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# Does Emotional Intelligence Influence Academic Performance? The Role of Compassion and Engagement in Education for Sustainable Development

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**Abstract:** Education must guide students' emotional development, not only to improve their skills and help them achieve their maximum performance, but to establish the foundations of a more cooperative and compassionate society. Achieving the Sustainable Development Goals, therefore, implies focusing on emotional aspects as well as financial, social, environmental, and scientific objectives. In this line, the goal of this study is to show how emotional intelligence, which is an essential dimension in the development and management of emotional competences required to build sustainable societies, plays a key role in optimising student's academic performance in the classroom through compassion and academic commitment. The research model was tested with a questionnaire addressed to 550 students from four higher education institutions and one secondary school. The results of a structural equation analysis confirmed the study hypotheses. Emotional intelligence was shown to be positively related to compassion and higher levels of commitment, which, consequently, led to better academic performance. This finding will encourage interest in developing emotional intelligence, not only for its long-term value in training healthy citizens, but also for its short-term results in the classroom.

**Keywords:** education for sustainable development; emotional intelligence; compassion; engagement; academic performance

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## 1. Introduction

We are currently experiencing a global emergency marked by a series of socio-environmental problems that seriously endanger the survival of the planet [1–3]. A diverse range of authorities and agencies are now defending the urgent need to transition to a more sustainable society [3]. These demands have turned sustainable development into a highly relevant topic in recent literature, especially since the UN member states committed to achieving the sustainable development goals (SDG) by 2030. The United Nations Summit, held in New York in 2015, adopted the outcome document "Transforming our World: the 2030 Agenda for Sustainable Development" [4], set out in 17 SDGs and 169 targets to be implemented in the period of 2016–2030. These 17 interrelated goals are designed to tackle a wide range of social, economic, and environmental challenges. However, these goals will not be achieved without fundamental transformations in citizens' actions and behaviours, and in the way societies and economies function, which are all heavily dependent on the role that education plays in this process. Accordingly, target 4.7 of SDG 4 (Quality Education) refers to the need to "ensure that all learners acquire the knowledge and skills needed to promote sustainable development." SDG 4 places the human being in the center of sustainable development and the emotional learning as a priority place. Several milestones in the field of education can shed light on how this global commitment was reached. For instance, the 1992 Earth Summit, held in Rio de Janeiro, marked a turning point in recognising the role of education, particularly university education, in moving toward

sustainability [5]. This summit called on educators at all levels and across disciplines to help ensure that citizens acquire an appropriate understanding of the problems affecting humanity [3,6]. In sum, this call encourages human beings to critically review damaging lifestyles, and evolve to inquire concepts as a human being close to consciousness and emotionally intelligence, based on solidarity, diversity, empathy, understanding, trust, cooperation, and a social organization [3]. Faced with this increasingly serious situation, numerous universities have taken the decision to promote sustainability from within their institutions. In this line, among the significant initiatives signed in 1993 were the Copernicus University Charter for Sustainable Development and the Kyoto Declaration on Sustainable Development. Nonetheless, despite these efforts, for some time, the conceptualisation of sustainability has been limited to only three dimensions in the academic sphere: financial, social, and environmental. Thus, traditional theoretical models that limit sustainable development to these three dimensions seem insufficient to address this topic in all its complexity. Adapting the teaching and university management models to the European Higher Education Area (EHEA) and the urgent needs of the world today requires a re-structuring of the educational system based on the competencies that future citizens will need for their personal and professional development. In this sense, creating academic curricula for sustainability not only involves including environmental contents in the syllabus of all subjects, but also other, more general changes in the conceptualisation of the educational process. In sum, it concerns an educational paradigm shift, trying to avoid the traditional bias toward methods that only encourage the reason-cognition development (related to traditional definition of intelligence), dealing with tasks detached from the reality, and from real local and global problems. Therefore, it is necessary to value emotions, human being affects, and the development of emotional intelligence, as a way to reach a sustainable society.

In line with this thesis, there is a widespread consensus in the literature on the need to promote an education system that develops responsible, healthy individuals with the necessary skills to face current and future challenges. Achieving the SDGs implies focusing on financial, social, environmental, and scientific dimensions, in addition to developing citizens' emotional aspects, which define the framework for decision-making and actions in a process of reflection-action. Shaping personality is an interaction of cognitive, physical, linguistic, social, affective and emotional factors, dimensions, and fields, with the latter being very significant in education. Education for sustainable development will only be effective if it adopts a different image of humankind, society, life, and nature. In addition, from there, the new sense of education is to live for one another, so that we can all live together in harmony with ourselves and with our environment. This requires a different anthropology and ethics in which students are not only equipped with the competencies for sustainability related to their studies, but are also instructed in emotional competencies. These transversal competencies are crucial in a globalised technological society where, paradoxically, people are becoming increasingly individualistic, exhibiting behaviours that seriously endanger the Earth's survival and the well-being of their fellow men and women.

In sum, education for sustainable development (ESD) implies a holistic approach for the development of students' competencies [7]. It entails the defence of integrating and interdisciplinary approaches that foster skills such as problem solving, critical thought, action competencies, and systems thinking. It requires, therefore, systems of learning that deconstruct existing forms of knowledge and understanding, that critically reflect on the values, beliefs, and worldviews that sustain them, and that build new shared meanings, which can contribute to sustainability. It involves systemic thinking that develops the capacity to see interconnections between different dimensions (environmental, developmental, social, economic, cultural), and shows how the complexity of systems and situations can contribute to the effective resolution of the problems of sustainability [8,9]. ESD aims to provide learning opportunities in the real world and produce citizens who are capable of experiencing situations that encourage reflection around the ethical and affective dimensions in interpersonal relations and with nature. Based on this definition,

education for sustainable development implies—among many other things—taking into consideration not only people's cognitive aspects, but also their affective aspects, actions, and ethical values to ensure their complete development [7,10,11]. Hence, there seems to be a generalised consensus about the importance of emotions as antecedents to any sustainable behaviour and action. Interacting in a sustainable way means learning to feel in harmony with oneself and others. In line with this, the constructive management of feelings plays a key role in education since, together with other elements, it fosters the ability to achieve common goals such as democratic processes, economic productivity, social cohesion, equity, human rights, and ecological sustainability [4].

Similarly, among the essential competencies that students should acquire in education for sustainable development, Wals [12] includes the following: ability to feel empathy, sympathy, solidarity, compassion, and being open-minded. By developing these competencies, graduates will become positive agents of change in their jobs and lives [7]. The present study follows this direction by focusing on the study of emotions, and, more specifically, on the ability to understand and manage emotions—emotional intelligence (EI)—by considering it a core construct in developing education for sustainable development. We also propose a model based on the premise that well-developed EI will impact not only the future graduate's sustainable life—as has been described in the literature–but also the classroom atmosphere in the short term, by supporting the development of compassionate attitudes that will contribute to improving students' engagement with consequent benefits for their academic performance.

The paper is structured in three sections. First, the literature review provides support for the variables and the relationships posed in the theoretical model. Specifically, we explain the relationship between emotional intelligence and academic performance through compassion and engagement as key agents in this relationship. Second, the methodology is described, and the results are reported. Finally, some conclusions are drawn, and the study's limitations, implications for teaching, and future research lines are discussed.

## 2. Literature Review

### *2.1. Emotional Intelligence and Academic Performance*

In recent decades, the view that intelligence only refers to intellectual capacity, understood as a factor of general intelligence, has been considered incomplete by some authors. Recent theories are, therefore, driving the development of a new, broader perspective of intelligence that goes beyond the purely rational to embrace aspects, such as emotional factors [13–16]. The interest for studying EI develops in three approaches or models: (1) ability-based model that defines EI as the skill for processing emotional content information [17], (2) competent model that defines EI as a bunch of skills that include self-control, enthusiasm, persistence, and self-motivation capacity [18], and (3) mixed-models that consider EI as a bunch of stable personality traits, socio-emotional competencies, motivational factors, and diverse cognitive [19–21]. Among the different EI models, the ability-based model of Mayer and Salovey [17] seems to be the well-known theoretical framework more used and accepted among scholars. These authors provide a conceptual framework or model to develop emotional skills that can be fostered through everyday learning and experiences. EI is an essential dimension in learning to feel, think, and act in sustainable harmony with ecosystems and improve their health [22,23]. Salovey and Mayer's [24] theory defines EI as the capacity to regulate one's own feelings and emotions, and to understand and discriminate among them and use this information to guide one's thoughts and actions. Their model has four components: (a) emotional perception: the capacity to identify our emotions and to identify what others feel, (b) emotional use, or the capacity to generate feelings that facilitate thought, (c) emotional understanding that enables us to integrate what we feel into our thoughts, and (d) emotional management, understood as the ability to efficiently steer and manage both positive and negative emotions. EI allows us to solve problems as effectively as possible and to work co-operatively with others, which is crucial to achieving personal and professional sustainability [24]. EI is

an important aspect to bear in mind in a person's skills and capabilities, since it favours and facilitates their life's achievements and is a good predictor of how they will adapt to the environment [22–25] by encouraging them to adopt innovative solutions for a more sustainable construction of life paths [26]. This reasoning has motivated numerous studies exploring whether EI is more influential than general intelligence (e.g., general mental skills) in terms of academic and professional success [27]. The mechanisms that explain the relationship between EI and academic success are still not clearly understood. However, this is due to the varying definitions of academic success, which are generally understood as academic performance.

The concept of academic performance is defined as the assessment of knowledge acquired in secondary school or at university. Students who achieve high marks in their course examinations are said to have a good academic performance [28]. However, the question is whether their qualifications reflect other skills that are not strictly related to their course content. In other words, whether these grades assess the acquisition of the emotional skills that are integral to well-developed EI. In this vein, some studies find a direct relationship between EI and academic success and performance [29,30], and contribute to individual cognitive performance beyond what can be attributed to general intelligence. In contrast, other studies find no direct relationship, but show that variables such as adjustment (or adapting to university) mediate between EI and academic performance [31,32]. For example, high EI students demonstrate more positive social functioning in interpersonal relationships, which might facilitate the cognitive and intellectual development that leads to better academic performance. There appears to be no general consensus in the literature on the direct relationship between EI and academic performance, and recent meta-analyses [33] suggest that other mediating variables may be needed for this benefit to be possible. Therefore, in this study, we will analyse the relationship between EI and academic performance testing both possibilities: (1) there is a direct relationship between EI and students' academic performance, and (2) the relationship between EI and students' academic performance is mediated by other factors. The above arguments lead us to the first hypothesis.

**Hypothesis 1 (H1).** *EI has a significant direct relationship with students' academic performance.*

### *2.2. Emotional Intelligence and Compassion*

EI skills shape characteristic traits such as altruism and compassion, which are essential for successful and creative social adaptation, and for emotional sustainability. Compassion is one of the factors that could be intervening in the relationship between EI and academic performance. Compassion is defined as noticing, feeling, and responding to another's suffering [34], and, as such, must always involve a response, action, or behaviour that alleviates the suffering. To understand and respond to another's suffering, a person must first have good emotional and behavioural self-regulation or capability to understand their own emotions when reacting toward others' emotions or actions, which are both related to EI. Bermúdez et al. [35] found that people with higher levels of emotional and behavioural self-regulation perceive that they have greater control over environmental challenges, as well as higher self-esteem. These authors conclude that the higher a person's EI, the greater their emotional stability, and that emotionally stable individuals, therefore, not only have a more positive attitude to themselves but also to others. They also have a higher tolerance of frustration because they are better able to regulate stressful states associated with emotional experiences and control their behaviour in adverse situations. Therefore, there seems to be a positive relationship between EI and aspects related to perceiving others' feelings, associated with emotions such as empathy, sympathy, love, altruism, and compassion, among others. Moreover, compassion has been called empathic concern. Therefore, in order to act in a compassionate way, it is necessary to perceive our and others' emotions, to be emotionally intelligent.

Compassion involves a genuine feeling of concern for the well-being of others and, in theory, is closely linked to the ability to manage one's own and others' emotions. In other words, it is related to EI. Compassion can, therefore, be understood as a social process rather than an isolated emotion. This process consists of four parts or steps. According to Kanov et al. [36], "a critical first step in the compassion process is noticing another person's suffering and becoming aware of the pain he or she is feeling." Openness and receptivity to what is going on in those around us is a requirement to notice the suffering of others. This involves paying attention to others' emotions, and reading subtle cues in our interactions with them [37]. Hence, this is the step in which EI is crucial to observe and notice others' suffering.

Second, individuals appraise sufferers as being more deserving if they perceive them as being of good character, cooperative, altruistic, and trustworthy [38]. Sufferers are deemed less deserving if they are viewed as responsible for their own suffering, when we determine that they do not deserve our concern, or when we do not trust our own capacity to respond appropriately to their real needs. If we quickly conclude that we do not have the capacity to respond, the compassion process cuts short [38].

The third part of the process is the feeling of empathic concern. Noticing the pain of others does not inevitably lead to a feeling of compassion. It is possible to recognise that people are suffering, but not feel anything for them, or even feel that they deserve what has happened to them [39]. For the process to continue, one must feel empathic concern [40], which means putting oneself in others' shoes, seeing the situation from their perspective, and feeling what the person who is suffering feels. Empathic concern implies feelings of solidarity toward the other, which are feelings that are altruistically motivated rather than driven by self-interest [40]. The conception of individual compassion places empathy at the centre of the feeling process by emotionally connecting with and taking the perspective of the sufferer [36]. In fact, when people think of compassion, the first thing that comes to mind for many is empathy. But compassion differs from empathy in that it also involves being moved to respond to a person's suffering [36]. Compassion engages empathy to act where pain and suffering are involved.

Finally, the fourth step involves acting or behaving in some way to alleviate the suffering. The experience of compassion also moves those feeling the concern to act in order to ease or eliminate the other's suffering [41], to connect those who feel empathic concern with those who suffer. Compassion is, thus, an empathic emotional response elicited by another person's suffering that moves people to act in a way that will relieve the person's anguish or make it more tolerable, thus, helping the sufferer to live through it [42]. Some examples of how to alleviate others' suffering might be by giving social and emotional support, such as listening empathically, asking about their health and well-being or giving a hug, or by giving time or flexibility (especially in work settings), or material goods [43]. In sum, compassion is characterised by the emotional connection that links an individual to another person who is suffering [44,45]. The essence of compassion is, therefore, a key element for building a better society. Helping others to alleviate their suffering is crucial in improving society and, therefore, linked to the SDG. In this sense, the literature shows that experiencing compassion can emotionally connect a wide range of people, since it affects the person who is suffering, known as the compassion giver, and third parties who witness or hear about the compassionate actions [34]. In theory, therefore, EI is needed to show compassion. It is needed to perceive others' emotions, feel empathy, regulate one's own emotions, and try to help to regulate others' emotions. However, compassion and EI, although linked, are different constructs. In sum, EI implies being aware of the own and others' emotions, but compassion gives a step forward not only noticing and feeling empathy but trying to help or acting (behavioural component) to alleviate others' suffering. Hence, the EI model and the facets of compassion suggest that these two constructs might be intrinsically linked in the pursuit of individuals' well-being.

Putting this theory into practice, and specifically in educational settings, Ortega and Mínguez [46] call for a practical ethics of compassion in education and establish a

relationship between compassion and EI skills, such as empathy, affection, communication, capacity to listen actively, social participation, and development of critical capacity, among others.

There is, however, still very little empirical evidence linking EI and compassion. One recent study finds a link between EI and the capacity to develop self-compassion among nursing students [47]. Accordingly, it is reasonable to suppose that the greater one's skills in recognising one's own and others' emotions, and in activating one's emotions in order to affect others (a characteristic process of EI), the easier it will be to detect and alleviate one's own and others' suffering. EI is, therefore, crucial for achieving the four defining steps of compassion described above, which leads us to propose the second hypothesis.

**Hypothesis 2 (H2).** *Students' EI is directly and positively related to their level of compassion toward their fellow students.*

### *2.3. Compassion and Engagement*

Compassion is a relational process that can be associated with well-being because it enhances feelings of closeness, connection, trust, and social support [48]. Several psychological theories have highlighted the importance of social connections for health and well-being, which involves self-determination theory. This theory holds that the basic requirements for a relationship to develop (building meaningful connections with others) [49] must be fulfilled to achieve a sense of well-being. In this line, compassionate behaviours connect people psychologically and improve the quality of relationships between peers [37,50].

Similarly, for several decades, engagement has been regarded as an indicator of well-being because it is defined as a positive, psychological, work-related motivational-affective state characterised by vigour, dedication, and absorption [51]. Engagement has been framed within numerous studies in the field of well-being at work over the last two decades (see Schaufeli and Bakker [52] for an in-depth review of this concept), but it has also been applied in academic contexts [50,53]. According to Bakker et al. [54], "Engaged students are intrinsically motivated to invest in learning, attend classes, and participate in study activities. They are curious, ask questions, and enjoy learning challenges. Vigorous and dedicated students are energetically immersed in their studies, which makes them successful as well [55]. [ . . . ] Educators may be able to influence engagement to increase students' chances of completing their education successfully." Showing concern for others through compassionate actions can, therefore, enhance individuals' engagement [56]. The literature has shown that being compassionate can increase well-being by raising the level of satisfaction derived from the pleasure of helping others [57]. Recent empirical research has found a positive relationship between compassion and academic engagement [58]. Hence, given the importance of encouraging academic engagement, we consider that there is a need for more specific in-depth research into the relationship between compassion and academic engagement. In light of the above, we propose the following hypothesis.

**Hypothesis 3 (H3).** *Students' levels of compassion are positively and directly related to their levels of academic engagement.*

### *2.4. Engagement and Academic Performance*

Engagement is related to emotional sustainability, according to the literature. Students with high levels of EI are more likely to participate in extracurricular activities and have a high sense of belonging to the university community, resulting in a commitment to other social institutions [59,60]. Students with high levels of engagement show desirable attitudes and behaviours, such as resilience, positive social interaction, etc., whereas less connected students tend to show more antisocial, disruptive behaviours and have a greater tendency to behave violently, both in class and in their personal sphere [61,62]. However, there is great scholarly interest in the relationship between engagement and academic

performance and much has been written about it. This research on engagement in the academic context suggests that students experience feelings that can increase or reduce their involvement with their studies. Academic engagement is, therefore, now associated with students' performance and well-being [63]. From this perspective, some authors find that higher engagement characterises students with more enthusiastic and optimistic attitudes to learning [64], and, at the same time, this optimism, or attitudes related to positive psychological capital, directly lead to improvements in their academic performance [65]. Thus, engagement corresponds to a psychological state manifested in a sense of well-being that students feel about a particular academic challenge in their studies, which essentially implies their inherent desire to contribute something of value to their work. There is, therefore, abundant evidence in the literature for the relationship between engagement and academic performance. In accordance with the above, the final hypothesis is:

**Hypothesis 4 (H4).** *Students' academic engagement is positively and directly related to their academic performance.*

In accordance with the above, the model tested in this study is presented in Figure 1.

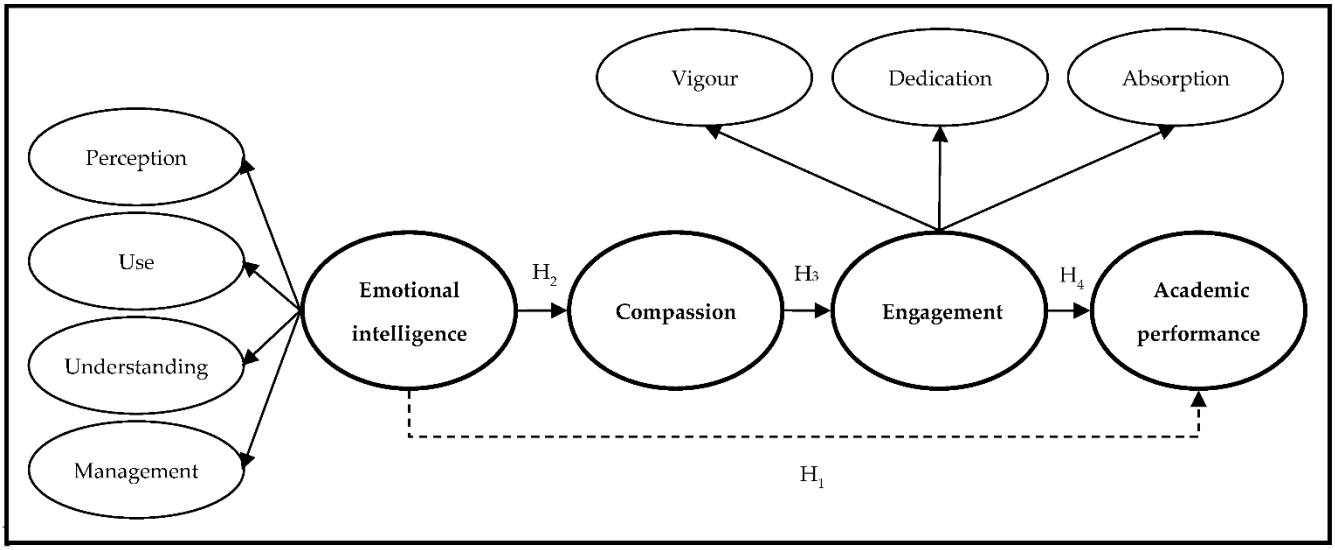



**Figure 1.** Model of effects.

## 3. Methodology

### *3.1. Sample Selection and Data Collection*

The study was carried out under a collaboration agreement signed by four higher education institutions and one secondary school in Spain (from three different regions). Of the five institutions involved in the study, four offer face-to-face (University 1, University 2, University 3, and a secondary school). The fifth provides online courses for students mainly from South American countries (University 4).

This agreement gave us permission to interview students from a broad range of spectrums (region, academic discipline, course, qualification, gender), which provided a diverse and highly representative sample, thus, maximising the generalisability of the results.

Before starting the fieldwork, the questionnaire items were revised by experts in the area of education and pretested on a group of 25 students. This process allowed us to improve the wording and confirm the suitability of the form, design, difficulty, length, and time taken to complete the questionnaire. After this revision stage, the students were surveyed by means of an online questionnaire designed by the research team. Access to the questionnaire was anonymous in order to encourage honest responses and none of the questions identified the respondents in any way. The students were also informed

that the data would be aggregated so as to guarantee confidentiality when the results were published.

The fieldwork took place between February and June 2019, and yielded a sample of 550 valid responses. The data obtained from these responses were analysed to reveal the main characteristics of the sample (Table 1). The final sample comprised students mostly from University 1 (64.4%) with approximate percentages of between 7% and 10% for the rest of the participating institutions. From the total of 21 specific academic disciplines analysed (covering a wide range from business and economic sciences, technological and experimental sciences, health sciences and social sciences), 19 correspond to academic degrees, three to master's degree, and one to second cycle studies. Most of the students were in the second year of their course (38.2%), followed by the third year (20.4%). First and fourth years represent a percentage of around 14%, and postgraduate and secondary school courses represent around 7%. The total average age of the students in the sample is 23 years old and their average academic grade is 7.2 out of a maximum of ten. Finally, gender distribution is largely female (70.9%).

**Table 1.** General sample characteristics.

| **Institution: Category (%)** | | | | | |
|---|---|---|---|---|---|
| University 1 (64.4) | University 2 (10.9) | University 3 (10.0) | | University 4 (7.5) | Secondary school (7.3) |
| **Degree: Category (%)** | | | | | |
| Business administration [1] | (13.8) | Industrial design engineering [2] | (2.7) | Psychology [3] | (13.1) |
| Occupational therapy [1] | (10.0) | Mechanical engineering [2] | (2.2) | Medicine [3] | (3.1) |
| Labour relations and human resources [1] | (9.6) | Agri-food engineering [2] | (2.2) | Nursing [3] | (2.2) |
| Tourism [1] | (5.1) | Chemical engineering [2] | (1.6) | Audiovisual communication [4] | (10.5) |
| Finance and accounting [1] | (1.8) | Electrical engineering [2] | (1.3) | Advertising and public relations [4] | (4.9) |
| Economics [1] | (1.3) | Industrial technology engineering [2] | (0.9) | Second cycle business studies [1] | (7.3) |
| Master in marketing [1] | (3.6) | Master in human resources management [1] | (0.7) | Master in sports management [1] | (2.0) |
| **Course: Category (%)** | | | | | |
| First (13.8) | Second (38.2) | Third (20.4) | Fourth (14.0) | Postgraduate (6.4) | Secondary school (7.3) |
| **Gender: category (%)** | | **Age average** | | **Academic grade average** | |
| Male (29.1) | Female (70.9) | 23 years old | | 7.2 | |

Note: [1] represents disciplines from business and economic sciences. [2] represents disciplines from technological and experimental sciences. [3] represents disciplines from health sciences. [4] represents disciplines from social sciences.

### *3.2. Measurement Instruments*

In the questionnaire design, Ye et al.'s [66] recommendations were followed on how to prevent self-generated validity. Thus, the questions were carefully ordered and written in simple language with easily understood terminology. Care was also taken to order the analysed constructs in a different sequence from the hypotheses (antecedents → mediating variable → consequences).

All the scales used to measure the constructs corresponded exactly to their theoretical definitions, and were adapted from scales previously used by other authors and tested in earlier studies. The questionnaire items were closed attitudinal questions measured on 7-point Likert-type scales, where 1 represented 'totally disagree' and 7 represented 'totally agree' with the statement.

Specifically, EI was measured with a four-dimensional scale (with four items per dimension) including emotional perception (e.g., "I'm aware of the non-verbal messages

that other people transmit"), emotional use (e.g., "I trust my emotions to give the right response to problems"), emotional understanding (e.g., "I can explain the emotions I feel"), and emotional management (e.g., "I can handle stressful situations without getting too nervous") [67]. To measure compassion, we drew on the five-item scale developed by Petchsawang and Duchon [68] (e.g., "I tend to feel compassion for people, even if I don't know them"). Engagement was measured using a three-dimensional scale developed by Schaufeli and Salanova [69], which included vigour (4 items, e.g., "I feel full of energy when I study"), dedication (5 items, e.g., "My studies inspire me"), and absorption (4 items, e.g., "Time flies when I'm studying"). Finally, academic performance was measured directly from the students' academic records. Information on the scales' sources is summarised in Table 2, covariation matrix is presented in Table 3, and the scales themselves can be consulted in Table 4.

**Table 2.** Scales used.

| Variables | References | Dimensions | Items | Scale |
|---|---|---|---|---|
| Emotional intelligence | Bracket et al. (2006) | 4 | 16 (4 + 4+4 + 4) | 7-point Likert |
| Compassion | Petchsawang and Duchon (2009) | 1 | 5 | 7-point Likert |
| Engagement | Schaufeli and Salanova (2011) | 3 | 13 (4 + 5+4) | 7-point Likert |

The Spanish version of the measurement instrument was translated from English following the reverse translation method proposed by Brislin [70]. This process is widely used in the literature to guarantee equivalence between the original items and those used in other language versions. Two bilingual translators worked on the translation, one to translate from English into Spanish, and the second to translate the resulting Spanish version back into English without referring to the original source text. The translators then compared the two English versions, and judged them to be practically identical, which confirmed that the Spanish version accurately represented the two English versions.

### *3.3. Preliminary Analyses*

First, a variance inflation factor analysis was performed between the latent variables of the proposed model to detect any signs of multicollinearity. The values were below 10, suggesting that multicollinearity was not a problem in the study [71,72]. Second, an analysis of means was carried out on independent samples for each of the model variables, comparing the responses from the first 45 and the last 45 respondents. No significant differences were found at a significance level of 0.05, thus, indicating the absence of a non-response bias [73]. Third, common method variance bias was tested using Harman's one factor test [74]. Results showed that the bias deriving from the method used did not affect the validity of the results from the subsequent testing of the hypotheses [75–77]. Several ANOVA were also performed to rule out any effect of sample characteristics on the model constructs. The control variables used in these analyses were sex, degree/qualification studied, and university. The results revealed no significant differences in any of the analyses.

### *3.4. Scale Validity and Reliability*

Confirmatory factor analysis was performed to refine the scales, using structural equations models (SEM) and version 6.1 of the EQS statistical program. The maximum likelihood approach was followed, with the support of robust methods to estimate the parameters.

**Table 3.** Covariance matrix (N = 550).

| | EMO1 | EMO2 | EMO3 | EMO5 | EMO6 | EMO7 | EMO8 | EMO9 | EMO10 | EMO11 | EMO12 | EMO13 | EMO14 | EMO15 | EMO16 | COM1 | COM2 | COM3 | COM5 | ENG1 | ENG3 | ENG4 | ENG5 | ENG6 | ENG7 | ENG8 | ENG9 | ENG10 | ENG11 | ENG12 | ENG13 | PERF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **EMO1** | 1.163 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **EMO2** | 0.926 | 1.447 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **EMO3** | 0.800 | 0.889 | 1.806 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **EMO5** | 0.558 | 0.636 | 0.426 | 2.110 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **EMO6** | 0.406 | 0.453 | 0.471 | 0.954 | 2.239 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **EMO7** | 0.367 | 0.480 | 0.483 | 1.045 | 1.065 | 2.319 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **EMO8** | 0.494 | 0.566 | 0.587 | 1.376 | 1.215 | 1.478 | 2.270 | | | | | | | | | | | | | | | | | | | | | | | | | |
| **EMO9** | 0.398 | 0.545 | 0.522 | 0.616 | 0.739 | 0.797 | 0.827 | 1.853 | | | | | | | | | | | | | | | | | | | | | | | | |
| **EMO10** | 0.401 | 0.630 | 0.592 | 0.742 | 0.832 | 0.871 | 0.905 | 1.128 | 2.598 | | | | | | | | | | | | | | | | | | | | | | | |
| **EMO11** | 0.417 | 0.561 | 0.626 | 0.588 | 0.847 | 0.861 | 0.885 | 1.240 | 1.811 | 2.154 | | | | | | | | | | | | | | | | | | | | | | |
| **EMO12** | 0.510 | 0.567 | 0.623 | 0.630 | 0.965 | 0.900 | 0.920 | 1.050 | 1.420 | 1.428 | 2.100 | | | | | | | | | | | | | | | | | | | | | |
| **EMO13** | 0.389 | 0.318 | 0.432 | 0.375 | 0.525 | 0.451 | 0.524 | 0.398 | 0.539 | 0.606 | 0.609 | 1.513 | | | | | | | | | | | | | | | | | | | | |
| **EMO14** | 0.497 | 0.491 | 0.577 | 0.470 | 0.673 | 0.555 | 0.694 | 0.537 | 0.558 | 0.656 | 0.705 | 1.089 | 1.467 | | | | | | | | | | | | | | | | | | | |
| **EMO15** | 0.537 | 0.482 | 0.522 | 0.498 | 0.591 | 0.509 | 0.630 | 0.550 | 0.645 | 0.694 | 0.664 | 1.084 | 1.232 | 1.517 | | | | | | | | | | | | | | | | | | |
| **EMO16** | 0.493 | 0.368 | 0.484 | 0.601 | 0.395 | 0.405 | 0.513 | 0.500 | 0.549 | 0.528 | 0.521 | 0.809 | 0.882 | 0.973 | 1.787 | | | | | | | | | | | | | | | | | |
| **COM1** | 0.339 | 0.346 | 0.276 | 0.673 | 0.428 | 0.359 | 0.600 | 0.491 | 0.438 | 0.341 | 0.406 | 0.405 | 0.546 | 0.634 | 0.632 | 1.554 | | | | | | | | | | | | | | | | |
| **COM2** | 0.381 | 0.317 | 0.244 | 0.718 | 0.425 | 0.407 | 0.646 | 0.517 | 0.336 | 0.393 | 0.458 | 0.382 | 0.490 | 0.589 | 0.640 | 1.442 | 2.132 | | | | | | | | | | | | | | | |
| **COM3** | 0.385 | 0.311 | 0.219 | 0.659 | 0.454 | 0.415 | 0.561 | 0.436 | 0.290 | 0.336 | 0.426 | 0.469 | 0.644 | 0.778 | 0.765 | 1.112 | 1.266 | 1.845 | | | | | | | | | | | | | | |
| **COM5** | 0.370 | 0.299 | 0.310 | 0.736 | 0.403 | 0.505 | 0.648 | 0.520 | 0.352 | 0.421 | 0.447 | 0.348 | 0.410 | 0.539 | 0.488 | 1.034 | 1.394 | 1.121 | 1.911 | | | | | | | | | | | | | |
| **ENG1** | 0.157 | 0.213 | 0.165 | 0.243 | 0.340 | 0.318 | 0.306 | 0.388 | 0.463 | 0.392 | 0.326 | 0.338 | 0.217 | 0.282 | 0.250 | 0.238 | 0.190 | 0.253 | 0.183 | 1.921 | | | | | | | | | | | | |
| **ENG3** | 0.189 | 0.227 | 0.262 | 0.196 | 0.288 | 0.299 | 0.250 | 0.369 | 0.486 | 0.425 | 0.351 | 0.380 | 0.264 | 0.355 | 0.279 | 0.189 | 0.141 | 0.259 | 0.195 | 1.746 | 2.235 | | | | | | | | | | | |
| **ENG4** | -0.001 | 0.049 | 0.075 | 0.167 | 0.406 | 0.318 | 0.372 | 0.410 | 0.441 | 0.424 | 0.440 | 0.244 | 0.221 | 0.272 | 0.147 | 0.283 | 0.357 | 0.338 | 0.307 | 1.344 | 1.447 | 3.003 | | | | | | | | | | |
| **ENG5** | 0.271 | 0.219 | 0.173 | 0.166 | 0.276 | 0.267 | 0.366 | 0.403 | 0.364 | 0.410 | 0.467 | 0.367 | 0.290 | 0.309 | 0.248 | 0.260 | 0.273 | 0.308 | 0.244 | 1.122 | 1.191 | 1.197 | 2.057 | | | | | | | | | |
| **ENG6** | 0.211 | 0.218 | 0.133 | 0.186 | 0.272 | 0.250 | 0.312 | 0.422 | 0.488 | 0.530 | 0.465 | 0.288 | 0.224 | 0.257 | 0.251 | 0.148 | 0.162 | 0.299 | 0.210 | 1.174 | 1.250 | 1.245 | 1.684 | 2.081 | | | | | | | | |
| **ENG7** | 0.241 | 0.262 | 0.181 | 0.171 | 0.263 | 0.237 | 0.248 | 0.378 | 0.483 | 0.484 | 0.410 | 0.275 | 0.246 | 0.276 | 0.180 | 0.165 | 0.144 | 0.256 | 0.203 | 1.312 | 1.407 | 1.285 | 1.634 | 1.799 | 2.214 | | | | | | | |
| **ENG8** | 0.163 | 0.121 | 0.186 | 0.166 | 0.338 | 0.235 | 0.294 | 0.346 | 0.365 | 0.378 | 0.326 | 0.368 | 0.344 | 0.339 | 0.290 | 0.289 | 0.246 | 0.312 | 0.257 | 1.055 | 1.088 | 0.892 | 1.303 | 1.267 | 1.416 | 1.931 | | | | | | |
| **ENG9** | 0.152 | 0.094 | 0.118 | 0.121 | 0.266 | 0.214 | 0.268 | 0.299 | 0.277 | 0.272 | 0.366 | 0.296 | 0.237 | 0.250 | 0.217 | 0.313 | 0.342 | 0.293 | 0.247 | 0.928 | 0.966 | 0.907 | 1.185 | 1.141 | 1.230 | 1.110 | 1.521 | | | | | |
| **ENG10** | 0.149 | 0.139 | 0.190 | 0.195 | 0.274 | 0.237 | 0.151 | 0.275 | 0.483 | 0.382 | 0.395 | 0.319 | 0.261 | 0.334 | 0.203 | 0.246 | 0.312 | 0.414 | 0.301 | 1.000 | 1.154 | 1.537 | 0.856 | 0.870 | 0.943 | 0.755 | 0.807 | 3.470 | | | | |
| **ENG11** | 0.255 | 0.266 | 0.298 | 0.251 | 0.661 | 0.459 | 0.331 | 0.485 | 0.671 | 0.550 | 0.559 | 0.347 | 0.311 | 0.314 | 0.155 | 0.163 | 0.105 | 0.272 | 0.159 | 1.046 | 1.275 | 1.258 | 0.891 | 0.931 | 0.977 | 0.755 | 0.766 | 2.167 | 3.241 | | | |
| **ENG12** | 0.176 | 0.249 | 0.336 | 0.134 | 0.502 | 0.358 | 0.286 | 0.455 | 0.601 | 0.577 | 0.577 | 0.318 | 0.416 | 0.413 | 0.227 | 0.283 | 0.292 | 0.428 | 0.301 | 1.170 | 1.350 | 1.632 | 1.050 | 1.132 | 1.207 | 1.013 | 0.917 | 1.653 | 1.640 | 2.887 | | |
| **ENG13** | 0.200 | 0.204 | 0.232 | 0.219 | 0.374 | 0.236 | 0.265 | 0.394 | 0.579 | 0.448 | 0.460 | 0.410 | 0.372 | 0.465 | 0.284 | 0.343 | 0.174 | 0.407 | 0.216 | 1.062 | 1.257 | 1.082 | 0.978 | 0.979 | 1.058 | 0.937 | 0.881 | 1.493 | 1.532 | 1.388 | 2.455 | |
| **PERF** | 0.029 | 0.061 | 0.044 | 0.128 | −0.018 | −0.039 | −0.007 | 0.081 | 0.058 | 0.102 | 0.011 | −0.014 | −0.001 | −0.033 | 0.046 | −0.021 | 0.015 | 0.050 | 0.087 | 0.248 | 0.275 | 0.124 | 0.139 | 0.215 | 0.202 | 0.218 | 0.130 | 0.055 | 0.030 | 0.087 | 0.157 | 0.927 |

**Table 4.** Summary of the results of the factor, validity, and reliability analyses.

| Items | Loading | | t Value |
|---|---|---|---|
| **EMOTIONAL INTELLIGENCE (FC = 0.79, VE = 0.50)** | | | |
| **Emotional perception ($\alpha$ = 0.809, FC = 0.82, VE = 0.61)** | **0.625** | | **11.765 *** |
| EMO1: When I see people's facial expressions, I recognise the emotions they are feeling. | 0.843 | | Fixed |
| EMO2: I'm aware of the non-verbal messages that other people transmit. | 0.835 | | 18.055 * |
| EMO3: I can tell when someone is lying to me by looking at their facial expression. | 0.656 | | 14.791 * |
| EMO4: My first impression of what people are feeling is generally correct. | | Deleted | |
| **Emotional use ($\alpha$ = 0.820; FC = 0.83; VE = 0.55)** | **0.761** | | **12.967 *** |
| EMO5: I'm an emotional person and I assess my feelings before taking any decisions. | 0.717 | | Fixed |
| EMO6: When facing a problem, I use different emotions to approach it from different points of view. | 0.640 | | 13.307 * |
| EMO7: I trust my emotions to give the right response to problems. | 0.713 | | 14.751 * |
| EMO8: When I'm taking decisions, I assess my feelings to see if the decision is the right one. | 0.870 | | 17.120 * |
| **Emotional understanding ($\alpha$ = 0.865; FC = 0.87; VE = 0.63)** | **0.707** | | **12.063 *** |
| EMO9: I find it easy to write down lots of synonyms for emotional words like happiness or sadness. | 0.680 | | Fixed |
| EMO10: I can explain the emotions I feel. | 0.824 | | 16.420 * |
| EMO11: I have a wide vocabulary to describe my emotions. | 0.905 | | 17.450 * |
| EMO12: I'm able to describe how emotions evolve from lower to higher intensity (e.g., how we go from happiness to euphoria). | 0.751 | | 15.176 * |
| **Emotional management ($\alpha$ = 0.879; FC = 0.89; VE = 0.67)** | **0.700** | | **13.310 *** |
| EMO13: I can handle stressful situations without getting too nervous. | 0.786 | | Fixed |
| EMO14: I know how to keep calm in difficult or stressful situations. | 0.898 | | 22.589 * |
| EMO15: When somebody I know is in a bad mood, I'm able to help them calm down and feel better. | 0.907 | | 22.814 * |
| EMO16: I'm good at helping others to feel better when they feel sad or angry. | 0.647 | | 15.145 * |
| **COMPASSION ($\alpha$ = 0.886; FC = 0.89; VE = 0.67)** | | | |
| COM1: When I hear that someone is having a hard time, I feel a great deal of compassion for them. | 0.887 | | 24.653 * |
| COM2: I tend to feel compassion for people, even if I don't know them. | 0.895 | | 25.038 * |
| COM3: One of the things that most gives my life meaning is helping other people when they are in need. | 0.749 | | 19.200 * |
| COM4: I prefer to get involved in activities that help other people, even if I don't know them, rather than in activities that only benefit myself. | | Deleted | |
| COM5: I often have feelings of tenderness for other (unknown) people when it seems that they need it. | 0.730 | | 18.508 * |

**Table 4.** *Cont.*

| Items | Loading | t Value |
|---|---|---|
| **ENGAGEMENT (FC = 0.87; VE = 0.69)** | | |
| **Vigour ($\alpha$ = 0.833; FC = 0.86; VE = 0.68)** | **0.912** | **19.777 *** |
| ENG1: I feel full of energy when I study. | 0.898 | Fixed |
| ENG2: I can study for long periods of time. | Deleted | |
| ENG3: I feel strong and energised when studying. | 0.921 | 28.779 * |
| ENG4: When I get up in the morning, I feel like going to class. | 0.624 | 15.857 * |
| **Dedication ($\alpha$ = 0.921; FC = 0.92; VE = 0.70)** | **0.807** | **17.256 *** |
| ENG5: My studies are full of meaning and purpose for me. | 0.867 | Fixed |
| ENG6: My studies inspire me. | 0.903 | 28.632 * |
| ENG7: I'm enthusiastic about my studies. | 0.908 | 28.933 * |
| ENG8: I'm proud of my studies. | 0.755 | 20.783 * |
| ENG9: I find my studies challenging. | 0.745 | 20.367 * |
| **Absorption ($\alpha$ = 0.818; FC = 0.82; VE = 0.53)** | **0.769** | **13.395 *** |
| ENG10: Time flies when I'm studying. | 0.712 | Fixed |
| ENG11: When I'm studying, I forget about everything that's going on around me. | 0.757 | 14.985 * |
| ENG12: I'm happy when I'm concentrating on my studies. | 0.727 | 14.489 * |
| ENG13: I tend to do my very best when I'm studying. | 0.719 | 14.358 * |

Note: Model fit: $\chi^2$ = 796.301, df = 424, $\chi^2$/df = 1.878, NFI = 0.900, NNFI = 0.946, IFI = 0.951, CFI= 0.950, RMSEA = 0.042, * $p < 0.01$.

Specifically, a model development strategy was adopted in which, based on the structures of the latent variables for the constructs, a refinement process was undertaken to improve the initial models by eliminating the least appropriate indicators [71]. Following Jöreskog and Sörbom [78], we first examined the estimation parameters. Indicators were eliminated that did not meet the strong convergence condition, that is, standardised coefficients (λ) below 0.6 points, and mean values of the loading on each factor above 0.7 points [71,79,80]. Second, we verified compliance with the weak convergence condition [80] by analysing the significance of the regression coefficients between the indicators and their corresponding latent variable. To this end, we revised the Student's t-values by imposing the maximum requirement ($t > 2.58$, $p = 0.01$). This process led to the removal of a single indicator for each of the three scales: EMO4, COM4, and ENG2, respectively. Finally, we controlled the evolution of the main fit indexes of the model after having removed the indicator. Specifically, the fit of the conceptual model to the empirical data was evaluated with the following indices: χ2, NFI, NNFI, IFI, CFI, and RMSEA.

Various tests were then made to confirm that the refinement process had not affected the level of reliability of the scales. Internal consistency was tested with Cronbach's alpha ($\alpha > 0.7$). We also analysed the constructs' compound reliability (CR > 0.7) and variance extracted (VE > 0.5) [81–83], which presents a summary of the results of the factor and reliability analyses.

Finally, the discriminant validity was analysed. The estimated value of the correlations between the scale dimensions was high and significant, thus, confirming validity. The method based on variance extracted (VE) was used to assess discriminant validity [82]. When the square root of the VE between each pair of factors is higher than the estimated correlation between those factors, as in our case, discriminant validity is confirmed (Table 5).

**Table 5.** Discriminant validity analysis.

| | 1 | 2 | 3 |
|---|---|---|---|
| **1. Emotional intelligence** | 0.70 | | |
| **2. Compassion** | 0.51 * | 0.82 | |
| **3. Engagement** | 0.35 * | 0.19 * | 0.83 |

Note: Model fit: Below the diagonal: estimated correlation between the factors. Diagonal: square root of the VE. * $p < 0.05$.

## 4. Results

The hypotheses were tested following the same method employed to validate the scales, by means of structural equations models using the EQS 6.1 program. All the hypotheses were confirmed, and presented good model fit indices (Table 6).

**Table 6.** Summary of the results of testing the structural model.

| Hypotesis | Relation | Parameter | *t* Value | Result |
|---|---|---|---|---|
| $H_1$ | Emotional intelligence → Academic performance | −0.089 | −0.597 | Rejected |
| $H_2$ | Emotional intelligence → Compassion | 0.533 | 8.582 * | Not rejected |
| $H_3$ | Compassion → Engagement | 0.186 | 3.816 * | Not rejected |
| $H_4$ | Engagement → Academic performance | 0.611 | 4.276 * | Not rejected |

Note: Model fit: $\chi^2 = 807.675$, df = 447, $\chi^2/df = 1.806$, NFI = 0.906, NNFI = 0.951, IFI = 0.956, CFI = 0.956, and RMSEA = 0.039. * $p < 0.01$.

The general hypothesis was therefore confirmed, namely, that the domino effect among the analysed constructs strengthens students' academic performance. Specifically, EI has no significant direct effect on academic performance ($H_1$: $\lambda = -0.089$, $t = -0.597$). Its key antecedent role in performance occurs because of its effect on two mediator variables in this relationship, which are known as compassion and engagement. Thus, students' EI favours their adoption of a compassionate attitude in their educational setting ($H_2$: $\lambda = 0.533$,

$t$ = 8.582), which strengthens their engagement with their studies ($H_3$: λ = 0.186, $t$ = 3.816) and this, in turn, improves their performance ($H_4$: λ = 0.611, $t$ = 4.276).

## 5. Conclusions

The main aim of this study was to explore the importance of EI training in the teaching–learning process, in response to the need to invest in developing students' emotional competences as an essential premise in education for sustainable development. Specifically, results (see Table 6) reveal that $H_1$ regarding the direct relationship between EI and student's academic performance is rejected, supporting the rest of the hypotheses ($H_2$, $H_3$, $H_4$) regarding the mediating role of compassion and engagement in the EI–academic performance relationship. In sum, the basic question we have attempted to answer in this research is whether good EI development influences students' academic performance through compassion and engagement. Our study provides empirical evidence that the EI–academic performance relationship is mediated by compassion and engagement. Moreover, it sheds some light regarding the EI–academic performance relationship since previous literature offers mixed results [84,85]. The results from the empirical analysis can be generalised since they were generated from a sample comprising 21 academic disciplines from a wide range of business and economic sciences, technological and experimental sciences, health sciences and social sciences, covering three geographical regions and also including a secondary school.

This study's main contribution to the EI–academic performance debate in a context of education for sustainable development is its inclusion in the model of compassion and engagement as mediating variables in the relationship. Including compassion is an additional innovation since this variable has usually been confined to the fields of theology, philosophy, or sociology, and, more recently, organisations, and, therefore, its analysis from the educational perspective is not without interest. In the educational setting, EI plays an important role as an individual resource and an antecedent that enables students to be more compassionate toward their fellow students and also toward themselves (self-compassion). In fact, previous research in nursing students confirm the positive relationship between self-compassion and emotional intelligence [86]. This paper, therefore, makes a valuable contribution to compassion and sustainability research by demonstrating the significant role that self-compassion plays in educational settings [87,88]. The results also demonstrate the indirect effect of compassion (through commitment) on academic performance. This goes in line with the practical recommendations of previous literature of the relevant role that compassion plays as a component of the UNESCO (United Nations Educational, Scientific and Cultural Organization) competence for sustainable consciousness toward the present generation and future generations [89].

In sum, our study is coherent with the need to return to a more humanistic education that incorporates a new language and new content in which technical-professional training goes hand-in-hand with moral and socio-emotional learning, in which the pedagogical discourse is situated not only in the means, but also in what is learned and what this knowledge is for [90]. Added to this perspective is the need to incorporate emotions into the teaching–learning process and give them a greater role by establishing the relationship between emotion (affective learning) and reason (cognitive learning) as an additional way of strengthening and developing the individual. Moreover, the idea of enhancing affective skills, such as compassion, is encompassed in the goal of sustainable development since compassion for other people is positively related to pro-environmental tendencies, according to previous studies [85]. In recent years, both the social and the experimental sciences have opened up to the incorporation of emotion as a field of study and in practical applications. Disciplines as diverse as psychology and medicine, or economics and business administration, have lifted emotions out of the subordinate role they played in higher education curricula. In the former cases, they are applied as agents in health care, and, in the latter, as the bases for rational decisions that stimulate the economic and business management process.

The research has several limitations, which, in turn, suggests lines for future research. First, the sample was mainly comprised of higher education students with the exception of a smaller group of secondary school students. It would, therefore, be useful to validate the study at different stages of education and increase the number of secondary schools in the sample in order to compare the outcomes. Second, although the sample included mostly Spanish students, a large group of South American students were also recruited through an online university. Future research could, therefore, replicate this study in other European, Asian, or North American contexts in order to draw more generalised conclusions that take into account other cultural and geographical settings. On this point, recall that the cultural factor is closely related to the way emotions are perceived [91]. A broader based study would, therefore, yield more robust results that could be generalised at a global level.

Regarding the implications for teachers, the research exposes the need to further strengthen the trend to include humanistic and affective subjects in the curricula. Such subjects highlight the acquisition of values, the importance of respect and understanding among peers, and the appropriate ethical and emotional development of students. Moreover, in the context of education for sustainable development, EI skills of the teaching staff (not only of the students) is also a crucial parameter in academic results, starting from the emotional skills of university lectures but also going back to the skill of teachers even at early education stages, since EI is a skill that can start to develop from early childhood, as previous research points out [92] Hence, future research should be addressed to analyse, at the same time, the EI skills of teachers and their students as well as explore the long-term effects on professional performance. Additionally, it would be useful to incorporate learning methodologies that combine instruction in the content related to the degree subject with others that foster emotional competencies. Finally, as part of the incipient promotion of EI and compassion in the classroom, it should not be forgotten that socially sustainable organisations can only be built by training tomorrow's professionals to be compassionate as an integral part of their education. This ambitious objective also entails training teachers in the necessary competencies to impart an education for sustainable development. This challenge should be approached from two angles: the acquisition of such competencies and the acquisition of professional competencies to give students an education for sustainable development. Teachers, as citizens, also need the skills to act as such in sustainable societies. As educators of future citizens, the specific competencies for their professional careers should also be oriented toward sustainability and should enable them, in turn, to educate students in the principles and values of sustainable development.

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