Original Article

Influence of cooperative strategies and mindfulness on the perception and control of emotions in primary physical education. A proposal to improve sustainability in the social dimension

SALVADOR BAENA-MORALES[1], ALBERTO FERRIZ-VALERO[2], OLALLA GARCÍA-TAIBO[3]
[1,2,] Department of General Didactics and Specific Didactics. University of Alicante. Alicante.SPAIN.
[1,2] EDUCAPHYS research group.
[3] Department of Physical Education and Sport. Pontifical University of Comillas. CESAG-Mallorca. Palma de Mallorca. SPAIN

Abstract
Background: Today, the world we live in poses challenges, such as poverty, inequality, climate change, etc. All these issues that surround us are framed within the SDGs. With the aim of finding new strategies and ways of teaching with which to achieve the SDGs, an intervention is proposed that uses emotions and feelings as a framework, as well as control and attention to these in Primary Education. **Method:** This proposal is based on the implementation of different strategies and learning styles (cooperative learning, guided discovery, discovery learning, mindfulness, and yoga) divided into sessions in which the students participate. The research is framed within the field of sustainable development and aims to analyze the effect that students receive when applying these strategies, in order to check whether they are valid for contributing to the SDGs. The study obtains its results through the questionnaire "Trait Meta Mood Scale-24, TMMS-24 Spanish version" (Fernández-Berrocal and Extremera, 2005), which is carried out on a sample of students to whom the experimental model is applied and to the students who are included as the control group. **Results:** The paired samples T-test shows in the experimental group, the difference shows a noticeable decrease in the attention factor in the post-test compared to the pre-intervention test, while in the control group the difference also decreases, but it is not as noticeable. In the clarity factor, the difference increases very slightly in both groups in the post-test compared to the pre-test. Finally, in the repair factor, the results of the experimental group decrease notably with respect to the control group in the post-test, with respect to the pre-test. **Conclusions:** Due to the limitations of the study, the results were neither significant nor conclusive. It is of great importance to carry out this type of study in order to make further progress in ESD.
Keywords: Education for sustainable development, didactics, physical education, SDG 4, SDG 3

Introduction

The Sustainable Development Goals society
　　"The new Mental Health Atlas published by the World Health Organization reveals a disappointing landscape of global failure to provide people with needed mental health services" (WHO, 2021 (p.1)). Mental health in childhood means achieving developmental and emotional indicators. In addition, it requires learning healthy social and problem-solving skills (CDC, 2022). This is one of the many problems that sustainable development aims to alleviate (United Nations General Assembly, 2015). To delve further into the term sustainable development, we go back to 1987, when the United Nations Brundtland Commission defined the concept as what makes it possible to meet current needs without risking that future generations will not be able to meet theirs (The Brundtland Commission, 1987). Sustainable development requires a holistic vision that takes into account environmental, economic and social concerns (UN, 2020). In 2010, the Millennium Summit was held, at which the MDGs (Millennium Development Goals) were designated, which, based on the UN report, were structured into eight goals to achieve the reduction of poverty and hunger, improvement in health and living conditions, quality of education, environmental sustainability and gender equality (UN, 20009). Later, in 2015, the 70th UN General Assembly was held in New York, where the SDGs (Sustainable Development Goals) were adopted (UN, 2015). In this assembly, 17 goals were established to achieve sustainable development in all its dimensions and these in turn are detailed in 169 goals, which not only focus on the improvement and sustainability of the third world, but it is a global strategy that involves and warns us all, also mentioning that the SDGs respect and take into account the realities, capacities and development of each country (UN, 2018). The 17 sustainable development goals set by the UN were established with a 15-year framework for action, i.e. from 2015 to 2030, by which time they are intended to have been achieved (United Nations, 2015). To generalise and

Corresponding Author: SALVADOR BAENA-MORALES, E-mail: salvador.baena@ua.es

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synthesise, the Sustainable Development Goals translate into a formula for eliminating poverty, boosting prosperity and well-being in the world, protecting the environment and curbing climate change, which is already affecting the Earth (United Nations, 2015). According to UNESCO, it is necessary to know where our planet stands and to be aware that our ways of life must change, as well as our way of thinking and acting (UNESCO, 2017). It also states that new values and a more responsible and conscious attitude towards the reality around us are needed and mentions that it is of utmost importance that the education system introduces new pedagogies and learning methods that are in line with this need (UNESCO, 2017).

Education has to be in line with the challenges and objectives proposed by sustainable development and promote growth in the values and attitudes of the people of the new generations to achieve sustainability and inclusiveness, in order to achieve a peaceful coexistence between environment and society (Bokova, 2017). On the other hand, teaching is mostly focused on the environmental area, which differs from the goals of the ESD, i.e. the three dimensions of the SDGs, social, economic and environmental (Barkin, 2000), therefore, it is important to train teachers in sustainability to educate students to be aware of the problem and become a fundamental part of the achievement of the SDGs (Vila, Caride and Buxarrais, 2018). Furthermore, according to a report by the IPCC (2007), discussions generated on sustainable development generally tend to focus only on the environmental and economic dimension, leaving aside social issues, and this is reflected in the fact that university education students often focus sustainability only on environmental issues (Martínez, 2018).

Dimensions of sustainable development
To delve deeper into the idea of sustainability, we turn to the Brundtland Report, which defines sustainability as "Development that meets the needs of the present without compromising future generations, ensuring a balance between the three dimensions of sustainability: economic growth, care for the environment and social well-being". In the social sphere, we can see very shocking data concerning mental health in children and youth, Unicef highlights that between 10 and 20% of children worldwide suffer from some kind of mental health problem. In terms of the social sphere, we can also highlight many other problematic aspects such as bullying, the growing cases of suicide, homophobia, transphobia, sexism and machismo, among others. According to UNICEF reports, many of these problems can be related to each other in different ways. Another area would be the economic sphere, in which it is important to highlight the data obtained from the International Journal of Sociology that speak of a detriment of the labour market that has transcended economic inequality in Spain with its origins in the 2008 crisis. As mentioned above, sustainable development is divided into three dimensions: environmental, economic and social.

Within each of these dimensions there are numerous problems that have been discussed by numerous organisations and studies with the aim of resolving them and reducing or eliminating them (UN, 2020; IPCC, 2007; European Commission, 2022). According to Acciona (2020), these dimensions are the pillars of sustainable development, which is why they depend on each other. In the Report of the World Commission on Environment and Sustainable Development (1987), the three areas of development are distinguished: the social area, which aims to promote the development of people in community, so that the quality of life is higher, reducing suicide rates and social inequalities, among others; the economic area, which is defined as the achievement of a growing economy in which there is equitable wealth; and finally, the environmental area, which is related to the solution to climate change and the environmental problems mentioned above.

In the last year, we have been immersed in a pandemic climate that has impacted on the economy and the way we live and socialise with the outside world (European Commission, 2021; UN, 2020). The pandemic has caused widespread psychological distress throughout society and therefore measures must be taken, otherwise a mental health crisis will erupt, leading to a deterioration in the way we live in society, as mental health is the basis of society (United Nations, 2020). It is important to know that Mental Health is not simply the absence of mental illness (WHO, 2018). Mental health is considered a state of well-being in which you can carry out normal or everyday activities and cope with the stresses of everyday life, this is also related to interpersonal relationships, as people live in community and need to communicate (WHO, 2018). Currently we are surrounded by a panorama that is not consistent with the problem of mental health, as it is shown that there is a deficit in the provision of mental health services (WHO, 2021).

Furthermore, there are prejudices and negative connotations surrounding mental health services (Campo-Arias, 2013), these prejudices make it more difficult for people who need mental health services to access them, and negative connotations reduce resources and produce a shortage of services (Campo-Arias, et al., 2014). According to the Spanish Confederation of Mental Health (2019), mental health is cross-cutting, i.e. it can be reflected in each of the SDGs. Firstly, it is related to goal 3 "Health and well-being" and secondly, to goal 4 "Quality education" and then transversally in each of them. Consequently, mental health falls under the social goal of sustainable development but is transversally linked to the economic and environmental goals (Spanish Confederation of Mental Health, 2019). In order to achieve these goals and objectives, education has been described as one of the main pillars to achieve them (UNESCO, 2017).

Physical Education to achieve the SDGs

UNESCO reports highlight the importance of education, not only as one of the objectives of sustainable development, but also as one of the fundamental tools for achieving them, as it is one of the main instruments for achieving a responsible, fair and respectful society for people and the environment (UNESCO, 2020; UNESCO, 2021). The UN General Assembly resolution adopted in 2019 recognises the importance of providing quality education accessible to all, which is a key point for achieving the goal of sustainable development. According to this resolution, it is a fact that 262 million children and adolescents as of 2017 were still out of school, furthermore it is stated that the competence of teachers and the quality of learning has not kept pace with new technologies, from which many benefits and advances can be gained (United Nations General Assembly, 2019). UNESCO has stated that COVID-19 has affected most of the world's children, resulting in disruption and change in their learning (UNESCO, 2020). Education for Sustainable Development (ESD) is an essential part of achieving the SDGs, as it trains students to make informed and reasoned decisions to improve the environment and thus arrive at solutions to problems that may arise today or in the future. ESD aims to provide students with the skills, competencies, values and tools needed to overcome the problems we face, such as climate change, loss of ecosystems, poverty and inequalities, among others (UNESCO, 2017).

There is a widespread lack of knowledge in primary schools about the concept of sustainability and its components, and it proposes the implementation of proposals for sustainable development in schools, also taking into account the social and cultural aspect, addressing issues such as poverty or sexism, among others. One article reveals that recent reforms of the educational curriculum in Spain do not manifest ESD, i.e. they do not implement sustainable development and its elements in primary education (Rojas, 2016). Taking into account the above, it is urgent to maintain the focus on the professional training of teachers so that they are able to include and implement sustainability from the classroom (UNESCO, 2014), because it is in this scenario where knowledge is born (Calero et al., 2019). The climate emergency requires a new model of education that adapts to it and therefore adapts to the reality of the 21st century, and this requires a society that is educated and aware of sustainability (UNESCO, 2018). The White Paper on Environmental Education (1999) states that the aim of education is to broaden our awareness of the effects of humanity on the planet, so that we have the skills and tools to act in the face of the social, environmental and economic crisis.

During the last decade there have been numerous studies on the topic of sustainability focused on education, such as the one carried out by UNESCO "Education for Sustainable Development", published in 2020, which is a roadmap to achieve the objectives for sustainable development that are framed in the 2030 Agenda, an action plan that was approved at the United Nations General Assembly and that aims to achieve the 17 SDGs, to achieve a sustainable planet (UNESCO, 2020; Dieste, Coma, Blasco-Serrano, 2019; Rodríguez 2021). A current UNESCO study points out that ESD is mostly related to concepts and knowledge about the environment, without taking into account the different aspects covered by sustainable development, such as the social and economic perspective, i.e. the teaching of ESD is being developed inadequately and incompletely from the root, which is why different studies propose teacher training on sustainable development, in order to offer valid knowledge that will make young people capable of making their own decisions to improve the global situation. (UNESCO, 2020) Education is the great ally that we have in our hands and that, if worked properly, is a great enabler for achieving the sustainable development goals. Education for sustainable development is a tool to encourage children, young people and adults to attain a practical and theoretical knowledge of sustainable development (Leal, 2009). The principle of the SDGs is to leave no one behind, so sport follows this aspiration very well, as it is a potential instrument that is inclusive and promotes peace and well-being of people (UN, 2015). Therefore, among the different subjects that make up the Primary Education curriculum, teachers should look for ways to contribute to the achievement of the SDGs (Rieckman et al 2017). Within this framework, Physical Education is described as a valid resource to collaborate with the three dimensions of sustainable development (Baena-Morales and González, 2022; MINEPS, 2015; CIB, 2017), including the social dimension (Baena-Morales, Jerez Mayorga el al., 2021).

Benefits of Mindfulness on mental health in the area of Physical Education

In a report published by the World Health Organization, it is stated that the COVID-19 pandemic has had a broad impact on people's mental health and well-being (WHO, 2022). One of the things that can improve this situation is PA; its practice has been shown to improve self-esteem, anxiety levels and even depression and therefore improve mental health and quality of life (WHO, 2020). Moreover, one of the specific targets of the Sustainable Development Goals is based on promoting mental health and well-being (Baena and González, 2022). The Spanish Foundation for Suicide Prevention has issued a warning, since in the last year, Spain has registered the highest number of suicides in its history (FSME, 2020). Physical Education is not only a main source for the achievement of the SDGs, it is also a fundamental tool for the health of human beings, both physically and psychologically. This is directly related to SDG target 4.1, which seeks access to quality education with effective and valuable learning (UN, 2015). The World Health Organisation (WHO) affirms that physical activity, when properly worked on, stimulates cognitive activity and mental health in a positive way, reaching different aspects such as improving self-esteem, self-confidence and even improving levels of anxiety or depression (WHO, 2020). This issue is in line with target 3.4 of the SDGs, as it integrates prevention and

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treatment for the improvement of mental health, as well as promoting well-being (United Nations, 2015). Sport activity also has positive effects on individuals' values and social skills, as well as building strong emotional bonds within individuals (UN, 2015). However, the positivity and improvement that sport can bring to our planet can also be corrupted by hatred and violence, which is very detrimental to peaceful coexistence, which is why the United Nations proposes good practice and appropriate physical education for sustainable development, so that, as mentioned above, teachers need to be aware and able to transmit knowledge about sustainable development, to achieve responsible, aware and respectful youth with sustainable development and its objectives (UNESCO, 2014). It is important to take into account the different neurotransmitters we have talked about previously, such as dopamine, endorphins, serotonin among others, which are activated when we practice sport (Lubans et al., 2016). To better explain and clarify on a biological level what happens to our body when we engage in physical activity, we turn to the hormones and neurotransmitters that are released and react in our body (UCR, 2019). When we practice sport, a series of hormones are released that bring us well-being, such as dopamine, which is a neurotransmitter responsible for providing feelings of pleasure and relaxation (Regader, 2016). Another substance that acts in this process is endorphins, which are responsible for blocking or relieving pain and therefore creating a sense of well-being (Guajardo, 2021).

Among other substances, the neurotransmitter serotonin is also released, which is also of great importance to highlight, as it has a very close link with respect to the improvement that physical activity produces on mental health, among other things, it is responsible for controlling emotions and mood and therefore reduces levels of anxiety and fear (Trueta, 2012).

As can be interpreted, it is important to act for the benefit of mental health and that therefore, one of the key points to be taken into account is physical activity, as it can be an important ally to solve this situation. Therefore, it is important to understand how physical activity acts on our mind in order to understand the intention of this study and how it fits into the achievement of SDG targets 3.4 and 4.1 as the main focus of this study. Therefore, taking into account that physical activity is able to develop the improvement of mental health and control of emotions, proposing a didactic proposal of intervention from Physical Education, we could achieve the improvement of self-esteem, as well as self-concept, and in this way we could improve decision-making and problem solving (Singh, et al., 2019). Consequently, social relations between students would be improved, thus reaching a peaceful environment and respect for oneself and others, with the benefit of achieving values based on equality and respect among many others, without falling into violence, sexism, machismo, racism, homophobia or transphobia among others. To complement the task that physical activity alone performs, different teaching-learning styles or approaches are incorporated into this intervention, such as learning by discovery, cooperative learning and problem solving, which can develop one's own criteria and decision-making capacity, as well as improving creativity, autonomy, and self-esteem (Barrón, 1993). Complementing these styles are practices such as yoga and mindfulness, which help develop emotional intelligence and reduce stress among other things (Regader, 2015). Therefore, we can name another of the sustainable development goals that is directly related to the study that we want to carry out, this is goal 4, "quality education", within which, target 4.1. "Quality of primary and secondary education" is framed, as well as working transversally on target 4.3. "Gender disparity and vulnerable groups" and target 4.7. "Global education for sustainable development". Subsequently, it should be noted that, together with these goals and targets, the aim is to work transversally on other SDGs presented in the 2030 Agenda, namely goal 5, "gender equality" and goal 10, "reduction of inequalities". The goals and targets set out above will form the basis of the study for the achievement of the sustainable development goals focused on mental health and emotional control through physical education. On the other hand, the main objectives of this intervention proposal are to analyse how the practice of cooperative games would influence pupils. In addition to examining how it increases or decreases their levels of self-concept, recognition of feelings. Then, the secondary objectives of the didactic intervention are proposed, one of them would be to achieve critical thinking in the pupils. Another would be to analyse how teaching styles are affected.

Materials & Methods
Participants
The sample consists of 24 primary school pupils, 41.6% of whom are girls, i.e. 10 are female, and 58.3% are boys, i.e. 14 are male. All the pupils participating in the intervention will be in the 6th year of Primary School, so that their ages range from 11 to 12 years, so that the average age is 11.70 ± 0.4 years.
Procedure
To begin with the intervention, the first thing that was carried out was an explanation to the pupils of what the study was going to be about, such as how to approach it, the reason for the research and also the importance of emotions and feelings in mental health. With this, they were presented with the informed consent form that they had to bring signed in case they wanted to participate in the intervention. In this intervention, the students were randomly divided into two groups: A control group. which followed a collective sport practice without methodology and without guidelines from the teacher. An experimental group. which followed the intervention proposal based on cooperative learning and using the teaching styles of discovery learning, guided

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discovery and problem solving. In this proposal, strategies such as mindfulness or the practice of yoga are used indirectly. The procedure followed by the experimental group is shown in table 1 below.

Table 1. Procedure followed during the intervention by the control and experimental grou

Session	Description	Methodologies or strategies used
Session 1	"The great journey", an activity to develop orientation based on problem solving	Guided discovery. Cooperative learning. Mindfulness.
Session 2	Construction of objects or figures with the body.	Assignment of tasks. Cooperative learning. Indirect yoga. Mindfulness.
Session 3	Gymkhana based on orientation.	Discovery learning. Guided discovery. Mindfulness.
Session 4	Board game with physical challenges.	Homework assignments. Cooperative learning. Indirect yoga.

Data collection was carried out from 24 March 2022 to 7 April 2022 in the municipality of San Vicente del Raspeig (Alicante). All students were informed of the objectives of the research and signed an informed consent form in which they gave their data for scientific use in favour of the study. The research design respects the ethical semblances presented in the Declaration of Helsinki. This study was approved by the ethics committee of the University of Alicante with code UA-2022-03-17.

Instruments

In order to analyse the intervention, a validated questionnaire will be used before the intervention, as an initial evaluation, and after the intervention, as a final evaluation. The validated questionnaire used in this study is called "Trait Meta Mood Scale-24, TMMS-24 Spanish version" (Fernández-Berrocal and Extremera, 2005). It is a 24-item questionnaire composed of three dimensions: Attention to feelings, emotional clarity and emotion repair. Each magnitude is composed of 8 items. From item 1 to 8 corresponds to the magnitude "attention to feelings", from item 8 to 16 corresponds to the magnitude "emotional clarity" and finally from item 16 to 24 corresponds to the magnitude "emotion repair". The questionnaire ("Trait Meta Mood Scale-24, TMMS-24") was administered to both the control and experimental groups, and in the same way, therefore, it helps us to see the changes that have occurred in the initial and final evaluation between the two groups of students and in the initial and final evaluation within the same group of students, that is, to observe if in the students of the experimental group differences have been observed between the initial and final test. On the other hand, to assess validity, the questionnaire was subjected to an analysis of internal consistency coefficients of Cronbach's alpha greater than 0.80 (Attention 0.89; Clarity 0.84; Repair 0.83), so that this questionnaire demonstrates high validity.

Statistical analysis

All continuous variables in the data set were subjected to a normality test (Shapiro-Wilk). In addition, a chi-square analysis and a univariate statistical analysis for non-parametric samples were performed on the data. Due to the small sample size, a paired samples t-test was performed to assess the differences between the control and experimental groups on two occasions: pre- and post-intervention. The significance level was set at $p < 0.05$ in all cases. The statistical programs used were Statistics Product and Service Solutions (IBM ® SPSS ® Statistics Version 24.0.0.0) (International Business Machines Corp., Madrid, Spain) and Microsoft Excel ® in its 2016 version (Microsoft Corp., Redmond, WD, USA).

Results

Descriptive analysis of the results

Table 2 shows the descriptive analysis for the questionnaire Trait Meta Mood Scale-24, TMMS-24 Spanish version in the pre and post phase for the control and experimental group expressed in mean and standard deviation. This table shows an analysis of all the magnitudes, and therefore provides a summary of the data obtained from the sample. It can be seen that in the experimental group, in the magnitude of attention to feelings, the results have decreased in the post-test with respect to the pre-intervention test. Regarding the emotional clarity factor, the data have risen in most of the items, but in the repair of emotions they have fallen again with

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respect to the pre-test. As for the control group, the data decreased in most of the items in the post-test, compared to the pre-test.

Table 2. Descriptive analysis

Ítems	Control		Experimental	
	Pre	Post	Pre	Post
Factor 1. Attention to feelings				
I pay a lot of attention to feelings	4,83(0,71)	4,58(1,24)	4,41(1,31)	4,08(1,08)
I care a lot about how I feel	5,25(1,21)	4,83(1,33)	4,91(1,64)	4,66(1,30)
I spend time thinking about my emotions	3,16(1,52)	3,08(1,44)	3,83(1,64)	3,41(1,31)
My emotions are worth paying attention to	4,50(1,62)	4,66(1,23)	4,75(1,05)	4,41(1,08)
I let my feelings affect my emotions.	4,00(1,85)	3,50(1,44)	2,91(1,31)	2,83(0,93)
I think about my moods constantly	4,75(1,76)	4,08(1,97)	4,16(1,64)	3,08(1,08)
I think about my feelings often	4,50(1,62)	4,25(1,54)	4,41(1,37)	3,25(1,28)
I pay close attention to how I feel	3,75(1,60)	4,33(1,30)	4,16(1,58)	3,91(1,08)
Factor 2. Emotional clarity				
I am clear about my feelings	3,83(1,85)	3,91(1,83)	5,08(0,90)	4,83(0,83)
I can define my feelings	2,91(1,64)	3,00(1,70)	3,25(1,81)	4,08(1,44)
I almost always know how I feel	3,75(1,86)	3,66(1,55)	5,08(0,79)	5,08(0,90)
I know my feelings about people	3,58(2,02)	4,33(1,61)	4,66(0,98)	4,58(0,90)
I am often aware of my feelings in different situations	4,91(1,16)	4,91(0,90)	4,41(0,90)	4,50(1,00)
I can always say how I feel	3,50(2,11)	3,08(1,88)	4,25(1,05)	3,66(0,88)
I can sometimes say what my emotions are	4,08(1,88)	3,66(2,05)	4,58(1,16)	4,50(0,90)
I can come to understand my feelings	3,91(1,83)	4,16(1,69)	4,41(0,99)	4,91(1,16)
Factor 3. Emotional repair				
Although I sometimes feel sad, I tend to have an optimistic outlook.	3,16(2,20)	3,41(2,31)	5,08(0,99)	4,83(0,93)
Even when I feel bad, I try to think of pleasant things.	3,91(2,27)	3,75(2,09)	4,91(1,16)	4,83(1,11)
When I'm sad, I think of all the pleasures in life	3,41(1,56)	3,00(1,80)	4,58(1,50)	4,00(1,65)
I try to think positive thoughts even when I feel bad	4,08(1,97)	4,00(1,90)	5,41(1,16)	4,41(1,56)
If I think about things too much, complicating them, I try to calm myself down.	4,08(1,72)	4,25(1,81)	4,91(1,08)	5,08(0,90)
I take care to be in a good mood.	4,66(1,66)	4,75(1,48)	5,00(1,34)	4,66(0,98)
I have a lot of energy when I am happy	5,50(1,00)	5,58(0,90)	5,75(0,45)	5,75(0,45)
When I am angry, I try to change my mood.	3,50(2,27)	3,16(1,74)	4,83(1,52)	4,66(0,77)

Comparative statistics

Table 3 shows the paired samples T-test for the Trait Meta Mood Scale-24 questionnaire, TMMS-24 Spanish version in the pre and post phase for the control and experimental group organised by factors. This test compares the mean of two variables in a group. In this test, the range of difference between one variable and the other can be observed.

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In the experimental group, the difference shows a notable drop in the attention factor in the post-test compared to the pre-intervention test, while in the control group the difference also drops, but it is not so notable. In the clarity factor, the difference increases very slightly in both groups in the post-test compared to the pre-test. Finally, in the repair factor, the results of the experimental group decrease notably with respect to the control group in the post-test, with respect to the pre-test.

Table 3. Paired sample statistics

	Experimental			Control		
	Pre	Post	Dife	Pre	Post	Dife
Attention	4,19 (1,00)	3,70 (0,80)	-0,49	4,34 (0,99)	4,16 (1,08)	-0,18
Clarity	4,46 (0,61)	4,52 (0,38)	0,06	3,81 (1,31)	3,84 (1,34)	0,03
Repair	5,06 (0,67)	4,78 (0,67)	-0,28	4,04 (1,38)	3,98 (1,30)	-0,06

Discussion

One of the objectives of this research was to analyse the effect of the practice of cooperative activities and games and mindfulness and yoga strategies on the development of the ability to control emotions, this objective would be related to the third factor ("Emotion repair") of the instrument used. The second objective was to analyse the effect of the practice of cooperative activities and games and mindfulness and yoga strategies on the development of the ability to recognise emotions, this objective relates to the second factor ("Emotional clarity") of the instrument used. Following the objectives we found the last main objective, which was to analyse the effect of the practice of cooperative activities and games and mindfulness and yoga strategies on the development of the capacity of attention to emotions, this one focuses on the first factor ("Attention to feelings") of the instrument used. Previous studies have shown the importance and interest that emotional intelligence has and how it relates to mental health, but few studies are involved in depth on the potential that physical education has directly on emotional intelligence and mental health in children (Fierro-Suero, Almagro & Sáenz-López, 2019). In this research, data were obtained from a sample of students who completed a questionnaire before and after the intervention, the data extracted indicated that the students in the experimental group increased their understanding of their own feelings, in the same way as the control group, but in a lower number, which contrasts with a study of psychopedagogy (Loayza, 2019). On the other hand, the experimental group has also improved in the control of emotions, according to a study, emotions can be controlled and educated, which means being able to control behaviour, that is, the way of responding to an emotion (Casassus, 2006). In the results we can observe variables that improve with the implementation of the intervention and others that are maintained or worsen, this could be explained because the size of the sample may influence the results, as it could be a coincidence when separating by groups, in addition, The answers obtained could vary considerably due to the hormonal increase and the constant change that students are experiencing at an age like the one analysed, which also makes them more vulnerable to mental health problems (WHO, 2020). Physical Education can make adaptive capacity possible, which translates into providing effective responses and solutions to situations of conflict in interpersonal relationships, making psychological well-being possible (Fernández-Berrocal and Ruiz, 2008). Therefore, a greater involvement of methodologies such as guided discovery, discovery learning and problem solving could lead to significant improvements in the control of emotions, emotional clarity and repair of emotions, but on the other hand, the hypothesis that the use of mindfulness is associated with the capacity for attention and recognition of emotions cannot be confirmed, which would fit in with the second objective of the intervention and which is related to the dimensions of attention to feelings and emotional clarity, which disagrees with another study (Body, 2016).

The data obtained cannot extract any significant evidence to validate that the self-concept and self-esteem of the students has improved, and cannot confirm the strength of the first hypothesis of the research that fits with the secondary objectives of the research, which, the results are in contrast to other studies (Hortigüela, Pérez & Calderón, 2016). Next, looking at the results we could confirm that with the application of these methods and educational tools we can achieve an improvement in the interpersonal relationships of the students consequently by the fact of the progress of the control of emotions, which is related to the dimension of repairing feelings, which leads us to confirm in a non-significant way the first main objective of the research and which is supported by previous studies (Pérez, Ochoa & Chaverra, 2020). Although the hypothesis of improving self-esteem and self-concept and achieving the benefit of establishing values based on equality and respect has not been reached in the current study, empirical studies indicate that the application of methodologies such as guided discovery is significant (Trejos-Buriticá, 2017). One study supports the importance of cooperative learning for the progress of interpersonal relationships among students (García, Traver and Candela, 2019).

The difficulties or limitations involved in the assessment of behavioural factors and human conduct, especially in 12-year-old children, who are growing and in the process of becoming adolescents (WHO, 2020). This implies a constant change in their conduct and behaviour, which makes it difficult to assess. In this research, it is noted that the sample size is small due to circumstances beyond the scope of the research, thus

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making it more difficult to find significant connections with respect to certain variables. The size is low, as the study was not carried out in practice time in an educational centre, therefore, it was made more difficult. The low sample size leads to limitations in a research work, it is likely that the data obtained will not be significant, and inaccuracies in the results are more common. In future research, it would be interesting to work with more questionnaires, so that more information can be gathered, as this topic is very extensive and involves many aspects, which requires more information parameters to collect data in order to build a more stable conclusion each time. It is important to establish a higher sample number so that the research is not easily affected by different factors, in order to obtain more meaningful and conclusive data.

Conclusion

The main objectives of the research were to analyse the effect of cooperative learning and mindfulness and yoga strategies on the development of students' ability to control, recognise and pay attention to emotions and feelings, with yoga and mindfulness being one of them. These objectives have been developed and positive results have been obtained but not significant and with a low increase in terms of the magnitude of emotional clarity, but in other factors, such as attention and repair of feelings and emotions, the data have not been as expected, that is, they have decreased with the implementation of the intervention, and therefore, they are not conclusive or significant, which means that the objectives of the study have not been fully achieved. The secondary objectives are directly related to the primary objectives, so they are linked. One of the secondary objectives is to achieve decision-making ability in the students, which is directly related to the development of self-concept and self-knowledge of emotions, in which some positive data have been obtained in relation to the magnitude of emotional clarity, but in the rest of the magnitudes the results have been negative and have even decreased, which leads us to recognize that the results are not significant due to the limitations of the study.

In conclusion, it is important to highlight the importance of carrying out educational proposals with a longer duration over time, so that the observable changes are more noticeable and significant, as well as the motivation and participation of the students so that a commitment is established. Another of the important things to highlight would be one of the limitations of the study that has been mentioned before, it would have been a key element for more significant research, but it has not been a possibility of this study. It is crucial to continue carrying out this type of study and research in order to achieve a more valuable education for all, but it is complicated to reach a valid conclusion for all learners, as each one has their own difficulties and abilities, so each person has a different perspective and vision of what is perceived. On the other hand, to point out the impact that education has on many factors such as sustainable development to stop everything that is damaging the earth and that is framed in the sustainable development goals. It is essential to introduce this type of learning, such as emotional education, sex education, road safety education, environmental education and education in information and communication technologies, among others, so that pupils can lead a full and happy life.

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References

Alonso-Sainz, T. (2021). Educación para el desarrollo sostenible: una visión crítica desde la Pedagogía. *Revista Complutense de Educación*, *32*(2), 249–259. https://doi.org/10.5209/rced.68338

Rieckmann, M., Mindt, L., & Gardiner, S. (2017). *Education for Sustainable Development Goals Learning Objectives*. https://unesdoc.unesco.org/ark:/48223/pf0000247444

Campo-Arias, A., Oviedo, H. C., & Herazo, E. (2014). Estigma: barrera de acceso a servicios en salud mental. *Revista colombiana de psiquiatría*, *43*(3), 162-167.

Campo Arias, A., & Herazo Acevedo, E. (2013). Estigma, prejuicio y discriminación en salud mental.

Gonzales, D. L. (2019). Autoconcepto, una revisión del constructo. *Scientia et Fide*, *1*(1), 29-33

Barrón Ruiz, Á. (1993). Aprendizaje por descubrimiento: principios y aplicaciones inadecuadas.

Guajardo, L. C. (2021). Importancia de la producción de endorfinas para evitar estrés y síndrome metabólico. *CuidArte*, *4*(7), 6-13.

UNESCO. (2020). *Educación para el desarrollo sostenible: hoja de ruta*. 64. https://unesdoc.unesco.org/ark:/48223/pf0000374896.locale=en

United Nations. (2000). Millennium Development Goals. United Nations Millennium Declaration. https://www.undp.org/content/undp/en/home/sdgoverview/mdg_goals.html

UNESCO. (2020). *Educación para el desarrollo sostenible: hoja de ruta*. 64. https://unesdoc.unesco.org/ark:/48223/pf0000374896.locale=en

The Brundtland Commission. (1987). Our Common Future. https://www.are.admin.ch/are/en/home/media/publications/sustainable-development/brundtland-report.html

Singh, A. S., Saliasi, E., van den Berg, V., Uijtdewilligen, L., de Groot, R. H. M., Jolles, J., Andersen, L. B., Bailey, R., Chang, Y.-K., Diamond, A., Ericsson, I., Etnier, J. L., Fedewa, A. L., Hillman, C. H., McMorris, T., Pesce, C., Pühse, U., Tomporowski, P. D., & Chinapaw, M. J. M. (2019). Effects of physical activity interventions on cognitive and academic performance in children and adolescents: a

---1597

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novel combination of a systematic review and recommendations from an expert panel. *British Journal of Sports Medicine*, *53*(10), 640–647. https://bjsm.bmj.com/content/53/10/640

Lubans, D., Richards, J., Hillman, C., Faulkner, G., Beauchamp, M., Nilsson, M., Kelly, P., Smith, J., Raine, L., & Biddle, S. (2016). Physical activity for cognitive and mental health in youth: A systematic review of mechanisms. *Pediatrics*, *138*(3). https://publications.aap.org/pediatrics/article-abstract/138/3/e20161642/52688/Physical-Activity-for-Cognitive-and-Mental-Health?redirectedFrom=fulltext

Castro, S. (2020, 20 octubre). Qué es el Mindfulness: ¿Es lo mismo que meditar? Instituto Europeo de Psicología Positiva. https://www.iepp.es/que-es-elmindfulness/#Que_es_el_mindfulness

Carreres, F. (2017). Atención plena o mindfulness en educación física. Didáctica de la educación física, 55, 67–71.
https://www.researchgate.net/publication/324586053_Atencion_plena_o_mindfulness_en_educacion_fisica

Scharrenberg, J. (2021, 17 febrero). 5 ejercicios divertidos de mindfulness para niños. Sloyu. https://www.sloyu.com/2021/02/17/ejercicios-juegos-mindfulness/

Márquez, S. (1995) Beneficios psicológicos de la actividad física. Revista de psicología. General y Aplicada, 48(1), 185-206.

Salmon, P. (2001). Effects of physical exercise on anxiety, depression, and sensitivity to stress: A unifying theory. Clinical Psychology Review

Decreto 136/2015, de 4 de septiembre, del Consell, por el que se modifican el

Decreto 108/2014, de 4 de julio, del Consell, por el que se establece el currículo y desarrolla la ordenación general de la Educación Primaria en la Comunitat Valenciana, y el Decreto 87/2015, de 5 de junio, del Consell, por el 20 que se establece el currículo y se desarrolla la ordenación general de la Educación Secundaria Obligatoria y del Bachillerato en la Comunitat Valenciana (DOGV 09/09/15).

Real Decreto 126/2014, por el que se establece el Currículo de Educación Primaria (BOE 1/03/2014).

Orden ECD/65/2015, de 21 de enero, relaciones entre las competencias, los contenidos y evaluación de Primaria, ESO y Bachillerato.

Ministerio de Educación y Formación Profesional. (2003). Competencias Clave. 2003, de Gobierno de España Sitio web: https://www.educacionyfp.gob.es/educacion/mc/lomce/el-curriculo/curriculo-primaria-eso-bachillerato/competencias-clave/competencias-clave.htm

UNESCO 2022. *Educación para el Desarrollo Sostenible* Sitio web: https://es.unesco.org/themes/educacion-desarrollo-sostenible

ONU (2020). Educación de Calidad. Objetivos de Desarrollo Sostenible. Naciones Unidas. Nueva York, USA. Recuperado de: https://www.un.org/sustainabledevelopment/es/education/

ONU. (2015). Transformar nuestro mundo: la Agenda 2030 para el Desarrollo Sostenible. Recuperado de: https://unctad.org/meetings/es/SessionalDocuments/ares70d1_es.pdf

García, C. C., & Torres, B. J. A. (2013). Estrategias para desarrollar la inteligencia emocional y la motivación en el alumnado de Educación Física. Revista de educación, Motricidad e Investigación, 1, 212-220.

IPCC. (2021). El cambio climático es generalizado, rápido y se está intensificando. marzo 20,2022, de IPCC Sitio web: https://www.ipcc.ch/site/assets/uploads/2021/08/IPCC_WGI-AR6-Press-Release-Final_es.pdf

COP26 | Naciones Unidas. (s. f.). United Nations. https://www.un.org/es/climatechange/cop26

Cumbre del Milenio | Naciones Unidas. (s. f.). United Nations. https://www.un.org/es/conferences/environment/newyork2000#:~:text=La%20Cumbre%20del%20Milenio,%20celebrada,gobierno%20de%20todos%20los%20tiempos.

Salud mental: fortalecer nuestra respuesta. (s. f.). WHO | World Health Organization. https://www.who.int/es/news-room/fact-sheets/detail/mental-health-strengthening-our-response