

# **Cognitive Diversity in the Classroom: the Role of Attention and Engagement in the Teaching-Learning Process in the Face of Dropout Rates in Higher Education**

**Gastón Sanglier Contreras<sup>1</sup>, Aurora Hernández González<sup>2</sup>,  
Inés Serrano Fernández<sup>2</sup>, Carmen B. Martínez Cepa<sup>4</sup>,  
Juan Carlos Zuñ Escobar<sup>5</sup> and Carlos M. Iglesias Sanz<sup>6</sup>**

<sup>1,6</sup> Escuela Politécnica Superior, San Pablo - CEU University, Madrid, Spain

<sup>2</sup> Faculty of Pharmacy, San Pablo - CEU University, Madrid, Spain

<sup>3,4,5</sup> Faculty of Medicine, San Pablo - CEU University, Madrid, Spain

*Corresponding autor:* Gastón Sanglier Contreras, Escuela Politécnica Superior, San Pablo – CEU University, Spain. Tel: +34 91 372 4025

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## **Abstract**

The idea of a classroom composed of students with more or less homogeneous characteristics is a chimera: we are increasingly finding heterogeneous teaching scenarios where students with a wide social diversity are grouped together. There are many studies on social inclusion through teaching strategies, PBL, etc., including on the attitudes and training on inclusion of university teachers focused on students with disabilities (2); but if we are not only referring to social, ethnic or cultural diversity, which causes a large part of the problems of inclusion, but also to diversity in levels of motivation, attention span and educational needs -cognitive diversity-, there are few studies on the inclusive role of attention and academic engagement in the classroom (19,28).

Academic engagement in higher education creates, according to the latest research, an affective commitment that positively influences the degree to which students are involved, connected and actively engaged in learning and the degree to which teachers are involved in and improve their teaching (16).

On the other hand, cognitive diversity in the classroom or knowledge-related diversity reflects the variety of student perspectives on learning, with the potential to enrich the group by diversifying and broadening heuristics and mental models, but may also show certain disabilities that hinder academic performance. The attached research proposal explores all of these parameters to help increase quality, equity, inclusion and success for all in education and training.

**Keywords:** cognitive diversity, attention, engagement, teaching-learning

## 1. Introduction

### *1.1 Background and current status*

Today's constantly evolving knowledge society poses inescapable challenges to higher education institutions, mainly due to the social and pedagogical implications of the spread of information and communication technologies (ICTs) and their universal extension. Moreover, the traditional role of the university as the main expert institution generating science and research and, consequently, as a producer of knowledge and innovation, has been notoriously affected by the new forms of democratisation and extension in the production of knowledge and by the growing demand to adapt curricula to business needs and its need to converge, in the case of Spain, with other members of the European Union. A redefinition of the role of university institutions is necessary, or at least their partial adaptation to the new circumstances.

On the other hand, these technologies of the knowledge society (of ignorance, as Innerarity, 2015, calls it, due to the resulting over-information), liberating at first, demand new skills from the teaching profession. Immersed in a hyper-connected society where the excess of information implies new educational demands with new ways of learning for students and new ways of teaching for teachers, there is an urgent need to update teacher training and a reformulation of content and methodologies that respond to the changing conditions of how people learn and how they teach today (26).

Added to these challenges in higher education is the growing diversity in the classroom. The idea of a classroom composed of students with more or less homogeneous characteristics is, as indicated above, a mere illusion. There are many teaching scenarios with large numbers of students with many problems. Nowadays, interdisciplinarity between many subjects is sought after, and it has become fashionable to make subjects interdisciplinary. This further deepens the differences between students who are led to a wider plurality in their academic education.

Academic engagement and cognitive diversity in higher education create and demonstrate the wide variety of student perspectives on learning in ways that positively impact on their education. Different learning abilities, aptitudes and skills are affected by attention problems and poor engagement in the classroom (21). Psychopedagogy, as a social science that integrates teaching methodologies and

strategies in the study of learning and teaching processes, is a fundamental discipline for researching the role of attention and academic engagement in the teaching-learning process (22).

There are numerous studies on the role of attention in primary and secondary education, its types and theoretical models (15), many of them oriented towards the problem of Attention Deficit Hyperactivity Disorder (ADHD), which is the most frequent neurodevelopmental disorder in children, affecting the development and functioning of executive functions and making learning difficult. However, in higher education, the same interest has not been shown nor has the same research potential been used to determine the cause-effect relationship of attention on the academic performance of students, nor have sufficient studies been carried out to quantify the relationship between poor attention and academic engagement with failure, delay in the completion of undergraduate studies, or, in the worst cases, dropping out, with the consequent economic damage to the public university (36). The numerous theoretical approaches explaining the attentional process, from structural models of attentional filter location (Broadbent - attenuated selection, delayed selection, multiple selection, attentional control models), limited resource models (Kahneman - Norman and Bobrow, multiple resource models), or dual theories of attention (Posner and Snyder - theoretical models of automaticity), as well as the latest research on the involvement that academic engagement promotes in the active participation of students, generating the so-called co-production (7), make up a basic theoretical corpus that requires new empirical work to better study the relationship between attention, academic engagement and performance in the teaching-learning processes in order to reduce dropout rates (14).

This is why these changes demanded in the teaching-learning processes of higher education must not lose sight of one of the ultimate aims of the university system, its Effectiveness, translated into success rates of its students. The recently concluded strategic framework for European cooperation in education and training (ET 2020), building on the achievements of its predecessor, the ET 2010 work programme, set among its four strategic objectives: Improving the quality and effectiveness of education and training.

This objective prioritises improving the quality and effectiveness of education and training with efficient governance and funding, promoting innovative ways to ensure sustainable investment in education and training, exploring performance-based financing and cost-sharing where appropriate (2015 Joint Report of the Council and the Commission on the implementation of the strategic framework for European cooperation in education and training - ET 2020).

And the recent strategic framework for European cooperation in education and training for the European Education Area and beyond (2021-2030), (OJEU, No. 66, 26 February 2021), agrees that effective and efficient investment in education and training is a prerequisite for improving the quality and inclusiveness of education and training systems and improving educational outcomes, as well as for boosting sustainable growth, improving well-being and building a more inclusive society (8). In its strategic priority 1, increasing quality, equity, inclusion and success for all in education and training, it calls for continued efforts to reduce the drop-out rate not

only in the case of early school leavers from pre-higher education (by 2030 it should be below 9%), but also, to achieve as one of the 7 EU-wide targets for 2030 that the percentage of 25-34 year olds who have completed higher education should be at least 45 %, not only facilitating greater educational inclusion but also reducing drop-out rates in higher education (Official Journal of the European Union C 66/1, 26 February 2021) (17,18).

According to the official publication of data and figures of the Spanish University System (SUE) 2020/2021 of the Ministry of Universities, for a total of 83 universities in Spain, 50 public and 33 private, in the academic year 2020-21 the number of students enrolled was 1,340,632, with 83.4% corresponding to public universities and 16.6% to private universities. The drop-out rate was 33.2%, of which 12% changed degree programmes. These official data coincide with the 2019 U-Ranking jointly prepared, as in previous years, by the BBVA Foundation and the Ivie (Instituto Valenciano de Investigaciones Económicas), which places the dropout rate at 33%, with 12% due to a change of studies (11.26). In other words, 21% abandoned their studies, 281,533 students. In addition to the damage to social inclusion that this entails by closing off access to higher education for a large number of students, the economic damage is considerable. The average price of a university credit 2020-21 is 17.18 € (source: Ministry of Universities); each degree consists of 240 credits and the second, third, fourth and successive enrolments increase the cost exponentially. Taking into account the average duration of undergraduate studies, we can estimate that the cost per university credit increases by 30%, resulting in a final cost of 22.34 € ( $17.18 \times 1.3$ ) and for 240 credits the total cost of the degree is 5,360 €. Let us cautiously assume that 10% of the 281,533 drop-outs are due to problems of attention and engagement: 28,153 students at 5,360 € means about 151 M €. With this figure, and to give a graphic example, we could promote, according to the average cost of subsidised housing in Spain, 1887 dwellings; or allocate this amount to improvements in the Spanish university system (13).

### ***1.2 Starting hypotheses***

In addition to classroom diversity, which is historically focused on the social as a determinant of universal inclusivity, cognitive diversity, centred on psycho-pedagogical models, is shown as an underexplored opportunity to study the impact that the application of appropriate teaching innovation techniques can have on the improvement of academic attention and engagement, in a bidirectional student-teacher sense, with an increase in academic performance and, consequently, a decrease in dropout rates in higher education, as an efficient resource for cognitive inclusiveness (10,25).

The focus is not only on the role of attention (3) and academic engagement and thus motivation in the student, but also on the teacher, who has recently been a neglected part of the educational process and is a strategic priority in the Council Resolution on a strategic framework for European cooperation in education and training for the European Education Area and beyond (2021-2030) - strategic priority 3: Improving

competences and motivation in the teaching profession -, where in addition to highlighting that educators must be highly competent and motivated, the fundamental role of leadership in the field of education and training is emphasised: Precisely our research group, Grupo de Investigación de Metodologías de Innovación Docente y Liderazgo, GIMIDyL, has extensive experience in the tasks of Leadership.

From this hypothesis we infer the general objective of our project: To assess the influence of the application (or not) of teaching innovation techniques on student attention and its relationship with engagement and the dropout rate in higher education. This general objective will be developed into 6 specific objectives, as explained below.

### ***1.3 Justification and contribution of the proposal***

In the field of education, it is common to use learning analytics applied to the teaching-learning process to measure, collect, analyse and present data about learners and their contexts (24,35). The first International Conference on Learning Analytics and Knowledge took place in 2011 (LAK 2011 : 1st International Conference Learning Analytics and Knowledge, Banff, Alberta, Canada), held at the convergence of learning (teaching innovation, learning and assessment sciences, educational technology), analytics (statistics, computer/data science, artificial intelligence) and human-centred design (technology usability, participatory design, socio-technical systems thinking) (9,12). While historically a widespread use of learning analytics has been in predicting students' academic success, and most especially potential dropout rates, in the nine editions of LAK (Learning Analytics and Knowledge), where particular emphasis has been placed on exploring the ways in which institutions around the world are advancing the state of learning analytics to promote inclusion and success, the classroom diversity being studied does not include cognitive diversity.

Thus, at the last LAK held before the pandemic in Tempe, Arizona, 2019, and at the SNOLA Spanish Network of Learning Analytics, inclusion has been defined broadly - marginalised groups, students with school failure, limitations in accessibility to education, etc. - but cognitive diversity is not considered as a determinant of academic performance in the classroom (20,23). Attention to socio-cultural diversity has been one of the priorities of the educational community in recent years and many international agreements have been established to achieve inclusive education (UNESCO, Education for All, 2015) with equal opportunities to achieve an inclusive and non-discriminatory society. However, these educational policies of recognition of social and cultural plurality lack awareness of another diversity in higher education students, namely cognitive diversity.

Attention and academic engagement, which are intrinsically linked to motivation and emotion, are determining factors in student performance and make it possible to assess and determine the state of cognitive diversity in the classroom (32,33). It is necessary to study their role in the teaching-learning process in order to optimise academic success and reduce the high dropout rates at university. If we want an

inclusive university linked to universal access and the quality of educational processes with inclusive methodologies, to promote in the new generations broad capacities to innovate and manage knowledge, the role of attention and academic engagement acquire a special teaching interest for the improvement of the teaching-learning process aimed at promoting equity and equality in collaborative environments among students that allow the incorporation of the least qualified social sectors by strengthening their skills and talents, in the interests of a democratisation of knowledge (27).

Psychological and educational variables are the main determinants of success or failure in higher education studies, and specific empirical work is needed to explore the role that attention and academic engagement play in the high dropout rates in higher education through psycho-pedagogy (29). We believe that the implementation of a Psychopedagogical Guidance Service at Spanish universities would contribute significantly to strengthening the role of attention and academic engagement within the cognitive diversity of the classroom, substantially improving dropout rates. In addition, this project considers both the student and the teacher, providing positive feedback on the motivation of both to enable academic optimisation (31).

As for the viability of the Project, the Research Group on Teaching Innovation Methodologies and Leadership, GIMIDyL, has extensive experience in Teaching Innovation and Leadership tasks, as accredited by its numerous publications and participations in National and International Conferences (CVAs) (34). It has a multidisciplinary team in gender parity that integrates the required academic profiles with extensive teaching experience and application of innovative methodologies, with a physicist and engineer and a senior architect (Polytechnic) for statistical work and data analysis and processing, two graduates in Humanities for the work of social data analysis, a biologist for the work of quantitative and qualitative interpretation of the data obtained and a psychologist for the supervision of the project from the psychopedagogy (1,4,6).

The fieldwork will begin, according to the schedule, at USP CEU in different courses and degrees (architecture, biotechnology, law and criminological and security sciences, nursing, pharmacy, pharmacy and nutrition, physiotherapy, nutrition and optics), paying special attention to first-year students, which is where the highest dropout rates occur. Subsequently, the field of work will be extended to the Cardenal Herrera University in Valencia and the Abat Oliva University in Barcelona. And it will be completed with work at two foreign universities, the Universidad San Francisco de Quito, Ecuador (USFQ) with which there is an agreement, and the Tecnológico de Monterrey, Mexico. Collaboration agreements will be established with both universities for future developments of the project (5,7).

## **2. Methodology and materials**

The general objective of the proposed research project being carried out at the CEU-San Pablo University is to assess the influence of the application (or not) of innovative teaching techniques on student attention and their relationship with engagement and the dropout rate.

The following specific objectives are highlighted:

- 1) To describe student attention, performance, level of engagement and related variables, and to determine the relationship between them.
- 2) To describe university lecturer engagement (post-covid), and variables related to teaching, academic and employment status, and to determine the relationship between them.
- 3) To determine the relationship between student attention and engagement, and the use (or not) of innovative teaching techniques.
- 4) To determine the relationship between teacher engagement and student attention and student engagement.
- 5) To propose and analyse an explanatory model of performance based on student attention and engagement, the use (or not) of innovative teaching techniques and teacher engagement.
- 6) To propose and analyse an explanatory model of the school dropout rate based on the variables previously collected.

### **2.1 Hypotheses**

The following hypotheses have been put forward in the Project being carried out:

- H1. It is expected to obtain the profile of the student in the following variables: attention, performance, engagement and other variables related to attention.
- H2. We expect to obtain the profile of the teacher in the following variables: level of engagement and other variables related to teaching.
- H.3 It is expected to find significant differences in student attention and engagement depending on whether or not the teacher applies any teaching innovation technique.
- H4. We expect to find a high and positive relationship between teacher engagement and student attention and engagement.
- H5. It is expected to identify which of the previously studied variables explain student performance.
- H6. It is expected to identify which of the previously studied variables explain the student's dropout rate.

### 2.3 Pilot Study

This study seeks to address objectives 1, 2, 3, 4, 5, and thus to answer hypotheses H.1, H.2, H.3, H.4, H.5. The following methodology is proposed for the studies of the different phases:

-Design: longitudinal observational.

-Participants: The type of sampling will be incidental. The participants will be, on the one hand, the undergraduate students of different subjects and degrees, and on the other hand, the lecturers who teach undergraduate subjects and degrees in the first semester during the 22/23 academic year at the CEU San Pablo University.

SUBJECT	COURSE/SEMESTER	DEGREE
Physical basis of Architecture 1	1º (1º sem)	Degree in Architecture
Architectural projects 3	3º (1º sem)	Degree in Architecture
Biochemistry 1	2º (1º sem)	Degree in Biotechnology
Prevention and treatment of criminal behaviour	2º (1º sem)	Degree in Law and Criminology
Biochemistry and molecular biology	1º (1º sem)	Degree in Nursing
Biochemistry 1	2º (1º sem)	Degree in Pharmacy
Biochemistry 1	2º (1º sem)	Degree in Pharmacy and Nutrition
Electrolytic agents	2º (1º sem)	Degree in Physiotherapy
Psychosocial sciences applied to physiotherapy	1º (1º sem)	Degree in Physiotherapy
Physiotherapy in central and peripheral nervous system disorders	3º (1º sem)	Degree in Physiotherapy
Biochemistry	1º o 2º (1º sem)	Degree in Nutrition
Biology and biochemistry	1º (1º sem)	Degree in Optics

**Table 1.** Subjects, semesters and degrees that will participate in the study

-Study variables:

- Student-related variables: attention, performance, engagement and other attention-related variables (appendix 1 and UWES-S scale).
- Teacher-related variables: level of engagement and other variables related to teaching, academic and work situation (appendix 2).



-Procedure:

Students will complete a self-report questionnaire through the Microsoft Forms application online that includes socio-demographic data, variables related to attention and lack of attention during class, three questions about the content of the recently taught class (appendix 1), and the student version of the UWES-S scale (Utrecht Work Engagement Scale Student version). They will have been previously informed of the objectives and methodology of the study, having completed the corresponding informed consent form. The performance will be operationalised as the final mark obtained in that subject and will be provided by the lecturer at the end of the extraordinary session and will include both the ordinary and extraordinary marks.

As for the teacher, he/she will have previously prepared a questionnaire of three questions to be answered by the student. These questions will be answered with the information explained in the first, second and third quarter of an hour of the class, respectively. In addition, they will answer a questionnaire addressed to the teacher, which includes the collection of socio-demographic data, related to teaching and their academic and work situation, and the UWES scale (Utrecht Work Engagement Scale).

The UWES-S (Utrecht Work Engagement Survey Student version) questionnaire (Schaufeli & Baker, 2003) is a self-report made up of 17 Likert-type items with 5 response options ranging from 1= strongly disagree to 5= strongly agree. The scale adapted to Spanish with university education students showed a good fit to the model. Specifically, the CFI was .99, the GFI .99, the BIC 411.900 and RMSR of .47 (Cachón, Lara, Zagalaz, López, & González, 2018).

The UWES (Utrecht Work Engagement Survey) questionnaire is a self-report composed of 17 Likert-type items with 7 response options ranging from 0= no time to 6= every day. It consists of 3 factors: vigour (6 items), dedication (5 items), and absorption (6 items) whose respective Cronbach's alpha was .77, .89 and .73 (Salanova, Schaufeli, Llorens, Peiró and Grau, 2000). As for the fit to the hypothesised model in the revised version, the analyses indicate RMSEA values of .08 and .90 for the other indices (except AGFI .88).

-Statistical analysis

For the descriptive analysis, mean and standard deviation will be used for quantitative variables; medians and ranges if the distribution is not normal. For qualitative variables, frequencies and percentages. To assess the normality of quantitative variables, the Kolmogorov-Smirnov test will be used when the 'n' is greater than 30 and the Saphiro-Wilk test for a n less than 30.

Hypothesis tests shall be performed with Student's t-test if the distribution is normal. If not, the Mann Whitney U statistic will be used. For qualitative variables, Chi-square will be used. Correlation will be obtained using Pearson or Spearman

depending on the level of measurement of the variable and the distribution. The significance level used will be 0.05.

The programme to be used for the analyses indicated will be SPSS version 27.0.

-Contingency plan:



**Figure 1.** Contingency plan foreseen in case of low participation

### 3. Discussion

The achievable results in line with the attainment of the objectives of the project proposal will have a considerable impact at different levels and in different fields.

#### 3.1 Scientific and technical impact

From a purely scientific-technical point of view, the proposal contains novel elements in the specific objectives of the Project:

- (a) To describe student attention/attention, performance, level of engagement and related variables in the classroom environment.
- b) To describe the engagement of university teachers (post-covid), and the variables related to teaching, their academic and work situation.
- c) To determine the relationship between student attention, engagement and the use (or not) of new teaching innovation techniques.
- d) To determine the relationship between teacher engagement and student attention.
- e) To propose and analyse an explanatory model of performance based on student attention and engagement, the use or non-use of innovative teaching techniques and teacher engagement.
- f) To propose and analyse an explanatory model of student drop-out rates based on the variables collected.

From the point of view of Higher Education, the proposal will have a real impact on Higher Education, which will have repercussions in terms of having diversity with a tendency towards excellence, an objective that is strongly sought after by the Modern University Plans.

The attention factor is closely related to improved learning and to the processes of teaching innovation leading to improved performance of both teacher and student in the classroom. This will lead to an increase in the number of graduates and a decrease in the number of drop-outs, which will be of greater benefit to society.

### ***3.1.1 Dissemination plan***

The data derived from the studies of the Project will be published in different scientific journals, mainly indexed, as well as presented in national and international congresses where the research group participates. They will also be communicated through the communication channel of the CEU San Pablo University, as well as other media in radio (COPE) and press (La Razón, etc.).

Collaboration with international universities such as the Tecnológico de Monterrey in Mexico and the Universidad San Francisco de Quito (USFQ) is foreseen, which will achieve a more international dissemination of results through oral communications, conferences and the publication of articles related to the different stages of the project.

Among the dissemination activities, the research programmed in the project has to incorporate different media (interfaces, motivational and co-learning tools) to promote not only a transparent reception of the knowledge generated, but also public participation in this production. The means will be:

- A profile on the most popular social networks (Facebook, Twitter, etc.).
- A web page or wiki where the processes and results of the work can be reflected.
- The holding of social events (workshops, discussion groups, COILs,) for reflection and dissemination on the central themes of the research.

### ***3.1.2 Transfer***

Evaluation studies in Education can contribute a lot to a necessary renewal of knowledge transfer and teaching innovation. In this case, the different deliverables foreseen in the Project (5 in total, marked in the chronogram), are of maximum interest for the university institutions that have to try to maintain the best rates of students graduating from the different degrees they teach. The theoretical and methodological advances (analytical approaches, glossary of techniques, methods of evaluation of results) are also potentially transferable to cultural institutions, public and private management companies, as well as being used in other research projects.

Deliverable E1 will present the results of the pilot study seeking to address the first five specific objectives of the project and to answer the first five hypotheses indicated in the project methodology. It will be delivered at the beginning of the

second semester of the first year. Dissemination at national/international level is expected with two publications and two conference attendances.

Deliverable E2 will show the results obtained from addressing objective 1 and the response to the first hypothesis in a larger sample of participants than in the pilot study. It will be delivered in the second semester of the second year and two publications and one/two conference attendances will be made.

Deliverable E3 will show the results obtained from the scope of objective number 2 and provide an answer to the second hypothesis set out in the Project. It will be delivered in the first semester of the second year. It is expected to be disseminated at national/international level with two publications and two attendances to congresses.

Deliverable E4 will present the results once objectives 3, 4 and 5 have been achieved in the enlarged sample of participants. Delivery is foreseen in the second semester of the third year. Dissemination at national/international level is expected with two publications and two conference attendances.

Deliverable E5 and last will present the results of achieving objective 6 and respond to the sixth hypothesis set out in the Project. It is expected to be delivered in the second semester of the third year. Dissemination at national/international level is expected with three publications and three attendances to congresses.

### ***3.1.3 Research Data Management Plan***

The data collected from the Project will be mainly self-report type questionnaires through the Microsoft Forms application online addressed to the student. UWES-S (Utrecht Work Engagement Survey-v Student) questionnaires aimed at teachers will also be used. The data collected in these reports will be made public through different publications in high-impact journals in the first year of the study. Subsequently, the data will be guarded by the Research Group in Excel-type sheets and available to entities/researchers interested in the subject matter.

### ***3.2 Socio-economic impact***

In order to evaluate the changes that a project generates (purpose/impact of the project), it is recommended that this be done 3 to 5 years after the end of the project; in some cases, it is done after 8 years. Ex-post evaluations will serve as a baseline for this evaluation, if they have been carried out; if they have not been carried out, they should be taken as a baseline based on the collection of existing and reliable historical information. The evaluation of the Project's impact will be based on the following basic parameters:

The main objective of the Research Project is consistent with the University's development priorities for the immediate future, where the current Covid-19

pandemic has accelerated the number of students dropping out of their undergraduate studies for different reasons, including lack of attention, mainly due to the increased use of ICT's in the classroom by students. The massive introduction of teaching methodologies that are not suitable for certain subjects has also led to the desire of students to drop out of the different degrees. In this new scenario, being able to accurately determine the reasons that have an impact on the dropout rate of these students, the incorporation of new techniques and methodologies that help in learning, are welcome for a higher quality teaching and a better help to teachers by providing them with new skills, which ultimately will show positive results. The relevance analysis makes it possible to determine the validity of the results of the Project as a contribution to the changes defined in the objectives of the teaching development programs of the different Spanish Universities. In essence, this evolution has a quantitative and qualitative character.

According to the Ministry of Universities, the number of students enrolled in public universities (83.4%) and private universities (16.6%) in the 2020-2021 academic year is estimated at around 1,340,600. It has been verified that the average number of dropouts during the first year of undergraduate studies is around 21%, i.e. 281,526 students. If we consider that each Degree has 240 credits, and that the value of the average credit is 17.89 euros, the cost of the student in first enrollment would be around 4,294 euros. If we consider second and third enrollments, the cost would be approximately double, and from fourth enrollments onwards, the price quadruples. If we now assume that due to lack of attention, we consider 5% (a figure that will have to be evaluated possibly upwards), some 14,076 students would drop out, which would cost the State approximately 60,442,3000 euros (in first enrollment). This money could be used to reinvest, for example, in 1,000 VPPB (Basic Public Protection Housing), or in improving the teaching-learning methods of the teaching diversity (teacher/student), as well as updating the material and laboratories of the Higher Education Centers, so that it is possible to improve the training of students, with repercussions on the training of the population and on the general welfare of all.

The degree of effectiveness of the factors associated with the lack of attention to diversity in the classroom and the specific objectives presented in the project, will be seen over the next five years, however, due to the demand for new tools to assist in student learning, the results will be seen much sooner. In essence, this evaluation of the degree of effectiveness of the Project contains a quantitative character that will be observed in a lower number of student dropouts, especially in the first year, in the different Degrees, with a greater number of students enrolled, as well as a greater number of students graduating from each degree program, with economic repercussions for the University and the country.

Better prepared graduates with lower dropout rates in the first year, with environmental awareness and better knowledge of the environment, as well as training in values, accompanied by better training and preparation of teachers (knowledge, motivation, etc.) will provide a more competitive, more capable and more caring generation to carry out a better transfer of knowledge that will improve society.

The integration of the gender perspective will be introduced as a variable of analysis of the problem of abandonment and how it is affected by society and the use of new technologies, the person who is in a situation of gender inequality will be identified and the possible adoption of special protection measures under the scope of the Project study will be assessed.

The impact assessment is a complex activity that often requires the analysis of information, questionnaires and statistical analysis; however, the help of experts could simplify this aspect by making the best use of the information analysis and its criteria for the assessment exercise. The choice of the most determining factors in the student dropout rate and the search for bibliographic information in the different fields of higher education will help in the validity of the initial questionnaires of the Project. This validates in some way and gives credibility to the selection of the variables and the final determination of the model, which will seek the integration of all parts of the Project.

All the results obtained by the Research Group during the different stages of the Project's development will be disseminated through publications, communications, papers and the media, a commitment acquired by the group with the identification of the milestones marked and published in high impact media.

#### **4. Conclusions**

This project reveals a methodology for measuring certain parameters that have not been studied in the desired depth.

A series of specific objectives and hypotheses have been set out in order to develop the proposed methodology.

It will serve to describe the student's attention, performance, level of engagement and related variables, and to determine the relationship between them. To describe the engagement of university lecturers (post-covid), and variables related to teaching, their academic and work situation, and to determine the relationship between them. To determine the relationship between student attention and engagement, and the use (or not) of innovative teaching techniques. To determine the relationship between teacher engagement and student attention and student engagement. To propose and analyse an explanatory model of performance based on student attention and engagement, the use or not of teaching innovation techniques and teacher engagement, and finally, to propose and analyse an explanatory model of the school dropout rate based on the variables previously collected.

The achievement of the above goals will be established in accordance with the hypotheses set out in which it is hoped to obtain the student profile in the following variables: attention, performance, engagement and other variables related to attention. It is also expected to obtain the profile of the teacher in the following variables: level of engagement and other variables related to teaching. On the other hand, the aim is to obtain significant differences in student attention and engagement depending on whether or not the teacher applies any teaching innovation technique; it is also sought to find a high and positive relationship

between the teacher's engagement and the student's attention and engagement. And finally, to identify which of the previously studied variables explain student performance and the dropout rate.

All these proposed parameters and objectives will help to increase quality, equity, inclusion and success for all in the field of education and training. Students and teachers are part of this whole, as are the people who make up the fields of excellence and training in Higher Education from the bottom to the top of the institutional pyramid.

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