL'in professor in first classes for the first year, a Facebook page, a web site, emails to every member of Civil Engineering, all these with updated information about CIVIL'in

activities and its availability to welcome new students (either mentors or mentees) to the programme whenever required.

Meanwhile, the first week is used to gather the candidates to mentoring as voluntary reinforcement of the working group from the year before.

In fact, unlike mentees, it is possible a selection and there is already a steady group of mentors with valuable experience in CIVIL'in, making easier a renovation with new volunteer colleagues. The distribution of the new first-year students of MIEC by the mentors is discussed between professors and mentors and ultimately decided by the responsible for coordinating the programme.

The Orientation and Integration Office of FEUP, that provides psychological support to every student of MIEC, was referenced by the organizing committee of CIVIL'in to promote most of the training sessions for the mentors, The Secretariat of MIEC has been supporting the remaining training sessions, all together developing skills of the candidates for mentors, so that they can guide the new students in the academic support. The Secretariat of MIEC, since 2016/17, completes this formation with guidelines to face administrative problems.

In order to offer to mentor students the acquisition of basic skills, these training sessions are provided in the following areas:

- a) integration and academic success promotion;
- b) school drop-out prevention;
- c) well-being and mental health promotion;
- d) depression and anxiety psychological intervention;
- e) risk behaviour prevention;
- f) transversal skills development (relational and behavioural);
- g) new students' academic support.

It is welcome that a mentor should be able to bring to his activity with the mentees the following skills:

- a) sense of liability;
- b) wilful spirit on helping colleagues;
- c) ability to develop working relationships.

Each mentor is responsible for a maximum of two students, depending on the number of course units (UC's) enrolled in each school year.

The performance of the mentor is monitored by an academic from MIEC, who promotes group spirit among the students and mentors under his/her responsibility, assesses the difficulties and progress observed, and gives adequate advice to the questions raised by each member of the team.

Meanwhile, the new first-year students of the MIEC must show his interest by filling a form that is available since second week. This form has evolved from a brief inquiry about general aspirations, trends and preferences, in the first edition of CIVIL'in, to an inquiry with more invasive (and optional) questions, regarding social issues as quality of lodging (familiar, hostel, etc.), meals routines and transportation to and from FEUP.

This wider information provides the increase of valid criteria to select the mentor and better follow the activity and progresses of the mentee, taking mainly in account his secondary background.

5.2 CIVIL'in working structure and coordination

There is a narrow liaison with the organs of the masters and the department, mainly with Monitoring Committee of Civil Engineering where CIVIL'in is represented since the beginning of the programme. The structure of the programme had, from the beginning, to be built around all its members: professors, mentors and mentees. The first difficulty to accept is that there are no strict rules for a mentoring programme to be built. From the experience of these four years, the main issue is to create a good environment for all participants.

The Coordinating Commission of CIVIL'in has three members who have executive attributions, namely coordination of groups, logistics and extracurricular activities conducts the meetings with about 10 other professors, the mentors and the mentees. The first one includes professors, mentors, once training sessions are concluded, and the mentees so far applied.

Routines are established and detailed, as far is possible, and formation of groups is defined. In fact, it is allowed that some of the groups are formed beforehand, a practice that has been accepted in the two last years. It saves time and has been assessed as giving good results.

Other decisions are taken about the use of the facilities allocated to the programme, frequency of meetings at different levels, along with less formalized contacts, drop-in services and other routines. The use of logistical support (books, copies, computers, ...) is also clarified for all the participants on the programme.

This kind of plenary meetings only take half-way of each semester, to make the point of the situation and adjustments if necessary.

5.3 Matching mentors with mentees

A lot has been written about the best way to find the correct match between the mentor and his mentee. In CIVIL'in, from the first edition, the will of a pair of those students to work together has been respected with good results. The other matchings have evolved from randomness, to the consideration of location of origin or residence, and finally by the analysis of inquiries about proximity in favourite hobbies or cultural trends, all this collected from voluntary surveys, both from mentors and mentees.

All these methods are arguable. In fact, even the pattern for group's organization (two mentors for one professor, two mentees for one mentor) is sometimes overruled. Most important is an open and honest attitude from all involved in the analysis of the work produced and goals to meet. It has happened, for instance, that a mentee, for practical reasons, has his mentor changed from first to second semester.

Another conclusion from the practice of these four years is that a student with high grades and an impeccable academic curriculum does not necessarily turn into the

best mentor. It was observed that students who have experienced difficulties in integrating the community of FEUP and some setbacks in their academic curricula often find in an easier way great empathy with first year students with similar profiles. Matching mentors and mentees remains as an open issue: their own will, origin or residence, favourite hobbies, all methods are arguable and broadly discussed by all members in advance. Additionally, to the formal and informal meetings between the elements of each team, other activities, combining leisure with civil engineering aspects, have been proposed, in each academic year. Along with the promotion of teamwork, these activities aim to complete the first year curriculum where science has a major role and there are not many opportunities to enter the world of Civil Engineering.

5.4 Daily groups work

The meetings of each team are scheduled by the professor and from there mentors and mentees arrange their own forms of collaborative work, including meetings in the CIVIL'in room and elsewhere, drop-in service in that room, emails or other kind of contacts.

The CIVIL'in room, available since 2017/18, is very useful as a platform for the activities of the programme and mentor's availability to help any mentee.

The activity of the group is supervised by the professor, to whom is committed the assessment of the quality of the performance towards the objective of the programme. This assessment and eventual interventions are fundamental in order to the success of the mentoring. In this process professors and mentors can learn from their experience and adjust their response to any difficulties that may occur.

A very critical point for the mentoring to be successful has arisen as the compromise between control and space left to the students to find themselves in the new environment. Surveys from mentees have given different sensitivities to this question in particular. For this problem, it was not found yet a general solution for the course. It was felt that different levels of flexibility were, in some cases, interpreted as diversity in the commitment demanded to mentees and even to theirs mentors.

5.5 Teamwork activities

Additionally, to the formal and informal meetings between the elements of each team, other activities have been proposed, in each academic year. Along with the promotion of teamwork, these activities aim to complete the first year curriculum where science has a major role and there are not many opportunities to enter the world of Civil Engineering. At the same time provide an enhancement of transversal relations.

The most interesting ones, in each academic year, were:

- a) 2015/2016 - Development of a short film about the activities developed inside the Department of Civil Engineering (DEC).

The goal of this contest was to make the new first year students know the Department of Civil Engineering. This knowledge did not consist only in the

exploration of the building where the DEC is located, but also in the history and the people who are part of that department.

Nine “short films” were produced in a friendly competition. The winners were the two ones that had the highest number of votes in a well-known site. At the end of this activity, a lunch was prepared to present all the films and present the winners.

b) 2016/2017 - Photography Contest "Where is the Civil Engineering".

In this activity, each team could submit to the competition a black & white or colour photograph where Civil Engineering works should be present. Two teams were winners in the following categories: black & white and colour. The Photography contest allowed the new first year students to discover the city of Porto and to know better each element of his/her team, capturing through the lens an image of the beauty that Civil Engineering provides to our cities.

c) 2017/2018 – Workshop: Sustainable Construction.

This workshop was based on the theme of sustainable construction. The goal was to build small wall samples that used only sustainable materials (plastic bottles, glass bottles and cans), making them environmentally friendly and still performing their functions.

In this hand-on challenge the students could learn some concepts and processes, even not having plenty conscience of that, on a friendly and relaxed environment, where the spirit of teamwork and inter-help is evident.

d) 2018/2019 – Infrastructures in FEUP Campus

The students could observe various infrastructures related to Civil Engineering (foundations, drainage, water supply) and other branches of Engineering, mainly Electronics and Mechanics.

e) 2018/2019 – Visit to reservoir dams

The dams and hydroelectric centrals of Vilarinho das Furnas and Paradela were included in a round visit to the area of Gerês, some hundred kms north of Porto.

6 FOUR SEASONS EVALUATION

Throughout these four years, quotidian positive feelings build up among professors and mentors about the worth of the programme. However, it was necessary to get systematic information, mainly at the end of each semester, presumptively helping to evaluate the several aspects of the programme performance. Academic results were surely important indicators, but it is crucial to collect some information about other issues of the programme. In fact, feedback from professors, mentors and mentees are key elements to adjust the programme to requirements thus revealed.

Therefore, at the end of each semester, the new student is asked to fill in an evaluation form about his/her experience with CIVIL'in, namely referring the support got from the mentor, identifying the interest of this mentoring and possible aspects to improve, such as the use of facilities and other logistic issues.

Meanwhile, every mentor is asked to fill out surveys throughout the academic year in order to:

- a) find out the work done by each group;
- b) diagnose the strengths and weaknesses of the programme;
- c) collect suggestions.

The surveys and evaluation sheets allow not only to assess individual performance, but also to assess the programme capacities.

6.1 Mentor performance evaluation

Considering the importance that this programme has in the development of extracurricular skills for the mentoring students, a mention in the "Supplement Diploma of the activity in CIVIL'in Programme - in-support for new MIEC students by their peers" is previewed to be assigned to mentors. However, they only have this mention if, at the end of the academic year, their final assessment is, at least, good, and they have the minimum attendance of not less than 90%.

For the "Supplement Diploma" assignment, in addition to the completed surveys, the mentor should also draw up a report, at the end of the academic year, about the results of their students, filling out a form for each student.

The academic (member of the CIVIL'in Commission) associated with each team, at the end of the academic year, appreciates the work carried out by each mentor, based on monitoring carried out throughout, in the evaluation sheets filled in by their students, in the answered surveys and in the final reports prepared by the mentor. Based on the academic evaluation, the Commission responsible for the coordination CIVIL'in programme assigns a final grade. This assessment has been done under criteria that evolved from 2015 and are now the following, with these respective weights:

- a) knowledge transmission capacity to new students – 30%;
- b) developed skills (soft skills)-40%;
- c) mentor reports– 30%.

Another benchmark is the attendance being considered by evaluation sheets filled in by their students and the academic associated with the mentor.

The ratings should be assigned according to the qualitative scale referred below. Qualitative classification levels that appear in the "Supplement Diploma" correspond to quantitative ratings on a scale of 0 values to 20 values, as follows: bad – 0 to 7 values; Insufficient – 8 to 9; Sufficient -10 to 13; Good – 14 to 15; Very Good - 16 to 18; Excellent – 19 to 20 values.

6.2 CIVIL'in programme evaluation

The following results consider the evaluation of the programme in its four first years of implementation (2015-2016 to 2018-2019), obtained through the surveys and evaluation sheets filled in by the students and mentors. Fig. 1 presents the

frequencies of mentor requests to provide support to student(s) in the following areas: academic; FEUP services; UP services; integration and emotional. The results show that support in solving academic problems was the most requested issue, followed by questions regarding the integration, the emotional and the FEUP services domains that have registered some concern. It must be said that participation in surveys by mentees has been irregular, from more than 90 % in the first year to less than 30 % in 2016/2017 and 2018/2019, possibly those surveys were made available in the holiday period. In spite of this irregularity, there is a pattern of dominance of scores 4, in a scale between 1 and 5, as a global classification of the CIVIL'in programme.

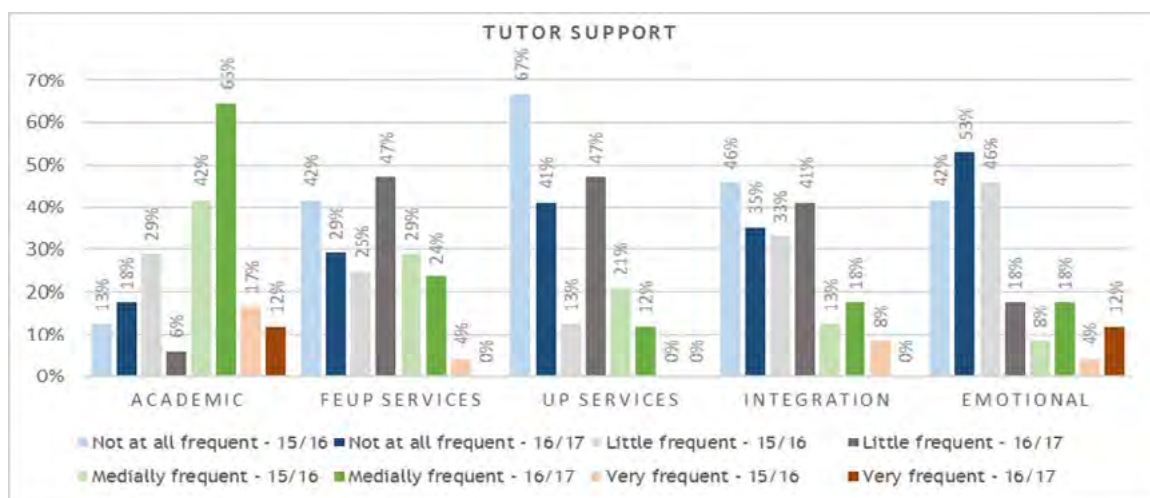


Fig. 1. Frequencies of tutor requests to provide support in different domains.

A few negative classifications, although the consideration of the programme as well structured, relied on insufficient activity and support by the assigned tutors. According to the most severe evaluations, the CIVIL'in programme has a very positive purpose, but still some flaws.

Some of these appointed flaws have to deal with lacks in logistics and overall resources: gathering facilities, available equipment and hard copies for the course. In student's surveys were also placed some questions that allow to assess the real needs of first-year students, determine the main obstacles to the tutor's good performance and gather suggestions for improving the CIVIL'in Programme functioning in upcoming editions.

Regarding the results of the tutors' inquiries, it can be observed that although more than 70% of the tutors have classified the programme with a score greater than or equal to 4 in the four years of the programme. There is at least one tutor, in the academic year 2016-2017, who has given a negative rating. The reason given by the tutor to assign this grade was the little (or no) initiative that the new first-year students had to seek help or even to belong to the programme.

In fact, there is already a large collection of the main issues (positive and negative), that have occurred in these four years. These data, conveniently treated and analysed, will be a growing and powerful tool to improve routines and behaviours.

6.3 Academic results

In higher education, it is unavoidable that academic results take a central role in the evaluation of the performance of learning activities.

The programme CIVIL'in had to be analysed from that point of view, comparing its performance in academic results and other important parameters, such as grade retention, of the CIVIL'in students, with those of the other first year students who did not join the programme.

For that comparison to be accurate as possible, a control group has been formed for each of the four seasons by a set with the same number of first year students as the CIVIL'in mentees. Trying to make that comparison as reliable as possible, and once the CIVIL'in students were known, the group of control was established by matching each one of the mentees to a colleague with an equivalent profile: marks of access, secondary school of origin, local of residence, Civil Engineering order of preference, as far as all this information was available. Protection data policies have made it more difficult and, for the last year of 2018/2019, only marks and order of preference were considered.

Meanwhile, both groups (mentees and control group) tended to be hit by dropouts, with more impact among the students out of the CIVIL'in programme. The table I reveals a clear difference, with advantage to the CIVIL'in group. One can argue the mentees start with more motivation taking in account their decision to join the programme. On the other side, it is not arguable that the immersion on a community based on solidarity has a protective effect on moments of disbelief or less interest for their job in the school.

Table 1. First year student's entries and dropouts

Academic Year	Total		CIVIL'in	
	Entered	Dropouts	Joining	Dropouts
2015/2016	159	40 (25%)	44	6 (14%)
2016/2017	171	47 (28%)	72	7 (10%)
2017/2018	153	21 (14%)	65	4 (6%)
2018/2019	204	51 (25%)	34	0 (0%)

The table I also reveals that the number of mentees decreased in 2018/19 in relation to the previous seasons and still there is not an accurate diagnosis for this occurrence. It may be that the decisive period for joining CIVIL'in was somehow more dispersive than usually by other activities for first year students.

On the other hand, it was the first time that there was not a single dropout within CIVIL'in. Does this mean that mentees, being in a less number, had more support

from tutors and mentees? Was the structure of the programme more reliable for that number of students? That is something to register and to be aware in next years. At the end of 2nd semester, both groups have academic results and dropouts and, in what concerns comparisons, there was then a decision to make. Should the two groups be kept in their composition regardless dropouts or should the dropout elements be removed from the group of mentees and the control group be rebuilt accordingly?

This second option prevailed for two main reasons: the comparative results for CIVIL'in do not become improved (on the contrary) and it seemed more adequate to cross-check students who made all an equal route of challenges.

Comparative results are displayed in two bar charts. The first one shows (Fig. 2), in an expressive way, that CIVIL'in outstands in what concerns students with success in all 11 UC's (no failures) and still for those with 1 or 2 failures.

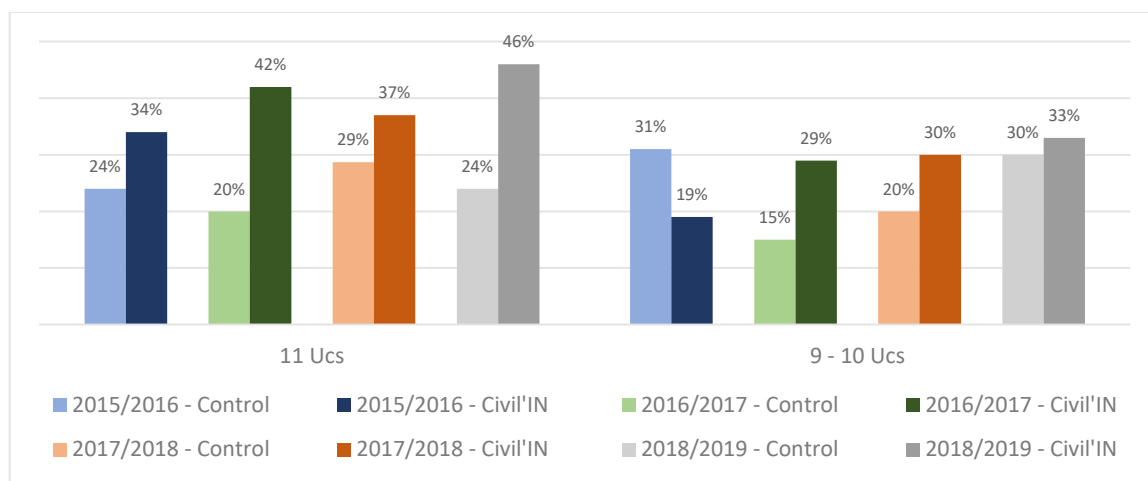


Fig. 2. CIVIL'in vs. control groups: 11 UC's (no failures), 9/10 UC's (1 or 2 failures)

Averaging through the four seasons, it can be seen that 40% of the CIVIL'in students were successful in all the 11 UC's, achievement that lowers to 24% in the control group.

With success in 9 or 10 UC's, still considered a satisfactory performance, those numbers are respectively 28% and 24% and include an atypical reverse result in 2015/16.

The second bar chart (Fig. 3) reveals that, on the contrary of some hypothesis, the CIVIL'in work for success in every UC in not drawn to minimal goals and is not done at the expense of good marks for the better students. The most significant marks averages, for success in all 11 UC's, are slightly better for CIVIL'in students and quite equivalent when referred to success in 9 or 10 UC's.

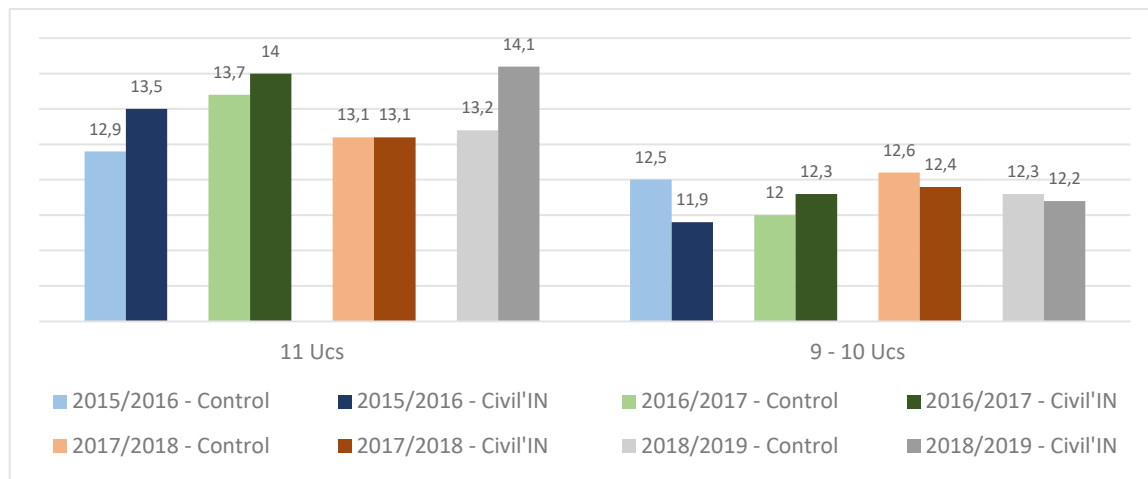


Fig. 3. CIVIL'in vs. control groups: average marks by most successful students

7 MENTORING IN FEUP AND UNIVERSITY OF PORTO

In the University of Porto, peer mentoring experience started at the Faculty of Sciences of Education and Psychology, in 2011/2012. It was followed a few years later, in 2015/2016 by the implementation of the programme CIVIL'IN in the Civil Department of FEUP. As the first experience in this faculty, as referred, and it was followed in successive years by the Department of Mechanics Engineering. and the Department of Chemical Engineering. Dealing with less students and high average grades (namely Mechanics), these two other programmes have both a single professor evolved, coordinating the activity of mentors and mentees.

Challenges are different, but there are common problems and solutions that have been shared. The Faculty, by its Pedagogical Council, has taken great interest in all three programmes, a FEUP Mentoring was created in December of 2018 to gather those experiences and it is already a reality on this new year (2019-2020) that all other engineering masters (Electronic, Metallurgical and Bioengineering) have started their own mentoring programmes.

Along with other peer mentoring experiences in other schools of the University of Porto (UP), CIVIL'in joined a proposal to the Direction of UP to create a network of mentories, taking acquired experiences to other schools of the university. An academic and scientific committee, where CIVIL'in is represented, was entitled by U.P. to promote peer mentory UP wide. Workshops and seminars are now being carried out in several schools.

8 CONCLUSIONS AND FURTHER STEPS

Since its first season, the programme CIVIL'in relies on basic structure with a single mentor (one of the older students) assigned to the new student, who accompanies him from the beginning of the course until the end of the first academic year. Each mentor, sometimes working along with other first-year students, is always associated to a MIEC professor who gives him support and orientation to each of the

mentor/mentee activities requested by the tutor/student and monitors the development of that association. After four years of experience, this form of jointed work still remains as essential for the CIVIL'in to fulfil the purposes for which it was established.

From academic results and other evaluations, it is clear that significant benefits were brought by the programme to the transition between high school and university. The arriving student feels that he can count on the support of a team that is able to help solving any problems in several fields, in promotion of their academic success, in the creation of favourable conditions for their personal and academic well-being and on forwarding difficult problems resolution to the competent services.

At an early stage of the integration process, the direct contact of the first-year student with the teacher in charge of the team is also very important since it helps to demystify the pedagogical relationship paradigm, teacher-student. In addition, the CIVIL'in programme fosters, from the beginning, the new student interaction with students of more advanced years, without being directly associated with hazing, proves to be an asset for a good adaptation process.

Taking into consideration the expressed opinions by students in surveys conducted during the programme and in addition to the meetings and get-togethers between the elements of each team, activities proposals to foster teamwork proved quite important landmarks in this process and should continue to exist in other editions.

Matching mentors and mentees remains as an open issue: their own will, origin or residence, favourite hobbies, all methods are arguable and broadly discussed by all members in advance. An interesting conclusion from the practice of these four years is that a student with high grades and an impeccable academic curriculum does not turn necessarily into the best mentors. It was observed that students who have experienced difficulties in integrating the community of FEUP and some setbacks in their academic curricula often find an easier way great empathy with first year students with similar profiles.

Additionally, to the formal and informal meetings between the elements of each team, other activities, combining leisure with civil engineering aspects, have been proposed, in each academic year. Along with the promotion of teamwork, these activities aim to complete the first year curriculum where science has a major role and there are not many opportunities to enter the world of Civil Engineering.

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