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“Improving Student Educational
Engagement in Primary Education:
Intervention Program”

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Abstract

In 2019, Spain had a rate at 17'3% of early school failure which, even though it refers to youths aged between eighteen and twenty-four years old, it is suggested to have its origin in primary school (Moreira, Patacho, Monteiro, Vázquez, & López, 2018). Regarding this data and considering that disengagement is one of the causes, the positive psychology has been suggesting addressing this issue focusing on identifying the factors that cause a student to be engaged to intervene in the rest of the students and achieve their success following a path similar to that of those who have already managed to be motivated, enjoy learning and succeed (Balwant, 2018).

Thus, the present Final Project Work is intended to design an intervention program which is based on the keys to achieving educational engagement in students of fourth grade of Primary Education. For this, a previous analysis deepening the concept of engagement and the recommended strategies to achieve it has been done so as to base the program on the most recent scientific literature. The result is a proposal to be developed throughout the whole school year and transferable to any subject since it is based on PBL, a methodology which combines the learning of subjects without separating disciplines and Flipped Classroom, which enhance the development of active lessons in which real problems will be addressed while instruction is moved to homework. Finally, it will be assessed through a modified version applied to elementary students of the Mixed Multifactor Scale for Educational Engagement (MMSEE) which considers all the key factors linked to educational engagement (Reyes, 2016).

Key Words

Educational Engagement, MMSEE, Flipped Classroom, PBL, Primary Education.

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1. Introduction

Among the main objectives of education are the personal development of students (on a physical, cognitive and personal level); the transmission of culture for its preservation and, at the same time, its opening to the world; and, with a view to the future, the development of the workforce (Yuliani & Hartanto, 2016). Given the importance of education, pursuing the accomplishment of these objectives, educational systems take a chance on continuous improvement so as to boost their performances (Constante, Chimbo, Jiménez, & Gordón, 2019; Ríos & Díez, 2019). This could lead to believe that the weaknesses of the educational system are being reduced and offering students the attention they need. However, the situation is still far from expectations.

In 2019, Spain had a rate at 17'3% of early school failure, a term which refers to young people aged between eighteen and twenty-four years old (Ministerio de Educación y Formación Profesional, 2020). Although these are young people who have not completed the second stage of secondary education, it is suggested that this failure could have its origin in primary education (Moreira et al., 2018). Ratifying this possible origin, the results of the 2011 PIRLS and TIMSS tests in Spain showed that 19% of students were unmotivated in the fourth grade of Primary Education (Ministerio de Educación y Formación Profesional, 2012). Regarding this data, early school failure has become one of the main concerns of educational policies, been even a priority in the Europe 2020 Strategy's agenda (European Commission, 2020). Furthermore, the European Commission aims to analysing those causes of students' dropout in Spain, country who has the highest marks concerning this aspect (Bayón, 2019).

Disengagement has been identified as one of the causes, and a trigger, for students' failure and the resulting early dropout and, consequently, it was suggested to be more efficient than focusing in dropout researches to solve this alarming situation (Henry, Knight, &

Thornberry, 2012). Thus, disengagement studies pay attention to indicators such as low achievement on standardised tests, negative interactions with others or poor attendance, among others (Stoddard, Hughesdon, Khan, & Zimmerman, 2020). However, the positive psychology approaches the subject from another perspective and, given what Trowler and Trowler claimed, an unmotivated student is likely to fail along the way; so the opposite statement could be assumed, a motivated student is more likely to be successful (Owen & Dunne, 2013). In this way, this psychological stream proposes to focus on identifying the factors that cause a student to be engaged to intervene in the rest of the students and achieve their success following a path similar to that of those who have already managed to be motivated, enjoy learning and succeed (Balwant, 2018).

Thus, the present Final Project Work is intended to design an intervention program which is based on the keys to achieving engagement in students of fourth grade of Primary Education. For this, it will be necessary a previous analysis that deepens the concept of engagement, as well as discovering the recommended techniques to achieve it. Finally, it will be assessed through a mixed multifactor scale which considers all the key factors linked to educational engagement.

2. Framework

2.1. Definition and roots of engagement

Engagement is a complex construct which has been in constant flux and review, and still today there is not a consensus for defining it (Mennitt, 2019; Reyes, 2016). In an attempt to define, it is convenient to look back first and know the reason for its origin. Educational engagement has its roots in the educational community's attempt to reconnect students with their learning, understanding those factors which are auspicious, and which seek the well-being of students (Willms, Friesen, & Milton, 2009). Thus, the achievement of the students

would be improved, and the dropout would be prevented (Finn & Zimmer, 2011). In this way, always maintaining the same objective, educational engagement went from being in its beginnings a reactive response to negative attitudes and performances of students towards their learning; to be a proactive response to encourage positive behaviours in learning environments, a perspective which derives from the positive psychology (Reyes, 2016).

Therefore, it could be said that educational engagement is the active involvement of the student in the didactic activities of the classroom (Merlin, Harris, & Mason, 2019). However, the concept of educational engagement is more than involvement or participation (Trowler, 2010); it encloses a wide variety of variables that makes it a multidimensional construct able to explain “how children feel, behave and think at school” (Fredricks & Paris, 2006; O’Brien & Iannone, 2018) such as emotion, behaviour, cognition, feelings (Finn & Zimmer, 2011). Hence, educational engagement is not only linked to academic performance, but a complex construct influenced by environment which has three different dimensions: affective, behavioural, and cognitive (Merlin et al., 2019) which are explained hereunder.

Regarding *affective engagement*, authors relate it with a sense of attachment of students to school, which is seen as a prediction of the positive experience of the student (Tian, Zhang, Huebner, Zheng, & Liu, 2016). Further, affective engagement is also thought to affect students' success and motivation, as well as their social relationships with agents involved in the teaching-learning process; mainly, peers and teachers (Finn & Zimmer, 2011; Ribeiro, Pereira, & Pedro, 2019). On the other hand, *behavioural engagement* is characterised by learners' compliance of school rules such as attendance and their eagerness for effort and participation in those academic activities and dynamics carried out in the school (Li & Lerner, 2013). In third place, *cognitive engagement* refers to the student's view and belief regarding their learning (Li & Lerner, 2013). A cognitively engaged student is this who ready to invest,

to go beyond in their learning; who seek to mastery and is positively influenced by teachers' attitudes and performance when suggesting students questions or challenges which motivate them to continue engaged in learning (Finn & Zimmer, 2011; Jamaludin & Osman, 2014; Trowler, 2010).

Thus, even though each dimension is depicted by multiple indicators, they are all interconnected among them and with the environment. Therefore, although there is no consensus on the definition, this construct can be considered to be the combination of the three dimensions plus the environment that positively affects a reconnection of students with their learning (Mennitt, 2019). In this way, commitment is not only a goal but also the process, with all its strategies, that helps reach that goal (Reyes, 2016).

2.1.1. Burnout and engagement

During their schooling, there are students who must face situations for which they are not still prepared due to the high demand for skills or strategies that they entail, as well as the levels of stress they cause (Caballero, Hederich, & García, 2015; Martínez & Salanova, 2003). As a result, students lose interest in learning, develop an attitude of self-criticism whereby they do not perceive themselves capable of making the necessary efforts to learn, and for them learning loses all the value that it could have (Caballero et al., 2015). These situations, in many cases, end up leading to early school dropout, and the low probability of success of these students (Reyes, 2016).

Experimentation of these conditions is known as the academic burnout syndrome. Burnout has therefore been considered a negative experience of extended stress derived from individual and contextual conditions and composed of three different dimensions (Caballero et al., 2015; Leiter & Maslach, 2017). The first is exhaustion from the developed activity, learning in this case; the second is cynicism towards this activity; and a feeling of inefficacy

in the search and implementation of answers to the situations that arise (Bianchi, Schonfeld, & Laurent, 2015).

For a few years now, scientific efforts have focused on investigating this situation in terms antagonistic to burnout (Marisa Salanova & Llorens, 2008). This change in perspective led to study Educational Engagement, a construct that, as explained above, deals with the student's good performance and strengths (Caballero et al., 2015). Thus, this term is linked to involvement, to positive experience and is made up of three dimensions: vigour (understood as energy), dedication and absorption (Leiter & Maslach, 2017). In fact, two of these dimensions are possible opposites of burnout cynicism and exhaustion dimensions (Schaufeli & Bakker, 2004). This is because engagement is a state of the individual that oscillates, that is, it is not permanent, since a student can move between different degrees of engagement depending on the task they perform, the moment and also depending on general aspects of their life and context. That level of engagement can also vary from activity to activity (Leiter & Maslach, 2017). Thus, the relationship between burnout and educational engagement resides in that both are profiles of a scale that measures the involvement of the individual; being burnout the lowest level and engagement the highest and most favourable (Leiter & Maslach, 2016).

2.1.2. Flow theory

The flow experience was first coined by Csikszentmihalyi, who described it as a state of good feeling generated by people's motivation and enjoyment toward the daily activities that they develop (Faiola, Newlon, Pfaff, & Smyslova, 2013; Oliveira et al., 2018). The intrinsic motivation that certain activities generate in the individual causes the person to be involved in them to the point of losing track of time or their own movements due to the high level of concentration (Csikszentmihalyi, 1996). In addition, the state of flow is so gratifying that it

leads the individual to be willing to repeat this activity continuously and with increasing progressive difficulty so that the challenge it involves never wanes (Ro, Guo, & Klein, 2018).

Csikszentmihalyi, origin author of flow theory, established nine conditions that an activity should possess to promote the state of flow; being the first three of them the most important and those whose effects have been extensively proven (Gyllenpalm, 2018). Those necessary dimensions are: (1) clear goals; (2) immediate feedback; (3) balance between challenge and skills and available resources; (4) merge of act and awareness; (5) feeling of control; (6) ease concentration; (7) mislay of self-consciousness during the activity; (8) loss of the sense of time; and (9) experience of intrinsic motivation (Oliveira et al., 2018; Ro et al., 2018). These nine conditions are simplified in three key characteristics: “absorption, enjoyment and intrinsic interest” (Oliveira et al., 2018, p. 31).

In the school setting, it has been demonstrated that those individuals who face activities which gather the previous conditions and, therefore, experiment the flow status, have promoted their learning and development in artistic, athletic, and cognitive potential (Landhäußer & Keller, 2014). Moreover, involvement in the activity is such intense that other aspects such as enjoyment, perseverance, dedication, and positive attitudes and behaviours, in general, are enhanced (Raphael, Bachen, & Hernández, 2012; Ro et al., 2018). Hence, students' performance improves in general.

Finally, it is said that engagement partly depends on the optimal flow conditions which are considered the peak of satisfaction, commitment and motivation regarding the relationship between the person and its daily activities (Austin & Gregory, 2020; Ellwood & Abrams, 2018). And those students who learn in favourable educational settings develop the flow status which propitiates them to be engaged and vice versa (Reyes, 2016; Saavedra, 2015). All this is possible if the students perceived that new learning and skills are being acquired

and if challenges are presented in a progressive difficulty adapted to its possibilities without being boring or frustrating (Ellwood & Abrams, 2018).

2.2. Teachers and students perspective

The role of students and teachers in reaching engagement is obvious; they are the main agents in this equation. However, it has been found a lack of studies which takes into account their conception of educational engagement (Dunleavy & Milton, 2009). The few pieces of research in which teachers are surveyed about educational engagement showed the difficulties that they face when trying to define the construct, inasmuch as it is displayed by students, but has origin in many factors, and can be assessed in a wide variety of ways. That way, their approach to teaching is highlighted to affect teachers' conception of educational engagement (Barkaoui et al., 2015).

Among the factors identified by teachers, those who mainly impact students' engagement are (a) the extent to which the curriculum reflects the diverse cultural groups in the school; (b) the social problems which affect students and its surroundings in the community, the school and families; and (c) students' parents' involvement in their education and the school community (Barkaoui et al., 2015). Bearing those factors in mind, teachers believe that students need them to foster motivation, being systematic and organised, as well as set out stimulating assessment assignments (Exeter et al., 2010). Besides, they stated the importance of students' behaviour, which is related to participation as an indicator of educational engagement (Barkaoui et al., 2015).

Gathering these ideas and the perspective of a large number of members of teaching staff, six different conceptions of what educational engagement means for teachers were established by Harris (2008, p.65): “(•) participating in classroom activities following school rules; (•) being interested in and enjoying participation in school activities; (•) being

motivated and confident in participation in school activities; (·) being involved by thinking; (·) purposefully learning to reach life goals; (·) owning and valuing learning”. Despite these clarifying six conceptions of how engagement could look like in the school, there are still many teachers who report having difficulties to identify students who were engaged and those who were not due to the fact that engagement is not static; it depends on the context and flux across courses, lessons or teachers. For this very reason, engagement would not be possible to be assessed in specific moments, but over time (Barkaoui et al., 2015).

Finally, teachers expressed that in order to enhance students' engagement, they implemented several strategies mainly addressing issues related to the students, the teacher, and the classroom. Among these techniques stand out strengthening student-teacher relationships, culturally specific curricula issues or having teachers show their commitment to reach students' engagement (Barkaoui et al., 2015). Other authors emphasised the use of new technologies and active learning methods as a way to enhance educational engagement (Clark, Nguyen, Bray, & Levine, 2008; Exeter et al., 2010).

On the other hand, the concept of engagement does not have an obvious meaning for students at first glance. Once it is explained to them, students perceive engagement as cooperation with peers, taking advantage of the knowledge of each one to improve their own understanding and vice versa (Owen & Dunne, 2013). They mention active learning strategies as a way to achieve their engagement in classroom activities (Wiggins et al., 2017). Some students also describe educational engagement as active participation in activities of the school sphere which are not compulsory for their courses (Owen & Dunne, 2013).

2.2.1. Strategies to improve students' engagement

As far as educational engagement definition is concerned and in line with teachers and students' perspective of the construct, diverse factors such as self-regulated learning and good

social skills have been found to contribute to students engagement (Ulmanen, Soini, Pyhältö, & Pietarinen, 2014). Educational strategies which gather those factors and the diverse engagement' dimensions usually require some time to plan and implement, and in-depth adjustment of teachers' instructional practices such as the inclusion of new teaching tools which may involve technology (Bender, 2017).

Regarding the good social skills factor, a special emphasis is made on relationships between the teacher and their students. In this sense, prior researches have reported that those students who felt appreciated by their teachers usually show more positive attitudes, such as great effort, towards schoolwork (Pietarinen, Soini, & Pyhältö, 2014; Ulmanen et al., 2014). Those teachers who succeed in getting their students engaged normally meet three qualities: they are demanding since they have high expectations of their students for learning; they are intentional, and they are supportive; it is, they seek to generate interest, give feedback and create a respectful environment in the classroom which makes students feel they are welcomed (Goodwin & Hubbell, 2013). Thus, even though it is highlighted that researches do not substitute the teacher's experience in the classroom, where they can get to know their students, there exist tips to reach educational engagement such as measuring it so as to discover those methods which fit better for a specific group; focus on the relationships established in the classroom; engaging students in challenging questions which arise their curiosity; or connect lessons with the real world (Abla & Fraumeni, 2019). Some instructional strategies which make this safety environment possible are differentiated instruction, the flipped classroom or the Project-based learning methodology (Bender, 2017; Stone, 2012).

The flip side of the coin suggests that social relationships with peers also show benefits in improving students' engagement since individuals present a natural tendency to become more focus on a task when they can interact with others (Bender, 2017). This is partly

explained because socialization with peers provide students with emotional and social support which makes them feel a sense of belonging to the group (Ryan, North, & Ferguson, 2019). Moreover, students who rely on their peers help when it is necessary are more behaviourally engaged. Hence, it is suggested that group work activities in which students have to cooperate to achieve the objectives are associated with significantly higher levels of engagement (Nguyen, Cannata, & Miller, 2018). Among the wide range of collaborative instruction possibilities, there are some which stand out from the rest: blogging, social networking for learning such as Twitter or the role-play instructional strategy (Bender, 2017). However, in general, any team-based learning strategy could result in positive effects in students' engagement levels if they are orientated towards students' interests and if it is properly and carefully planned and implemented (Clark et al., 2008).

On the other hand, self-regulated learning refers to the state acquired by students who reach the ability to plan, manage and control their own learning being cognitively and behaviourally motivated (Dent & Koenka, 2016; Kizilcec, Pérez, & Maldonado, 2017). Self-regulation in learning implies that students are aware of and committed to their responsibility toward learning and, therefore, are proactive setting their own goals and choosing effective learning strategies to reach those goals (Bender, 2017; Panadero, Jonsson, & Botella, 2017; Sun, Xie, & Anderman, 2018). Some strategies can be implemented in order to foster the acquisition of that self-regulated learning state: mindfulness, reward and response act or goal setting and self-monitoring (Bender, 2017); this last grants the student the possibility of been autonomous instead of controlled by the teacher, generating higher levels of engagement (Abla & Fraumeni, 2019). Besides, technology has been identified as a tool which can generate that motivation which students need to self-regulate their learning as well as learner-centred educational environment if it is thoughtfully used (Abla & Fraumeni, 2019; López, 2016) since technology is extremely appealing to students. Among the strategies to introduce

technology in classrooms highlight augmented technology, coding and robotics, virtual field trips or gamification and simulation (Bender, 2017).

In brief, so as to achieve engaged students, it is necessary to meet strategies focused on the social relationships established between the student and the teacher and between the students and their peers. In this sense, although there are numerous strategies, the most effective is the teacher's own experience in the classroom, knowing their students to identify which methodological practices would be effective for the group. On the other hand, boosting students' motivation and self-regulation of their learning has been found to be a proper way to achieve learners' engagement. In this sense, technology highlights as one of the effective strategies to this end.

2.2.1. Assessing students' engagement

The educational engagement construct has been widely studied and measured in a variety of ways (Schindler, 2018); however, even though there is consensus that it is a complex construct with many dimensions, there is not concerning how it should be measured; partly due to the difficulty to define the construct, which varies according to the chosen approach (Reyes, 2016; Schindler, 2018). Therefore, it can be deduced that different kinds of definitions will lead to different tools for measurement. Thus, currently, there are numerous tools to measure students' engagement developed in the recent years among which two types stand out: student self-reports, and checklists and rating scales (Lane & Harris, 2015).

Student self-reports, which assessed engagement from the students' perspective, are the most common tools to measure educational engagement (Almutairi & White, 2018; Goodbread, 2017). Self-reports provide valuable first-hand information for measuring, assessing and enhancing learners' investment in their learning, so that it requires them to rigorously gather and contrast themselves; their ability, knowledge, willingness, etc.

(Almutairi & White, 2018; Goodbread, 2017). And, as stated by Chapman, although it does not allow to measure the educational engagement in the entire breadth of the construct, it is a type of useful tool to know the levels of engagement and the reason for them (Reyes, 2016). Most of them are created to assess the engagement of students in middle or high school; and merely a couple of measures are geared towards students in upper elementary school (Fredericks et al., 2011). The drawback to this type of educational engagement measure is the fact that students' ability to assess their behaviours and performances is variable and not highly reliable; so that, validity is questionable (Lane & Harris, 2015).

On the other hand, checklists and rating and Likert scales, the most common, are used by teachers in order to measure the level of engagement of students in their own courses gathering information and assessing different items depending on the approach of the definition (Lane & Harris, 2015; Reyes, 2016). For instance, the *NSSE* (National Survey of Student Engagement) yields information on students and institutions arranged into five different categories related to academic challenges, active and collaborative learning, the interaction between the student and the institution, enriching learning experiences and supportive learning contexts (DeCoster & Dickerson, 2016). The results could help to improve the program development and throw light on the areas that impact on students' engagement which results in academic success (Morris & Clark, 2018).

The *UWES-S* (Utrecht Work Engagement Scale - version for students) is organised in three different dimensions vigour, dedication and absorption with three items each one (Portalanza, Grueso, & Duque, 2017). Thus, it also explores the relationship between educational engagement and student burnout and student life satisfaction (Rastogi, Pati, Kumar, Dixit, & Pradhan, 2017). Finally, the *HSSE* (High School Survey of Student Engagement), created by the Indiana University's Center for Evaluation and Education

Policy, measures the three dimensions of engagement: cognitive, behavioural and emotional (Patel, Franco, & Daniel, 2019). It evaluates the attitudes, perceptions, and beliefs of students towards their schoolwork; their learning context, and their relationship with the school community (Torres, 2016).

Before proceeding, it should be taken into account that the educational engagement has two different research areas: psychological and pedagogical (Reyes, 2016). The psychological approach focuses on personal aspects of the student which ease or hinder the educational engagement state: motivation, values, emotional state, and management strategies; while the pedagogical approach revolves around the intervention of the institutions promote educational engagement through the implementation of intervention proposals, which refers to the social, emotional, and academic experience of the student (Colás, Reyes, & Conde, n.d.; M. Salanova & Schaufeli, 2009; Suttle, 2010). Thus, it could be said that, in spite of its widespread use, the aforementioned scales, as well as many others, do not cover the measurement of all the key factors associated with educational engagement understood from both approaches: motivations, values, learning context, emotional state, and management strategies (Colás, Reyes y Conde., n.d.).

Recently, in order to unify all those key aspects of educational engagement, a new measurement tool known as Mixed Multifactorial Scale of Educational Engagement (MMSEE) has arisen. This model, intended for university contexts, responds more holistically to a scientific gap since it is closer to reality and allows to assess the aspects that intrinsically and extrinsically promote or hinder educational engagement, including the five dimensions mentioned above. In addition, it allows evaluating learning environments (Reyes, 2016). Thus, the motivational scale, as stated by Reyes, composed by twelve items, gathers information related to the student personal well-being, its objectives and aims as important

aspects to reach educational engagement (Table 1). The values scale gathers 14 different items regarding intrinsic and extrinsic values (Table 2). The learning context scale identifies those characteristics and opportunities which lead students to engagement within the classroom through 17 items (Table 3). The emotional scale seeks to scoop the personal feelings and perceptions of students toward their learning and educational experiences (Table 4). Finally, the management strategies scale refers to the way that students face difficulties and obstacles along their learning process (Table 5) (Colás, Reyes y Conde., n.d.; Reyes, 2016).

Keeping in mind this summary overview of the different ways of measuring educational engagement and some validated scales; later, in the intervention plan, the MMSEE will be picked in order to base the design of the intervention plan and assess the degree in which the objectives of the program concerning educational engagement are reached.

3. Research objectives

Given the current situation of students disconnection with their learning process and school life which causes school failure and early dropout, the main objective of this project is developing an intervention plan which addresses this status of disconnection from the perspective of educational engagement, it is, considering those strategies which makes students success and been connected to their learning, which fits for a group of fourth of Primary Education students. Based on that general objective, other more specific are set:

- To combine strategies which makes learners feel motivated towards their learning: PBL, Flipped Classroom, and cooperative learning.
- To include new technologies as a tool for learning.
- To design situations which provide students with the necessary skills to manage real situations and which usefulness can be appreciated by learners.

- To assess the degree of engagement achieved with the designed plan.

4. Program plan

4.1. Physical setting

This intervention program will be implemented in a Primary Education classroom which belongs to Claret school of Seville. The school is a charter and catholic school which teaches to Early Childhood, Primary, Secondary and Baccalaureate Education's students. The socioeconomic-cultural context can be considered as medium-high level. Students' parents usually have university studies.

The centre is characterized by offering an education in the style of San Antonio María Claret, patron of the school, and the Social Doctrine of the Catholic Church; because one of the bases of the ideology is its evangelizing project. Two fundamental pillars are the family and society, social groups close to the students who are encouraged to contribute the best of themselves. Likewise, special emphasis is placed on the feeling of belonging to a group, which would be the centre. Thus, children, teachers and families are often willing to participate in the wide variety of activities organized by the centre. At an individual level, the centre focus on the transmission of an effort philosophy and a critical and committed awareness, as well as values such as honesty, love or healthy self-esteem.

Putting the spotlight in Primary Education, the school invest its efforts in educating in values, effort and respect; in highlighting each child's strength; and in promoting learners' initiative, motivation and critical thinking. Likewise, they intend to make the students discover the value of cooperative and teamwork. So as to fulfil these aims, the school has started training their teacher in educational innovation strategies that teachers have already started to implement. Among this and other initiatives, the school acknowledge the importance of learning how to use TICS in a responsible way and in favour of the

enhancement of the society, so in recent years they have started to include and use resources such as laptops or tablets. Finally, in Primary Education, special attention is given to inclusion, so apart from the integration department; from time to time, an alien teacher to the classrooms enters and collaborate with the tutor to personalized attention to students so that they can benefit from the teaching-learning process adapted to their needs.

4.2. Recipients of the program

The present intervention plan has been designed to improve students' engagement in a fourth Primary Education classroom, attending to its characteristics and figuring which strategies could fit better to this specific group. However, this program could be implemented in a different class to the target adapting to the curriculum of the school year, its objectives and the characteristics of students. The target group is formed by twenty-four students. It is quite heterogeneous, presenting its students disparate learning rhythms. When working, students are autonomous, but they easily get absent-minded and are very talkative. A positive aspect of the group is that they usually ask about those aspects which make them doubt; so, in general, it is easy to know who is understanding the contents they are working and who need more support and emphasis.

Regarding students' interest in learning, it depends on the target topic. It is certainly true that, in general, they usually show participative attitude towards the teacher's questions and those activities which require active participation and very interesting questions which allow for very enriching conversation and searches for information often arise in relation to certain topics. However, a considerable group of students seem to be disengaged in those subjects related to the scientific field (mathematics, social and natural sciences) and their interest in these subjects is limited to peers interaction required by some tasks. By contrast, a

group of four students, diagnosed with high capacities, are especially keen on sciences and mathematics and often show their desire to learn beyond what corresponds to their course.

These are not the only students with special educational needs. A student has ASD and SLI traits and therefore has some language difficulties; both expressive and comprehensive; and, sometimes, difficulties in social relationships. Despite this, their inclusion in the classroom is total. Similarly, another student has been diagnosed with Asperger's. Thus, sometimes they are reluctant to participate in front of the whole class and prefers to transmit to another classmate what he wants to say so that this peer can say it in front of the other classmates and the teacher. This is an aspect in which the tutor and the therapeutic pedagogy teacher are working with him.

Another student has been diagnosed with Attention Deficit Hyperactivity Disorder. Although it is important to use some techniques to maintain their attention and calm, this disorder does not significantly hinder their learning process thanks to the medication they take and that helps them control their impulses. Finally, there is a student in the group who presents an increasing curriculum gap due to increasingly disengagement and a difficult personal situation.

4.3. Methodology

As abovementioned, the engagement can be addressed through multiple methodologies and strategies of different nature, and the choice depends on the characteristics of the group of students for which it is intended. In this case, taking into account the possibilities and the recipients' description, the intervention plan has been designed following the Project-based Learning (PBL) methodology combined with Flipped Classroom so as to organise learners' work at home and to have the class time available to implement activities and propose challenges in which the teacher could guide students. Furthermore, cooperative work has been

chosen since the most recurring grouping is teamwork, in balance with individual work, in which students have to collaborate to achieve a common objective. These methodologies will be complemented with recommended strategies to increase students' engagement such as blogging, virtual field trips or a reward platform to keep students motivated and know about their performance, among other strategies. It should be taken into account that the mentioned methodologies have been chosen in the base of the items of the MMSEE which state a positive level of engagement.

On the one hand, PBL is the instructional methodology used to organize learning in this intervention plan (Bender, 2017). By using this method, learners will discover and learn about the real-world which helps them to discover the sense of what they are working on through a process which combines inquiry, engaging questions, tasks, and problems, as well as materials developed by the teacher to conduct research; and in which they are the centre (Bender, 2017; Chiang & Lee, 2016; Susanti, Herfianti, Prima, & Elra, 2020). The work between the teacher and the students to reach academic standards and solve real-problems or situations in those projects which start by posing a question to the students result in a final product, for which learners need to well-understand the concepts and contents (Susanti et al., 2020). Implementing this kind of projects, children develop 21st-century skills such as autonomy, critical thinking, problem-solving skills, communication or cooperation, among others (Chiu, 2020). Thus, learning becomes a challenge to which students should give the best of themselves, but it should be taken into account that a sine qua non condition for students' effort is that the learning process must entice the desire of the students to be motivated and enquire. Moreover, PBL promotes interdisciplinary learning in which different subjects are put together, as it happens in the reality where disciplines work together.

On the other hand, Flipped Classroom strategies would also appear throughout the design and implementation of the intervention plan. Flipped Classroom consists of flipping the traditional lesson plans by moving direct teacher instruction out of the classrooms through audio, audio-visual, and, less common, in form of writing materials which become part of learners' homework (Bender, 2017; Lam, Lau, & Chan, 2019). Consequently, teachers can spend more class time on hand-on, student-centred experiences which allow students to actively explore, improve interaction among their peers, or develop skills such as problem-solving or knowledge application (Lo & Hew, 2017; White et al., 2017); aspects shared with PBL classroom experience. Moreover, Flipped Classroom gives students the opportunity to develop management strategies so that they can identify when they need more time to really understand something or solve other difficulties which could arise. Advantages such as communication skills' improvement, promotion of independence or rise of attentive students' attitude occur when developing the Flipped Classroom strategy (Bender, 2017; Lo & Hew, 2017), which "improve students' performance or at worst do not harm to student learning" (Lo & Hew, 2017, p. 2), That way, Flipped Classroom will work together with PBL during the in-class time and will complement it with in-home instruction and work.

Finally, cooperative learning will also have a place in the present intervention plan since students will have to work together, sharing ideas and helping each other, in order to achieve common learning objectives (Dendup & Onthanee, 2020). This learning strategy has been found to provide students a chance of getting higher and better results in virtue of increasing motivation, development of the ability to acquire and produce knowledge, and enhancement of discipline, given that learners have a commitment and obligations towards their groups to which they feel belonging (Munawar & Chaudhary, 2019; Öztürk & Korkmaz, 2019). Moreover, cooperative learning is considered to develop the 21st-century skills since it create

situations in which students must communicate, collaborate, create and critically think (Sutarman, Sunendar, & Mulyati, 2019).

4.4. Sessions of the Intervention Plan

Given that educational engagement is considered a key factor for students' success and its changing nature since it can improve, disappear or keep the same for a long period of time, for the sake of maintaining students' engagement and their success possibilities, the present intervention program (Table 6) is planned to be implemented in a 4th-grade classroom of Primary Education during the *whole school year* (2020/2021). Engagement changing character not only applies to moments, but also to different subjects. Indeed, as mentioned before in the recipients description, some students of the target group were specially engaged with more technical subjects such as mathematics or natural sciences; while other students are not. And it is only an example of one of the situations which takes place in the classroom regarding engagement. Hence, for the purpose of making students reach and keep the engagement state along time and within the different subjects, the intervention program will also be transferable among them.

The intervention program will be organised and design around two big active methodologies such as Flipped Classroom and PBL (explained above) which have been chosen based on the consideration that their principles and main characteristics help to reach educational engagement. In this sense, those methodologies will be the axis around which the different activities, homework, tools, and groupings will be structured. Regarding PBL, different projects will be developed throughout the school year and they will enclose several subjects. Flipped Classroom will be a common aspect of all those projects since instruction will move outside the classroom so the lesson time will become an opportunity to actively

participate and generate knowledge, which is students' role. On its behalf, the teacher's role is to be a guide, a facilitator to reach learning experiences, and feedback provider.

In reference to homework, students will mainly have to read texts and visualize videos which could include questions in order to check their understanding and paid attention. Those materials will be made available to the students through a classroom blog in the teacher section which will include links or attached documents and multimedia, and platforms such as Youtube o EdPuzzle will be used. In so doing, students will have access to those resources as many times as they need, and they can use them at the rhythm they required. Furthermore, this procedure eases teacher making instruction more appealing and challenging to students through the use of technological resources. During homework time, students can also take notes of those aspects which generate them doubts in order to, lately, in class, ask the teacher and solve them. Those doubts could be the starting point to further contents or activities.

Regarding the class-time, the first thing the teacher will do at the beginning of the lesson is telling the students about what they are going to do and the aim of it, so that they can keep in mind what is expected to be achieved by them. That way, it will become a challenge since there is a set goal, and the activities and dynamics will be the mean to reach it. Those activities will contribute to turn lessons into intellectual challenges because they will be designed with the aim of creating problematic situations similar to the reality in order to make students critically think, collaborate among them, and inquire. Consequently, students will not only find sense to their learning; but will also develop the 21st-century skills. On these terms, references are being made to activities such as debates, breakouts, content creation, role plays, exploration of the environment or virtual field trips, which will fit as initiation, development, evaluation or consolidation activities; but also strengthening and enlargement activities should be suggested when necessary following these guidelines. Moreover, those activities will lead

to an appealing final task or final product which will entail the endpoint of the project and will gather the totality of the acquired learnings throughout the process.

Groupings will also be a powerful tool seeking students' engagement since the different kinds contribute in a different way to different dimensions of educational engagement. Thereupon, individual and small group activities would be the most common; even though, in pairs and general group will also have a place. On the one hand, individual activities will be a personal challenge for the student, in addition to giving them the opportunity to develop their creativity and freely exercise their autonomy. On the other hand, group activities, with a high degree of interaction, will involve the exercise of their social and personal responsibility and will promote friendship and help to others. In addition, all the grouping modalities will create environments in which the student will have the opportunity to achieve their security and self-esteem thanks to the results obtained and integration with their peers. Meeting the positive aspects of the individual and group activities, a balanced offer of each kind of grouping will be essential to make the most of these benefits.

Finally, different kind of resources will be used throughout the school year throughout the different projects which will play a part in the intervention program. In addition to the materials conventionally used in an elementary class, unstructured resources, those which have not been created with a didactic purpose, will be introduced. Newspapers, pictures, brochures, real documents or magazines are among those non-structured materials which will bring meaningful learning closer to the classroom, giving students the opportunity to find meaning and utility in what they learn, as well as face real problems. The environment will also act as a didactic resource since it is intended that students learn from field exploration of their closer context. Lastly, regarding technological resources and platforms, computers will be a key material which will allow learners to enquire, and in which the students will have to

work both with already created content (Kahoot, for instance) and platforms in which they will be the builders (Blog or Scratch, for example). In this sense, there will be a blog of the classroom in which everybody, the teacher and the students, will participate. As mentioned above, the teacher will upload and share materials through a section of the blog. In the case of students, they will be in charge of creating content, specifically, posts in which they will write about their experiences, learnings, and contents worked in the classroom which are interesting to them. The creation and development of the blog will be the responsibility of the whole classroom, so that organisation will be essential to give everyone the opportunity to write or upload content. Creativity will be welcomed so that students could decide what format they want to capture the information. A third kind of technological resources will be used, a reward platform to keep student motivated and know about their performance which is called ClassDojo.

4.5. Assessment

This proposal arises when detecting through experience and observation in the classroom lack of connection with the learning context, participation and enthusiasm, poor relationships established by some of the students, and few students who really invest effort and desire in their learning. In the light of the above information, it was decided to design a intervention program to improve students' engagement. Given the difficulties which entails the measurement of educational engagement, and in order to notice the evolution of students' level of engagement along time, the MMSEE was applied both at the beginning and at the end of the program, but also in the middle point in order to monitor the evolution. Thus, as mentioned above, the items of the MMSEE are the pillars in which the present intervention plan is based.

However, in its origins, the MMSEE was a measurement tool intended to university students instead of Primary Education learners. Therefore, in order to be used in this intervention program, the MMSEE items had to be adapted to the target audience so that they can be properly construed by nine-years old students. This adaptation supposed both a change and an omission of some of those items from the five different variables which does not fit in a primary school context or students' maturity. Moreover, the original scale is considered to be quite long to students of this age.

The variables related to the pedagogic research line of engagement is easier to be measure by elementary students since, in general, they required less maturity and reflection in order to be perceived and valued. Notwithstanding, a comprehensive perspective of educational engagement must combine both the pedagogic and the psychological approaches, so that variables of both will be taken into account; even though some variables will have more appearance and impact in the final version for elementary students. Thus, the scale related to emotions (Table 7) has been the one that has suffered the most reduction and simplification due to the complexity of evaluating them given that even though fourth-grade students have already developed a notable ability to understand and express their own feelings, it is still an issue in progress and their range of vocabulary to refer to them is still limited to certain families of emotions. Moreover, it is complex for this age students to tag their emotions with a numerical value, so that this scale will now consist of a set of emotions organised in six pairs and for each pair, learners should highlight the emotion they think they experiment more frequently during their learning.

The rest of scale will follow the Likert model, but instead of offering a spectrum of answers among five values (1 to 5), there will be three possible non-numerical values. Learners will have to choose between agree, more or less agree and disagree according to

their level of accordance to the suggested items. Apart from that, the motivations scale (Table 8) has been reduced to four items focused on knowing whether a student has intrinsic motivations or extrinsic (learning as an obligation). On the other hand, the values scale (Table 9) has resulted in a six items scale which measures the impact of the effort pedagogy, the freedom of expression (creativity and decision-making); and interaction forms in students' engagement. The learning context opportunities scale (Table 10), the most respected, keeping twelve of the seventeen original items, allows students to assess their engagement in relation to the strategies implemented in class and their perception of them. In this scale, the items which refer to learning link to reality stands out since along years students have always doubt about the usefulness of what they learnt. Lastly, the management strategies scale (eight items) (Table 11) focus on the level of investment of students in their learning reflecting on what they do when facing difficulties.

Finally, it is worth mentioning that systematic observation will be carried out during the implementation of the intervention plan so as to monitor the development and effects of it day by day. That way, short term changes could be done if something is detected to be especially successful or, on the other hand, something does not work properly in reaching the objectives. This observation strategy will be based on the adapted items of the MMSEE and, for those more abstract items, and therefore more difficult to detect, simple questions would be made to students. The information gathered during observation will be recorded in a class journal.

5. Results and conclusions

In the present intervention program, the connection of students with their learning is analysed standing out a datum which worries even the competent education authorities: the high rate of early school failure caused by disengagement, among other aspects, which has its origin in the elementary school stage. In the light of this situation, the positive psychology

proposed to focus on those students who reach success in their learning process to deduce which are the main variables that help them to succeed and apply them with those students who need to improve their connection to learning. This theory is known under the name of a psychological construct: educational engagement, which is the base of the present intervention program.

Thus, taking into account the strategies suggested by the scientific community to improve engagement and choosing those considered to fit the target recipients the best, an integral, sustainable, and hopefully effective intervention has been designed. It is considered to be integral because it could be applied to any subject in the elementary school curriculum, and, therefore, transferable between subjects, but also between school years with the necessary changes. Furthermore, PBL is one of the strategies suggested to this program, and it should be reminded that a project under the principles of this methodology usually encompass several subjects. On the other hand, it is thought to be sustainable because the designed plan for a whole school year does not include extraordinary actions, but realistic strategies which are already being applied in schools although focusing in specific aspects to improve engagements, and making an original combination of strategies, methodologies, and assessment. Finally, it is expected to be effective because apart from taking into account the scientific literature as a basis for the design of the intervention program, the fact that engagement is variable and it could improve, worsen or keep the same, has led to giving special importance to the assessment. Hence, applying the measurement scale at the middle point of the project and keeping systematic observation throughout the whole project will allow for making changes whether the situation requires it.

So as to measure the level of success of the intervention program improving learners' engagement, the MMSEE was chosen and adapted to fourth-grade students since it was

originally intended to university contexts. Given that the development of an evaluation tool is the result of numerous testing, experiences, and continuous improvement, despite of the fact that the used tool is an adaptation of an already validated scale, it is undeniable that the new version of the MMSEE suggested in this project could be enhanced in future works. Moreover, in further researches, it would be interested to delve into the study of educational engagement in early stages of schooling since it has been widely studied for Higher Education but not for Primary Education. In this sense, strategies, the ratio of students per teacher or the expectations of teachers towards students could be some of the aspects to consider.

6. References

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7. Annexes

Me planteo mis estudios universitarios...
Como un reto personal.
Como un medio para conseguir reconocimiento social.
Porque es mi obligación.
Porque es lo que espera mi familia.
Como un medio para conseguir un trabajo.
Porque quiero aportar algo a la sociedad.
Por el gusto de aprender.
Porque me resulta muy atractiva la carrera que voy a estudiar.
Como un medio para salir de mi contexto (pueblo, ciudad, país, etc.) y conocer lugares y experiencias nuevas.
Por tener la oportunidad de conocer personas con inquietudes parecidas.
Como un medio para tener una educación de nivel superior.
Para desarrollar mi capacidad crítica con los recursos que tengo a mi alcance (Libros, TV, Internet, Radio, Prensa, etc.).

Table 1. Motivation scale items. Source: Reyes (2016).

Para mí los estudios universitarios suponen...
Satisfacer una curiosidad intelectual.
Una superación personal.
Poder expresar y desarrollar mi creatividad.
La posibilidad de ayudar a los demás (Solidaridad).
Una forma de desarrollo/crecimiento personal.
La posibilidad de alcanzar el éxito.
Una responsabilidad (personal y social).
Una obligación: Es lo que espera mi familia.
La posibilidad de afianzar mi seguridad y autoestima.
Un ejercicio de libertad y autonomía.
La posibilidad de alcanzar la excelencia.
Construir un futuro próspero.
Experimentar y fomentar la amistad.
Un ejercicio de igualdad, participación y respeto

Table 2. Values scale items. Source: Reyes (2016).

Me implicó más en mis estudios cuando...
Puedo expresar mis opiniones sin miedo y debatir sobre ellas.
Me siento integrado y parte de un equipo de trabajo.
Tengo una comunicación interpersonal fluida con compañeros y profesores.
Encuentro una actitud positiva por parte de mis tutores y profesores para atender mis necesidades.
Las explicaciones de los profesores me resultan estimulantes.
Las actividades exigen el máximo de mí para superarlas.
Las explicaciones de los profesores me resultan fáciles de entender y conectadas con mis intereses.
En las clases surgen cuestiones que me provocan curiosidad o el deseo de indagar sobre ellas.
Las dudas que planteo en clase se resuelven satisfactoriamente.
Los profesores usan las dudas que les planteo en clase para ampliar contenidos de las asignaturas.
La revisión de los exámenes y pruebas de evaluación me sirven para clarificar y conocer mis errores.
Los profesores encuentran sentido a la materia que considero útiles en otros contextos.
En la clase trabajo en actividades relacionadas con posibles problemas laborales.
Los profesores plantean las asignaturas con actividades que exigen autonomía (Trabajos de investigación, voluntarios, de tema abierto, etc.).
Los profesores me facilitan el uso de diferentes fuentes o recursos tecnológicos (medios audiovisuales, internet, blogs, etc.) para el desarrollo de las asignaturas.
En las clases utilizo todas las posibilidades de las nuevas tecnologías.
Mis profesores invitan a profesionales del mundo laboral a las clases.

Table 3. Learning context scale items. Source: Reyes (2016).

Tabla 11. Relación de ítems pertenecientes a la escala Estado Emocional

Mi actividad como estudiante me hace sentirme...	
	1 2 3 4 5 6 7
Frustrado/a	Realizado/a
Insatisfecho/a	Satisfecho/a
Inseguro/a	Seguro/a (autoestima)
Pesimista/a	Optimista/a
Preocupado/a	Confiado/a
Con malestar	Con bienestar
Estresado/a	Calmado/a
Ansioso/a (de ansiedad)	Relajado/a
Desmotivado/a	Motivado/a
Desilusionado/a	Esperanzado/a

Table 4. Emotional state scale items. Source: Reyes (2016).

Quando encuentro dificultades para satisfacer mis objetivos...
No hago nada especial, actúo como de costumbre.
Acudo a tutorías que me permitan establecer vínculos afectivos con el profesor o perspectivas distintas de la asignatura.
Identifico los requisitos mínimos de la asignatura y los realizo.
Ajusto mi tiempo de estudio a las exigencias de la materia.
Ajusto mi esfuerzo a lo que esperan de mí en cada asignatura.
Recurso a compañeros que me ayuden a superar los requisitos.
Abandono la asignatura, dejándola para otra convocatoria o momento mejor.
Busco libros, apuntes, o trabajos en internet que me ayuden a superar la asignatura.
Acudo a tutorías para profundizar en las materias con la guía del profesor.
Pierdo el interés por la asignatura.
Utilizo las asignaturas de libre configuración para ampliar mis conocimientos o mis temas de interés.

Table 5. Management strategies scale items. Source: Reyes (2016).

Sample session		Duration:	60'
Title of the session:	The travel guide		
How it fits in the intervention program:			
<p>This session could be framed as a part of a Spanish geography project in which students are going to create a travel guide in a new section of their class blog. It can be observed that the lesson allows children to interact with their peers, help each other, or debate their opinions from respect. Moreover, having linked Spanish geography with travelling will make children understand some of the aspects why it is useful to know about geography. These challenging tasks will also encouraged children to do their best and, if doubts arise, they could have the teacher's attention. The use of ICT in the session is expected to be a motivating element of the session. Finally, it fits in the elementary school curriculum because it works on some of the contents suggested for the second cycle: Spanish geography, creation of descriptive texts, or measurement units.</p>			
Resources:			
Internet connection, laptops, papers and pencils.			
Steps to be followed:			
Before the session			
<p>At their homes, students are encouraged to play on a web page of interactive maps in which they can choose between several play options in order to learn the Spanish provinces and autonomous regions. Students would also have to read and analyse about how to describe a place (sample sheets: 1 & 2)</p>			
During the session			
1 st	Divided into smalls group and using a political map, students will have to design a journey through Spain. Each member of the group will have to suggest a province capital which will be the different stops of that journey. They also have to decide the starting point. They will be encouraged to choose cities in which they have already been so as to facilitate their work in the step nº 3.		
2 nd	It is not the same to travel from Seville to Barcelona, then Malaga, go up to Madrid and return to Seville; or to go around these cities circularly: Seville, Malaga, Barcelona, Madrid, Seville. Therefore, students should find out in which order cities should be visited so that the journey is as short as possible; it		

	is, the most efficient way. This can be done by consulting Google Maps the distance in km between the cities, adding different combinations and comparing the results.
3 rd	Once the journey is defined, each student will make a short description of one of the cities of their journey following the directions of the sheets that they have read at home. If they have chosen a city they do not know, they can use the internet to look for some pictures or information about it.
4 th	Finally, each group will upload their products (journey and descriptions) as a new post in the class blog.

Table 6. Sample session of the intervention program. Source: original material.

In class, I feel...	
Frustrated	Proud
Unsafe	Safe
Worried	Relaxed
Demotivated	Motivated
Disappointed	Excited
Bored	Interested

Table 7. Adjusted version of the emotional state scale items. Source: original material based on the MMSEE (Reyes, 2016).

I think learning is...
A challenge.
My responsibility.
What my parents expect from me to do.
Something I found interesting and fun.

Table 8. Adjusted version of the motivations scale items. Source: original material based on the MMSEE (Reyes, 2016).

For me, learning in class is...
Trying hard.
Being creative.
Helping my peers.
Having the opportunity to take decisions.
Giving my best.
Participating and respecting.

Table 9. Adjusted version of the values scale items. Source: original material based on the MMSEE (Reyes, 2016).

I am more interested in classes when...
I can say what I think and debate about it.
I feel I belong to a group.
I feel my teachers want to help me.
Activities are a challenge.
My teachers' explanations are easy to understand and interesting.
We work on topics which are appealing to me and I want to learn more about.
My doubts are solved.
My Teachers use my doubts to teach new things.
Homework correction helps me learn from my mistakes.
I understand the sense and usefulness of what I learn.
We work on activities related to real situations of my life.
We use ICT in class.

Table 10. Adjusted version of the learning context scale items. Source: original material based on the MMSEE (Reyes, 2016).

When I face difficulties while doing the tasks, I...
Do nothing special.
Ask my teacher to help me find a way to solve them.
Do the minimum to finish the task.
Spend more time on the task.
Put more effort into the task.
Ask my peers to help me.
Search Books or internet content to help me to overcome difficulties.
I lose interest in the task.

Table 11. Adjusted version of the management strategies scale items. Source: original material based on the MMSEE (Reyes, 2016).