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Cover: View over the Caribbean Sea (Puerto Rico). Photo: Antonio Pantoja.
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SUMARY

Editorial

It is with great enthusiasm that we start this path toward the world of scientific publications, full of challenges and difficulties, which, with determination and collaborative spirit, we are convinced that we will overcome. Indeed, it is the latter that confers more entity to the new journal, the team of people who form it, all of them with experience in previous publications, with concerns, training, and a great work capacity.

Our main interest is to reach out to all the researchers from any country in the world, offering this space to disseminate their research and make it possible for their work to be known. Manuscripts that are received in MLSER are treated equally and anonymously, regardless of their place of origin, subject matter and content, provided that the ethical standards, the drafting and content established by the review are respected.

This first issue includes six articles that deal with varied matters, something usual in research, which can help to diversify the points of view and the interest of a much wider audience. The authorship is collective, with the exception of two of them, who do it on an individual basis. The first one is a bibliography which analyzes the effects of a video game on some cognitive variables of the students and it checks how its use improves the cognitive activity.

Multiple intelligences and learning difficulties are dealt in the following article in the form of a proposal for a program of orientation and psychopedagogical intervention, based on the areas of the tutorial action, the attention to diversity and the academic and professional orientation.

On a totally different level there is the contribution which analyzes the effect of the practice of physical exercise on the behavior in children with attention deficit and hyperactivity disorder (ADHD). To this end, we analyze three longitudinal studies, and the conclusion is that the exercise at the beginning of the class improves behavior, academic performance, the attention and the memory of these students.

Creative relaxation in the form of creative intervention program can influence the levels of creativity in students of pre-school education. To check this, it is posed a study that applies a creative relaxation program to a group of 25 subjects during 10 weeks at a rate of 10-15 minutes a day after the rest time. The results show an increase in the levels of motor creativity, referred to motor fluency, motor originality and motor imagination.

The penultimate article deals with the students with autism spectrum disorder and does so from the family perspective. The research attempts to determine what difficulties have experienced the family members of the students in the educational centers, and it seeks to know what is the satisfaction level of the families with the response received from the education field. It concludes that the specialized care that is offered from the educational centers is insufficient.

Finally, it is analyzed the influence of the self-esteem in the school performance of 6th grade students in accordance with the gender variable. In parallel, it is analyzed the extent to which the personality of each individual can intervene the learning and the role of the teacher in its building and improvement. It concludes by affirming that the self-esteem affects children's school performance and that parents and teachers play a fundamental role in its development.

In conclusion, on behalf of all the Editorial Team, I would like to thank the Iberoamerican University Foundation (FUNIBER) and the different sponsoring universities for

the provided human and material support that make it possible for this first issue to come to light. All the support and environment configuration that houses the publication has been overseen by a group of computer experts that have been alert at all times to the emerging needs.

I reiterate the commitment of all the Editorial Team with those educational researchers that often work under adverse conditions and who wish to have a means to disseminate the results obtained. MLSER is the appropriate publication to do this due to its international vocation and its commitment to educational change full of innovative contributions. Becoming a transmission vehicle of all these contributions is what our true nature is.

Antonio Pantoja Vallejo
Editor in chief

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"DANCE DANCE" EDUCATION. A REAL "REVOLUTION" FOR THE CLASSROOM?

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Abstract. Introduction: The current society is in constant evolution in search of new educational methodologies that allow a better integral formation of the students. These should be attractive and motivational while allowing the improvement of the cognitive variables of the students. Therefore, the purpose of this review was to analyze the effect of Active Video Games or Exergame (EX) Dance Dance Revolution (DDR) on cognitive and academic performance in children and adolescents. **Method:** A literature research was conducted in four databases (Pubmed, Web of Science, Scopus and ProQuest, n = 265). The search was carried out in the last ten years (January 2007 / September 2017). **Results:** A total of 3 intervention studies were included in the review with a participation of 273 children and adolescents. The results show that after the practice of the DDR Exergame, the students improved their cognitive activity. They also obtained other physiological benefits derived from their practice. **Discussion:** These results reflect that the promotion of programs through EX could have great potential for cognitive and academic development at this stage of education. In addition, they would allow the development of healthy habits of physical activity, the increase of student motivation and a better socialization.
Keywords: Exergames, Dance Dance Revolution, Cognition, Academic Performance, Children.

"DANCE DANCE" EDUCACIÓN. ¿UNA VERDADERA "REVOLUCIÓN" PARA EL AULA?

Resumen. **Introducción:** La sociedad actual se encuentra en constante evolución en búsqueda de nuevas metodologías educativas que permitan una mejor formación integral del alumnado. Estas deben ser atractivas y motivadoras a la vez que permitan la mejora de las variables cognitivas del alumnado. Por ello, el objetivo de

esta presente revisión fue analizar el efecto del Videojuego Activo o Exergame (EX) Dance Dance Revolution (DDR) sobre el rendimiento cognitivo y académico en niños y adolescentes. **Método:** Se realizó una búsqueda bibliográfica de la literatura en cuatro bases de datos (Pubmed, Web of Science, Scopus y ProQuest, n = 265). La búsqueda se realizó en los diez últimos años (enero 2007/septiembre 2017). **Resultados:** Un total de 3 estudios de intervención fueron incluidos en la revisión con una participación de 273 niños y adolescentes. Los resultados muestran que tras la práctica de DDR, el alumnado mejoró su actividad cognitiva. Además obtuvieron otros beneficios a nivel fisiológico derivados de su práctica. **Discusión:** Estos resultados reflejan que la promoción de programas mediante EX podría tener un gran potencial para el desarrollo cognitivo y académico en esta etapa educativa. Además, permitirían el desarrollo de hábitos saludables de actividad física, el aumento de la motivación del alumnado y una mejor socialización.
Palabras clave: Video juegos activos, Dance Dance Revolution, Cognición, Rendimiento Académico, Niños.

Introduction

Dance Dance Revolution (DDR) appears at the end of the 90s as a pioneer of the dance simulators in video games. The game's objective is to step in the arrows, which are displayed as a cross on the dance platform, following the music's rhythm and the visual pattern that is shown on the screen (Norris et al, 2016). This video game modality is included with exergaming (EX), and is the one with the furthest expansion. Such games require from participants who are physically active or who exercise in order to play (Anderson, Steele, O'Neill and Harden, 2016; Clark & Clark, 2016) The EX interpret body movements by transferring the movement into the device, which produces a motor connection between the participant and the application. This kind of video game allows to enhance the player's physical activity (PA) level (Nukkala, Kalermo and Jarvilehto, 2014), the caloric expenditure (Barnett, Cerin and Baranowsky, 2015) and improves the coordination (Smits-Engelsman, Jelsma and Ferguson, 2016). Moreover, they allow to promote learning through a series of challenges with multiple experience levels, therefore favoring social relationship between equals (Roemmich, Lambiase, McCarthy, Feda and Kozlowski, 2012).

The EX games, like DDR, have been established as a video game stereotype that seek to decrease a sedentary lifestyle in support of a healthy one. This kind of video game involves the movement and helps to increase the PA's levels, just enough as to favor a good health and physical condition. Currently, the EX are present at the society's daily routine, especially amongst its youngest population. This stage is considered as the most critical period, for it is when the sports-physical practice is greatly diminished (Ruiz et al, 2011). Nowadays, recommendations for PA's practice to develop a healthy lifestyle are, at least, 60 minutes of moderate-high intensity exercise every day, that include activities aimed at bone and muscular strengthening. Nevertheless, the youngest population does not meet the minimum quantities (Baskin, Thind, Affuso, Gary, LaGory y Hwang, 2013). Enhancing the PA levels could compensate for the high sedentary levels which are resulting in a decrease in the motor skills as well as in an increase in physical inactivity, which consequently leads to health problems such as overweight and obesity (Stodden et al, 2008). Any increase in the PA, especially when sedentary behavior is replaced, it is beneficial for the social, physical and mental health. But can the EX like the DDR influence the academic and cognitive development?

Nowadays, plenty of studies support this idea, even though just few of them focus on cognition. There are empirical evidences indicating that EX, thanks to their characteristics related with the PA, have a positive influence on cognition, which is divided into the cognitive performance (CP) and the academic performance (AP) (Benzing y Schmitd, 2017; Diamond, 2013, Ruiz-Ariza, Grao-Cruces, Loureiro, & Martínez-López, 2017). Memory,

selective attention, concentration, and numerical-linguistic reasoning are among the most important variables in CP (Esteban-Cornejo, Tejero-González, Sallis, & Veiga, 2015; Ruiz et al, 2010; Ruiz-Ariza et al, 2017). Regarding the AP, it refers to the a student's successful academic performance during the personal academic period, the student is generally assessed according to a grade point average in a certain school subject (Haapala, 2013; Ruiz-Ariza, Ruiz, de la Torre-Cruz, Latorre-Román y Martínez-López, 2016). According to the PISA study that was performed during 2015 (Ministry of Education, Culture and Sport, 2016) Spanish teenagers are on the OCDE's average in terms of the AP results. This factor is also due to that the state members' average has dropped. Because of that, the EX might have a positive influence and might help to establish educational strategies to promote cognition. Accomplishing that young people get involved in the PA's active practice by using the EX is not only physically attractive, but they are also motivating and compromising activities, cognitively speaking.

This review focuses on young people between 6 and 18 years old. Furthermore, the cognitive variables at these ages are easily modifiable, since they much depend on parental support (De la Torre-Cruz et al, 2014) and on social support (Hogan et al, 2015). Moreover, young people have a high brain plasticity degree, which is decisive to promote the CP and improve the AP, guarantee an appropriate behavior and favor the future social success (Esteban-Cornejo et al, 2015; Ruiz-Ariza et al, 2017). Thus, knowing the relationship an EX such as DDR and cognition may be useful in order to innovate in motivating educational interventions that are oriented towards increasing the PA levels. As well, it could be a complement for the physical education classes, the playground, or the classroom teaching, for the school time comprises many hours which are dedicated to sedentary activities (Norris et al, 2016).

Basing on the aforementioned, the aim of this systematic review is to conduct a research on the link between the use of DDR and the different cognitive parameters of children and young people who are 6-18 years old. Additionally,this paper reviewed possible co-variables like the gender, and the BMI which can measure the relationship between DDR and cognition.

Methodology

In order to select the papers relates to the topic, an exploratory search was conducted on the following data bases: PubMed, Web of Science, Sportdiscus, ProQuest. The search terms were:

- Active video games, exergames, dance dance revolution.
- Cognition, psychological, academic performance.
- Adolescents, children, teenager.

Every study that has been included in this paper had to meet the following searching criteria:

- The study population suffered from no disabilities.
- The EX in use must be DDR and the used cognitive measures must be clearly stated.
- The study population has to be 6-18 years old.
- The studies can either have been in Spanish or English.

- Studies need to have been performed within the last 10 years (2007/2017).

To observe the flowchart regarding the selected articles, see Figure 1.

Number of participants in the selected studies ranged between 12 and 208. The total number of participants was 273, subjects who were between 8 and 21 years old. The age of the participants was extended until 21 years old because one of the selected articles analyzed a sample that was between 8 and 21 years old, the youngest participants being aged under 10, therefore, lacking of interest for the the present paper's final results and discussion.

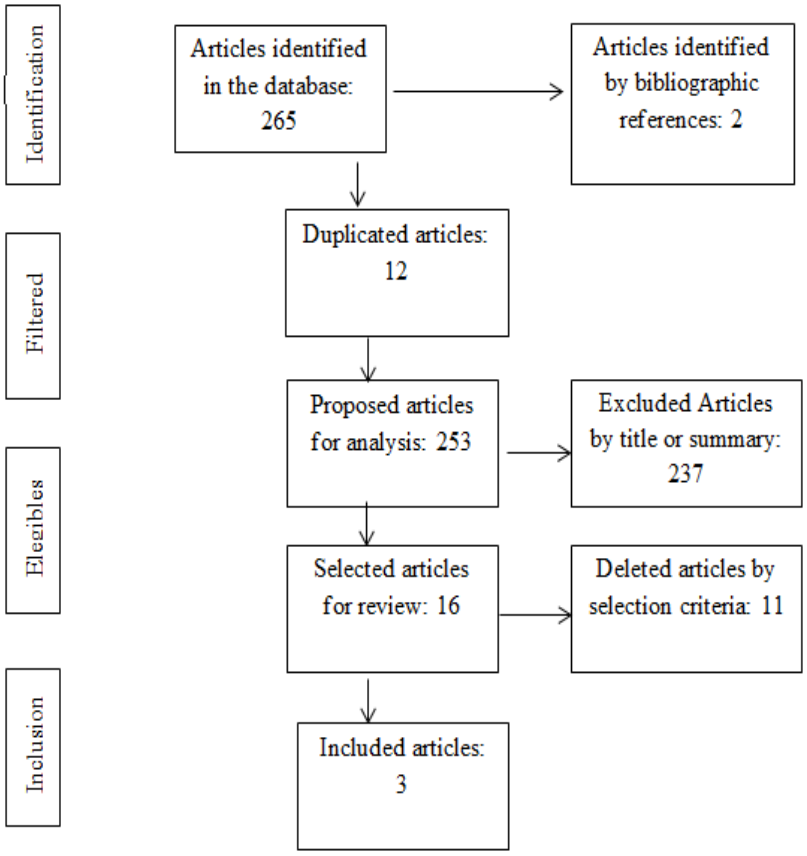

Figure 1. Articles' flow during the searching process

Results

The searching results flow through the review process is shown in Figure 1. The initial search resulted in 265 studies in total. After eliminating the duplicates and the articles excluded because of the title, abstract or age, language or design as well as for not meeting our criteria, 16 articles were retrieved in total. At last, 3 were the included articles in the systematic review (Anderson *et al*, 2011; Gao *et al*, 2013a; Gao *et al*, 2013b).

Table 1
Description of the articles included in the study

Author	Objective	Design, co-variables and duration	Population / Age / Country	Exergame	Cognitive Measures	Results
Anderson *et al*, (2011).	Two pilot studies explored the potential cognitive and behavior benefits from the exergaming.	Intervention / Participants were exposed to the control and the experimental condition in a A-B / --- / 20 min sequential design.	Pilot I: N = 12 / 10 to 18 years old / Pilot II: N = 10 / 8 to 21 years old / United States	Study I: Non-randomized control session, video that lasts for 20 minutes of a previously recorded school talent program. Exergaming session DDR for 20 min. Study II: (Non-randomized) control session, 20 minutes length of a school talent program which was previously recorded. Exergaming session cybernetic cycling for 20 min	Digit Span Forward and Backward, Color Trails Test and The Stroop task.	A significant interaction was found, which proved an improvement after the exergaming, bot the DDR and the cybernetic cycling, in comparison to the control condition, for repetitive behaviors and a measure of the executive functions (Study I P<0,001).
Gao et al, (2013a).	Examining the impact of exercising by making use of DDR, on the latin children's physical ability and academic performance.	Intervention/ gender and age/ 2 years	N = 208 / 10 to 12 years old / United States	3 non-randomized groups (a 4th grade group Intervention based on 15 min of DDR and other 15 min during which they got engaged in school activities during the school day / 2 groups to compare with (3rd and 5th graders) participated in the non-structured and conventional playground time, which is walking and playing)	Utah Criterion Referenced Test	Significant differences were observed between the intervention and the comparison groups in the differences in the 1 mile scores and the scores on math in year 1 and year 2 (P = 0,01). Results showed as well clear distinctions between the intervention before the comparison group's scores in the 1 mile race for the 3rd grade students (P = 0,01). Furthermore, the changes in the BMI groups prior to the children's test and post-test differed (P = 05) only during the first intervention's year.
Gao et al, (2013b).	Comparing the children's PA levels, the auto-efficiency and the enjoyment when experiencing exergaming-dance DDR and aerobics dance in the physical education class.	Intervention / --- / 9 months	N = 53 / 10 to 11 years old / United States	Non-randomized groups One group plays DDR and the other is focused on aerobics dance. After 15 min, the groups switched activities and continued with them for another 15 min.	Self-efficacy Likert-type scale	Children exercised at a rather moderate intensity PA (p<0,01) in aerobics dance than they did in DDR Moreover, children reported a greatly higher auto efficiency (p<0,001) and enjoyment (p<0,01) in DDR than in aerobics dance.

Note: EX = Exergame. EF= Executive Functions PA = Physical Activity. DDR = Dance Dance Revolution CC= Cognitive Engagement CG = Control Group EG = Experimental Group BMI = Body Mass Index.

The 3 chosen studies were intervention papers, its groups being chosen for convenience reasons. Only one of these studies carried out intensity measures for the exercises through the number of steps made during the activity (Gao *et al*, 2013b). To assess the cognitive measures, the following tests were used: Digit span forward and backward, Color trails test, and the Stroop task (Anderson et al, 2011); Utah criterion-referenced test (Gao et al, 2013a); Self-efficacy Likert-type Scale (Gao et al, 2013b). Only Gao *et al*, (2013b), usded co-variables (gender and age)

Anderson *et al*. (2011) carried out two pilot studies which lasted for 20 minutes. The experimental groups practiced the DDR and Cyber Cycling games, according to the study. Both groups improved the executive functions ($P < 0.001$ and $P = 0.03$) in comparison to the control groups, which had to watch a video that lasted for the same time. Gao *et al*. (2013A), after two years of study determined that the experimental group based on DDR improved in math and in the one mile race in comparison to the two control groups ($P = 0.01$). Gao *et al*. (2013b) after 9 months of intervention, demonstrated that the group based on DDR improved in auto-conception and enjoyment ($P < 0.001$; $P < 0.01$) in comparison to the group based on aerobics dance, although this group did vigorous PA for a longer time ($P < 0.01$).

Discussion and conclusions

This paper has review the current literature on DDR and its impact on the children's and teenager's cognition. Three were the included studies and all proved to have a positive influence between these variables. Just one study included co-variables. These results suggest that promoting programs through DDR could have a great potential for the cognitive and academic development in this educational stage (Coe, Peterson, Blair, Shutten y Peddie, 2013). There are empirical evidence that show how the EX, thanks to their implicit part involving PA, have a positive effect on the cognitive and academic performance (Benzing and Schmitd, 2017). Studies listed in this paper confirm the data shown in previous studies, although they do so in children, older people or people suffering from a specific condition (Adkins et al, 2013; Azevedo et al, 2014).

Regrding the cognitive performance, the executive functions are the most affected part. Best (2012), after four hours of intervention which was based on Nintendo Wii, demonstrated that young people who practiced with this EX modality improved their executive functions in comparison to the group that developed sedentary activities. As a matter of fact, the EX offer the opportunity to interact with other participants, since the collective practice is very common. Such action may exert benefitial effects, for it allows to meet new classmates, strengthen friendships or the self-esteem, the personal mood or to motivate towards accomplishing new challenges. Lieberman (2006) in a study that was developed with the DDR video game proved that teenagers stated that entertainment was the main reason to play, followed by the social interaction, and meeting other players. Other studies have focused on the adult population, such as Anderson-Hanley *et al*. (2012), evidencing an improvement in the executive functions corresponding to the experimental group in comparison to the control group. The first group trained with an cycle ergometer in a virtual environment while the other did the same activity but not in a virtual environment. These results are in accordance with those that were found by Keogh *et al*, (2014), who conducted a research on the effects of Nintendo Wii Sport on adults, with the conclusion that

the EX can improve the cognitive functions by improving some aspects associated with the quality of life. More recently, Gao *et al.* (2016) observed that after 6 weeks of activities in children population with different EX like the Nintendo Wii or Xbox for 50 min, their behavior at class was improved ($p < .01$). Ruiz-Ariza *et al*. (2018) analyzed the effect of 8 weeks of the augmented reality game called Pokemon GO on the cognitive performance and the emotional intelligence of teenagers. Teenagers between 12 ans 15 years old who played Pokemon GO increased their selective attention ($p = 0.003$), concentration ($p > 0.001$) and sociability ($p = .003$) in comparison to the classmates who did not play this EX. In this case, Pokemon GO combines the real and ficitious world into only one interface, substituting the static game for the active game, forcing its players to explore their physical world and to connect with peers (Serino, Cordrey, McLaughlin, and Milanaik, 2016). Some recent studies have proved that augmented reality could also enhance other characteristics belonging to the educational development like the quality of writing (Wang, 2017), math skills (Sommerauer & Müller, 2014) or learning a foreign language in the case of young people (Hsu, 2017).

In addition to the aforementioned benefits, the doing systemaic PA through EX helps to improve other variables like the self-esteem, social behavior, auto-efficiency, and motor skills (Flynn *et al*, 2015, Ruiz-Ariza *et al*, 2018) regardless of the chosen EX's modality. As we have been able to observe, the EX have enough potential as to provide direct benefits for the user, derived from the PA's practice, allowing to transform the sedentary time into an active one, improving the cognitive capacity and, lastly, fostering a more active and healthy lifestyle. In order to explain the causality relationship between the EX and cognition, this might be due to the own physiological adaptations produced by the Pa's practice, increasing the blood flow that reaches the cerebral cortex, favoring the synaptic connections and the information's processing speed (Ardoy *et al*, 2014; Hillman, Erickson y Kramer, 2008). All these changes present a positive effect on the AP for they improve behavior, attention and learning ability (Chaddock *et al*, 2014; Ruiz-Ariza *et al*, 2017). In addition, other studies have proved how the increase in the musculo-skeletal capacity, the aerobic capacity or the amount of PA that has been practiced, for example through the EX DDR would have a positive relationship with a highest cognitive competence at these ages (Chaddock *et al*, 2014).

Educational Implications

Current society demands a continuous updating regarding new educational methods adapted to the requirements of the 21st century's young population. With the aim of achieving significant and functional learning and to search for alternatives that can be really useful in response to the current educational needs. In the present case, and before the growing use of the new technologies, they can be actually useful to invigorate the teaching-learning process in a motivating way.

Nowadays, an increasing number of scientific-educational initiatives are including the EX in the school's dynamics, mainly in the Physical Education classes. As well, it is becoming more frequent for this kind of activities to be offered during the playground or at the end of the school day as complementary activities, since the offered benefits are attractive to the educational community. For example, one of the experiences that was carried out with the EX in the educational centers implied two high schools from England for approximately 12 months, with the objective of enhancing and offering new opportunities to do PA. For that purpose, dance pads were included in the Physical Education classes and they were available at breaks, lunch time and during out-of-school time. The results found showed that after practicing EX, quality of life, autonomy and the relationship with their parents improved (Azevedo, Watson, Haighton and Adams, 2014).

As for Lindberg, Seo and Teemu (2016) they developed an app for Smartphones that allowed primary school students to compete in "pedagogical missions", which requested players to have a tactical thinking and to exercise in order to resolve the posed challenges. In this study, 61 students participated, 32 of which learned the syllabus by making use of the app and 29 did so the traditional way. The results showed that the group that used EX had a more efficient learning, was more engaged and their heart rate increased in comparison to the group that was learning the traditional way.

Another experience that was carried out by Sun (2012) consisted of the integration of different EX in the Physical Education classes for a whole year. The used EX were combat simulators, DDR or a boxing simulator, among others. The participants were 74 in total, aged between 9 and 12, divided into four class groups. At the Physical Education class, each student could freely choose which EX to play. In the event of being 18 students or more at that time at class, they would play DDR, since more people can play it. The results found that an increase in the PA's intensity and health benefits for those who played.

Ruiz-Ariza *et al*. (2018) analyzed the effect of two months playing Pokemon GO on the cognitive performance and the emotional intelligence of teenagers. The Pokemon GO players enhanced their selective attention, concentration and sociability levels in comparison to their classmates.

In view of the interventions and other studies that have been displayed all along this paper, there is an increasing need for innovating in such a a way that teaching and practicing PA is more appealing. These two variables can complement each other, allowing to include syllabus content into both elements. In accordance with the shown studies, the ideal way to include this kind of technologies into the educational centers would be as a complementary material for the Physical Education lessons, constituting an alternative for the different lessons that are to be taught during the academic year. Another interesting form of including this EX modality would be to do so by making use of the Project-Based Learning, Gamification or Augmented Reality, which would allow for it to be addressed from any area. Finally, including DDR in the class breaks could promote the school performance during the posterior hours.

Conclusion

The inclusion of DDR or active video games is very much appealing for the users and it is also a good way to increase the current PA levels, with all the healthy benefits that doing so entails. In addition to that, including them allows to improve the cognitive activity, which has a positive impact in the students' academic and social performance. Their inclusion in the educational centers through new active methodological models also means a big revolution, since it enables us to transform the classroom or the lesson inside new spaces that are more original and that can better motivate in order to learn the key competencies, consequently allowing for them to be more integrally developed and also enabling students to learn in a more real way, which favors a correct intellectual, motor, personal and social development.

Bibliographic References

Åberg, M. A., Pedersen, N. L., Torén, K., Svartengren, M., Bäckstrand, B., Johnsson, T., & Kuhn, H. G. (2009). Cardiovascular fitness is associated with cognition in young adulthood. *Proceedings of the National Academy of Sciences*, *106*(49), 20906-20911.

Adkins, D. L., Boychuk, J., Remple, M. S., & Kleim, J. A. (2006). Motor training induces experience-specific patterns of plasticity across motor cortex and spinal cord. *Journal of applied physiology*, *101*(6), 1776-1782.

Anderson-Hanley, C., Tureck, K., & Schneiderman, R. L. (2011). Autism and exergaming: effects on repetitive behaviors and cognition. *Psychology research and behavior management*, *4*, 129.

Anderson, N., Steele, J., O'Neill, L. A., & Harden, L. A. (2016). Pokemon go: Mobile app user guides. *British Journal of Sports Medicine*. doi: 10.1136/bjsports-2016-096762

Ardoy, D. N., Fernández-Rodríguez, J. M., Jiménez-Pavón, D., Castillo, R., Ruiz, J. R., & Ortega, F. B. (2014). A physical education trial improves adolescents' cognitive performance and academic achievement: the EDUFIT study. *Scandinavian Journal of Medicine & Science in Sports*, *24*(1), e52-61. doi: 10.1111/sms.12093

Azevedo, L. B., Watson, D. B., Haighton, C., & Adams, J. (2014). The effect of dance mat exergaming systems on physical activity and health–related outcomes in secondary schools: results from a natural experiment. *BMC public health*, *14*(1), 951. doi: 10.1186/1471-2458-14-951

Baranowski, T. (2017). Exergaming: Hope for future physical activity? Or blight on mankind? *Journal of Sport and Health Science*, *6*(1), 44-46. doi: 10.1016/j.jshs.2016.11.006

Barnett, A., Cerin, E., & Baranowski, T. (2011). Active video games for youth: a systematic review. *Journal of Physical Activity and Health*, *8*(5), 724-737. doi: 10.1123/jpah.8.5.724

Baskin, M. L., Thind, H., Affuso, O., Gary, L. C., LaGory, M., & Hwang, S. S. (2013). Predictors of moderate-to-vigorous physical activity (MVPA) in African American young adolescents. *Annals of Behavioral Medicine*, *45*(1), 142-150. doi: 10.1007/s12160-012-9437-7

Best, J. R. (2012). Exergaming immediately enhances children's executive function. Developmental Psychology, 48(5), 1501e1510. doi: 10.1037/a0026648

Cadenas-Sanchez, C., Vanhelst, J., Ruiz, J. R., Castillo-Gualda, R., Libuda, L., Labayen, I., Ortega, F. B. (2016). Fitness and fatness in relation with attention capacity in European adolescents: The HELENA study. *Journal of Science and Medicine in Sport*. doi: 10.1016/j.jsams.2016.08.003

Cassilhas, R. C., Viana, V. A., Grassmann, V., Santos, R. T., Santos, R. F., Tufik, S. E. R. G. I. O., & Mello, M. T. (2007). The impact of resistance exercise on the cognitive function of the elderly. *Medicine and science in sports and exercise*, *39*(8), 1401. doi: 10.1249/mss.0b013e318060111f

Castelli, D. M., Hillman, C. H., Buck, S. M., & Erwin, H. E. (2007). Physical fitness and academic achievement in third-and fifth-grade students. *Journal of Sport and Exercise Psychology*, *29*(2), 239-252. doi: 10.1123/jsep.29.2.239

Chaddock-Heyman, L., Erickson, K. I., Holtrop, J. L., Voss, M. W., Pontifex, M. B., Raine, L. B., & Kramer, A. F. (2014). Aerobic fitness is associated with greater white matter integrity in children. *Frontiers in human neuroscience*, *8*, 584. doi: 10.3389/fnhum.2014.00584

Chaddock L, Hillman CH, Pontifex MB, Johnson CR, Raine LB, Kramer AF. (2012) Childhood aerobic fitness predicts cognitive performance one year later. *Journal of Sports Sciences,* 2012; 30:421-430. doi: 10.1080/02640414.2011.647706

Chao, Y. Y., Scherer, Y. K., & Montgomery, C. A. (2015). Effects of using Nintendo Wii™ exergames in older adults: a review of the literature. *Journal of aging and health*, *27*(3), 379-402. doi: 10.1177/0898264314551171

Coe, D. P., Peterson, T., Blair, C., Schutten, M. C., & Peddie, H. (2013). Physical fitness, academic achievement, and socioeconomic status in school-aged youth. *Journal of School Health*, *83*(7), 500-507. doi: 10.1111/josh.12058

Diamond, A. (2013). Executive functions. *Annual Review of Psychology*, *64*, 135–68. doi: 10.1146/annurev-psych-113011-143750

Esteban-Cornejo, I., Tejero-Gonzalez, C. M., Sallis, J. F., & Veiga, O. L. (2015). Physical activity and cognition in adolescents: A systematic review. *Journal of Science and Medicine in Sport / Sports Medicine Australia*, *18*(5), 534–9. doi: 10.1016/j.jsams.2014.07.007

Esteban-Cornejo, I., Tejero-González, C. M., Martinez-Gomez, D., Del-Campo, J., González-Galo, A., Padilla-Moledo, C., & UP & DOWN study group. (2014). Independent and combined influence of the components of physical fitness on academic performance in youth. *The journal of pediatrics*, *165*(2), 306-312.

Fung, V., Ho, A., Shaffer, J., Chung, E., & Gomez, M. (2012). Use of Nintendo Wii Fit™ in the rehabilitation of outpatients following total knee replacement: a preliminary randomised controlled trial. *Physiotherapy*, *98*(3), 183-188.

Gao, Z., Hannan, P., Xiang, P., Stodden, D. F., & Valdez, V. E. (2013). Video game–based exercise, Latino Children's physical health, and academic achievement. *American journal of preventive medicine*, *44*(3), S240-S246.

Gao, Z., Zhang, T., & Stodden, D. (2013). Children's physical activity levels and psychological correlates in interactive dance versus aerobic dance. *Journal of Sport and Health Science*, *2*(3), 146-151.

Gao, Z., Chen, S., Pasco, D., & Pope, Z. (2015). A meta-analysis of active video games on health outcomes among children and adolescents. *Obesity reviews*, *16*(9), 783-794.

Gutiérrez, M., & López, E. (2012). Motivación, comportamiento de los alumnos y rendimiento académico. *Infancia y aprendizaje*, *35*(1), 61-72.

Haapala, E., Poikkeus, A., Kukkonen-Harjula, K., Tompuri, T., Lintu, N., Väistö, J. Lakka, T. (2014). Associations of Physical Activity and Sedentary Behavior with Academic Skills – A Follow-Up Study among Primary School Children. *PLOS ONE*, *9*(9) doi: 10.1371/journal.pone.0107031

Haapala, E. A. (2013). Cardiorespiratory fitness and motor skills in relation to cognition and academic performance in children–a review. *Journal of human kinetics*, *36*(1), 55-68.

Hillman, C. H., Buck, S. M., Themanson, J. R., Pontifex, M. B., & Castelli, D. M. (2009). Aerobic fitness and cognitive development: Event-related brain potential and task performance indices of executive control in preadolescent children. *Developmental psychology*, *45*(1), 114.

Hogan, C. L., Catalino, L. I., Mata, J., & Fredrickson, B. L. (2015). Beyond emotional benefits: Physical activity and sedentary behaviour affect psychosocial resources

through emotions. *Psychology & Health*, *30*(3), 354–369. doi: 10.1080/08870446.2014.973410

Hsu, T.-C. (2017). Learning english with augmented Reality: Do learning styles matter? *Computers & Education*, 106, 137e149. doi: 10.1016/j. compedu.2016.12.007

Joronen, K., Aikasalo, A., & Suvitie, A. (2016). Nonphysical effects of exergames on child and adolescent well-being: a comprehensive systematic review. *Scandinavian Journal of Caring Sciences*. doi: 10.1111/scs.12393

LeBlanc, A. G., & Chaput, J. P. (2016). Pokémon Go: A game changer for the physical inactivity crisis? *Preventive Medicine*. doi: 10.1016/j.ypmed.2016.11.012

Lieberman, D. A. (2006). What can we learn from playing interactive games. *Playing video games: Motives, responses, and consequences*, 379-397.

Martínez-Gómez, D., Ruiz, J. R., Gómez-Martínez, S., Chillón, P., Rey-López, J. P., Díaz, L. E., & Marcos, A. (2011). Active commuting to school and cognitive performance in adolescents: the AVENA study. *Archives of pediatrics & adolescent medicine*, *165*(4), 300-305.

Niebla J, Hernández-Guzmán L. (2007). Variables que inciden en el rendimiento académico de adolescentes mexicanos. *Revista Latinoamericana de Psicología*, 39 (3):487-501.

Nigg, C. R., Mateo, D. J., & An, J. (2016). Pokémon GO May Increase Physical Activity and Decrease Sedentary Behaviors. *American Journal of Public Health*, e1–e2. doi: 10.2105/AJPH.2016.303532

Norris, E., Hamer, M., & Stamatakis, E. (2016). Active Video Games in Schools and Effects on Physical Activity and Health: A Systematic Review. *The Journal of Pediatrics*. doi: 10.1016/j.jpeds.2016.02.001

Nurkkala, V. M., Kalermo, J., & Jarvilehto, T. (2014). Development of exergaming simulator for gym training, exercise testing and rehabilitation. *Journal of Communication and Computer*, *11*, 403-411.

Ortega, F. B., Ruiz, J. R., Castillo, M. J., & Sjöström, M. (2008). Physical fitness in childhood and adolescence: a powerful marker of health. *International journal of obesity*, *32*(1), 1-11.

Roemmich, J. N., Lambiase, M. J., McCarthy, T. F., Feda, D. M., & Kozlowski, K. F. (2012). Autonomy supportive environments and mastery as basic factors to motivate physical activity in children: a controlled laboratory study. *International Journal of Behavioral Nutrition and Physical Activity*, *9*(1), 16.

Ruiz-Ariza, A., Grao-Cruces, A., Loureiro, N. E. M., & Martínez-López, E. J. (2017a). Influence of physical fitness on cognitive and academic performance in adolescents: A systematic review from 2005–2015. *International Review of Sport and Exercise Psychology*, *10*(1), 108–133. doi: 10.1080/1750984X.2016.1184699

Ruiz-Ariza, A., de la Torre-Cruz, M. J., Suárez-Manzano, S., & Martínez-López, E. J. (2016). Active commuting to school influences on academic performance of Spanish adolescent girls. *Retos*, *32*, 39–43.

Ruiz-Ariza, A., Ruiz, J., De la Torre-Cruz, M., Latorre-Román, P., & Martínez-López, E. J. (2016). Influence of level of attraction to physical activity on academic performance of adolescents. *Revista Latinoamericana de Psicología*, *48*(1), 42–50. doi: 10.1016/j.rlp.2015.09.005

Ruiz-Ariza, A., Casuso, R. A., Suarez-Manzano, S., & Martínez-López, E. J. (2018). Effect of augmented reality game Pokémon GO on cognitive performance and emotional intelligence in adolescent young. *Computers & Education*. 116, 49-63 doi: 10.1016/j.compedu.2017.09.002

Ruiz, J. R., Ortega, F. B., Castillo, R., Martín-Matillas, M., Kwak, L., Vicente-Rodríguez, G., & Moreno, L. A. (2010). Physical activity, fitness, weight status, and cognitive performance in adolescents. *The Journal of Pediatrics*, *157*(6), 917-922–5. doi: 10.1016/j.jpeds.2010.06.026

Sergeant, J. A. (2005). Modeling attention-deficit/hyperactivity disorder: a critical appraisal of the cognitive-energetic model. *Biological psychiatry*, *57*(11), 1248-1255.

Serino, M., Cordrey, K., McLaughlin, L., & Milanaik, R. L. (2016). Pokemon go and augmented virtual reality games: A cautionary commentary for parents and pediatricians. *Current Opinion in Pediatrics*, 28(5), 673e677. doi: 10.1097/MOP.0000000000000409

Sommerauer, P., & Müller, O. (2014). Augmented reality in informal learning environments: A field experiment in a mathematics exhibition. *Computers & Education*, 79, 59e68. doi: 10.1016/j.compedu.2014.07.013

Smits-Engelsman, B. C., Jelsma, L. D., & Ferguson, G. D. (2016). The effect of exergames on functional strength, anaerobic fitness, balance and agility in children with and without motor coordination difficulties living in low-income communities. *Human movement science*, 55, 327-337. doi: 10.1016/j.humov.2016.07.006

Staiano, A. E., & Calvert, S. L. (2011). Exergames for Physical Education Courses: Physical, Social, and Cognitive Benefits. *Child Development Perspectives*, *5*(2), 93–98. doi: 10.1111/j.1750-8606.2011.00162.x

Stanmore, E., Stubbs, B., Vancampfort, D., de Bruin, E. D., & Firth, J. (2017). The effect of active video games on cognitive functioning in clinical and non-clinical populations: a meta-analysis of randomized controlled trials. *Neuroscience & Biobehavioral Reviews*, 78, 34-43. doi: 10.1016/j.neubiorev.2017.04.011

Stodden, D. F., Goodway, J. D., Langendorfer, S. J., Roberton, M. A., Rudisill, M. E., Garcia, C., & Garcia, L. E. (2008). A developmental perspective on the role of motor skill competence in physical activity: An emergent relationship. *Quest*, *60*(2), 290-306.

Wrann CD, White JP, Salogiannnis J, et al. Exercise induces hippocampal BDNF through a PGC-1α/FNDC5 pathway. *Cell Metabolism*, 2013;18(5):649-659. doi: 10.1016/j.cmet.2013.09.008

Zeng, N., Pope, Z., Lee, J. E., & Gao, Z. (2016). A systematic review of active video games on rehabilitative outcomes among older patients. *Journal of Sport and Health Science*, 6(1), 33-43. doi: 10.1016/j.jshs.2016.12.002

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MULTIPLE INTELLIGENCES AND LEARNING DIFFICULTIES

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Abstract. Increasingly, we find that both primary schools and secondary schools try to include more innovative and active methodologies, such as working in a cooperative or collaborative way, that is to say, forming workgroups that help students to work together and thus facilitate their learning. For this reason, in this program sychopedagogical orientation and intervention we are going to focus on using this type of cooperative methodology together with Multiple Intelligences and thus contribute in the learning process of students in a more active and constructivist way. Through the three areas of which the educational orientation is composed, Tutorial Action, Attention to Diversity and Academic and Professional Orientation, we are going to stimulate the different intelligences of our students as well as to make it clear that any difficulty is not an obstacle to move forward, But on the contrary, try to work in inclusive way in the classroom, now that all the objectives proposed in this intervention program they can be achieved by all students without showing you any barrier that prevents it is.
Keywords: Multiple Intelligences, collaborative-cooperative learning, specific learning difficulties, orientation.

INTELIGENCIAS MÚLTIPLES Y DIFICULTADES DE APRENDIZAJE

Resumen. Cada vez más, encontramos que tanto colegios como institutos tratan de incluir metodologías más innovadoras y activas, como es trabajar de forma cooperativa, colaborativa, es decir, formando grupos de trabajo heterogéneos que ayuden al alumnado a trabajar de forma conjunta, equilibrada y así favorecer su aprendizaje. Por este motivo, en este programa de orientación e intervención psicopedagógica nos vamos a centrar en utilizar este tipo de metodología cooperativa junto con las Inteligencias Múltiples y así contribuir en el aprendizaje de los alumnos de forma más activa y constructivista. A través de los tres ámbitos de los que está compuesta la orientación educativa, Acción Tutorial, Atención a la Diversidad y Orientación Académica y Profesional, vamos a estimular las diferentes inteligencias de nuestros alumnos además de hacer ver que cualquier dificultad no tiene por qué ser un impedimento para seguir avanzando, sino todo lo contrario, tratamos de trabajar de manera inclusiva dentro del aula, ya que todos los objetivos que se proponen en este programa de intervención pueden ser conseguidos por todos los alumnos sin presentarle ninguna barrera que se lo impida.
Palabras clave: Inteligencias Múltiples, aprendizaje colaborativo-cooperativo, dificultades específicas de aprendizaje, orientación.

Introduction

The origins of the guidance in Spain were difficult and their development in the education system was really slow. From the LOGSE (Ley de Ordenación General del Sistema Educativo) in 1990 and the derived educational reform, the Education Guidance was considered necessary to promote the education and to be included in the teaching role.

Later, the concept of orientation is still in subsequent laws. The Organic Law 2/2006, of May 3, on Education (LOE) draws particular attention, during the Educación Secundaria Obligatoria (junior high school), to the educational and career guidance of students, as well as promoting the necessary measures, so the personal tutoring and educational, psycho-pedagogical and career guidance are a fundamental element in the ordination of this stage. In the current education law, the Organic Law 8/2013, December 9, for the improvement of the educational quality, the educational guidance is highlighted.

In addition, in the Decree 213/1995, September 12, which regulates the educational guidance fields, it notes that the educational guidance is divided into three areas: Tutoring, Attention to Diversity and Vocational and Career Guidance.

Thus, in order to apply these three guidance areas we will enhance the Multiple Intelligences of students through the use of active methodologies, in this case, through a cooperative-collaborative learning. Using this type of methodology enables students to find out which are their strengths and which are their weaknesses, so they can compensate with each other. Furthermore, in this way, we can form heterogeneous and balanced work groups that favor the teamwork, so they can help each other.

As can be observed, where the Multiple Intelligences Theory is most used is in the initial education levels such as Pre-school and Primary Education, although there are more teachers in secondary education that are more innovative and look for other methodologies that help them to motivate the teaching-learning process. Some of the educational institutions that are working with the Multiple Intelligences and that have designed projects in pre-school, primary and secondary education are the following: colegio Divino Maestro and colegio Marcelo Spínola of Jaén, colegio los Trinitarios of Córdoba, colegio Antonio de Nebrija of Murcia, colegio San Cristóbal of Castellón and colegio Princesa de Asturias of Elche.

It has to be borne in mind that we live in a changing society, in which the teenagers that we find nowadays in high schools are not the same there were ten or fifteen years ago. That is to say, we cannot continue working with methods based on a traditional methodology, which is not motivating, we have to enhance the interest to learn that, in some cases, is lacking in these contemporary students. Having said that, it is not enough to try to find a way of working with students that motivates them, teachers also have to train, do research, consult, get to know their students, and then start to apply methodologies that activate them and promote their curiosity to learn.

In this regard, it can be said that educational guidance is of utmost importance in the educational institutions, since by means of this guidance together with the cooperation of both tutors and students and the other teachers, we can work in unison and thus, enrich the learning of the students. This is the reason why in this intervention program it can be found the development of the three guidance areas.

First of all, we allude to the Tutoring; whose aim is to make students know themselves and each other, in addition to get to know, through some work sessions, the Multiple Intelligences Theory, and so they can discover which are their strengths and which are their

weaknesses. Moreover, the purpose is to form heterogeneous work teams that help them to work in a more balanced way.

Secondly, there is the Attention to Diversity, in which we will work with a student with specific learning difficulties, in this case, dyslexia. To do so, we will use the Multiple Intelligences, that is to say, we have planned some work sessions in which it can be seen how an intelligence complements the other, and thus, favors the students learning. In addition, this work methodology favors the inclusion of the students by means of teamwork.

Finally, there is the Vocational and Career Guidance. With it, we pretend to start the guidance from the initial courses, in this first case, the junior high school, since this guidance often starts later and, in some occasions, students arrive at the end of senior high school and they still do not know what to choose or what to do after this educational stage. That is why we will also use the Multiple Intelligences Theory so, students will get to know which is their main intelligence in the initial courses. They will be able to know which subjects are their strengths and which ones are their weaknesses, in addition to be competent in making decisions, since with the new education Law, the Organic Law 8/2013, December 9, for the improvement of the education quality (LOMCE), from the second year of junior high school (ESO) they will start making decisions regarding the subjects they want to take in third and so on.

Analysis of the literature

Multiple intelligences

The concept of intelligence, over the years, has suffered several variations as a consequences of social, scientific and cultural changes (Matamoros, 1999).

At the beginning, the intelligence was considered something rather biological, hereditary, that was inside the individual's mind and that could be measured; that is to say, as a property located in the people's head (Gardner, Kornhaber and Krechevsky, 1993).

Due to the progress of society and the enrichment of knowledge, a more precise and determined concept was developed about the intelligence concept, benefiting the enrichment of knowledge, in the training of people, so they are more competent in the different disciplines (Gomis, 2007).

Therefore, it can be said that, the harmonious development of the people's life, the social, academic, emotional, professional success cannot only be explained from a conception of intelligence or only with the functioning of an adequate cognitive structure (Salmerón, 2002).

In this sense, Valera and Cruz (2006) support the Gardner's statement (2001) that people do not have a single general intelligence, measurable according to the traditional intelligence tests, but it has a multiple structure. This is the reason why every child has a characteristic profile of different capacities, that is to say, a set of intelligences, and these intelligences can strengthen due to the opportunities offered by education and to a medium rich in attractive materials and activities.

All the intelligences are present in all the people. It is possible that, in some people, one or more of their intelligences can be more emphasized or more delimited, but all the intelligences in everyone are to be stimulated (Antunes, 2001).

Therefore, in the Multiple Intelligences Theory, on the assumption that in order for children to develop their multiple intellectual capacities and abilities, it is important to

provide them with an adequate stimulation in the classroom and in their daily life (Molejón and Fernández, 2017).

Thus, we learn with multiple intelligences and, therefore, an education that wants to include everyone must manage all the languages of those Multiple Intelligences (De la Cruz and García, 2017).

As Gardner claimed, these intelligences would be eight (Figure 1), so humans would have eight different points in their brains where there would be different intelligences; these intelligence are what he names Multiple Intelligences. These would be the linguistic or verbal, the logical-mathematical, the spatial, the musical, the kinesthetic-bodily, the naturalistic and the personal intelligences, that is to say, the intrapersonal and interpersonal (Antunes, 2001).

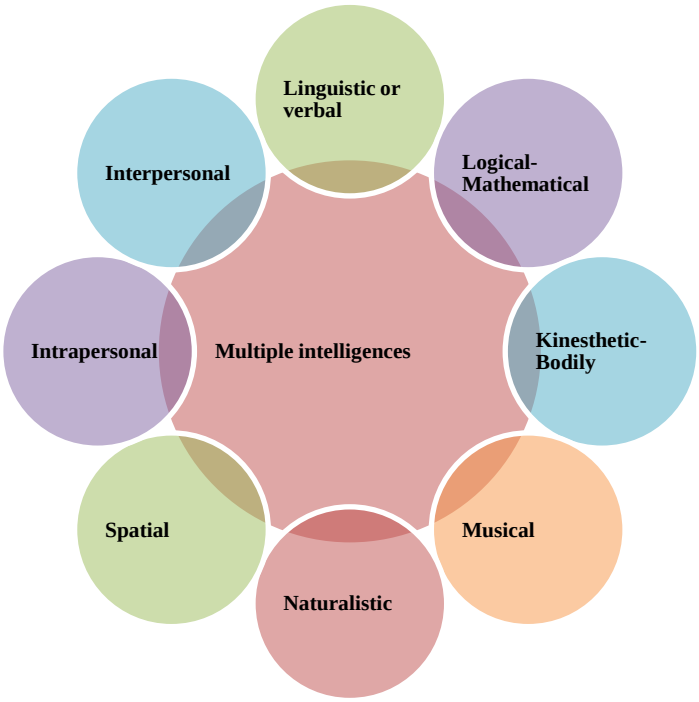

Figure 1. Multiple intelligences.

How to introduce multiple intelligences in the classroom?

It has to be borne in mind that in a classroom there are students with different curricular levels, with different necessities, capacities, so the teaching-learning process has to be adapted to those capacities and interests in order to carry out a correct inclusion.

To apply the Multiple Intelligences in the classroom, we must perform a transversal and multidisciplinary teaching style. Furthermore, it is required to perform a continuous observation of the students to get to know which is their main intelligence, so they are able to develop a methodology focused on students that provides them with possibilities to improve their school skills.

Consequently, using the Multiple Intelligences in the classroom enables the teacher to attract the students' attention, since motivating materials are used to work all the intelligences, enhancing their self-esteem, motivation, bringing a better environment in the classroom and in the relationship between classmates. Moreover, it enables us to have into account the interests, capacities and Multiple Intelligences of each of the students; thus, the

teaching-learning process can be personalized, adapting it to their needs, since we can identify those areas and intelligences where the support demand is higher, facilitating the attention to diversity in the classroom, reaching an integration of all the students, and in this way, students can have a better knowledge of themselves and of their learning style (Molejón and Fernández, 2017).

Thus, in this teaching style it is necessary to promote the collaborative-cooperative learning, such as Learning based on Projects, Spectrum Project, Key School, Art Propel.

Specific Learning Difficulties

As it can be seen, in the Organic Law 8/2013, December 9, for the improvement of the education quality (LOMCE), as in the Organic Law 17/2007, December 10, of Education of Andalusia (LEA), the learning difficulties are considered specific needs of education support, since they need an educational attention different to the ordinary one.

Furthermore, the Instructions of March 8, 2017, from the General Management of Participation and Equity, for which it is updated the protocol of detection and identification of students with specific necessities of education support and organization of the education response, consider that there are specific learning difficulties when:

Students require, during a period of their schooling or throughout of it, an educational attention different to the ordinary one, since they have significant disorders in their basic cognitive processes implied in the learning processes, that significantly interfere in the school performance and in the daily life activities and that are not determined by an intellectual, sensory or motor disability, due to a severe emotional disorder, or due to the lack of opportunities to learn or to sociocultural factors.

Thus, as Monedero (1989), Pérez (2002) and Aguilar (2011) said, students present specific learning difficulties when they have troubles performing properly some academic activities such as reading, writing, multiplying, adding or subtracting, causing that their academic performance is lower than expected.

Regarding the types of specific learning difficulties, according to the Instructions of March 8, 2017, of the General Management of Participation and Equity, for which it is updated the protocol of detection and identification of students with specific necessities of education support and organization of the education response, and Llanos (2006), they can be classified in four groups:

- Specific difficulties of learning to read, to write or dyslexia
- Specific difficulties of learning to write or dysgraphia
- Specific difficulties of learning to write or dysorthographia
- Specific difficulties of learning to calculate or dyscalculia

Multiple Intelligences and Specific Learning Difficulties

We can see in many classrooms that there is harmony, welfare, learning of all, while there is tension, suffering and discrimination in others; emotions affecting students and teachers, generating a climate in which learning is possible for everyone or only for a few (De la Cruz, 2017).

This is the reason why, when we identify a child with specific learning difficulties, it has to be borne in mind that these difficulties are not only related to the learning capacity, but also to the strategies we are using in that moment (Ugalde, s.f.).

Therefore, teachers have to take into account that they must become researchers of their own practice, by designing activities in which all of their students can be successful, can have positive experiences and can be linked to the teaching-learning process, providing them with means, so they can discover and understand what they work, being this the motivation that they can deal better (De la Cruz and García, 2017).

Whereby, the educational intervention with students with difficulties should broaden its perspective and not only focus on the deficit, but also on the strengths and abilities. Thus, it would be appropriate to reconsider the work approach and not wasting the abilities and skills that children with difficulties can have (González, 2014).

All people have a series of intelligences that, depending on when and how are stimulated can influence, for example, in the way we face life, we perceive information, we relate with others and in the way we acquire knowledge. Therefore, children must have an early stimulation in order to enhance their range of skills, considering intelligence as a wide concept, linked to the interest of each child and oriented towards their personal fulfillment (Ugalde, n.d.).

Since individuals differ in the intensity of these intelligences and in the ways they resort to these intelligences, and these are combined in order to carry out different tasks, to solve different problems and progress in different fields, we can say that people learn, represent and use the knowledge in many different ways. These differences challenge the education system, since this means that everybody is able to learn the same subjects in the same way and that a uniform and universal measure is enough to test the students' learning (Andrade, 2009).

Finally, if teachers suggest activities having into account all the Multiple Intelligences, not only those related to the instrumental areas, teaching-learning situation would prosper and the educational intervention would be more flexible, adapting to the individual necessities of each student. In this way, when teachers suggest this type of activities, they have more time to serve individually the students with specific necessities of Education Support, since the rest of the students are more autonomous to perform activities because they are more aware of the different surrounding support mechanisms, such as the individual information research, the consultation with equals, with the teacher, and the correct way to use them (Huelmo and Fernández, 2017).

Method

Program of Psychopedagogical Guidance and Intervention

Participants

This intervention program is aimed at students of the first year of high school, during the weekly tutoring hour in the ordinary group class, there are 25 students in each one. Although the program is designed by the institution's adviser, each unit will be taught by the tutor, even if in the Attention to Diversity unit will count on the help of the Therapeutic Pedagogy (TP) teacher in some work sessions, since in a class of the first year of high school, we can find students with dyslexia, and in some activities, that are adapted to their curricular level, they will need the TP support.

Program planning and design

The overall objective of this program of psychopedagogical guidance and intervention is working on the three areas comprised by the Educational Guidance, such as the Tutorial Action, the Attention to Diversity and the Academic and Career Guidance through the Multiple Intelligences. Thus, in the intervention unity of the Tutorial Action we will use active methodologies, such as cooperative-collaborative work, for the knowledge of each one of the intelligences. Moreover, in the intervention unit of the Academic and Career Guidance, we will promote the autonomous work and the decision-making through activities related to Multiple Intelligences and, finally, in the intervention unit of Tutorial Action, the specific learning difficulties will be worked, as in the case of dyslexia, through the Multiple Intelligences.

The learning objectives considered for this program are the following:

- Promoting and working the knowledge of the Multiple Intelligences.
- Enhancing the teamwork of students through the cooperative-collaborative learning.
- Training the autonomous work to make their own decisions.
- Intervening and acting in the specific learning difficulties, such as dyslexia, through Multiple Intelligences.

Making specific reference to the general contents that will be treated in that program, we have estimated:

- The knowledge of the Multiple Intelligences.
- Enhancing the teamwork of students through the cooperative-collaborative learning.
- The decision-making capacity.
- The intervention of dyslexia with the Multiple Intelligences.

The key competences that will be developed with the application of this program of psychopedagogical guidance and intervention are the established by the Order ECD/65/2015, January 21, for which they are described the relationships between competencies, contents, and evaluation criteria of the Primary Education, Junior and Senior High School. For the purpose of this order, these are the seven competences:

- Linguistic communication.
- Mathematical competence and basic competences in science and technology.
- Digital competence.
- Learning how to learn.
- Social and civic competences.
- Sense of initiative and entrepreneurship.
- Awareness and cultural expressions.

The methodology that will be carried out in this program of psychopedagogical guidance and intervention will be an active methodology, working in a cooperative and collaborative way, that is to say, through work groups that help students to work together and so favoring the teaching-learning process as the inclusion of all the students.

The resources that we will need depend on the activity that will be carried out in each intervention unit, thus, material, spatial and personal resources. These resources are specified in the explanation of each session conforming the different intervention units.

The length of the program and of each intervention unit will be reflected through the following table.

Table 1
Length of the intervention units

First trimester	Intervention unit for the Tutorial Action: We get to know each other while we work.
	First session: We all get to know each other (50').
	Second session: Co-habitation rules (55').
	Third session: We are writers. Linguistic and visual-spatial intelligence (55').
	Fourth session: We are scientists. Mathematical and naturalist intelligence (50').
	Fifth session: What are we feeling? Musical and intrapersonal intelligence (50').
	Sixth session: We dance together. Kinestetic and interpersonal intelligence (50').
Second trimester	Intervention unit for the Attention to Diversity: We play with words.
	First session: 1. We play with rhymes. 2. What does reading say to us? 3. Hidden words. 4. We get to know the words (55').
	Second session: 5. How many sounds are there? 6. We look for words and create numbers. 7. How many words are there? 8. We recognize figures (50').
	Third session: 9. Incomplete texts. 10. Alphabet soup. 11. Invented words. 12. Looking for those that are different (55').
	Fourth session: 13. What is that sound? 14. Qualities of the sound (40').
	Fifth session: 15. We take care of the environment (50').
	Sixth session: 16. What is hidden in your bag? 17. We create new words (50').
	Seventh session: 18. Autobiography. 19. My autobiographic scheme (45').
Third trimester	Intervention Unit for the Academic and Career Guidance: Which is my intelligence?
	First session: 1. Which is my main intelligence? (50').
	Second session: 2. Favorite subjects. 3. In which subjects do I get best

	results? (50’).
	Third session: 4. We discover the professions and the intelligences (50’).

Note: Source: own elaboration

Intervention units.

Tutoring action

This intervention unit is going to be carried out through six sessions, each one made up of diverse tasks. Its main objective is to make each one of the Multiple Intelligences known and in order to do so, we are going to implement active methodologies such as the cooperative-collaborative work.

In this way, we help students to know themselves better as well as to know their classmates, to discover new knowledge as the Multiple Intelligences as well as their affinity with each one of them and create heterogeneous and balanced groups that can be used to work in other subjects afterwards.

Students suffering from dyslexia can also participate in this unit, since they can have access to the tasks with the aid of the Therapeutic Pedagogy teacher in order for the inclusion of all students.

Example of some of the activities that will be done in this intervention unit:

In the third session, students are going to work with the combined intelligences so that they discover, on the hand hand, what the Multiple Intelligences Theory is about and on the other, which is the intelligence with which they feel more affinity. To begin with, this third session will be focused on visual-spatial and linguistic intelligence, working with the imagination, the oral and written comprehension and the description of feelings.

Table 2
Task 3 of the 3rd session

Task 3: We are writers. Linguistic and visual-spatial intelligence
Length:
• 40 minutes for the writing the poem and for making the drawing, and 15 minutes for the group presentation.
Specific objective/s
• Writing a 4 verse poem with the given terminations. • Explaining with the poem the feelings that reading the poem causes. • Knowing how to explain the drawing to the classmates. • Working the linguistic and visual-spatial intelligence.
Contents
• Comprehension of the given terminations and writing a 4-verse poem. • Interpretation of the manifested feelings by reading the poem, through a drawing. • Explanation of the drawing to the classmates. • Knowledge of the linguistic and visual-spatial intelligence

Development of the activity
In this activity, they are going to be organized into small groups. The tutor is going to write on the blackboard the four terminations that rhyme and each group will h ave to write a 4-verse poem. Once the poem has been written, they will need to express with a drawing what the poem tells them when they read it. In this way, the linguistic intelligence is being worked on, since they have to make up sentences which make sense among them and rhyme, then, with the drawing they visualize what they feel while reading the poem, and that is the reason for working on the visual-spatial intelligence. After ending with this part of the task, they will have to do a group presentation, they will have to recite the poem and to explain the drawing's representation, which is a reflection of their feelings. Before carrying out this activity at the class, the Therapeutic Pedagogy teacher can work on it with the dyslexic student in order to practice the rhymes, in such a way that when the task is done, the student can be better integrated.
Resources and materials
• Sheets, pencils, colored crayon
Assessment criteria
• The student understands the meaning of the words to write the poem • The student interprets the feelings through a drawing. • The student knows how to express to the classmates the drawing's representation. • The student knows the linguistic and visual-spatial intelligence.

Teacher's role	Spatial organization
• Guide.	• Small groups.

Note: Source: own elaboration

Attention to diversity

In this intervention unit, that is linked with the attention to diversity, we are going to focus on the specific learning difficulties, concretely in dyslexia, emphasizing the inclusion of all students in the class through heterogeneous tasks.

This intervention is going to be about working on dyslexia from the Multiple Intelligences through transversal tasks. Such tasks are going to be combined, that is to say, from the first session of linguistic intelligence and with this intelligence being combined with any other intelligence. The unit will be consisting of seven sessions.

Finally, with this intervention unit the aim is to work on dyslexis from active methodologies that enhance the student's interest in learning so that the school drop-out is decreased.

Example of some of the activities that will be done in this intervention unit:

The second session will consist of four tasks, although in this one we will only focus on the Linguistic Intelligence combined with the Mathematical Intelligence in order to solve the comprehension difficulties regarding math problems.

Table 3
Task 2 of the 2nd session

Task 2: We look for words and create numbers.	
Length:	
• 25 minutes	
Specific objective/s	
• Ordering the words. • Indicating each words' number of syllables. • Breaking down in thousands, hundreds, tens and units the invented number.	
Contents	
• Ordering the words. • Indicating each words' number of syllables. • Breaking down in thousands, hundreds, tens and units the invented number.	
Development of the activity	
This exercise is composed of different sections (Annex 1), see the example: • Looking for hidden words, only a syllable can be removed. • Indicating each words' number of syllables. • Creating numbers with the number of syllables from each group of words. • Breaking down in thousands, hundreds, tens and units the number. • Since it is a more complex task, it can be performed by the whole class group.	
Resources and materials	
• Pencil, rubber and annex 1.	
Assessment criteria	
• Order properly each syllable of the word. • Identify the word's number of syllables. • Breakdown in thousands, hundreds, tens and units each number.	
Teacher's role	**Spatial organization**
• Adviser and counselor, who makes sure that the task is properly carried out.	• Ordinary classroom.

Note: Source: own elaboration

Vocational and Career Guidance

This Intervention Unit, proposed for the Academic and Career Guidance, is composed of three sessions. It will be carried out by means of the Multiple Intelligences, since the aim is that the students get to know themselves, are able to reflect on their preferences and also to make their own decisions.

Since students, as they progress in their studies, do no think much about their future career and, as it approaches, many doubts arise, we deem appropriate to work all this from the initial courses, so they will be more aware of the fact that they will have to make a choice on which their future can depend.

In this unit students suffering from dyslexia can also participate, since they can have access to all the tasks in order to achieve the inclusion of all students.

Example of some of the activities that will be done in this intervention unit:

The first session is composed of a task in which students must reflect on their favorite tasks, so they are able to discover their main intelligence.

Table 4
Task 1 of the 1st session:

Task 1: Which is my main intelligence?	
Length:	
• 50 minutes	
Specific objective/s	
• Deepening into the knowledge of school skills, as well as into their relationship with the Multiple Intelligences. • Stimulating the decision-making about the selected skills.	
Contents	
• Deepen into the knowledge of the school skills, as well as into their relationship with the Multiple Intelligences. • Stimulate the decision-making about the selected skills.	
Development of the activity	
Through a list of tasks, grouped by Multiple Intelligences, students must assess which activities are their strengths, so they will get to know which are their main intelligence. Then, they must order them from the easiest to the most difficult for them. Students must know that this activity will be useful when making decisions about the elective subjects that they have to choose for the next course thus, guiding their academic and professional path.	
Resources and materials	
• Pencil, rubber and annex 2.	
Assessment criteria	
• Collaborate in the knowledge of the existing relationship between school skills and Multiple Intelligences. • Make decisions about which are your main skills.	
Teacher's role	**Spatial organization**
• Adviser and counselor, who makes sure that the task is properly carried out.	• In the ordinary classroom.

Note: Source: own elaboration

Results

Evaluation of the program of psychopedagogical guidance and intervention results

For the evaluation of the results we will perform two fundamental processes, one related to the teaching-learning process of the students, and other related to the teaching practice.

On the one hand, the evaluation of the teaching-learning process of the students will be carried out through the ordinary review, by the tutor, from the results obtained in each one of the work sessions. In this way, it will be observed if the intervention program has had effect in the students or, on the contrary, they have not obtained good results and it has not helped in their progress.

On the other hand, teachers in charge of the application of the intervention program, through an online questionnaire (Annex 3), will be in charge of evaluating the methodology that has been used, how it attends to diversity, and planning. Thereby, we will know which are the weaknesses of the program and improve them, in addition to know which are its positive aspects.

These evaluations will be reviewed by the institution's advisor. With these evaluations we want to improve everything that makes the program not work properly, so we can offer a quality program with an adapted attention to the students' needs.

Decision-making

If the intervention unit is successful, it will be determined to carry it out in the others Senior High School courses. Thereby, the use of new work methodologies will be enhanced, as well as the introduction to the Multiple Intelligences Theory in the teaching-learning process to students that do not have specific necessities of education support and those that do have them, achieving a total inclusion of the students.

However, of the results are negative, students and teachers will not achieve the proposed objectives, it would be necessary to take action, such as improving the proposed methodology or the unit content. Moreover, both students and teachers would get evaluations in order to discover the weaknesses of the program and thus, improve them. In this way, students' necessities will be properly responded.

Conclusions

With this intervention project we try to help students so they can know themselves and the others, they have autonomy, they are able to work in groups respecting the others' decisions, they know how to make decisions, as well as the discovery of new ways of work that make the teaching-learning process more dynamic.

Through the use of Multiple Intelligences, worked from different perspectives in each of the interventions units, we want to achieve a comprehensive development of the students and also, help teachers to be aware of that and solve all their needs. With this type of work, we try to make students aware of the existence of different types of intelligences and that

through their stimulation, they get to know the intelligence where they can be more or less skillful, since through the combination of the different intelligences they will have a better progress in their learning.

Furthermore, we have carried out this knowledge of the Multiple Intelligences Theory by means of active methodologies, as the cooperative-collaborative work. In this way, students work in groups and develop their social and personal skills, they complement their learning together, by learning how to listen their classmates, so they not only respect their learning, but also the learning of the rest of the group, thus, their knowledge evolves in a constructive and participatory way.

Finally, with this work approach, we have taken into account the inclusion of all the students, and we have carried this out by means of the combination of the Multiple Intelligences and the learning difficulties. We consider that through this new way of working, we can promote in these students interest and motivation to learn, and through cooperative-collaborative work we can form heterogeneous groups in which they can mutually complement.

References

Aguilar Calvo, M. (2011). *Las dificultades de aprendizaje: diagnóstico e intervención*. Madrid: Editorial CEP.

Andrade, P. (2009). Dificultades en el aprendizaje (Inteligencias Múltiples). Recuperado de http://inteligenciasmultiplespnl.blogspot.com.es/2009/06/dificultades-en-el-aprendizaje.html.

Antunes, C. (2001). *Estimular las inteligencias múltiples. Qué son. Cómo se manifiestan. Cómo funcionan*. Madrid: Narcea.

De la Cruz García, P., y García Tíscar, E. (2017). *Formar al profesorado para conseguir centros educativos inclusivos: creando redes.* En A. Rodríguez-Martín (Comp.), Prácticas Innovadoras inclusivas: retos y oportunidades, 349-356. Oviedo: Universidad de Oviedo.

Gardner, H. (2001). *Estructuras de la Mente. La Teoría de Las Inteligencias Múltiples.* Colombia: Fondo de la Cultura Económica LTDA.

Gardner, H., Komhaber, M., y Krechevsky, M. (1993). *Abordar el concepto de Inteligencia*. En H.Gardner (Coord). Intetigencias múltiples: lit teoría en lal'ráctica, 243-259. Barcelona: Paidós Ibérica.

Gomis Selva, N. (2007). Evaluación de las inteligencias múltiples en el contexto educativo a través de expertos, maestros y padres (tesis doctoral inédita). Universidad de Alicante.

González Muñoz, D. (2014). Inteligencias múltiples y dificultades de aprendizaje. *Padres y Maestros*, (357), 10-14. doi: http://dx.doi.org/10.14422/pym.v0i357.3291.

Huelmo García, J., y Fernández Hawrylak, M. (2017). *Competencias profesionales del docente en la comunidad de Castilla y León para dar cumplimiento al principio de inclusión*. En A. Rodríguez-Martín (Comp.). Prácticas Innovadoras inclusivas: retos y oportunidades, 249-256. Oviedo: Universidad de Oviedo.

Instrucciones de 8 de marzo de 2017, de la dirección general de participación y equidad, por las que se actualiza el protocolo de detección, identificación del alumnado con

necesidades específicas de apoyo educativo y organización de la respuesta educativa. Sevilla.

LEY 17/2007, de 10 de diciembre, de Educación de Andalucía. (BOJA, Nº 252, 26 de diciembre de 2007).

Ley Orgánica 8/2013, de 9 de diciembre, para la mejora de la calidad educativa. (BOE, Nº 295, 10 de diciembre de 2013).

Llanos Días, S. (2006). Dificultades de aprendizaje. Centro de Estudios Sociales y Publicaciones (CESIP). Recuperado de http://www.cesip.org.pe/sites/default/files/27dificultades_de_aprendizaje.pdf.

Matamoros, A. M. A. (1999). Inteligencias múltiples: Una aproximación a la teoría de Howard Gardner. *Horizontes Pedagógicos*, 1(1), 19-27.

Molejón Asenjo, L., y Fernández-Viciana, A. (2017). Todos somos diversos y todos somos capaces: las inteligencias múltiples y su influencia en la autoeficacia. En A. Rodríguez-Martín (Comp.). Prácticas Innovadoras inclusivas: retos y oportunidades, 611-618. Oviedo: Universidad de Oviedo.

Monedero, C. (1989). *Dificultades de Aprendizaje Escolar: Una Perspectiva Neuropsicológica*. Madrid: Pirámide.

Orden ECD/65/2015, de 21 de enero, por la que se describen las relaciones entre las competencias, los contenidos y los criterios de evaluación de la educación primaria, la educación secundaria obligatoria y el bachillerato. (BOE, Nº25, 29 de enero de 2015).

Pérez Solis, M. (2002). *Orientación Educativa y dificultades de aprendizaje*. Madrid: Paraninfo.

Salmerón Vílchez, P. (2002). Evolución de los conceptos sobre inteligencia. Planteamientos actuales de la inteligencia emocional para la orientación educativa. *Educación*, XX1 (5), 97-121.

Ugalde, K. (s.f.). El aprendizaje y las Inteligencias Múltiples. Contigo Salud vivir mejor. Recuperado de: http://www.contigosalud.com/el-aprendizaje-y-las-inteligencias-multiples.

Varela, C., y Cruz, I. (2006). El Proyecto Spectrum: aplicación y actividades de aprendizaje de ciencias en el primer ciclo de la Educación Primaria. *Revista de Educación*, (339), 947-958.

Annexes

Annex 1: We look for words and create numbers.

Table 5
Task 2 of the 2nd session

Disordered words	Ordered words	Number of syllables	Numbers
za-da-man-na	Manzana	3	**Create a number from the number of syllables of these four words.** **3,433**
tra-do-dra-cua	Cuadrado	3	
ta-dor-je-tu-a	Tatuaje	4	
sol-dor-ca-se	Secador	3	
vi-rra-ta-gui			**Create a number from the number of syllables of these three words.**
bo-ce-ca-di-llo			
se-tan-rí-a-es-te			
ven-cor-ti-lar-dor			**Create a number from the number of syllables of these two words.**
Bo-ya-te-lla			

Table 6
Number breakdown

Number breakdown				
Number	**Thousand**	**Hundred**	**Dozen**	**Unit**
3,433	3	4	3	3

Note: Source: own elaboration

Annex 2: Which is my main intelligence?

Table 7
Task 1 of the 1st session

Which is my main intelligence?			
X	**Activities**	**Skills**	**Multiple intelligences**
	Reading	**For the language**	**Linguistic Intelligence**
	Writing stories, poems, biographies		
	Writing comments		
	Giving suggestions		
	Searching in the library		
	Solving mathematical operations	**For mathematics**	**Mathematical intelligence**
	Solving numerical problems with measurements, data, quantities, distances by planning strategies.		
	Using mathematical formulae		
	Singing	**For the music**	**Musical intelligence**
	Solfège		
	Tuning the sound.		
	Having rhythm		
	Playing an instrument		
	Discriminating details	**For the plastic-visual expression.**	**Visual-spatial intelligence**
	Drawing		
	Mapping		
	Representing souvenirs		
	Creating photo albums		
	Designing objects		
	Understanding drawings		
	Using body movements to express emotions	**Physical skills**	**Kinesthetic-bodily intelligence**
	Creating games, simulations		
	Dancing		
	Doing sport		
	Animals, insects, plants	**Scientific**	**Naturalist intelligence**
	Scientific games		
	Using lab objects		
	Research		
	Creating groups and working in a cooperative way		

	Teaching, helping other people	**Social relations**	**Interpersonal intelligence**
	Assuming different roles		
	Studying different cultures		
	Describing your own cultures	**Phylosophical**	**Intrapersonal intelligence**
	Explaining how do you feel		
	Reflecting silently		
	Being independent		
Ordering skills from the ones you find easier to the most difficult.			
Skills		**Multiple intelligences**	

Note: Source: own elaboration

Annex 3: Access to the questionnaire

Table 8
Questionnaire

EVALUATION FOR THE TEACHING STAFF			
This evaluation will be carried out in order to obtain a final conclusion on the implementation of the psychopedagogical intervention program. Indicate your level (from 1 to 4) of agreement on the statements about the program contents.			
1	**2**	**3**	**4**
I totally disagree	**I agree a little**	**I agree**	**I totally agree**

ACCESS TO THE UNIVERSITY SYLLABUS	
1. Have the provided contents been useful?	1 2 3 4
2. Have the stated objectives been adapted to the students' necessities?	1 2 3 4
3. Have the stated objectives been achieved?	1 2 3 4
4. Has it been difficult to give lessons with the new methodology?	1 2 3 4
5. Have the students adapted to the new way of working?	1 2 3 4
6. Have you noticed if the students have improved in their way of learning?	1 2 3 4
7. Has there been communication with the other tutors involved in the program?	1 2 3 4
8. Do you think there can be an inclusion of all the students?	1 2 3 4
9. Do you think its application is effective?	1 2 3 4
10. Which aspects do you find more interesting?	

11. Which aspects do you think should be improved?

Note: Source: own elaboration

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ACUTE EFFECT OF PHYSICAL EXERCISE ON THE IMPULSIVITY AND STATE OF ANXIETY, IN 6-12 YEARS SCHOOLCHILDREN WITH ATTENTION DEFICIT AND HYPERACTIVITY DISORDER: SYSTEMATIC REVIEW

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Abstract. Introduction: The objective of this review was to analyze the effect of physical exercise on behavior in schoolchildren (6-12 years old) with attention deficit hyperactivity disorder (ADHD). **Method:** For this, a bibliographic search was made in three databases (initial search n = 92: PubMed n = 22, SportDiscus n = 63, Web of Science n = 7), from January 2000 to June 2017. **Results:** A total of three longitudinal studies with intervention met the inclusion criteria, assessed as high quality. All studies employed running for at least 25-30 minutes at moderate to vigorous intensity controlling heart rate and technique by specialists. All showed that exercise at the beginning of the class improves behavior in children diagnosed ADHD, in addition to other key variables for academic performance, such as attention and memory. **Discussion:** We can conclude that active displacement or previous intentional activation through a moderate to vigorous intensity run before the beginning of the school day improves the behavior of the students, a better classroom environment is achieved and conflicts are avoided. Further research is needed to clarify the potential key role of exercise intensity and duration, as well as the duration of these benefits.
Keywords: Physical Exercise, behaviour, school, review.

EFECTO AGUDO DEL EJERCICIO FÍSICO SOBRE LA IMPULSIVIDAD Y ESTADO DE ANSIEDAD, EN ESCOLARES DE 6-12 AÑOS CON TRASTORNO POR DÉFICIT DE ATENCIÓN E HIPERACTIVIDAD: REVISIÓN SISTEMÁTICA

Resumen. **Introducción**: El objetivo de esta revisión fue analizar el efecto de la práctica de la ejercicio físico sobre el comportamiento en escolares (6 - 12 años) con trastorno por déficit de atención e hiperactividad (TDAH). **Método:** Se hizo una búsqueda bibliográfica en tres bases de datos (búsqueda inicial n = 92: PubMed n = 22, SportDiscus n = 63, Web of Science n = 7), desde enero de 2000 hasta junio de 2017. **Resultados**: Un total de tres estudios longitudinales con intervención cumplieron los criterios de inclusión, evaluados como de alta calidad. Todos los estudios emplearon carrera durante al menos 25-30 minutos, a intensidad de moderada a vigorosa controlando la frecuencia cardiaca y técnica de ejecución por especialistas. Todos mostraron que el ejercicio al comienzo de clase mejora el comportamiento en niños diagnosticados TDAH, además de otras variables claves para el rendimiento académico, como son la atención y la memoria. **Discusión**: Una activación intencionada previa al comienzo de la jornada escolar, mediante carrera a intensidad moderada a vigorosa, mejora el comportamiento de los alumnos, se logra un mejor ambiente en el aula y se evitan conflictos. Se necesitan más investigaciones para aclarar el posible papel clave de la intensidad y duración del ejercicio, así como la duración de estos beneficios.
Palabras clave: Ejercicio Físico, comportamiento, colegio, revisión.

Introduction

Currently, it is common to find students with difficulties at the classroom. Among the most common ones, there are the Attention Deficit Hyperactivity Disorder (ADHD), a neurdevelopment disorder characterized by a persistent pattern of not paying attention and/or hyperactivity-impulsiveness that interferes in the development of the social, academic/working capacities (DSM5, 2013). Approximately, 5% of children and teenagers are diagnosed, with no differences between ages (Polanczyk, Salum, Sugaya, Caye & Rohde, 2015) ADHD is associated with deficiencies in the executive functions: working memory, mental organization and planning, behavior attention and control (Diamond, 2013) and it is as well associated with psychiatric conditions like the defiant opposition/negative and a low mood or anxiety (Van der Oord, Prins, Oosterlaan & Emmelkamp, 2008). At preschool, between three and six, the disruptive behaviors like tantrums, the search for attention, the non-compliance and the hyperactivity can be associated with the classmates' rejection and the low academic performance during the elementary school years (Egger & Angold, 2006). As well, during childhood, the presence of aggressive and antisocial behaviors is linked to future serious behavior problems and delinquency in adult life (Broidy *et al*., 2013).

There are two main treatments for children diagnosed with ADHD, change behavior and drugs administration. In some cases, the drugs administration has side effects or is not effective in behavior variables, so the change behavior treatment is preferred. It consists of therapy with specialized psychologists who show children to control impulsiveness and aggressivity. In this way, since they are capable of controlling their emotions, they can take advantage of their perceptive abilities and to have a better performance in their tasks (Watson, Richels, Michalek & Raymer, 2015) Nevertheless, Chronis *et al*. (2004) observed the benefits from the change behavior treatments are neither effective in all cases, and have disadvantages such as a loss in efectiveness throughout time and important rates for giving up on the treatment. Conversely, it is well-known that at the physiological-structural level, children diagnosed with ADHD show a deficit in neurotransmitters and dopamine in the frontal lobe (Sharma & Couture, 2014), which is the reason for most of them to be taking

drugs when they are six, a treatment based on stimulants like methylphenidate and amphetamines that act by raising the dopamine levels in the brain, which in turn improves the executive functions (Hodgkins, Shaw, Coghill & Hechtman, 2012).

Kim *et al*. (2011) observed in rats that exercising in a race 30 minutes/day fir 5 days/week x 28 days, same as with methylphenidate improved hyperactivity induced by the ADHD as so they did with the memory impairment while learning via the improvement of the dopamine synthesis and the expression of the neurotrophic factor tht is derived from the brain evidence that exercising elevates the dopamine and norepinephrine levels in the brain. In humans, Wing *et al*. (2003) observed that exercising frees dopamine in the prefrontal cortex and the basal ganglia. Furthermore, results from transversal and longitudinal studies with intervention through aerobic trainings show they have antidepressant and anxiolityc effects, and protects against the stress' harmful effects (Slamon, 2001).

However, and to the knowledge of this paper's authors, there has not been yet an analysis of the studies evaluating doing exercise by taking part in a race, prior to the school day and its effects on children's behavior (6-12 years old) who are diagnosed with ADHD by clinical specialists. Most of the papers focus on knowing the effect of exercising on the cognitive performance (Cornelius, Fedewa, & Ahn, 2017; Grassmann, Alves, Santos-Galduroz, & Galduroz, 2014).

Hence, the question we are raising in this review is the following: Organizing a race prior to the school day could improve the behavior of ADHD children at school? This review article is focused on children, for the first credible diagnosis of ADHD can be done from age six, a stage at which school conflicts and dependency are associated with bad academic results and behavior problems in future years (Hamre & Pianta, 2001).

Method

The methodology used for this study was the systematic review. At first, the search engines and the selection criteria were determined. Subsequently, every one of the authors conducted an own search. The obtained results were discussed, duplicated articles that were not in accordance with the search limits for their heading or abstract were dismissed. Finally, according to the selection criteria, the articles were selected by consensus and the summary table that includes the main aspects of each article was written.

Search limits

The search was made in three data bases (PubMed, SportDiscus and Web of Science). The search dates were: Januay 2000-July 2017. The journals had to have peer review and had to be indexed in ISI, with journals which included articles written in English. The search terms were:

- Race, running, walking, treadmill, cardiovascular exercise, active displacement.
- Attention-deficit hyperactivity disorder, ADHD, attention deficit disorder, ADD.
- Children, childhood, school-age youth, student.
- Behaviour, behavior, mood, conflicts.

Table 1 shows the search strategies that were followed for each of the data bases, as well as the filters used and the articles obtained in every search.

Table 1
Search strategy in the data bases

Databases	Search strategy	Limits	Results
PubMed	Search ((((("physical activity" OR "exercise" OR "Race" OR "running" OR "walking" OR "treadmill" OR "cardiovascular exercise" OR "active displacement")) AND ("Attention-deficit hyperactivity disorder" OR "ADHD" OR "attention deficit disorder" OR "ADD")) AND ("Children" OR "childhood" OR "school-age youth" OR "student")) AND ("Behaviour" OR "behavior" OR "mood" OR "conflicts") Filters: Clinical Trial; Full text; Publication date from 2000/01/01 to 2017/06/31; Humans	Publication from 2000/01/01 until 2017/06/31 -Humans, children: 6-12 years old - English language	22 filtered articles
SportDiscus (EBSCO)	("physical fitness" OR "physical activity" OR "physical education" OR "fitness" OR "exercise", "physical exercise" OR "acute exercise" OR "chronic exercise" OR "healthy exercise" OR "aerobic exercise" OR "resistance exercise" OR "anaerobic exercise") AND ("attention deficit hyperactivity disorder" OR "ADHD") AND ("attention deficit hyperactivity disorder" OR "ADHD" OR "attention deficit disorder") AND ("children" OR "childhood" OR "school-age youth" OR "adolescent" OR "teenagers" OR "student" OR "school" OR "high school")	Publication from 2000/01/01 until 2017/06/31 - Humans, children: 6-12 years old - English language	63 filtered articles
Web of Science	Title: (("physical fitness" OR "physical activity" OR "physical education" OR "fitness" OR "exercise", "physical exercise" OR "acute exercise" OR "chronic exercise" OR "healthy exercise" OR "aerobic exercise" OR "resistance exercise" OR "anaerobic exercise")) *AND* Title: (("attention deficit hyperactivity disorder" OR "ADHD" OR "attention deficit disorder")) *AND* Title: (("children" OR "childhood" OR "school-age youth" OR "adolescent" OR "teenagers" OR "student" OR "school" OR "high school"))	Publication from 2000/01/01 until 2017/06/31 - Humans, children: 6-12 years old -English language	7 filtered articles

Selection Criteria

The selected studies to be included in this article were contrasted following these criteria:

- Complete report published in a journal with peer review.
- The population of study was children diagnosed with ADHD (6-12 years old).
- The study included written in English.
- The study used an interventional study prior to the school day.
- Behavior variables were measured with valid and credible tools.
- There are no exclusion criteria due to ethnicity.

Quality level's evidence

All the articles included in this study rely on a high quality (see Table 2). They meet the selection criteria established in accordance with other standardized evaluation lists (Ruiz-Ariza, Grao-Cruces, de Loureiro & Martínez-López, 2017) and also with out inclusion criteria. The list included six items about design, population, internvention, measures and result reports. Each item was classified as 0 (non-compliance or was unclear), 1 (moderately informed) or "2" (completely informed). For all the studies, the total score was calculated by counting the number of positive items (total score between 0 and 12). Three evidence levels were established. The studies were tagged as counting with a Low Quality (LQ) if their score wasunder five. A total score between five and eight was defined as Average Quality (AQ) and between nine and twelve was classified as High Quality (HQ). All the articles included in this systematic review rely on a high quality (see Table 2).

Table 2
List of included studies with the quality scores

Authors	A	B	C	D	E	F	Total score	Quality level
Tantillo et al. (2002)	2	2	2	2	2	2	12	HQ
Chang et al. (2012)	2	2	2	2	2	2	12	HQ
Hung et al. (2016)	2	2	2	2	2	2	12	HQ

Note: High Quality (HQ)= 9-12 A. Study completely published in a journal with peer review. B. The population of study was schooled children (6-12 years old) diagnosed with ADHD. C. The results regarding the variable attention were clearly described. D. The intervention was made via a race/march prior to the school day. E. Measurement of behavior variables with valid and credible tools. F. There are no excluding criteria in respect of ethnicity and students who showed any other type of learning or neurocognitive problems were not included.

Results

The chart flow corresponding to the results of the review process is shown in Figure 1. In the main search, 92 articles were obtained. 24 were dismissed for being duplicated, so 92 were left. In the following step, 65 articles were ruled out, basing on the information provided by the heading or the abstract, for non-compliance with the inclusion criteria or for not being able to find the full text. So, three studies were reviewed with the selection cirteria, performing an in-depth read of the full texts that met the selection criteria (Chang, Liu, Yu & Lee, 2012; Hung, Huang, Tsai, Chang & Hung 2016; Tantillo, Kesick, Hynd & Dishman, 2002).

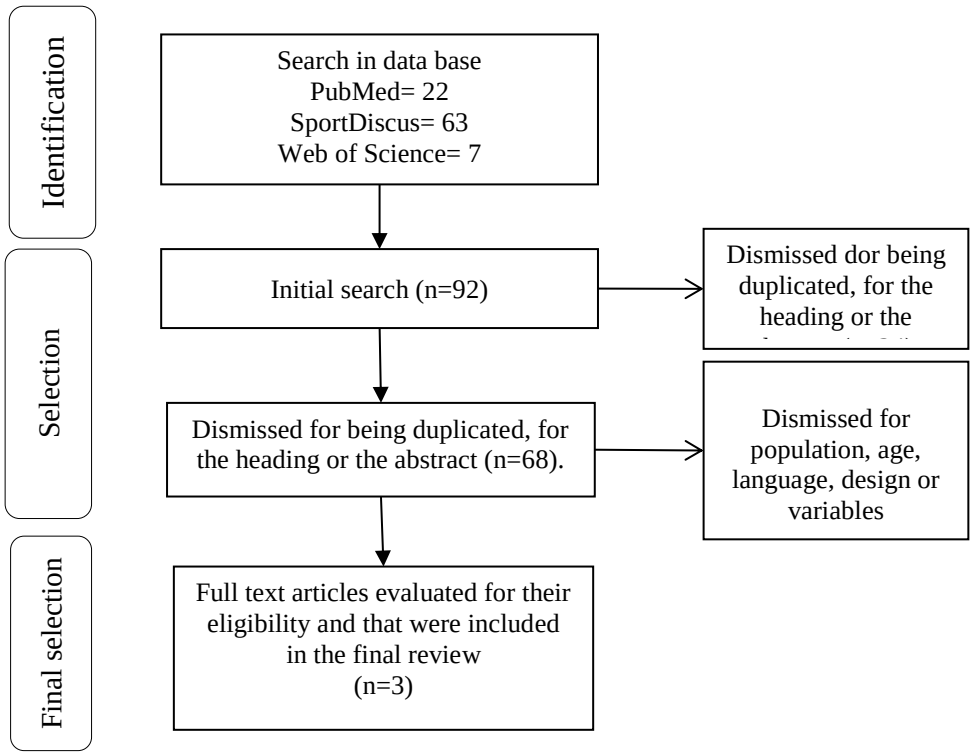

Figure 1. Articles' selection process

In this review paper, three articles were included, all of them with an interventional design, and with the participants being assigned to different groups or conditions randomly. All evaluate the effect of an intervention in a race, with moderate-high intensity, controlled by heart rate, on a treadmill, and also controlled by an specialist in sports and exercise science. The different behavior variables were evaluated before and after the intervention. Children who participated in the different studies were diagnosed with by specialized clinical psychologists using the DSM-III-R (Tantillo *et al*., 2002) or DSM-IV (Chang et al., 2012; Hung *et al*., 2016).

This review includes data from 117 participants, from which 25 were girls (29,25%) and 92 were boys (70,75%), so the sample size of the different studies were between 34 (Hung *et al*., 2016) and 43 Tantillo et al., 2002) participants. The studies were perfoemed in wto countries: two in China (Chang *et al*., 2012; Hung *et al*., 2016) and one in Georgia (Tantillo *et al*., 2002).

Table 3
Three articles from the past 17 years that evaluate the effect of the race at a moderate-high intensity on the behavior of children diagnosed with ADHD

Author and year	Study design/Diagnostic Intervention	Sample Age/ Country	Groups	Measurements/ Measurement time	Results

Tantillo et al. (2002)	Intervention/ DSM-III-R diagnostic 1 day before the school day	43 boys (22 girls) 8-12/ Georgia	2 groups: GE-TDAH (N = 18): 5-25 min race on a treadmill (65-75% VO2máx) CG-no ADHD (n=25) no exercise	STAI-C/ Pre-post	EG improved the behavior, reduced the state anxiety and the trait anxiety in comparison with the CG. CG experimented no change in behavior.
Chang et al. (2012)	Intervention/ DSM-IV Diagnostic/ 1 day before the school day	40 boys (3 girls) 8.-13/ China	2 groups: EG: 30 min race on a treadmill(50-70% MHR) CG: no exercise	Observation by the teacher Stroop and WCST/ Pre-post	EG diminished in impulsive behaviors and cognitive flexibility in comparison with the CG. CG experimented no change in behavior.
Hung et al. (2016)	Intervention/ DSM-IV Diagnostic/ 1 day before the school day	34 boys/ 8-12/ China	2 conditions: EG: 30 min race on a treadmill (50–70% MHR) CG: no exercise	Chinese version of the ADHD test Chinese version of the CBCL test Pre-post	EG improved behavior and symptoms characteristic to the ADHD in comparison with the CG. CG experimented no change in behavior.

Note: CBCL = Child Behavior Checklis.DSM = Diagnostic and Statistical Manual of Mental Disorders. MHR=Maximum Heart Rate. CG = Control Group EG = Experimental Group IOWA = STAI-C = State-Trait Anxiety Inventory for Children. ADHD = Attention Deficit Hyperactivity Disorder. VO_2máx = Maximal oxygen consumption. WCST = Wisconsin Card Sorting Test.

Behavior evaluation

Showing opposition/negative, defiant behaviors, low moods and high anxiety levels are typical in children aged between 6 and 12 diagnosed with hyperactivity/attention disorder (Van der Oord, Prins, Oosterlaan & Emmelkamp, 2008). The selected studies evaluated the students' behavior through using the tests STAL-C, observation by the teacher during the school day, and during the Stroop and Wsct tests, the Chinese version of the ADHD test and the Chinese version of the CBCL test; data was obtained regarding sociability, opposition, defiant behavior, anxiety level and risk of suffering from depression.

Effect of the moderate-high intensity race on the behavior

A total of three studies analyzed the immediate effect of a race with a moderate-high intensity on the behavior (Chang *et al*., 2012; Hung *et al*., 2016; Tantillo *et al*., 2002). All of them only did one intervention in one session, evaluating the short term effect of exercising prior to the school day. All the studies carried our the measurements within 24 to 48 hours after having suspended the administration of the drugs to treat the ADHD symptoms.

The study of Tantillo *et al*. (2002) was one of the first to measure the effects of exercising on the cognition of children diagnosed with ADHD, which is why it is a reference in the area of cognition in children with learning difficulties. This study followed a design based on a control and an experimental group, the students from the control group remained seated and expectant, without making any movement and talking to each other, meanwhile, the students from the experimental group took part in a race, at a submaximal intensity, on a treadmill, in such a way that they completed the first 5 minutes at a low intensity,

approximately 40% and after that, the treadmill's speed was incremented, as well as the race's speed did, until reaching a maximal oxygen consumption between the 65-75% of the VO_2 max. In the students of the experimental group, the state anxiety and the trait anxiety diminished in comparison with the control group, the improvements were most notable in girls than in boys. Chang *et al*. (2012) differentiated between the control group from the experimental group, the control group watched a documentary while seated, at the same time, the experimental group took part in a race at a moderate-high intensity on a treadmill. The intensity was controlled by using a heart rate monitor, the speed was regulated to keep the intensity at a 50-70% of the maximal heart rate, calculated with the Karvonen, Kenthla and Mustala formula (1957). In the experimental group, the impulsiveness levels were reduced during the tests, such improvements were not found in the control group. Hung et al. (2016) carried out a study that was very much similar to the one of Chan et al. (2012), the design was different in the fact that instead of working with two groups, they did an offset, in such a way that the original group was randomly divided into two subgroups. One group was assigned as the control, and watched a video for 30 minutes, and the other was then the experimental, and were those who took part in a race on a treadmill for 30 minutes, at a 50-70% intensity of the maximal heart rate, monitored by a pulse meter; a week after, the participants shifted their conditions. This time, the measurements were took on the same schedule and school conditions, but in a laboratory at which the possible polluting variables, such as the noise and the temperature, could be controlled,. The students improved the ADHD symptoms and the associated behavior after exercising, there were no changes in the video intervention.

These results are similar to those obtained by Flohr, Saunders, Evans & Raggi (2004), when exercising in the stationary bicycle for 25 minutes before starting the school day, at a moderate intensity, 40-50 VO_2 max, the participants (90 boys, aged 7-11) improved their behaviors during the lessons and the tests, also improving in their test results that assessed their skills in algebra and reading comprehension.

Discussion and conclusions

These systematic review has analyzed the studies from the past 17 years that evaluate the effect of the race at a moderate-high intensity on the behavior of children (6-12 years old) diagnosed with ADHD. The search was limited to three data bases and to studies published between January 2000 and June 2017. A total of three articles met the selection criteria, all used a longitudinal design with an intervention on a treadmill prior to the school day, for at least 20-30 minutes and with a high quality as a result and being published in some of the most famous journals in the world. The intensity of the exercise was monitored by the heart rate and controlled by specialists in exercise and sports science. The results have shown that the race boosts an improvement in behavior, diminishes the impulsiveness and the anxiety (Chang *et al*., 2012; Hung *et al*., 2016; Tantillo *et al*., 2002). In addition to that, it had a positive effect on the executive functions and the academic performance. None of the studies proved a negative association.

The lack of specific studies with children diagnosed with ADHD has made it difficult to establish direct comparisons. Working with populations experiencing some learning difficulties makes the task harder, even more if the intention is to intervene in the school environment, for there are other students who must continue with their lessons as long as the study is being done. The inclusion of exercising to start the day means having available and moving all the materials to the center, a no easy task for which multiple permission requests are needed before the intervention. Therefore, the results have been occasionally discussed

basing on the evidences found in interventions in which another type of similar intervention is made or in which teenagers also participate, as well as studies in which population with no learning difficulties is involved (Craig *et al.*, 2016).

There are various mechanisms to explain the effect produced by the physical exercise on the behavior. In children, there is a correlation between the catecholamines release and the exercise. Both in children diagnosed with ADHD and in children with no learning difficulties, when they exercise, the excess in catecholamines is eliminated, reaching a lower anxiey and stress level (Wigal *et al*., 2003). Likewise, exercising activates the release of epinephrine and norepinephrine, increasing the neurotransmitters' concentration in the brain space, being them the responsibles for controlling the executive functions and the body's correct functioning. As well, such enhance the physical condition, which is positively linked to the cognitive performance (Ardoy *et al*., 2014) as it is so to the academic performance regarding algebra and language (Carral, Pérez & Espiño, 2016). Exercising has a relaxing effect, diminishes the cortisol levels, which in turn reduces the anxiety and stress levels (Hillier *et al*., 2011). Exercising could be considered as the best natural drug equivalent to anti-depressants, anxiolytic, and also protects against the negative consequences that stress entails (Salmon, 2001). Young people with ADHD frequently have trobule sleeping (Owens, 2005). Quality sleep in young people with ADHD (9-12 years old) has a positive association with variables such as quality of life, the ability to stay focused and the hemoglobin levels (Yehuda, Rabinovitz-Shenkar & Carasso, 2011). In addition to that, since they are capable of controlling their emotions, they can take advantage of their perceptive abilities and to have a better performance in their tasks (Watson *et al*., 2015).

In this study, differences were found regarding gender in one of the included articles (Tantillo et al., 2002), for the girls experienced a greater improvement than boys. This could be due to the dose-response effect (Martínez-Gómez *et al*., 2011). That is to say, girls are usually more sedentary than boys (Verloigne *et al*., 2012), which is why there is a higher impact in girls before the same physical exercise stimulus.

Weaknesses and strengths

This review presents many weaknesses that have to be recognized. Weaknesses such as the little number of included articles, in spite of that their homogeneity was optimized through a rigorous selection process based on selection and exclusion criteria. Most of the researches analyze a small but homogeneous number of individuals, which may be due to the fact that the ADHD's prevalence is approximately 5% of children and youth (Polanczyk *et al*., 2015). Most of the participants in the study are boys (70.75%) and not girls (29.25%), and this may be due to a greatest prevalence in boys than in girls (Wittchen *et al*., 2011). This paper includes researches that were carried out in just two different countries.

Even so, this systematic review relies on great strengths, on the one hand all the studies that have been selected include boys and girls who have been diagnosed by specialists, and the analysis has been done via reliable, standardized and credible diagnosis tests, dismissing any other kind of learning disorders or difficulties. Likewise, all the articles clearly describe the dependent variable (behavior) and the independent variable (race intervention, duration and precise intensity) specifying the exact moment and procedure that was followed during the data collection, even when in the previous 24-48 hours to the measurements, the administration of the drugs to treat the ADHD symptoms had been suspended. This paper includes studies published within a 17 years period of time, in English language journals, with peer review, being all the included articles of a high quality. Lastly, this review only included

longitudinal studies with an intervention that was carried out prior to the school day of the students with ADHD and the interventions were controlled by specialists in science and exercise sciences.

Conclusions and practical applications

This review selected a total of three intervention articles, that analyzed the immediate effect of taking part in a race at a moderate-high intensity, being the intensity controlled by using a heart rate monitor. All the interventions lasted fr around 25-30 minutes. In the three cases, the intervention prior to the school day showed an improvement in behavior, a less impulsive attitude and lower anxiety and stress levels in children aged between 6 and 12 years old diagnosed with ADHD by clinical psychologists. The totality of the studies that were analyzed have proved that aerobic exercise has a beneficial effect, if made at a moderate-high intensity in order to work the cardiorespiratory endurance, on the behavior of students with ADHD, apart from other benefits at an academic and cognitive level.

Recent studies say that youth's physical activity level is really low. And point at the time spent in front of a screen, the family friend environments as the main causes for the youth to have a sedentary or inactive lifestyle (Vidal-Conti, 2016). We have observed that the benefits are extended depending on the intervention time; physical activity improves not only the behavior, but also the control of emotions, the socialization, the physical condition, the fine and gross motor skills, the executive functions, the school grades, and of course the health status, when exercise is duly structured, lasts for 25-30 minutes and is done at a moderate-high intensity. Plenty of physical activities can be done which are easily adaptable to the skills, motivation and availability of resources. Catching the attention by making use of the new technologies, active video games, active games based on gamification or Smartphone apps. From the World Health Organization (WHO) it is recommended that children and youth between 5 and 17 years old dedicate at least 60 minutes every day to physical activities done at a moderate-high intensity. Such activities comprise games, sports, movements, recreational activities, physical education or scheduled exercises within the family, school or the community activities' context. With the aim of enhancing the cardiorespiratory and muscle functions as well as the bone health, for reducing the risk of non-communicable diseases, great benefits that are added to the ones that have been already shown regarding the behavior.

Future research lines

Nevertheless, further researches are needed to justify the effect's duration, as well as the possible benefits for the children with ADHD doing this type of systematic controlled interventions at the beginning of the school day. The use of well-structured physical activities, combined with tasks that demand from a cognitive work and their combination with psychological treatments to modify the behavior should be promoted during childhood in the educational and family environment. Specially, its is recommended to clarify the influence of confounding variables. If we perform a quick search in the same data bases but focused on children who have not been diagnosed with learning difficulties of any kind, we find a great variety of studies that make use of various variables such as the mother's education, the physical condition indicators, the body mass index, the body fat percentage, or the inclusion of the breastfeeding time. Such aspects, together with the differentiated effect of different stimulus, duration, intensity and frequency could help create a complete program that is adjusted to every child's individual needs.

References

American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders (DSM-5®)*. American Psychiatric Pub.

Ardoy, D. N., Fernández-Rodríguez, J. M., Jiménez-Pavón, D., Castillo, R., Ruiz, J. R., & Ortega, F. B. (2014). A Physical Education trial improves adolescents' cognitive performance and academic achievement: the EDUFIT study. *Scandinavian journal of medicine & science in sports, 24*(1), e52–e61. doi: 10.1111/sms.12093

Broidy, L. M., Nagin, D. S., Tremblay, R. E., Bates, J. E., Brame, B., Dodge, K. A., & Lynam, D. R. (2003). Developmental Trajectories of Childhood Disruptive Behaviors and Adolescent Delinquency: A Six-Site, Cross-National Study. *Developmental Psychology, 39*(2), 222-245. doi: 10.1037/0012-1649.39.2.222

Carral, J. M. C., Pérez, C. A., & Espiño, M. J. S. (2016). Relación entre la condición física y rendimiento académico en matemáticas y lenguaje en estudiantes españoles de educación secundaria: Un estudio longitudinal. *Cultura, Ciencia y Deporte, 11*(31), 7-16. doi: 10.12800/ccd.v11i31.638

Chang, Y. K., Liu, S., Yu, H. H., y Lee, Y. H. (2012). Effect of acute exercise on executive function in children with attention deficit hyperactivity disorder. *Archives Clinical Neuropsychol, 27*(2), 225–237. doi: 10.1093/arclin/acr094

Chronis, A. M., Fabiano, G. A., Gnagy, E. M., Onyango, A. N., Pelham, W. E., Lopez-Williams, A., … Seymour, K. E. (2004). An evaluation of the summer treatment program for children with attention-deficit/hyperactivity disorder using a treatment withdrawal design. *Behavior Therapy, 35*(3), 561–585. doi: 10.1016/S0005-7894(04)80032-7

Cornelius, C., Fedewa, A. L., & Ahn, S. (2017). The Effect of Physical Activity on Children With ADHD: A Quantitative Review of the Literature. *Journal of Applied School Psychology, 33*(2), 136-170. doi: 10.1080/15377903.2016.1265622

Craig, F., Margari, F., Legrottaglie, A. R., Palumbi, R., de Giambattista, C., y Margari, L. (2016). A review of executive function deficits in autism spectrum disorder and attention-deficit/hyperactivity disorder. *Neuropsychiatric Disease and Treatment, 12*, 1191–1202. doi: 10.2147/ NDT.S104620

Diamond, A. (2013). Executive functions. *Annual review of psychology, 64*, 135-168. doi:10.1146/ annurev-psych-113011-143750

Egger, H. L., & Angold, A. (2006). Common emotional and behavioral disorders in preschool children: presentation, nosology, and epidemiology. *Journal of Child Psychology and Psychiatry, 47*(3-4), 313-337. doi: 10.1111/j.1469-7610.2006.01618.x

Flohr, J. A., Saunders, M. J., Evans, S. W., & Raggi, V. (2004). Effects of physical activity on academic performance and behavior in children with ADHD. *Medicine & Science in Sports & Exercise, 36*(5), S145-S146.

Grassmann, V., Alves, M. V., Santos-Galduróz, R. F., & Galduróz, J. C. F. (2014). Possible cognitive benefits of acute physical exercise in children with ADHD a systematic review. *Journal of attention disorders, 1*(5), 367-371. doi: 10.1177/ 1087054714526041

Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. *Child development, 72*(2), 625-638. doi: 10.1111/1467-8624.00301

Hodgkins, P., Shaw, M., Coghill, D., & Hechtman, L. (2012). Amfetamine and methylphenidate medications for attention-deficit/hyperactivity disorder: complementary treatment options. *European child & adolescent psychiatry, 21*(9), 477–492. doi: 10.1007/s00787-012-0286-5

Hung, C. L., Huang, C. J., Tsai, Y. J., Chang, Y. K., & Hung, T. M. (2016). Neuroelectric and behavioral effects of acute exercise on task switching in children with attention-deficit/hyperactivity disorder. Frontiers in psychology, 7, 1589. doi: 10.3389/fpsyg.2016.01589

Karvonen, M. J., Kentala, E., & Mustala, O. (1957). The effects of training on heart rate: A longitudinal study. *Annales Medicinae Experimentalis Et Biologiae Fenniae, 35*(3), 307–315.

Kim, H., Heo, H. I., Kim, D. H., Ko, I. G., Lee, S. S., Kim, S. E., & Shin, M. S. (2011). Treadmill exercise and methylphenidate ameliorate symptoms of attention deficit/hyperactivity disorder through enhancing dopamine synthesis and brain-derived neurotrophic factor expression in spontaneous hypertensive rats. *Neuroscience letters, 504*(1), 35-39. doi: 10.1016/j.neulet.2011.08.052

Martínez-Gómez, D., Ruiz, J. R., Gómez-Martínez, S., Chillón, P., Rey-López, J. P., Díaz, L. E., Marcos, A. (2011). Active commuting to school and cognitive performance in adolescents: the AVENA study. *Archives of pediatrics & adolescent medicine, 165*(4), 300–305. doi: 10.1001/archpediatrics.2010.244

Organización Mundial de la Salud. OMS. (2010). *Recomendaciones mundiales sobre actividad física para la salud*. Ginebra, Suiza.

Owens, J. A. (2005). The ADHD and sleep conundrum: A review. *Journal of developmental and behavioral pediatrics, 26*(4), 312-322. doi: 10.1097/00004703-200508000-00011

Polanczyk, G. V, Salum, G. A., Sugaya, L. S., Caye, A., & Rohde, L. A. (2015). Annual Research Review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal of Child Psychology and Psychiatry, 56*(3), 345–365. doi:10.1111/ jcpp.12381

Ruiz-Ariza, A., Grao-Cruces, A., de Loureiro, N. E. M., & Martínez-López, E. J. (2017). Influence of physical fitness on cognitive and academic performance in adolescents: A systematic review from 2005–2015. *International Review of Sport and Exercise Psychology, 10*(1), 108–133. doi: 10.1016/j.gaceta.2015.06.002

Salmon, P. (2001). Effects of physical exercise on anxiety, depression, and sensitivity to stress: a unifying theory. *Clinical psychology review, 21*(1), 33-61. doi: 10.1016/S0272-7358(99)00032-X

Sharma, A., & Couture, J. (2014). A review of the pathophysiology, etiology, and treatment of attention-deficit hyperactivity disorder (ADHD). *Annals of Pharmacotherapy, 48*(2), 209–225. doi: 10.1177/1060028013510699

Tantillo, M., Kesick, C. M., Hynd, G. W., & Dishman, R. K. (2002). The effects of exercise on children with attention-deficit hyperactivity disorder. *Medicine & Science in Sports & Exercise, 34*(2), 203-212. doi: http://dx.doi.org/10.1097/00005768-200202000-00004

Van der Oord, S., Prins, P. J. M., Oosterlaan, J., & Emmelkamp, P. M. G. (2008). Efficacy of methylphenidate, psychosocial treatments and their combination in school-aged children with ADHD: a meta-analysis. *Clinical psychology review, 28*(5), 783–800. doi:10.1016/j. cpr.2007.10.007

Verloigne, M., Van Lippevelde, W., Maes, L., Yildirim, M., Chinapaw, M., Manios, Y., Brug, J. (2012). Levels of physical activity and sedentary time among 10-to 12-year-old boys and girls across 5 European countries using accelerometers: an observational study within the ENERGY-project. *International Journal of Behavioral Nutrition and Physical Activity, 9(*1), 1-8. doi:10.1186/1479-5868-9-34

Watson, S. M. R., Richels, C., Michalek, A. P., & Raymer, A. (2015). Psychosocial Treatments for ADHD A Systematic Appraisal of the Evidence. *Journal of Attention Disorders, 19*(1), 3–10. doi:10.1177/1087054712447857

Vidal-Conti, J. (2016). Identificación de predictores de actividad física en escolares según el modelo socio-ecológico mediante un análisis multifactorial. *Cultura, Ciencia y Deporte, 11*(31), 51-59. doi: 10.12800/ccd.v11i31.642

Wigal, S. B., Nemet, D., Swanson, J. M., Regino, R., Trampush, J., Ziegler, M. G., & Cooper, D. M. (2003). Catecholamine response to exercise in children with attention deficit hyperactivity disorder. *Pediatric research, 53*(5), 756-761. doi: 10.1203/01.PDR.0000061750.71168.23

Wittchen, H.-U., Jacobi, F., Rehm, J., Gustavsson, A., Svensson, M., Jönsson, B., Faravelli, C. (2011). The size and burden of mental disorders and other disorders of the brain in Europe 2010. *European Neuropsychopharmacology, 21*(9), 655–679. doi:10.1016/j.euroneuro. 2011.07.018

Yehuda, S., Rabinovitz-Shenkar, S., & Carasso, R. L. (2011). Effects of essential fatty acids in iron deficient and sleep-disturbed attention deficit hyperactivity disorder (ADHD) children. *European Journal of Clinical Nutrition, 65*(10), 1167-1170. doi: 10.1038/ejcn.2011.80

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EFFECTS OF A CREATIVE RELAXATION PROGRAM AT LEVELS OF A MOTOR CREATIVITY IN PRESCHOOL EDUCATION

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Abstract. Despite the importance of the motor skills' development in the field of Preschool, research that focus their subject of study in identifying the effects of motor creativity in students in such ages are scarce. Starting from this premise, a study has been developed in order to verify the effects of creative relaxation on the levels of motor creativity linked to fluency, originality and imagination, of a group of Preschool students, more specifically, children in their last preschool year aged between 5 and 6. To this end, a creative relaxation program has been applied to a 25-subject group with a duration of 10 weeks and daily sessions lasting for 10-15 minutes. These sessions took place after the resting time or at the time of playground. As a data collection tool, we have used the Thinking Creatively in Action and Movement Method by Torrance in 1980, which is a validated tool. Two groups were established as follows: the first one is the control group whereas the second one is the experimental group—which receives the intervention program. Each group has 50 students, boys and girls. The results found in this study show how the creativity relaxation program promotes the increase in the motor creativity levels, referring to motor fluidity, motor originality and motor imagination, of the experimental group, that is comprised of children in their last year of Preschool.
Keywords: preschool, motor fluency, motor imagination, motor originality, creative relaxation.

EFECTOS DE UN PROGRAMA DE RELAJACIÓN CREATIVA SOBRE LOS NIVELES DE CREATIVIDAD MOTRIZ EN EDUCACIÓN INFANTIL

Resumen. A pesar de la importancia del desarrollo de la motricidad en el campo de Educación Infantil, todavía son escasas las investigaciones que centran su objeto de estudio en identificar los efectos que dan lugar a una mejora de la creatividad motriz en el alumnado de estas edades. Partiendo de esta premisa, se ha desarrollado un estudio con el objetivo de comprobar los efectos que tiene la relajación creativa sobre los niveles de creatividad motriz, referidos a fluidez, originalidad e imaginación, de un grupo de alumnos del segundo ciclo de Educación Infantil, en concreto a los niños y niñas del último curso, de entre 5-6 años de edad. Para ello, se ha aplicado un programa de relajación creativa, a un grupo de 25 sujetos, con una duración de 10 semanas, realizándose sesiones diarias con una duración de entre 10-15 minutos, después de la hora de descanso, u hora del patio.

Como instrumento de recogida de datos, se ha utilizado el Test Pensando Creativamente en Acción y Movimiento de Torrance en 1980, que se encuentra validado. Se establecen dos grupos, un grupo control y otro grupo experimental, que recibe el programa de intervención, formados ambos por 50 alumnos y alumnas. Los resultados encontrados en este estudio, demuestran como el programa de relajación creativa favorece el incremento de los niveles de creatividad motriz, referidos a fluidez motriz, originalidad motriz e imaginación motriz del grupo experimental, en el alumnado del último curso de Educación Infantil.
Palabras clave: educación infantil, fluidez motriz, imaginación motriz, originalidad motriz, relajación creativa.

Introduction

Research on creative relaxation and motor creativity in children's education has been omitted in most of human development researches. Most of researches are rather focused on aspects related to verbal and graphic creativity, and ignore motor aspects. Creativity accompanies us throughout our lives; in our daily activities, in our actions, thoughts and imagination. It has a vital and day-to-day importance, it is a personal feature, a capacity that helps face special situations, it is a process in human development; all human beings have creativity. This is why, in this field, it is positive "a form of educational inquiry designed to empower teachers to reconstruct their practice as an educational inquiry though a process of reflective understanding and rigorous critique" (Carr, 2002, p.14).

In recent years, research on the creativity's development field and on the creativity assessment has been varied and object of study for many studies, above all, for studies within the school context. Various research and definitions related to the creativity have been proposed, but research on motor creativity has been scarce, currently, innovation is beginning to happen in creativity areas, such as those related to the movement, in this case, to the motor creativity. Some research studies have been already conducted on students from Preschool, Elementary School, High School and with some teaching staff.

In 1980, motor creativity was beginning to be a concept, and Torrance created the Creatively Thinking in Action and Movement Test in order to assess it. And back in 2008, research was conducted that linked motor creativity with relaxation. The need for carrying out this study is due to the scarce researches on motor creativity and the importance that this aspect has for the development of students of such ages. "Through gesture and movement, the child enhances the possibilities for interpreting and expressing messages through body language, so in educational situations, creativity will have to be boosted by using these resources" (Order August 5, 2008, p.39).

All the human being's potentialities have to be optimized. That is the reason why one has to bet on a research that stimulates the positive affection, cognition, meeting others, with one's own body, with innovation, with discovery and movement.

Almeida, Ferrandiz, Ferrando, Oliviera & Prieto (2009, p.562) state that:

"Currently, the study of creativity is supported by the importance that is given to the ability to innovate, solve problems and take risks, in contexts and situations that are marked by constant changes that require from the thought's divergence and discontinuity".

Following the creativity, some of the authors consider the creativity as a combined process, in which many factors play a role: skills, interests, attitudes, motivation, intelligence, knowledge, abilities, habits, opinions, values and cognitive styles. "Creative teaching, apart from imagination, requires from creativity, flexibility, originality, ability to adapt and be used in the solution of the problem in the syllabus" (Bermejo, Ferrando, Hernández, Prieto, Sainz

& Soto, 2010, p.106). So it would be very advisable for the teaching staff to be familiarized with these basic principles in order to help and ease the students' highest creativity.

Gardner (2001, p.126) specifies:

"The creative individual is a person who regularly solves problems, develops products or defines new issues within a field in such a way that at the beginning is considered as new but that at the end is accepted in a certain cultural context".

Definitions of creativity are varied, "it is almost infinite, it involves every sense. Much of it is invisible, nonverbal and unconscious. Therefore, even if we had a precise conception of creativity, I am certain we would have difficulty putting it into words" Torrance (1990, p.43).

It is convenient to highlight that there are two ways of conceiving creativity. Creativity at a social level, understood as a contribution to the symbolic fields of culture and a personal creativity, as a personal achievement in any performance field.

Charaf (2012, p.129) claims:

The basic and specific creativity tools like: brainstorming, unusual analogy, Creative Problem Solving and Mental Image are tolls that once they are understood and well developed, they good partners for developing divergent thinking.

All of it depends in exercising and on the adequate use of each one of them, the effects would be personal for each person, which is way it is expected that every person is able to express the personal experience regarding the creative relaxation's practice, as well as to be able to communicate the personal product. It is a transforming imagination and fantasy, which is achieved by the relaxation process, when the person is free of thinking.

Creativity is a relevant topic, which is why a significant value must be given to it in order to assess it. Its social and educational relevance is highlighted, and that allows us to place value on it as to check its development and growth at an individual level. Creativity is going to be assessed as long as there is a creative stimulation project going on, as it is the case in this research. The development of creativity in the individual has to be taken into account, as well as the individual's abilities, environments, processes and results.

De la torre (2006, p.6) sets four cardinal points to assess creativity:

- N- Need for assessing the creativity
- S- Systematized in its conception and process
- E- Strategic, regarding how it is done
- O- Orienting and enhancing as its objective

In relation to its physical dimension, the development of creativity leads to a continuous improvement of the physical and body health faculties. From its intellectual dimension, it is related to the way to build and apply knowledge. Concerning its psychological dimension, it is focused on the importance if developing an ideal state, in which mind and body integrate as to lead to a physical and emotional well-being. All that leads to the fullness of the faculties that make up the personal profile. It leads us to link the creativity with the motor ability as a concept. "Motor creativity is a relevant subject for the humans' integral development in the physical, intellectual and psychological dimensions" (Trigo, 2001, p.5).

Motor creativity is crucial, it is defined as "the intrinsically human ability to live the corporeality as to process and produce, before a stimulus, the greatest number of original motor responses possible" (Olivares, 2014, p.16). Abundant, diverse and original responses before a motor stimulus. As well, a distinction should be made between motor creativity, that affects the invention of a new movement and the motor practice, which is the execution of the movement.

It is crucial to stress, as the motor creativity process is structured, "the analysis of the motor creative process is made up by various phases, the preparation phase, the incubation or internalizing phase, the inspiration phase and the expression or communication phase (López, 2005, p.23). In turn, the motor creativity consists of three areas: originality, fluency and imagination, through which it is possible to measure and observe it.

The originality term refers to something that cannot be repeated, at least for the person that assesses it that fact has been unique and non-repeatable, brilliant, it has not been seen before. Originality is something valuable and new, something that is very significant in creativity. Also, the deadline is established regarding the reference group or the moment to which the answer given to the sender is given to the sender.

The fluency term refers to the number of different, relevant and adequate responses. It is associated with productivity, the multiple responses, an ability to think of many ideas or solutions to one problem.

Following with another aspect of creativity, there is the imagination "the imagination is thinking in images or projecting in your mental image what you think when you close your eyes" (Del Prado, 2006, p.98). Some related synonyms would be ingenuity, intuition and fantasy. Defining imagination and creativity is somehow confusing, since both concepts are similar but with just one difference it is enough, since the imagination is a mental image and the creativity implies creating through that mental image.

The relaxation concept adds to all the terms that make up the motor creativity term, as a main element that accompanies this process. With the relaxation, muscles are the first to take advantage from it, the tension diminishes and the possibility of making a greater number of movements is given way. It has beneficial effects at a physical, psycho-emotional, medical-therapeutic and cognitive pedagogical. The relaxation is adequate for enhancing and gives way to the people's imagination. According to Franco & Justo (2008, p.34) "it can be said that relaxing the child's body and mind makes that the child breaks free from the tensions that block the child's creative ability in order to let go of the creative intern processes".

For Charaf (2012, p.136) through relaxation, the following points are achieved:

- Mind-body integration in harmony and balance, in order to focus the energy for the fluency of ideas and productivity.
- Mental flexibility, through the divergent and transformational thinking to be able to build, modify and understand new scenarios. To be able to combine realities and get involved in them.
- Spontaneity and authenticity before situations that require from an opinion, response or new or original solution.
- Ability to face the risk, to participate in poorly structured situations and to tolerate unexpected events and diversions in directions.

Since relaxation is a vital element in this process, "the interest as an educator must be placed on studying and looking for proposals so that students develop them, as a complement

for their personal integral training, since the society's future is going to depend on them" (Olivares, 2014, p.6).

Motor creativity is still a susceptible object of different models and perspectives of treatment, its presence within the educational context makes it necessary to intervene to ease and boost the motor development and all its processes, which turn into the development of the students in these ages regarding cognitive, affective and movement processes. For that reason, relaxation is proposed within an integral education with a good working methodology that is interesting and that catches the student's attention.

Creativity, added to motility, can meet that objective, in addition to inducing in all the human potential abilities: the creativity makes the primary processes of the right hemisphere and the secondary ones of the left hemisphere merge in a balanced way.

In order to try to give an answer to the research question:

What are the effects of the creative relaxation on the motor creativity levels in preschoolers? in the present study, a psychomotor intervention is made basing on the creative relaxation, with the aim of knowing the effects of a creative relaxation program on a group of preschoolers, concretely children between 5-6 years old. To dos so, a hypothesis is posed: if a creative relaxation program is applied to a group of preschoolers, then, their motor creativity levels, in terms of fluency, originality and imagination will increase significantly.

Method

Design

In order to the effects that the creative relaxation program (VI) on the motor creativity (VD), referred to fluency, originality and imagination a longitudinal design was used, measures were taken during two periods of time. It is a quasi-experimental design in which two groups were compared, with pretest-post-test measurements, one being the experimental group and the other the control group. The schools' allocation was done in a non-randomized way, as to control the possible differences between the two schools as well as the possible differences between the student body.

Population and sample

This study's sample consists of 50 students divided into two natural groups from two class groups of the last preschool year, of two public schools in two villages of Jaén. One of the groups was the control group, as the reference group and the other as the experimental group, also called the intervention group. The control group was made up of 25 subjects, 11 are boys and 14 are girls (44% boys and 56% girls) and the experimental group, made up of 25 subjects, 10 are boys and 15 are girls (40% boys and 60% girls). The ages of the subjects have oscillated between 5 years 4 months old, being the youngest subject, and the one with the highest age being 6 years 3 months old. There are no significant differences in age or gender between the groups.

Data collection tool

The tool used to assess the subjects' motor creativity has been the Thinking Creatively in Action and Movement test (Torrance, 1980). This tool comprises four assessment tasks in which mainly kinesthetic answers are included, in accordance with the main creative thinking abilities in Preschool.

By this test we can assess the various dependent variables of this study. In this way it is possible to assess the fluency (number of different, relevant and adequate responses), the imagination (the way in which the subject is able to adopt six proposed roles) and originality (assessed once more, depending on the statistical infrequence). Conducting the test requires from a limit of time. The tasks that make up the test are the following:

Task 1. In how many ways? This tasks' objective is to assess the child's ability to produce alternative movement ways, so the child is asked to show us different ways of moving, from one spot of the room to another. Motor and verbal tasks or a combination of both of them are also accepted.

Task 2. Can you move the same? It is designed to assess the imagination, empathy, fantasy abilities and to adopt not usual roles. Six situations are posed, in four of them the child is asked to act as if he/she were an animal or an object (a tree that is being moved by the wind, a rabbit, a fish and a snake) and other two in which the child has to associate him/herself with other objects (driving a car and pushing an elephant so the animal stops stepping in something the child wants to grab).

Task 3 in what other ways? In this third task, the child needs to experiment with different ways for throwing a plastic glass into a wastepaper bin. It is assumed that poorly creative subjects will do so only the way it is supposed to be or the ones that has been taught to them, while creative children will come up with many ways to do this very simple task and will look for newness or to let go of boredom.

Task 4 what can you do with a plastic glass? In the last task, the child is asked to use a plastic glass with a purpose other than what it was designed for, to play with it or to imagine that it is something else. It is a pretty similar task to the unusual use tasks that are present in many creativity tests for children and adults, being one of the most predictive elements in this kind of batteries.

This test is designed to apply it collectively, with children aged between 3 and 8. Tasks 1, 3 and 4 score in fluency and originality and task 2 does so only in imagination. Fluency and originality score in accordance with the manual criteria once the test has been conducted. The imagination (task) must be scored by the assessor according to the test's development and with the scale in the answer sheet. The scale for each one of the tasks has been the following:

Movement's fluency:

1. There is no movement
2. Movement is normal
3. The movement is one or two times different
4. Motor movement and verbal response

Movement fluency:

1. The child does not throw the glass
2. The child throws the glass once
3. The child throws the glass one or two different times
4. The child throws the glass more than three different times

Handling fluency:

1. The child does nothing
2. The child does so by using the regular way
3. The child plays
4. The child imagines and plays

Imagination:

1. Without movement

2. Similar movement
3. It is close to a movement
4. It is very close to a movement
5. It is identical to a movement

Originality:

1. 0 when the response is observable in 10% or more of the assessed subjects
2. 1 point when the response is observable between 5% and 9,99% of cases
3. 2 points when the response is observable between 2% and 4,99% of cases
4. 3 points when the response is observable in 1,99% of the cases or less

Procedure

First, the pre-test phase was done, which was a measurement of the motor creativity's initial levels of the subjects belonging to both studied groups. The test was done individually without the presence of the group and during the school time. Once the pre-test was finished, the intervention program in creative relaxation was implemented to the experimental group's subjects. The control group, meanwhile, was doing their usual relaxation routine, consisting of classical music and reading and writing.

The person in charge of the intervention was the tutor of the experimental group's subjects. The teacher was totally informed of everything that is related with the test and the methodology.

The creative relaxation program was developed during 10 weeks, belonging to the academic course's second quarter in order to avoid the maturation factor. This creative relaxation program was used by Clemente Franco Justo, professor in the Universidad de Almería. Daily sessions were done, which lasted for 10 and 15 minutes to avoid a lack of attention from students. All the sessions took place after the playground time, which meant coming back to calmness. The reason why it takes places after the playground time is that, at that moment, students come back to calmness, after having done some exercise, which results in a body and mind relaxation.

The creative relaxation program for the experimental group was divided into three periods of time. The first period of time lasted for three weeks of the school year. Every student would lay down, being completely relaxed, in mats and the teacher would ask them to close their eyes and listen to what she told them, relaxing sentences and calm states, while calm songs would be played in the background. After staying in such state for a few minutes, students would seat in a circle, discuss what they just did and how they felt.

After all this period of time, the second part or period of the relaxing program took place, which lasted for three weeks, and the usual procedure was followed: children would lay down in mats and relax while listening to calm songs. The teacher eased the relaxation process to them by talking to them and suggesting relaxing states for some minutes. Afterwards, the teacher would read them a tale and she would ask the children to imagine the tale's scenes as well as the characters, such tales were unknown to the children in order to avoid imagining a tale they already knew and therefore, making it harder for them to let imagination comes into play. Once the tale was finished, they would sit in circle and would discuss what they had lived and imagined in each one of the session's tales. In every session, a calm, secure, free and fun environment was established.

The third period of time lasted for four weeks, one week more than the previous ones. It would begin exactly the same as the others, with the students laying down in mats, with relaxing songs playing at the background and with the teacher suggesting calm sentences and

states. Subsequently, after a few minutes, the teacher would ask the children to imagine that they ran into determined objects and how they would play and use such objects. For example, imagining that it is on the street and thinking of what they would do with the object and so on with other daily objects.

Once the session was over, the students would sit in a circle and discuss.

Once the creative relaxation program was concluded, the post-test was done, in the same conditions and with the same subjects, in the control and the experimental group, using the TCAM.

Statistics' analysis

The used statistics analysis has been done by using SPSS software, version 19.0 for Windows.

Hereafter, every dimension of motor creativity is analyzed, as well as the differences in the control group and in the experimental group before and after carrying out the intervention program in creative relaxation. In order to do so, first, a general descriptive statistical analysis is made as to check the average scores of both groups, taking them as a reference and observe that there are no significant differences between both groups.

Then, each one of the motor creativity components is analyzed. Thus, a general descriptive statistical analysis of the control group and the experimental group was made, taking as a reference the average, the number of subjects belonging to each group and the standard deviation. To obtain the statistical value p (significance) an ANOVA 2(group) x 2(time) analysis is made by using the general lineal method, repeated measures, in the pre-test and the post-test in the experimental group and the control group for each one of the motor creativity variables, taking as a reference the intra-subjects effects' evidence. Results are shown in tables 1, 2 and 3.

Results

The results of the descriptive analysis, showing the average scores in each one of the measurements in the pre-test phase of the experimental group and the control group before the intervention program are shown in figure 1. For it was checked that there were no significant differences from the beginning between both groups, the intervention program was implemented.

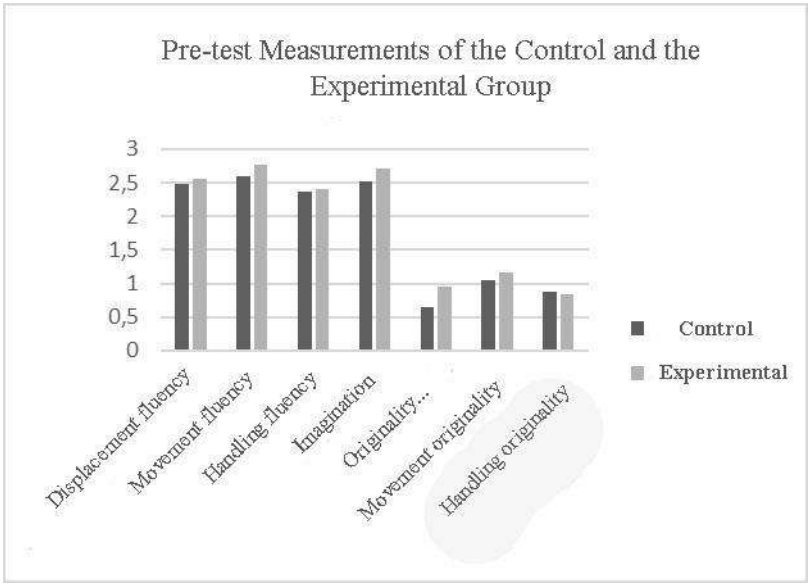

Figure 1. Average scores of the control and experimental groups in the pre-test phase

Every table 1, 2 and 3 the differences in the control group and in the experimental group before and after carrying out the intervention program in creative relaxation are indicated. The motor creativity indicators are collected, in each case, the number of subjects, the average and the standard deviation after the intervention and the statistical value (relevance) that shows the probability that the obtained results may be random or not.

Motor fluency

The scores belonging to the analysis of table 1 have been divided into the categories displacement fluency, movement fluency and handling fluency. In the displacement fluency category, the experimental group shows a slightly higher average (A=2.56) in comparison to the control group in the pre-test phase (A=2.48). In the post-test phase, the experimental group (A=3.12) and the control group (A=2.64) show significant differences, although the experimental group has a higher significant difference than the control group p<001. In the movement fluency category, the experimental group (A=2.76) shows in the pre-test phase an average which does not vary very much in relation to the control group (A=2.60). In the post-test phase the experimental group (A=3.16), p<01 and the control group (A=2.80), p<05. Both significant showing the experimental group a higher relevance. In the handling fluency category, the experimental group (A=2.40) and the control group (A=2.36) there are almost no differences between the pre-test and the post-test averages in the experimental group (A=3.12), p<001 and the control group (A=2.60), p<05. In all the categories, the experimental group shows a higher significance.

Table 1
Scores and motor fluency results in the control and experimental group

			Pre		Post			
	Creativity indicators	**N**	**Average**	**Stdrd Dev.**	**Average**	**Stdrd Dev.**	**Sig.**	
Control	Displacement	25	2,48	,510	2.64	,638	,043	*

	fluency						
	Movement fluency	25	2,60	,645	2.80	,577	,022	*
	Handling fluency	25	2,36	1.036	2.60	,866	,011	*
Experimental								
	Displacement fluency	25	2,56	,507	3.12	,526	,000	***
	Movement fluency	25	2,76	,663	3.16	,554	,009	**
	Handling fluency	25	2,40	1.00	3.12	,726	,000	***

Note: *p<0.05. **p<0.01. ***p<0.001

Motor imagination

In table 2 we can see the average pretest and post-test scores of the experimental and the control group, as well as the statistical value. In the pre-test phase, the control group (A=2.52) and the experimental group (A=2.71) obtained differences in the averages. In the post.-test phase, the control group (A=2.68) and the experimental group (A=3.26) obtained significant differences, p<05, being the experimental group the one with the greatest significant value, p<011.

Table 2
Scores for the motor imagination in the control and experimental group

	N	**Pre**		**Post**		**Sig.**	
		Average	**Stdrd Dev.**	**Average**	**Stdrd Dev.**		
Control Group	25	2,52	,641	2.68	,476	,006	*
Experimental Group	25	2,71	,630	3.26	,402	,000	***

Note: *p<0.05. *** p<0.001

Motor originality

The scores in table 3 have been divided into the categories displacement originality, movement originality and handling fluency. In the displacement originality category, the experimental group shows in the pre-test (A=0.96) that evolves in the post-test phase (A=1.76), which results in a p<001 significance. The control group (A=0.64) in the pre-test phase a favorable evolution is produced too, although it is less than the one that the experimental group has (A=0.84) p<05. Regarding the movement originality, the experimental group evolves from (A=1.16) to (A=1.68) in the post-test phase, with a p<001 significance. And the control group in the pre-test phase (A=1.04) obtains in the post-test phase (A=1.36), differences are not significant, p>05. In the handling originality category, the experimental group (A=0.084) in the pre-test improves the score in the post-test phase (A=1.40), p<001. The control group in the pre-test phase (A=0.88) obtains in the post-test phase (A=1.08), differences are not significant, p>05.

Table 3
Scores for the motor originality in the control and experimental group

	Creativity indicators	N	Pre		Post			
			Average	Stdrd Dev.	Average	Stdrd Dev.	Sig.	
Control		25	,64	,810	,84	,943	,022	*
	Displacement originality							
	Movement originality	25	1,04	1.241	1.36	1.254	,103	
	Handling originality	25	,88	1.166	1.08	1.152	,057	
Experimental								
	Displacement originality	25	,96	1.136	1.76	1.165	,000	***
	Movement originality	25	1,16	1.214	1.68	1.108	,000	***
	Handling originality	25	,84	1.143	1.40	1.118	,000	***

Note: *p<0.05. ***p<0.001

In figure 2, the general trend is shown, it is an increase of the average scores that show the motor creativity levels, classified into fluency, imagination and originality categories. Nevertheless, the significant increase in each one of the categories can be observed. A general descriptive statistical analysis has been carried out, taking as a reference the control group and the experimental group averages in the post-test phase.

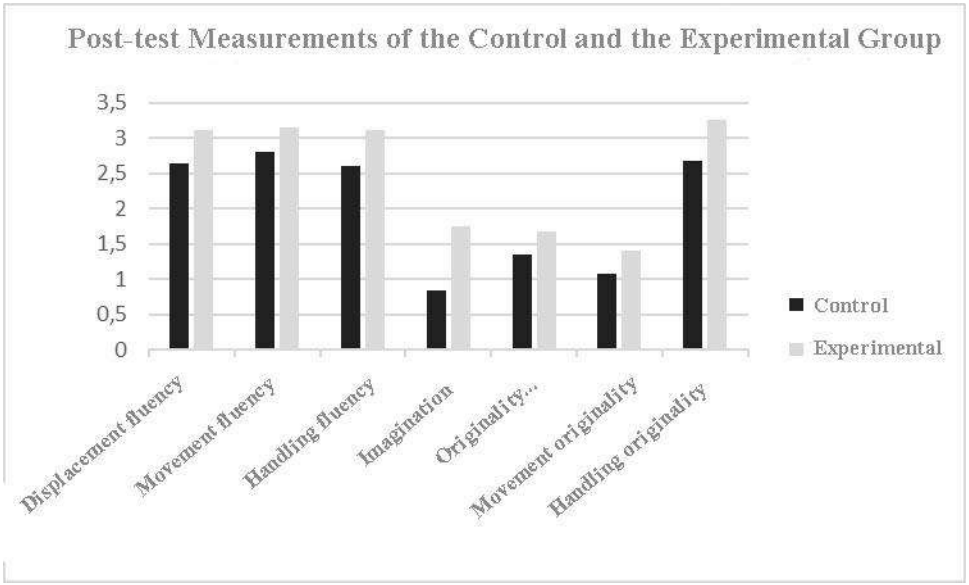

Figure 2. Evolution of the scores after the intervention program in the control and the experimental group

Discussion and conclusions

These results match other similar researches on creativity that claim that children following the creative relaxation program manifest a higher increase in the three evaluated motor creativity dimensions, displacement fluency and originality, handling originality, movement and imagination, in comparison to the subjects of the control group (Franco, 2008: Justo, 2009; Olivares, 2014). The hypothesis has been confirmed, from these data, it can be concluded that children subjected to the creative relaxation program obtained a greater significant improvement en their motor creativity levels, structured in originality, fluency and imagination, as compared to the children in the control group, who did not do any creative relaxation program.

The experimental group experienced a significant improvement in all the motor creativity dimensions, being the motor creativity the one in which the greatest significant difference was obtained, compared to the control group. The control group obtained a slight significant improvement in fluency and motor imagination, but it did not happen so with the motor originality.

It has to be emphasized that the control group subjects, who carried out no intervention, simply had to go on with their routine, also obtained an increase in most of the motor creativity levels, in spite of that the experimental group experienced a greater significant improvement, the control group also showed slight improvements.

In accordance with the obtained results, relaxation allowed the child to link the body and the mind while enjoying and experimenting in order to achieve the obtained results. Therefore, relaxation turns into a starting point when developing and enhancing the creative capacity. In addition to that, children ins these ages are in the representation stage, in the development of the symbolic functions and they are already capable of mentally handling objects and actions previously internalized.

The educational system must boost the creative abilities of preschool students so that they can naturally face any situation that will appear during their personal development. At this stage, the stimulation and the promotion of this abilities that allow them to solve the issues they may encounter during their learning process. At the same time, the educational system will need to value the free personal expression of all students and see the opportunities the students have to communicate themselves before any situation.

The present research presents some limitations which are convenient to highlight for future researches related to motor creativity. The population of study in this case has been rather small, which makes it difficult to be able to generalize more results in population. Besides, it would have been convenient to include different ages in the study in order to check whether the results are independent from the subjects' age. Had this research been wider, more time would have been needed as well as difficulties would have appeared to make different groups match in order to do the relaxation program.

In future research, a follow-up measurement should be made for some time to see if the achieved improvements are maintained or rather disappear, as well, this intervention could be taken into account to enhance other creativity areas, such as the verbal and graphic creativity, to verify if relaxation is more beneficial in other creative areas of the students.

References

Almedia, L., Prieto, M.D, Ferrando, M., Oliviera, E. y Ferrándiz, C. (2009). Torrance test of creative thinking: the questions of its construct validity. *Thinking skills and creativity, 3.*

Álvarez, M., Aragunde, J.L., García, J., Graña, I., Fernández, D., Maesto, J., …Trigo, A. (2001). *Motricidad creativa: Una forma de investigar.* Universidad de La Coruña: Servicio de publicaciones.

Bermejo, R., Hernández, D., Ferrando, M., Soto, G., Sainz, M. y Prieto, M.D. (2010). Creatividad, inteligencia sintética y alta habilidad. *Revista electrónica universitaria de Formación del Profesorado, 13(*1), 97-109.

Carr, W. (2002). *Una teoría para la educación. Hacia una investigación educativa crítica.* Madrid: Ediciones Morata, S.L.

Charaf, M. (2012). *Relajación Creativa: técnicas y experiencias.* Santiago de Compostela: Meubook, S.L.

Cuevas Romero, S. (2013). Creativity in education, its development from a pedagogical perspective. *Journal of Sport and Health Research, 5(*2), 221-228.

De la Torre, S. (2006). *Evaluar la creatividad. Un reto imaginativo*. Universidad de Barcelona: Barcelona.

Del Prado Díez, D. (2006). *ABC de la relajación creativa.* Santiago de Compostela: Meubook. S.L.

Del Prado, D. y Charaf, M. (2000). *Relajación creativa*. Barcelona: Inde.

Escobar Vanegas, M.P., Hernández Mejía, Y., Mejía, L.M. y Rincón Grajales, D.M. (2001). *Educación de la discapacidad creativa en niños de edad preescolar. (Tesina).* Universidad de Antioquia: Medellín.

Franco, C. (2008). Relajación creativa, creatividad motriz y autoconcepto en una muestra de niños de Educación Infantil. *Revista electrónica de Investigación Educativa, 6(*1), 29-50.

Franco, C. y Justo, E. (2008). Influencia de un programa de intervención motriz sobre la creatividad motriz en niños de Educación Infantil. *Bordón, 60(*2), 107-121.

Franco, C. y Justo, E. (2009). Efectos de un programa de intervención basado en la imaginación, la relajación y el cuento infantil, sobre los niveles de creatividad verbal, gráfica y motora en un grupo de niños de último curso de Educación Infantil. *Revista iberoamericana de Educación, 49(*3), 2-11.

Gardner, H. (2001). *La inteligencia reformulada. Las inteligencias múltiples en el siglo XXI*. Barcelona: Paidós.

Holguin, O. y Sherrill, C. (1989). Use of a motor creativity test with Young learning boys. *Perceptual and motor skills, 69,* 1315-1318.

Jiménez Díaz, J, y Araya Vargas, G. (2009). Efecto de una intervención motriz en el desarrollo motor, rendimiento académico y creatividad en preescolares. *Pensar en movimiento: Revista de Ciencias de Ejercicio y la Salud, 7(*1), 11-22.

López Martínez, O. (2008). *Mejora de la creatividad en el aula de primaria.*

(Tesis Doctoral inédita). Universidad de Murcia, Murcia.

López Tejeda, A. (2005). La creatividad en las actividades motrices.

Educación física y Deportes,3, 20-28.

Marín Jurado, L. (2003). *La expresión corporal, como una necesidad del niño preescolar. (Trabajo fin de Grado).* Universidad de La Sabana, Chia.

Mayo Cerino, M.I. (2008). *La creatividad de los juegos y juguetes en preescolar. (Tesina para obtener el título de licenciada en Educación).* Universidad Pedagógica Nacional, Ciudad del Carmen, Campeche.

Monfort Pañego, M. y Iglesias García, N. (2015). La creatividad en la expresión corporal. Un estudio de casos en educación secundaria. *Educación Física y Deportes, 4,* 28-35.doi: http://dx.doi.org/10.5672/apunts.2014-0983.es.(2015/4).122.03.

Oliviera, E., Almeida, A., Ferrandiz, C., Ferrando, M, Sainz, M. y Prieto, M.D. (2009). Test de pensamiento creativo de Torrance (TTCT): elementos para la validez de constructo en adolescentes portugueses. *Psicothema*, *21*(4), 562-567.

Olivares Chavarro, I.E. (2014). *Mejora de la creatividad motriz mediante un programa de imaginación y relajación creativa en alumnos de Educación Infantil. (Trabajo Fin de Máster*). Universidad Internacional de La Rioja, La Rioja.

Orden 5 de agosto de 2008, por la que se desarrolla el currículum correspondiente a la Educación Infantil en Andalucía.

Pantoja, A. (2015). *Manual básico para la realización de tesinas, tesis y trabajos de investigación.* Madrid: EOS.

Pérez Fernández, J.I. (2000). *Evaluación de los efectos de un programa de educación artística en la creatividad y en otras variables del desarrollo infantil. (Tesis doctoral inédita).* Universidad del País Vasco, País Vasco.

Rendón, M.A., Ochoa, F., Holguín, A., Franco, A.O., Gómez, M.B. y Osorio, D.C. (2001). *Juego, expresión y creación en los inicios de la escolarización. Proyecto para la educación de la discapacidad creativa en niños de edad preescolar*. Centro de Investigaciones educativas y pedagógicas. Universidad de San Buenaventura.

Ruiz Gutiérrez, S. (2010). *Práctica educativa y creatividad en Educación Infantil. (Tesis Doctoral inédita).* Universidad de Málaga, Málaga.

Salinas López, J.C., Espada, M. y García Coll, V. (2015). Una propuesta en educación física para el desarrollo de la creatividad motriz en alumnos de tercero de primaria. *Revista internacional de Ciencias Sociales de la Actividad Física, el juego y el Deporte, 8,* 47-68.

Sánchez Martínez, F.V. (2014). Creatividad y desarrollo. *Diseño y Tecnología para el Desarrollo, 1,* 79-87.

Solé, A. *La creatividad. Un poder humano. (Tesis doctoral inédita).* Universidad Nacional de San Martín, San Martín.

Torrance, E.P. (1990). *The Torrance Test of Creative Thinking: Norms techinical manual figural forms AyB.* Bensenville. IL:Scholastic Testing Service.

Trigo, E. (2001). Cuerpo y creatividad. *Didáctica de la Educación física, 3*.

Zachopoulou, E., Makri, A. y Pollatou, E. (2009). Evaluation of chlindren´s creativity: psychometric properties of Torrance´s "Thinking Creatively in Action and Movement" test. *Early Child Development and Care, 179,* 317-328.

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STUDENTS WITH AUTISM SPECTRUM DISORDER IN THE EDUCATIONAL CENTERS: A CASE STUDY FROM THE FAMILY PERSPECTIVE

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Abstract. Currently, in the educational field, students with some type of disability may be considered as a vulnerable group of population due to the gaps that exist in the inclusive educational centers. The partial knowledge on the Autism Spectrum Disorders (in forward, ASD), by part of the educational community, makes difficult the understanding of the care that these students require in their learning stage. This research attempts to determine what difficulties have experienced the family members of these students in the educational centers of their children, at the same time that seeks to know what is the satisfaction level of the families with the response received from the education field. The methodology that has been used has been qualitative, through a case study that has used the technique of in-depth interviews focused on the families of students with ASD. The sample has been established by means of intentional sampling, and a total of 30 subjects have participated, 19 of whom are mothers and 11 are fathers of children with ASD. In short, the article presents a report of the results that have been obtained in the research carried out in the province of Jaén (Spain) in relation to the perceptions and experiences that have had the families of students with ASD on the different vulnerabilities that have their children in the educational centers. The entire sample agrees that the specialized care that is offered from the educational centers is insufficient.
Keywords: Case studies, Autism Spectrum Disorder, Educational Centers.

EL ALUMNADO CON TRASTORNO DE ESPECTRO AUTISTA EN LOS CENTROS EDUCATIVOS: UN ESTUDIO DE CASOS DESDE LA PERSPECTIVA FAMILIAR.

Resumen. Actualmente en el ámbito educativo, el alumnado con algún tipo de discapacidad puede llegar a considerarse como un grupo vulnerable de población debido a las carencias inclusivas que existen en los centros educativos. El conocimiento parcial sobre los Trastornos de Espectro Autista (en adelanta, TEA), por parte de la comunidad educativa, dificulta la comprensión sobre la atención que precisa este alumnado en su etapa de aprendizaje. Esta investigación trata de determinar qué dificultades han experimentado los familiares de este alumnado en los centros educativos de sus menores, al mismo tiempo que persigue conocer cuál es el nivel de satisfacción que tienen las familias con la respuesta recibida desde el ámbito educativo. La metodología que se ha empleado ha sido cualitativa, mediante un estudio de casos que ha utilizado la técnica de entrevistas en profundidad enfocadas a los familiares del alumnado con TEA. La muestra se ha establecido mediante muestreo intencional y han participado un total de 30 sujetos, de los cuales 19 son madres y 11 son padres de menores con TEA. En definitiva, el artículo presenta un informe de los resultados que se han obtenido en la investigación realizada en la provincia de Jaén (España) en relación a las percepciones y experiencias que han tenido los familiares del alumnado con TEA sobre las distintas vulnerabilidades que tienen sus menores en los centros educativos. La totalidad de la muestra coincide que resulta insuficiente la atención especializada que se ofrece desde los centros educativos.
Palabras clave: Estudio de Casos, Trastorno de Espectro Autista, Centros Educativos.

Introduction

In our society today, it is very common and essential to school children in educational centers from an early age, due to the dogma that is so rooted and culturally acquired through the course and experiences of several generations and the unquestionable benefits that contribute to the students' physical, emotional, social and intellectual development. In this way, the educational centers are set up as social scenarios or micro spaces of the contemporary societies, in which you can see reflected a small sample of the population profile, characterized by its plurality in human and/or cultural diversity.

The presence of students with disabilities in educational centers poses a model of inclusive education, which requires to run a series of adaptations in the educational system. Often, the educational centers and the teaching staff have limited knowledge about the needs of the students with ASD, by which impacts negatively on their development and learning. It is common that the members of the educational community do not know exactly what does ASD mean or, in some cases, they extrapolate the experiences and knowledge they have acquired with another child with ASD to the multiplicity of cases, which produces an undue generalization that causes that there is no personalized intervention for each child with ASD, and this has a negative impact on their learning and development, since it is not responding to the needs required by each student.

The ASD, according to the diagnostic criteria of the DSM-V (2013), is characterized by persistent deficits in social communication and social interaction, taking from the period of early development restricted and repetitive patterns of behavior, activities, and interests, causing certain alterations clinically significant at the social and occupational level, or in other important areas of functioning.

Several epidemiological studies have shown that the ASD is becoming increasingly prevalent in our society, achieving a prevalence, at present, of a case of autism out of every 150 minors, may even be higher due to the changes in the diagnostic criteria, which are now less restrictive because they are seen within a spectrum. Autism Society of America (2011) estimates that nearly 1,500,000 people in the United States suffer from autism. If we extrapolate this figure to Spain, since there is no official statistics of the affected Spanish

population, it would be a population of more than 250,000 with ASD. According to the Ministry of Equality and Social Policies of the Junta of Andalusia through the Second Plan of Action for Childhood and Adolescence of Andalusia (2016) in the Autonomous Community of Andalusia, where the province of Jaén, among others, in the year 2014 were attended in the early care services to a 3'3% of the total number of children under 6 years old living in Andalusia, of which the 75'4% of these children were diagnosed with some type of developmental disorder, being the ASD the third most frequent disorder, representing a 7.3% of the diagnosed children.

In order to respond adequately to the diversity of the student body that has any educational center and to ensure that all students reach the maximum personal, intellectual, social and emotional development, the Spanish Educational System is regulated through the *LOMCE*[1] (2013), which envisages in its equity principle that should guarantee equal opportunities for the full development of the personality through education; educational inclusion, equality of rights and opportunities; that help to overcome any discrimination; and the universal accessibility to education, serving as the compensating element of personal, cultural, economic and social inequalities, with special attention to those that derive from any type of disability.

The effectiveness of this equity principle takes place through a variety of measures that place particular emphasis on attention to students with specific educational support; among which there are the students with special educational needs (SEN), which have high intellectual capacities, the pupils with late integration in the Spanish educational system and those who have specific learning difficulties.

Students with SEN refers to those children who require, in a period of their schooling or along their entire education, certain specific educational supports and services arising from their disability or severe behavioral disorders. The education of the students is governed by the principles of normalization and inclusion, ensuring non-discrimination and equality in the access to and permanence in the educational system. It is the responsibility of the Educational Administrations of each Autonomous Community to promote the enrollment at all the mandatory educational stages.

In short, the current Spanish Educational System in the field of attention to students with disabilities is characterized by following a model of integration based on responding to the special educational needs. Casanova (2011) affirms that there is a lack of inclusive education model, despite the fact that there is an international, national and regional normative sufficiently viable to establish an inclusive education model, in practice it has not yet been systematized its real implementation on the part of the competent administrations. This is also evidenced by the diagnosis on the extent and quality of the inclusion in the Spanish educational system, developed by Save the Children (2012), in which it is showed that there is still a long way to achieve the effectiveness of inclusive education. Among the main weaknesses of the educational centers for students with disabilities, there are the different educational modalities that are offered, which may be a segregation of students with disabilities in classrooms or special education centers.

This article will try to analyze how the Spanish Educational System has influenced to students with disabilities, in particular emphasizing the attention given to the students with ASD. The parents of students with ASD will let us know how the educational centers act in order to respond to the needs generated in the educational centers. This has led to contrast the

[1] Law 51/2003, of December 2, Equal Opportunities, Non-Discrimination and Universal Accessibility of people with disabilities. BOE; Num.

reality experienced by the families of children with ASD in the education field with the regulatory framework of education and academic planning and especially with that legislation that refers to the diversity of students, in terms of schooling, enrollment, procedure and criteria for admission to public, private and/or concerted educational centers, in order to be able to follow the teachings of preschool, elementary school, high school and/or special education. In addition, it has been checked that it complies with all the documentation on the instructions of the administrations that make reference to the management of the educational attention to students with SEN: Health care professionals, equipment of educational guidance, expert opinions, educational psychology, educational modalities of schooling, ratio of students-class, etc.

In this way, the results of the research reflect a sample of the educational situation of students with ASD in the province of Jaén, having analyzed the social and educational care they receive from institutions with regard to the needs of the students with ASD, the response and the model of integration of the educational system, the accessibility that promote the educational centers, as well as the methodologies and tools used to promote social inclusion of students with ASD.

Method

The present study has used a qualitative methodology based on the realization of a case study in which it has been used as a research method the technique of in-depth research of interviews.

The case study is a very practical and specific method to analyze situations, events or problems that arise in the people's everyday life. On this occasion, the research has focused on studying the vulnerabilities and situations that students with ASD experience during their educational stage. This methodology is ideal because as Yin (1994) says, the case study is an empirical research that examines a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and its context are not clearly evident. In addition, the case study is considered a research tool, for a process, systematic and deep research of a particular case. Merriam (1988) defines it as particularistic, descriptive, heuristic and inductive, so it is very useful to study practical problems or specific situations. Its particularist character is reflected by focusing on the study of a specific situation, event or phenomenon.

According to Stake (1994), there are three types of case studies: the intrinsic, the instrumental and the collective one. The collective case studies, defined as one that is used when the interest is focused on the research of a phenomenon, population or general condition. In this case, for this research, a study was carried out in collective case studies, since the purpose was to analyze several cases of population together and not to focus only on a specific case. The analysis of the experiences and life stories of various subjects of families with children with ASD brought a wider perspective of the reality of the phenomenon, but it was always assumed that it was not a collective, but an intensive study of several cases of children with ASD who probably had common characteristics, and who shared similar experiences of life, as they coincide in the same space-time and socio-cultural context.

In the same way, it can be said that the selected method fits under the name of Multiple Case Study because several unique cases are used at the same time in order to study the reality that is to be explored, described, explained, evaluated or modified (Rodriguez et al., 1996). Yin (1994) defines the multiple case study as the one where multiple cases are used

at once in order to study and describe a reality. This method is more justified, since the evidences presented through a multiple case design are more convincing and it is more robust (Yin, 1994) by the fact that the results obtained are repeated and similar.

Furthermore, in this research, to substantiate the case study methodology was used the in-depth interview tool as a method for obtaining and collecting the information and evidence, since by means of this type of interview participants were able to freely express and relate their experiences and life histories on the subject under analysis.

The in-depth interview is basically, as Taylor and Bogdan (1987) say, as the recurring face-to-face meetings between the researcher and the informants, encounters directed toward understanding the perspectives or situations, such as they express in their own words. In any case, this tool, as Patton (1990) points out, enables to know the perspective and frame of reference from which people organize their environment and orient their behavior according to certain social and cultural patterns.

As explained by Alonso (1998), social science give a complementary character to the open interview, given that it enables an approach to the social, impossible to do it in other ways, since this oral source enables to listen and gather testimonies, from the living and natural voice, directly from the protagonists and social actors. The in-depth interviews have an open character, i.e. They contain a series of open questions to which the respondent can answer with more flexibility. They usually address one or two topics in greater depth and the rest of the questions arise spontaneously as a result of the answers that the interviewer is getting from the interviewee, with the sole purpose of further deepening into some fact or issue relevant to the events experienced by the interviewed person and that is interesting and enriching to collect for the investigation. Also, one of the functions of the open nature is to allow the interviewer to broadcast or reformulate questions in order to clarify the details of a reported fact or to expand and lead to other issues.

In this research, the tool of in-depth interviews were applied to the family members of children with ASD, which mainly were the fathers or mothers of children with ASD. The heterogeneity of the families and their profiles, as well as the various events that every one of them has experienced in their context, has led to the implementation of the tool has a flexible approach and, as the case may be, consider to contemplate a mixed interview model. So, by analyzing the in-depth interview, it was also considered to use the semi-structured interview, which is the one that provides that the questions are previously defined under an interview script that enables that the sequence and formulation can be altered depending on the interviewed person and the reported speech.

In the final analysis, the implementation of the technical interview was based on creating issues in relation to the subject matter of approach: the situations of vulnerability of students with ASD in the socio-educational field. From this general theme, it was designed an interview script that gathered all the possible variants and edges of the phenomenon to delve into the life history of the interviewed families in order to reflect, represent and establish an approach to the existing reality in the province of Jaen.

In this way, with the implementation of the in-depth interviews that were applied to each of the participants, authentic biographical interviews were achieved, as each family interviewed told the life history of the child with ASD and of the family unit. Pujadas (1992) defines life history as an autobiographical story, obtained by the researcher through successive interviews where the aim is to show the subjective testimony of a person, in which they are gathered both the events and the assessments that this person makes about his/her own existence. In short, with these stories that were obtained from in-depth and

autobiographical interviews, a discourse was generated from the collective of families with children with ASD enrolled in educational centers.

Finally, with the aim to synthesize the large volume and so important information that was obtained as a result of the implementation of the in-depth interviews was raised to establish a method that consistently recorded the answers of the interviewed fathers and mothers of children with ASD. Therefore, it was considered to use any encoding technique and/or categorization of the information in order to cover all the edges of the phenomenon and reflect these situations, which have been experienced by the students with ASD, exhaustively and reducing the cases under certain circumstances.

The synthesis of the information was taken into account from the beginning and it was felt that it was necessary to establish a procedure. As Rodriguez *et al.* say (1996), in order to address the treatment of the information researchers have a first type of tasks which consists in the reduction of the data, i.e., on the simplification, the summary and in the selection of the information to make it feasible and manageable. Not only the information must be treated after having used the research techniques and when the information has been entered, but also it must precede other previous tasks, as it could be the design of the interview or the formulation of questions, since as Miles and Huberman (1994) think, an early data reduction can occur when the data collection is focused and defined, constituent aspects of a form of pre-analysis implying to rule out certain variables and relationships and caring for others.

In the research, it was decided to use the technique of categorization by the realization of a schema of categories that enabled to summarize and translate the results obtained after the completion of the in-depth interviews. It basically consisted in the creation of a system of categories and subcategories in which the information already coded was included and reflected.

The construction of the category system has been defined as open, since, as suggested by several authors, it is that model in which the schema of categories is built as a result of the information obtained at the end of the interviews. That is to say, the categories do not exist at the beginning of the research, but after the implementation of the research techniques they are introduced gradually and are built from the results that are obtained and based on the similarities in the answers. As data are collected and recorded, matches can be observed and they are sorted and grouped under one common denominator. Also, the general categories and the specific subcategories emerge, they will shape the final scheme of categories. In this study, the schema of categories has continued the following format to contemplate the different sections or categories that organize and highlight the most relevant information obtained in the interviews: Conceptual Family, Conceptual Core, Category, Definition and Description (Examples of summarized citations).

It was considered that the method that gave the ability to analyze and reflect the results obtained in the in-depth interviews was the system of categories, since it provides the ability to highlight and organize the most important and common aspects of the investigated reality. With this data source it was generated such knowledge of the reality, which provided the opportunity to review and discuss results, contrasting them with the theory collected in the first phase of the documentary analysis.

Sample

The fieldwork of this research has been mainly based on the production of primary data, from the use of the technique of semi-structured in-depth interview, which is aimed at family members of students with ASD enrolled in educational centers.

The sample of participants of this research has been established by means of intentional sampling. It is a procedure that enables to select the typical cases of the population by limiting the sample to these ones, and it is used in situations where the population is very variable and, consequently, the sample is very small.

Considering that this is a Multiple Case Study, it was essential to take into account that the selection of the study cases must be carried out on the basis of the potential information that the rarity, importance or disclosure of each particular case can contribute to the study in its entirety (Rodriguez et al., 1996). In response to the selection of each case, consideration can also be given to the variety of selecting among the whole range of possibilities in which the phenomenon is manifested, in such a way that it is possible to achieve some recurrent results, whether they are similar results, which would refer to what Yin (1994) calls as literal replication, or they are opposite results due to predictable reasons, what would be a theoretical replication.

For the selection of the sample, the ASD associations of the province of Jaén were contacted, which provided information on the profile of their members. With the idea of making a multiple case study and in order to reflect the life history of the children with ASD from the beginning of their birth, it was deemed relevant to contemplate the speech of the main witnesses of the social situations of this group, that is to say, the families of these children, mainly their mothers and fathers.

We chose 40 of the most significant cases, but finally they were 30 fathers and mothers who were interested in the study and who pledged to participate in the research, in particular, they were 19 mothers and 11 fathers. Within the sample of the selected subjects, there was great variability of profiles of families in regard to their origin and social environment, their socio-economic and cultural development and the access to expertise and resources of the family unit.

The participants, therefore, have been mothers and/or fathers of children with ASD enrolled in educational centers. They were between five and seventeen years old, being 93.3% boys and the rest girls, something common, since the ASD is more common in males than in females.

The diversity and heterogeneity of the selected cases has enriched the research, since each interview provided a different nuance of reality and, at the same time, as a whole, it could be appreciated that families have shared common aspects which confirm the vulnerability of children with ASD in the educational centers.

Results

Once applied the methodology and used the techniques and selected tools, there was a high density of results that were recorded in such a way that facilitated the understanding, analysis and discussion of the results. On this occasion, as a method for recording the results of the case study, it was decided to use the technique of schema of categories, which has allowed to classify the main findings obtained in the in-depth interviews with the relatives of children with ASD.

In Table 1, below, it can be displayed a summary of the main thematic axes and conceptual nuclei of the categories that have been generated after the analysis of the speeches of the subjects involved in the research.

Table 1
Results of the In-depth Interviews: The attention of the Educational Centers for students with ASD

THE EDUCATIONAL CENTERS	- Schooling process: Educational Guidance Teams, Participation of the Parents and Educational Modalities. - Accessibility: Physical Accessibility, Cognitive Accessibility, Pedagogical Accessibility and Social Accessibility. - Teaching Staff: Intervention of the professionals. - Students: Inclusion and Integration, Isolation and/or Bullying. - The Educational Attention: Answers to the needs, Relationship with the Family and Extracurricular Activities and/or Extracurricular Support. - Assessment: Strengths and Weaknesses of the Spanish Education System.

Note: source: Own

This is followed by a brief analysis of the most significant results, which have been complemented with the textual and empirical evidence found in the in-depth interviews applied to the family members of children with ASD.

The element of accessibility in all its aspects has been considered as the transverse axis to ensure a greater degree of inclusion of students with ASD in the educational centers. From the beginning, in which it starts the process of schooling, families of these children found some difficulties in the enrollment. The Educational Guidance Teams are those professionals who are responsible for assessing and establishing an opinion with a schooling proposal for each child with a disability wishing to enroll. In theory, the family must participate in the schooling process, as well as in the decision of the type and mode of educational center in which their children will be educated, however, in practice, the interviewed families exposed that usually this is not real, since their participation is limited to confirm whether they agree or disagree with the proposed schooling.

The family members expressed the degree of participation they had in the schooling process of their children, which is very limited:

"They don't ask you the schooling mode you want for your child, they propose you where he/she needs to go and, finally, your child goes there because they convinced you that it is the best option". (Interview num. 1)

Often this decision is not the most ideal, as it is influenced by the existing lack of educational resources, so to some extent, the family must give in and accept the recommended proposal:

"... We were invited to change of center, especially due to the lack of resources, lack of instructors, etc. It is assumed that we have the right to choose the education of our children and, well, that is violated.". (Interview num. 22)

With respect to the intervention carried out by the teachers, families feel that there is a great lack of staff and that they are characterized by the lack of training and motivation of learning about the needs of children with ASD:

"Teachers have little training and, also, some of them little motivation. For example, we were at a meeting where the counselor was told to hang pictures and pictograms in the classroom, in the center, in the bathrooms... However, the year is almost finished and there is still none". (Interview num. 2)

"The training of teachers is poor. There is no lack of material resources, but a lack of personal and training resources. When there are problems, they say they cannot take care of that child and they try to get him/her out of the center. If they had more staff, this would not happen. They are not trained to address various types of children". (Interview num. 12)

"Professionals need a better understanding of the people's diversity. There is a clear lack of professionalism. We informed that our child had a special need, however, as our child can speak they thought nothing special was necessary, then, they made a diagnosis on their own". (Interview num. 17)

In addition, they reason that schools are not providing the necessary extracurricular support that students with ASD require, since each family is seen in the need or obligation to seek these supports in private or concerted centers or through extracurricular school hours, since there is no specialized attention or it is insufficient in educational centers (psychology, communication and language, speech therapy, etc.).

"My son would need more hours of communication and language, since that basically his largest deficit. In the afternoon, he attends the association, where he is given one hour of psychology, two hours of speech therapy, one hour of psychomotor skills and another one of transition into adulthood, a total of 5 hours a week". (Interview num. 12)

In addition, it has been found through family members of children with ASD that schools do not tend to encourage the participation of theses students in the extracurricular activities or in the transverse activities that are carried out in the school to commemorate certain festivities:

> *"There is discrimination to access certain services of the center. My son was rejected due to his behavior, and they justified themselves by saying that there were no professionals to take care of him. For example, in the dining room there were problems because there is no dining area for children of the specific classroom". (*Interview num. 4)

> *"In the public center, they didn't give me the option for my child to participate in extracurricular activities, they alluded to the fact that his behavior was inadequate".* (Interview num. 5)

Families agree that despite the interest shown by the educational centers in responding to the needs of students with ASD, they are very limited by the lack of personal and material resources:

> *"Some needs are covered, but others are not. I now have a discussion because my child needs speech therapy, but now this professional has to attend many more children and has neglected my son.".* (Interview num. 8)

> *"My son has a high level of retardation, which requires a treatment that they do not give him because it does not exist in the center. We are thinking of changing him to a special center, so that the attention would be more appropriate. Professionals in this center are not specialized".* (Interview num. 9)

In relation to the implementation of the accessibility perspectives, the study sample finds that it is not at all consolidated and that only in some centers and by the will of certain professionals this methodology is introduced.

The educational centers tend to be aware that the students with ASD require adaptations to the physical environment, such as the structuring of spaces in the classroom, however, the structuring of the common spaces of the center are often not adapted to the needs of these students:

> *"…The tutor summoned all parents of children who were going to be in that classroom for a meeting and explained us all the rules they had elaborated: they indicated in which classroom our children were able to enter, where they were not able to enter, where they were going to work, etc. That was at the beginning of the year, now every time we go to tutoring, they show us the innovations that are being introduced, the work areas they have created in the classroom...".* (Interview num. 5)

Also, the educational centers try to adapt their environments to make them more understandable for students with ASD, through different cognitive methods. This methodology is not unified in all the educational centers, as some centers develop it and others do not introduce elements of cognitive accessibility:

> *"My child's classroom is well organized, when I saw it, there were signals, pictograms and the space was distributed by work areas".* (Interview num. 5)

> *"... The teacher was told to hang pictures and pictograms in the classroom, in the center, in the bathrooms... However, the year is almost finished and there is still none".* (Interview num. 2)

At the level of pedagogical accessibility, educational centers are very aware and use tools to adapt the curriculum in a personalized way to each student, introducing, if necessary, curricular adaptations or other means:

> *"In his classroom specific programs have been purchased to work with him, even the therapeutic pedagogy instructors had to do training courses. They also bought a computer monitor with a touchscreen*". (Interview num. 22)

> *"My son has a very limited language and in his classroom he also uses the PECS system or the petition panel, since he knows how to finger or hold hands to express himself*". (Interview num. 19)

With regard to the relations of the students with ASD with the rest of pupils and to the educational inclusion, family members believe that their children are well adapted to the center and that the interactions of their children with other pupils are cordial, also, they think they are usually accepted without problems, although they understand that it is not a full inclusion because there are certain limitations, even in some cases their children have suffered bullying:

> *"My son is partially integrated. He is not interested in playing with other children, he is only interested in soccer fields. Last year, other children wanted to interact with him. He is very loving, but I would like to know if his colleagues reject him".* (Interview num. 8)

> *"Socially he is not fully integrated, but this is due to his own difficulties. Although there are also peer groups, so that they can help each other.".* (Interview num. 12)

> *"...I have been very concerned, I believe that his colleagues do not behave well, I don't know if they hit him, but by his gestures and what my son tries to tell me, it seems so. I asked his tutor, but she said I should not be worried about that, until one day, when she was the one who called me saying that an incident had occurred: his colleagues laid on him while playing and, as a result, now my son is wearing an arm plaster cast".*(Interview num. 28)

Furthermore, they are aware that educational centers do not encourage the inclusive education, since there are certain aspects in which students with disabilities are segregated or isolated. For example, in the different schedules set for the exits to recess, where the students of the ordinary classroom do not share the same space-time with the students of the special or specific classrooms:

> *"There are aspects in which they tore them away from the other children, since they go to recess before. The specific classroom of ASD goes separately…*". (Interview num. 5)

> *"In the previous course, he was left a bit isolated and spinning, they did nothing to encourage him*". (Interview num. 29)

Similarly, the relatives claim that in order to promote a greater integration it would be necessary the professional figure of a social integrator.

> *"In the recesses, there is not a professional support that promotes that in those moments they can interact more with peers".* (Interview num. 26)

Finally, all families brought their point of view with regard to the main potentialities of the educational centers of the province regarding the attention of children with ASD. They mainly emphasized that these centers are well equipped in technological resources, which is really beneficial for students with ASD:

"The educational centers have many resources and technological materials, computers, electronic whiteboards, etc.". (Interview num. 30)

Conclusions

In this research it has been found that students with ASD and their families have a situation of vulnerability due to their social context. The various vulnerabilities found in this group are the result of the different social factors of similar nature that converge in the social environment of the family unit where the child with ASD lives, which are described below:

Following the approach of this research study, it has been perceived that there are obvious deficiencies and that care for children with ASD is susceptible to significant improvements, making it possible to establish, therefore, concrete conclusions with the premise of addressing a series of challenges to carry out that would improve the situation.

First of all, it can be concluded that part of the weaknesses and shortcomings of the educational system, which cause difficulties and/or problems for the inclusion of children with ASDS in the educational centers, has its basis and origin in the early detection processes that affects, in the long term, the educational intervention. Now the agencies act independently and with little coordination. It must be a real and effective interdisciplinary care in which the different care areas interact (social, health and education) and that ensures the coordination between agencies since the early care.

An early diagnosis is crucial, since having information and guidance of the services, intervention methods and resources focused on the ASD for the family with a child with ASD will impact positively on the quality of care, and will facilitate the entire process for families who are going through a confusing and disconcerted situation before the coping with a disability.

In this way, those families who already have a diagnosis before enrolling their child in the educational center have certain advantage, since they have the potential to warn of their child's disability, providing reports and diagnostics, and this enables the Administration to review the case, schedule the intervention and provide the necessary technical aid as quickly as possible. Although regardless of whether children provide their diagnosis or not, in all cases, the Educational Guidance Teams must make a psychology assessment and give an opinion of schooling. However, with the mere fact of having this diagnosis it anticipates and/or facilitates them the understanding of the child's needs.

If, initially, children fail to provide their diagnosis because they do not have it, this implies that the professionals should be sufficiently trained to suspect and detect their possible disorders or disabilities, since it is in the institution where this children spend more time and, therefore, where they have greater contact with the professionals. As it has been verified in this study, unfortunately, the complexity of the condition and the lack of consensus on the diagnosis of ASD causes that a multitude of children suffering from ASD, for various reasons, has not been detected until they have begun the educational stage.

Moreover, with regard to educational intervention, it is clear that the existing legislation is not the most suitable for the care of the students with ASD, since its main deficiency are its educational modes, as they may be segregational for not promoting inclusion in natural environments of coexistence with diversity. The lack of resources is latent, since the whole sample of students should complement, on their own and external to the center where they are schooled, the education that they receive in the educational centers with extracurricular therapies in the afternoon. It has been observed, as a common denominator, in relation to the care received by students with ASD, on the part of the institutional environment, that the care is influenced by a certain circumstantial determinism, that does not depend on the own child, but on the fate or chance that families, in which the relationship with the environment matches the personal and material resources that children with ASD require. It is evident the importance of the figure of the teaching staff as the key agent in the learning process, so they must be motivated and try to promote the child's success. Having professionals who are specialized and motivated in the ASD, who know how to provide the most suitable intervention in each case, is the guarantee of a good development and well-being in children with ASD.

References

Alonso, L.E. (1998). *La mirada cualitativa en sociología.* Madrid: Fundamentos.

American Psychiatric Association (APA). (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Amercian Psychiatric Publishing.

Autism Society of America (2011). *Autism Society*. Recuperado el 17 de Julio de 2015, de Autism Society of America: http://www.autism-society.org/en-espanol/

Casanova, M. A. (2011). *Educación Inclusiva: Un modelo de futuro*. Madrid: Wolters Kluwer.

Jiménez, J.J. (Coord.) (2016). *II Plan de Infancia y Adolescencia de Andalucía 2016-2020. La infancia en todas las políticas y en todos los municipios*. Junta de Andalucía: Consejeria de Ingualdad y Políticas Sociales.

Ley Orgánica 8/2013, de 9 de diciembre, para la mejora de la calidad educativa. BOE núm. 295 de 10 de diciembre de 2013. Gobierno de España.

Merriam, S. B. (1988). *Case Study research in education. A Qualitative Approach.* San Francisco: Jossey-Bass.

Miles, M.B. y Huberman, A. M. (1994). Qualitative data análisis: and expanded sourcebook. Newbury Park. CA: Sage.

Patton, M. Q. (1990). *Qualitative evaluation and research methods*. Sage: Newbury Park.

Pujadas, J.J. (1992). *El método biográfico: el uso de las historias de vida en ciencias sociales*. Madrid: CIS.

Rodríguez, G., Gil, J. y García, E. (1996*). Metodología de la Investigación Cualitativa*. Málaga: Aljibe

Save the Children (Solla, C.) (2012). *Diagnóstico del Estado de la Educación. Inclusiva en los Centros Educativos de la Comunidad de Madrid*. Madrid: Save the Children.

Stake, R.E. (1994). Case studies. In Denzin N.K. & Lincoln. Y.S. *Handbook of Qualitative Research*. Thousands Oaks, CA.

Yin, R. K. (1994). *Case Study Research: Design and Methods.* London: SAGE.

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INFLUENCE OF SELF-ESTEEM IN CHILDREN ATTENDING 6TH GRADE ACCORDING TO THE GENDER VARIABLE

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Abstract. This paper's intention is to highlight the importance of self-esteem in the personal development and how it influences all aspects. Therefore, a data collection has been made regarding the concept, its types, which aspects influence it, how we can improve it, its influence in the classroom and the role of the teacher in the students' self-esteem. The aim of this work is to verify the influence of self-esteem in children's school performance, the extent to which the personality can influence the learning of each individual and the role of the teacher in building and improving the self-esteem. The study was conducted with a sample of 50 sixth grade students of a school in Madrid. The instrument used was the *Autoconcepto AF-5* questionnaire that contains thirty questions and evaluates five scopes: the academic, social, emotional, and the physical one. The methodology is quantitative, descriptive and non-experimental. The most important conclusions were that self-esteem affects the child's school performance, parents and teachers play a fundamental role in its development and teachers should enhance the positive qualities of their students so that they develop a positive self-esteem that allows them to grow into whole and happy adults.
Keywords: Self-esteem, self-concept, academic performance, gender.

INFLUENCIA DE LA AUTOESTIMA EN NIÑOS DE 6º DE PRIMARIA SEGÚN LA VARIABLE GÉNERO

Resumen. Con la elaboración de este trabajo se pretende dar una visión de la importancia que tiene la autoestima en el desarrollo de las personas y cómo ésta influye en todos los aspectos. Así se ha realizado un recorrido por el concepto, los tipos qué podemos encontrar, qué aspectos influyen en ella, cómo podemos mejorarla, su influencia en el aula y qué papel juega el maestro en la autoestima de sus alumnos. El fin de este trabajo es comprobar la influencia que tiene la autoestima en el rendimiento escolar de los niños, hasta qué grado puede influir en el aprendizaje la personalidad de cada individuo y el papel que tiene el maestro en la construcción y

mejora de ésta. El estudio se realizó con una muestra de cincuenta alumnos de sexto curso de Educación Primaria de un colegio de Madrid capital. El instrumento utilizado fue el cuestionario de Autoconcepto AF-5 que contiene una batería de treinta preguntas y evalúa cinco dimensiones (Académico/Laboral, Social, Emocional, Familiar y Física). El tipo de metodología es cuantitativa, descriptiva no experimental. Las conclusiones más importantes a las que se llegaron fueron que la autoestima influye en el rendimiento escolar del niño, padres y profesores juegan un papel fundamental en el desarrollo de ésta y los maestros deben potenciar las cualidades positivas de sus alumnos para desarrollar una autoestima positiva que les permita crecer como personas completas y felices.
Palabras clave: autoestima, autoconcepto, rendimiento académico, género.

Introduction

In an increasingly competitive and individualistic world it is of the utmost importance to know the influence that self-esteem has on the classroom. To do this, from an early age it is very important to educate and motivate students so that in spite of not being perfect and not standing out in their daily activities, they know that they are unique, which is why they should esteem themselves from a tender age.

For all these reasons, parents, educators and teachers play a key role in the development of children' self-esteem.

When a child has enough self-esteem, the child is motivated with any ongoing activities and is not afraid to make mistakes because the child is aware that mistakes are a part of learning, this will be a student with good self-esteem prepared to overcome any challenge.

Therefore, it is necessary for our students to have a self-esteem an as great as possible and to this end, it will be required to know them well and let them express themselves freely so as not to make false value judgments and fall into the famous Pygmalion effect.

At present, children spend more time in school, so teachers have a very important role because not only are we mere information transmitters, but we also have a fundamental role in teaching students emotional education.

Children's feelings about themselves are created from their relationships with others and the messages they receive in different everyday situations, influencing their school performance to a greater or lesser extent. The students' personal problems will also have a negative impact on their learning processes, so constant communication between teachers and families is essential.

The self-esteem

Depending on the author or the information source, different definitions for self-esteem can be found:

"Positive self-esteem is the fundamental requirement for a full life." (Branden, 1991, p. 9).

Self-esteem is the self-trust and self-respect and shows the value judgments we do about ourselves to cope with everyday challenges.

Also García; Cermeño & Fernández (1991, p.10) define it as "the way we perceive, think, feel and behave about and with ourselves. It is how we are used to cope with ourselves and evaluate our own identity".

Thus, self-esteem refers to an attitude toward oneself, generated in the interaction with others, which includes the perception, esteem and concept that everyone has of oneself and implies an adequate development of the identity process, of knowing and appreciating

oneself, of the feeling of safety and the sense of belonging, of the domain of certain social and familiar communication skills and of the feeling of being useful and valuable for the others.

"The self-esteem constitutes the core of the personality" (Rogers, 1994. p 11)

"The self-esteem influences the self-regulation of the conduct, mediating in the decision-making process, influencing the choice of objectives and the establishment of plans of action" (Markus & Kunda, 1986, p. 11).

Self-esteem is the valuation that each person has of oneself, it is our own assessment or judgment of our way of being, our actions, our psychological and physical traits. All these characteristics determine our lives.

Factors that influence the self-esteem

The family's influence

The external influences that we receive from a tender age are essential for building a proper self-esteem. Data show that in domestic violence situations both victim and aggressor had low self-esteem.

There are families, teachers, and other agents who despise the child, humiliate, laugh at child when the child asks for help, feels sick or is afraid, etc. These actions are offset by other opposite like make the child feel loved, intelligent, good, which cause the child to be greatly confused, which negatively influences in the child's development.

People who receive this type of education, when they become adults, shall transmit this same message to people that are more vulnerable both physically and psychologically. The most widespread violence is the emotional one, children who suffer this type of intimidation often feel frustrated, suffering in silence keeping it to themselves.

It is for this reason that families unconsciously damage the self-esteem of the individual. The problem lies in those who were educated in this way and follow the same pattern.

Communication's influence

Communication has a strong relationship with self-esteem, depending on how you say it, an information will have a positive or negative effect. Imposing an idea to others in order to achieve something, dominating a situation or people is the most common behavior in violent people which have a serious communication problem.

Society's influence

The society we live in has a very important role in people's development, for basing on culture, families adopt different ways to transmit it to their members and influence the personality, according to certain social models. The image is constructed from the outside to the inside, from what those who are around us think about us. This causes people with a high social position to have a low self-esteem. The standards on which they people base in order to evaluate themselves are cultural and are established by social models that determine our image toward others.

School's influence

It is essential that teachers know which values they want to pass on to their students and if they are able to transmit them.

In the process of self-awareness, the teacher can benefit or affect the students. Therefore, it is essential that our students feel good in their own skins.

The academic failure contributes to undermining self-esteem. Teachers should know what is the development stage of each one of their students as to adapt to them and contribute to their academic and professional training.

It has to be kept in mind that each student has a three-dimensional picture:

- The first dimension is the picture of oneself.
- The second dimension is the opinion of oneself in relation to everyone else's.
- The third dimension is the picture of oneself and how the person would like it to be.

It is therefore essential that the time students are in school they learn who they want to be according to their characteristics.

To be a good teacher, the following needs to be taken into account:

- Create an environment in the classroom where the student feels comfortable and useful.
- Recognize and value the strengths of each student.
- Be aware of the feelings that attending school creates in the students.

The role of the teacher in the self-esteem

It is key to implement the emotional education from a tender age.

At present, teachers are not only mere information transmitters, but they also have a role in emotional education.

The child's feelings toward oneself will influence the personal learning. The non-solved children's personal problems will consequently negatively affect their learning

The teacher becomes a key reference throughout the school life of the child. And the teacher does so by giving the students a learning environment adapted to their capabilities. Therefore, it is essential that parents have a close relationship with the teacher about the child's educational process, establishing some guidelines for joint action.

The expectations of the teacher about the students are essential to the strengthening of the student's self-esteem. Any teacher who does not trust the student will hardly provide the student with opportunities to demonstrate the personal skills, which will make that the child continues to be a bad student. Otherwise, the student who is trusted and motivated will experience a full development.

Hence the importance of knowing the faculty and build a student's positive image, making the student feel accepted.

The social learning are those that occur inside and outside the school, which bring respect for the person and the rest, helps them solve conflicts and get along better with others.

Teachers believe that children should accept themselves and others so that their knowledge is more useful and efficient, and when this is the case, they may face their own limitations and the knowledge they acquire will have greater value.

After several interviews with more than fifty teachers, it was concluded that as children respected themselves, they improved their skills and academic results, in relation with their gained confidence.

Rodríguez Espinar (1986, p.28) stated that in the teaching-learning processes with a high incidence of school performance, and that this is subject to change and modifiable, to some extent, by the educational action, we can understand the interest in the educational

framework raises the issue and the attitudes of the teacher that help students achieve a positive self-concept and a high level of self-esteem.

The concept that develops the personal capacity, the appreciation on the personal qualities and attitudes is built basing on the own experiences and the interaction with others. In particular importance, what is significant for students is what their teachers are.

"Various research show that some teacher behaviors and attitudes have a favorable impact on the self-esteem of the students" (Machargo, 1991, p. 28).

Self-esteem is built when the teacher promotes the active participation, cooperation and a climate of trust in the classroom, in which the protagonist is the student, being able to express, and make mistakes without any fear.

Saura (1996) says that without the intention to be exhaustive, below are a series of attitudes and behaviors on the part of the teacher who, in our view, are particularly suitable to educate the self-esteem of students:

- Know and accept students the way they are, treat them like they are unique, important and worthy of attention, with unconditional respect.
- Call students by their names.
- Praise in a realistic way, without flattery, and make their positive attitudes clear to the rest of the classmates.
- Avoid unnecessary comparisons.
- Make more emphasis on positive goals to ensure that defects or failures are corrected.
- Help the student to be inwardly satisfied with and praise the student before others when appropriate.
- Offer, along with the criticism, alternatives and positive assessment.
- Do not be catastrophic, as this generates feelings of guilt.
- Be patient and tolerant and respectful to all students.
- Create an atmosphere of trust and peace of mind, free of aggressiveness and hostility.
- Do not use fear as a resource, for it always promotes insecurity to a lesser or greater extent.
- Do not ridicule the student because this affects the shyness and triggers feelings of inferiority.
- Stimulate, understand, promote, encourage and motivate to the extent possible.
- Show solidarity and empathy, not compassion nor pity.
- Help students consider reasonable and realistic goals.
- Make a realistic, positive and flexible assessment helping students to evaluate themselves in the same way.
- Be welcoming and open to dialog.
- Ensure that students are at least moderately satisfied with themselves, recognize their qualities and good work, as well as those of others.

- Know how to combine understanding and firmness, patience and requirement harmoniously.

Teachers should be alert to discover the opportunities that make the student self-improvement within the group.

The teacher must guide the student toward maturity, ease that students make their own decisions in accordance with their needs and abilities.

Method

In the present study, the objective is to determine if the various components of the academic, social, emotional, and physical self-concept are related to the academic performance and how these self-concepts and performance are related to other variables such as gender and age in sixth grade.

The study follows the descriptive method, performing a comparative analysis based on the data collected.

The overall objective is complemented with the specific objectives that are listed below.

Research's objectives

Check the possible relationship or association degree among the various dimensions of the academic, social, emotional, familiar and physical self-concept and the gender variable in 6th grade in a public school in the province of Madrid.

Hypothesis:

In accordance with the set goals, the following hypothesis are found:

H1. The academic self-concept in 6th grade is higher in girls than in boys.

H2. The social self-concept in 6th grade is higher in girls than in boys.

H3. The emotional self-concept in 6th grade is higher in girls than in boys.

H4. The familiar self-concept in 6th grade is higher in girls than in boys.

H5. The physical self-concept in 6th grade is higher in boys than in girls.

Population and sample

The sample of the research was of 50 participants from a Public Preschool and Elementary Education School of Madrid, 28 boys and 22 girls, aged between 11 and 13. It is of vital importance to say that the sample includes 19 students who have retaken 6th grade, 17 boys and 2 girls.

Techniques and tools

In order to conduct the research, the *Autoconcepto Forma 5* has been used (see Annex 1), whose authors are Garcia and Musitu (2001). This questionnaire measures five basic dimensions of self-concept in children and adolescents: the academic, social, emotional, and physical self-concepts. Each of the dimensions consists of 6 items. Individuals must answer using a scale of 1 to 99 points, where 1 means they completely disagree and 99 means they totally agree.

Below is a definition of the self-concept's 5 dimensions:

Academic self-concept. It refers to the perception that the subject has about the quality of his performance, as a student or as a worker. It focuses on two aspects: the first relating to the feeling that is generated in the student or worker about the personal performance through the teacher or the boss (a good student, a good worker...), and the second relating to specific qualities that are especially valued in that context (intelligence, habit of work...).

Social self-concept. The perception that the individual has of his competence in the social relations. It includes two aspects: one referred to the subject's social network and his ease or difficulty to maintain it or expand it; the other aspects is related to some important qualities in interpersonal relations (being friendly and cheerful).

Emotional self-concept. It is the understanding that the subject has of his emotional state and his responses to specific situations, with a certain degree of commitment and involvement in his daily life. It allows to differentiate between two aspects: the first refers to the general perception about one's own emotional state (I am easily frightened, I am nervous), and the second focused on the emotional self-evaluation in specific situations (when they ask me something or talk to me) in which the other person has higher rank (a teacher, a boss...).

Familiar self-concept. It is the perception of the subject of his engagement, participation and integration in the family environment. This dimension encompasses two aspects. The first of them is specifically linked to the trust and affection of the parents. The second is related to four variables of the family and the home.

Physical self-concept. It refers to the perception of the subject of his physical appearance and physical condition. This dimension includes two complementary aspects. One refers to practicing sports in the social, physical and skill components. Another ones is related to the physical aspect.

Procedure

We went to the school to conduct the investigation, with the previous authorization of the management team. We conducted the F- 5 questionnaire to students of the two 6th grade classrooms, in the early hours of the morning.

Prior to its implementation, we made a brief explanation of how to rate the different sentences from 0 to 99 points, for this reason, we draw a thermometer on the blackboard so that they could have an idea of how to rate the sentences in the most adjusted way, there were several group examples to ensure that the tool was correctly answered individually.

Results

Academic/working self-concept

In the first place, with regard to the results obtained once analyzed the labor dimension of academic self-concept, we stress that there are important differences in the group and gender (see Table 1 and 2 and Figure 1). As we can observe, the boys and girls of the sample group show parallel lines in their academic self-concept, which allows to analyze the sample as a whole and we find that the lowest percentile is 6.2 and 6.7 the highest percentile, being 6.45 the total sample average.

If we analyze the sample by gender, we can observe in the girls the lowest percentile is 6.3 and 6.7 the highest, being 6.55 the average. With respect to the boys, the lowest percentile is 6.2 while the highest is 6.5 with a 6.35 average.

Table 1
Academic/Working self-concept percentile according to gender

Academic self-concept	**Girls**	**Boys**	**Group**
	6.7+ 6.3 - 6.55 average	6.5+ 6.2-. 6.35 average	6.7 + 6.2 - 6.45 average

Note: own source

Table 2
Academic/Working self-concept percentage according to gender

Academic self-concept	**Girls**	**Boys**
+50%	74%	66%
-50%	26%	34%
Total	100%	100%

Note: own source

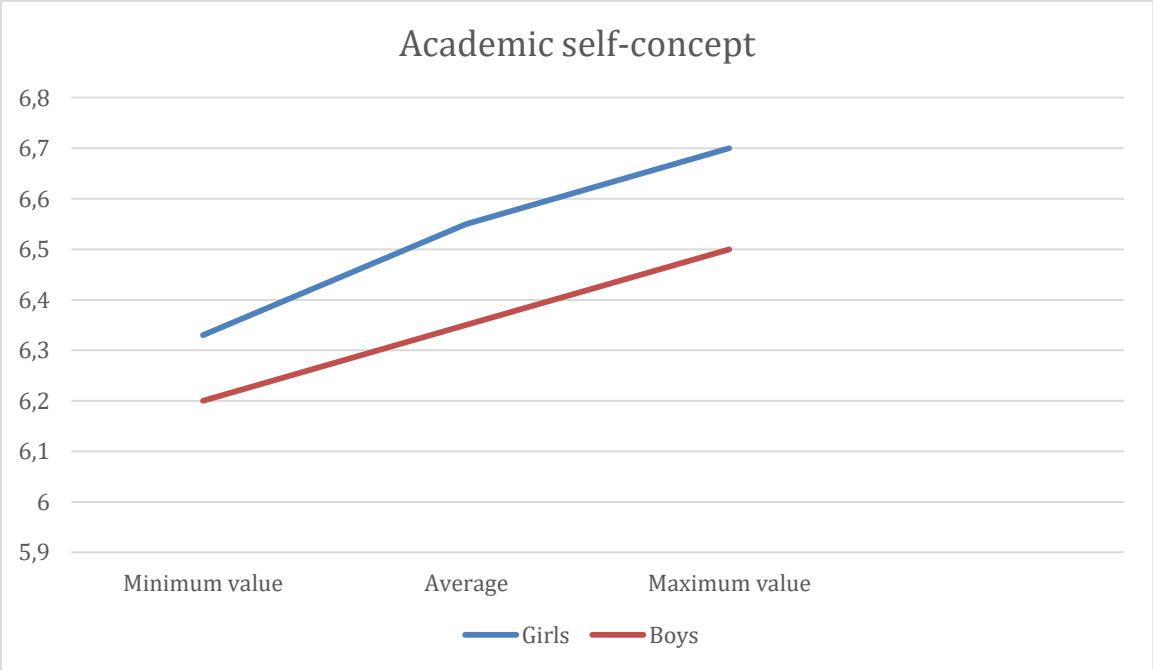

Figure 1. Academic/working self-concept

After the analysis of the sample group jointly and by gender we can find differences between boys and girls. We can conclude that girls in the sample have a higher average in comparison with boys in the academic/working self-concept, additionally, in this group there is a considerable difference as there is a large group of grade repeaters (17 boys and 2 girls).

Social self-concept

With regard to the analysis of the sample group corresponding to the social self-concept, differences in the group and gender can be observed (see Table 3 and 4 and Figure 2). As we can observe the boys and girls of the sample group do not follow parallel lines in their social self-concept, which allows to analyze the sample as a whole and we find that the lowest percentile is 7.0 and 7.26 the highest, being 7.13 the total sample average.

If we analyze the sample by gender, we can observe that in the girls, the lowest percentile is 7.1 and the highest is 7.22, which results in a 7.16 average. Regarding boys, the lowest percentile is 7.0 while the highest is 7.26 with a 7.13 average.

Table 3
Social self-concept percentile according to gender

Social self-concept:	**Girls**	**Boys**	**Group**
	7.22+	7.26+	7.26+
	7.1-.	7.0-.	7.0-.
	7.16 average	7.13 average	7.13 average

Note. Own source.

Table 4
Social self-concept percentage according to the gender

Social self-concept:	**Girls**	**Boys**
+50%	89%	83%
-50%	11%	17%
Total	100%	100%

Note. Own source.

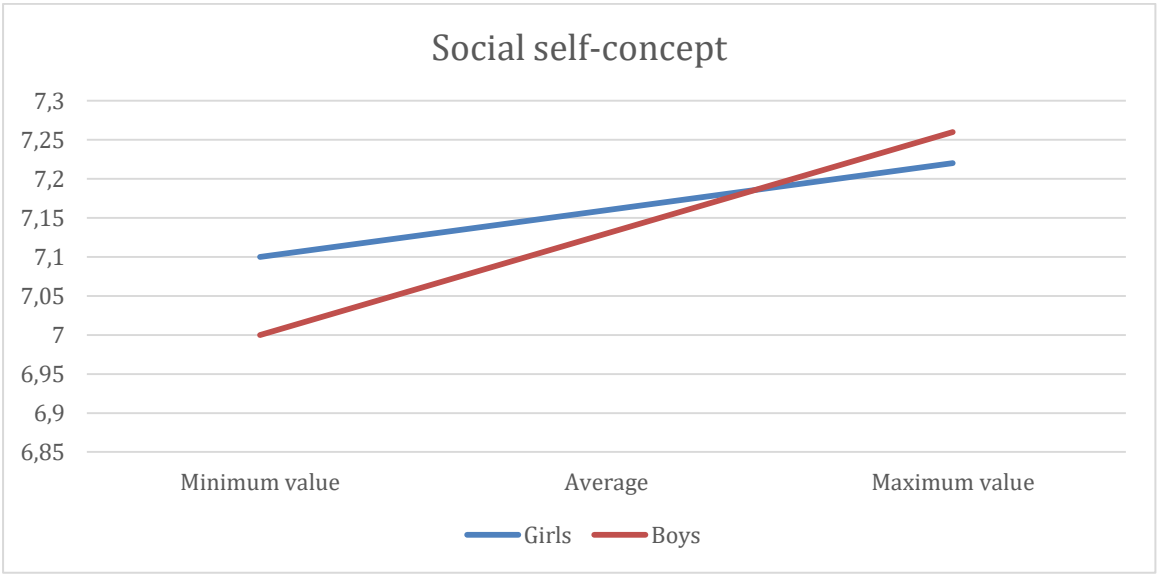

Figure 2. Social self-concept:

Once the analysis of our sample is made jointly and by gender, we can see that there are no significant differences between boys and girls. We can conclude that for both girls and boys their social component is similar and constant and there is no relevant differences.

Emotional self-concept

With regard to the analysis of the sample group corresponding to the emotional self-concept, differences in the group and gender can be observed (see Table 3.0, 3.1 and Figure 3). As we can observe, the profiles of the boys and girls of the group are not parallel in their emotional self-concept, which allows to analyze the sample as a whole and we find that the lowest percentile is 4.75 and 5.74 the highest percentile, being 5.24 the total sample average.

If we analyze the sample by gender, we can observe that in the girls, the lowest percentile is 4.65 and the highest is 5.46, which results in a 5.05 average. Regarding boys, the lowest percentile is 4.97 while the highest is 5.74, being 5.35 the average in boys.

Table 5
Emotional self-concept percentile according to gender

Emotional self-concept	**Girls**	**Boys**	**Group**
	5.46+	5.74+	5.74+
	4.65-.	4.97-.	4.75-.
	5.05 average	5.35 average	5.24 average

Note**:** Own source.

Table 6
Emotional self-concept percentage according to the gender

Emotional self-concept	**Girls**	**Boys**
+50%	79%	82%
-50%	21%	18%
Total	100%	100%

*Note***:** Own source.

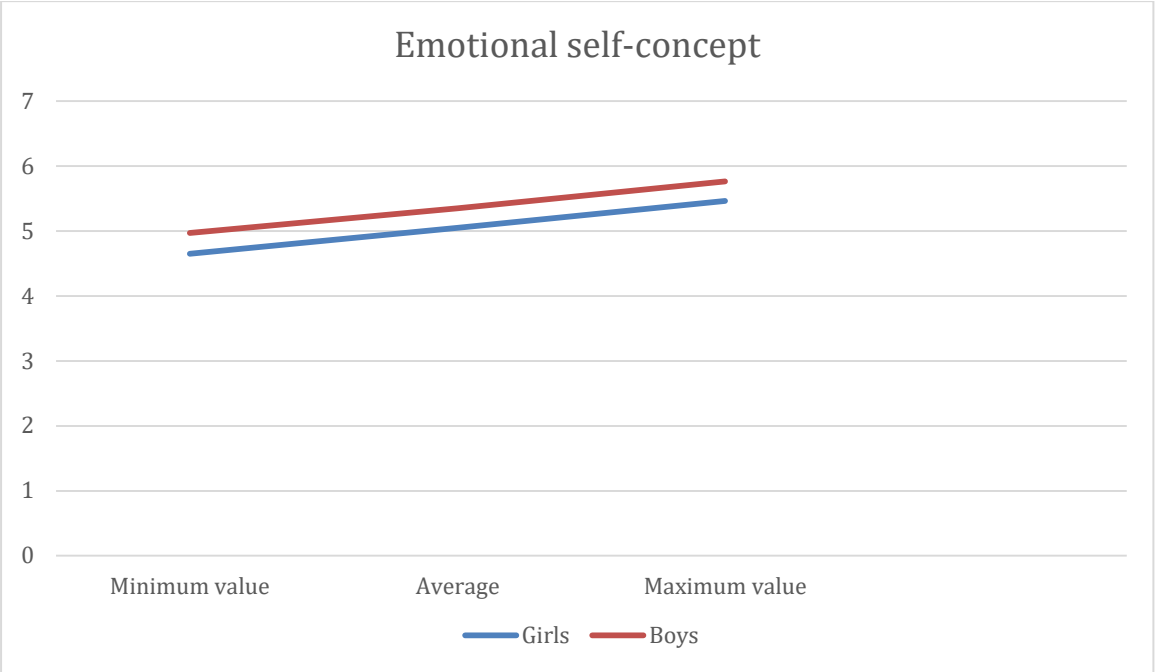

Figure 3. Emotional self-concept

After the analysis of the sample group jointly and by gender we can find significant differences between boys and girls. We can conclude that the boys in the sample have a higher average than girls regarding the emotional self-concept.

Familiar self-concept.

With regard to the analysis of the sample group corresponding to the familiar self-concept, there are no significant differences in the group and gender (see Table 4.0, 4.1 and Figure 4). As we can see the results of boys and girls are parallel regarding their familiar self-concept. If we look at the sample jointly, we note that the lowest percentile is 7.88 while the top percentile is 8.22, being 8.05 the average. If we analyze the sample by gender, we can observe that in the girls, the lowest percentile is 7.88 and the highest is 8.22, which results in a 8.05 average. On the contrary, for the boys, the lowest percentile is 7.90 while the highest is 8.21 with a 8.05 average.

Table 7
Familiar self-concept percentile according to gender

Familiar self-concept	Girls	Boys	Group
	8.22+ 7.88-. 8.05 average	8.21+ 7.90-. 8.05 average	8.22+ 7.88 - 8.05 average

Note: Own source.

Table 8
Familiar self-concept percentage according to the gender

Familiar self-concept	Girls	Boys
+50%	93	92
-50%	7%	8%
Total	100%	100%

Note: Own source.

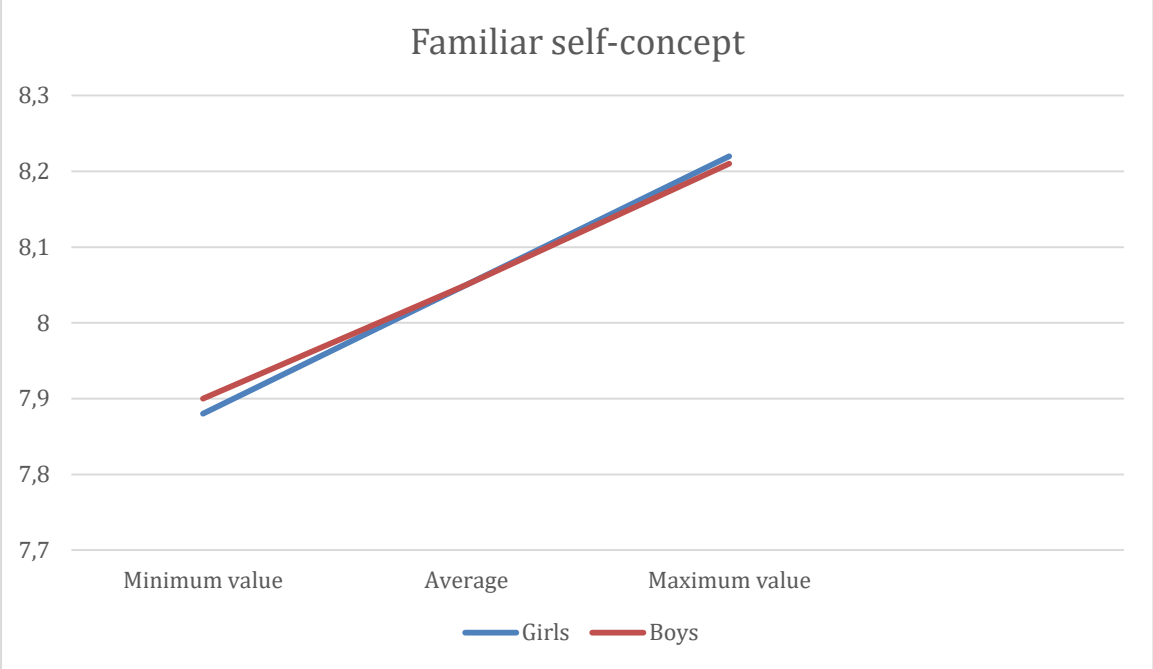

Figure 4. Familiar self-concept

After the analysis of the data we can see that there are no major differences between the two genders, in both the result is similar and continuous.

Physical self-concept

Finally, regarding the physical self-concept, we can observe large differences between the two genders (see Table 5.0 and 5.1 and Figure 5). As we can see the results between boys and girls about their physical selves are revealing.

By observing the sample in a comprehensive manner, we note that the lowest percentile is 5.98 while the top percentile is 6.20, with a 6.09 average. In terms of gender analysis we can see that the lowest percentile in girls is 5.98 while the highest is 6.12 with a 6.05 average, with respect to the boys, the lowest percentile is 5.99 while the highest is 6.20 with a 6.09 average.

Table 9
Physical self-concept percentile according to gender

Physical self-concept	Girls	Boys	Group
	6.12+	6.20+	5.98+

	5.98-. 6.05 average	5.99-. 6.09 average	6.20-. 6.09 average

Note: Own source.

Table 10
Physical self-concept percentage according to the gender

Physical self-concept	**Girls**	**Boys**
+50%	82%	87%
-50%	18%	13%
Total	100%	100%

Note: Own source.

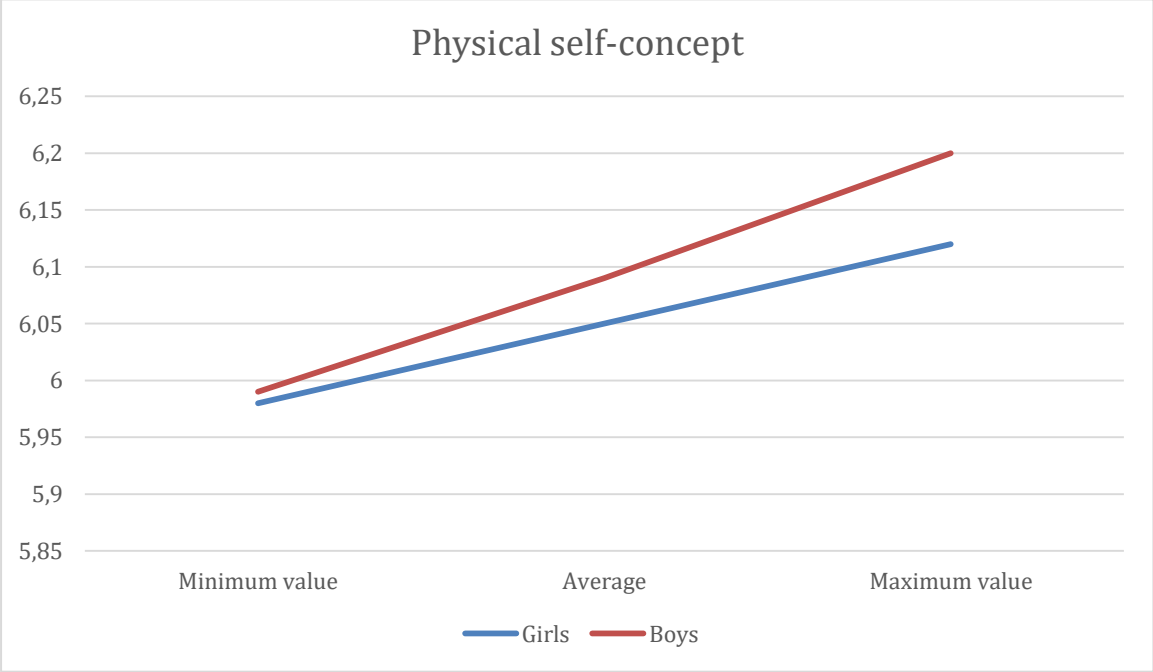

Figure 5. Physical self-concept

Once the analysis is made, we can conclude that there are large differences between the two genders, that is, a greater physical self-concept can be appreciated in the boys group in comparison with the girls group.

Discussion and conclusions

After analyzing the data related to self-concept's five aspects (Academic/Working, Social, Emotional, and Physical) using the *Autoconcepto AF-5* questionnaire and focusing on the academic aspect, the following conclusions can be drawn:

The personality of the individual also affects the self-esteem, if it is an individual with an outgoing personality, although that person has a low academic performance, he will not deem so as a negative aspect, but as an aspect that should be improved from a positive vision.

On the other hand, if a student is more introverted and shy, the student can think of the personal academic performance as a negative aspect so this can adversely influence the student's self-esteem.

For this reason, the teacher plays a fundamental role in the self-esteem of their students, it is essential to educate the self-esteem of people from a tender age, so the school plays a major role in this area.

When a student has a high self-esteem, the student is motivated and has no fear of failure, the student learns best and optimistically faces the everyday challenges.

Many teachers have demonstrated with their experiences that conflict of feelings prevented the learning and so have shown how, when this issue is resolved, the students sensibly increased learning.

When a conflict is resolved, children have a better acceptance of themselves and of others, but this does not indicate that all the difficulties have been resolved.

For this reason, the teacher must find the strategies needed to create a respectful climate in the classroom, a climate in which everyone feels supported and to do so as to be able to get to know the students and feel valued and respected by the group regardless of the grades and that such academic qualifications influence the person's global view.

Teachers have a major responsibility to help children to accept themselves as well as others. Nevertheless, the teacher should not do this work alone, but with resources such as the children themselves, their parents and qualified staff.

Once the study was finished, the following conclusions were drawn:

H1. The academic self-concept in 6^{th} grade is higher in girls than in boys. That is confirmed, this result coincides with the one carried out by Gorostegui, E. & Dorr, A.

H2. The social self-concept in 6^{th} grade is higher in girls than in boys. That result is confirmed.

H3. The physical self-concept in 6^{th} grade is higher in boys than in girls. That result is confirmed, it coincides with the one carried out by Amezcua, J & Pichardo, M.

H4. The familiar self-concept in 6^{th} grade is higher in girls than in boys. That result is confirmed, it coincides with the one carried out by Amezcua, J & Pichardo, M.

H5. The physical self-concept in 6^{th} grade is higher in boys than in girls. That result is confirmed, it coincides with the one carried out by Amezcua, J & Pichardo, M.

References

Alcántara, J.A. (1993): *Cómo educar la autoestima.* Madrid: CEAC.

Amezcua, J y Pichardo, M. (2000). Diferencias de género en autoconcepto en sujetos adolescentes. *Anales de psicología*, 16(2), 207-214

Auger, L. (1987): *Ayudarse a sí mismo*. Santander: Sal Terrae.

Auger, L. (1992): *Ayudarse a sí mismo aún más*. Santander: Sal Terrae.

Bonet, J.V. (1997). *Sé amigo de ti mismo. Manual de autoestima.* Santander: Sal Terrae.

Branden, N. (1991): *Cómo mejorar su autoestima*. Barcelona: Paidós.

Brunet, J.J. y Negro, J.L. (1989): *Tutoría con adolescentes*. Madrid: S. Pío X.

Brunet, J.J. y Negro, J.L. (1994): *¿Cómo organizar una Escuela de Padres?* Madrid: Pío X.

Clemens, H. (1991): *Cómo desarrollar la autoestima en niños y adolescentes*. Madrid: Debate.

Feldman, J.R. (2000). *Autoestima ¿Cómo desarrollarla? Juegos, actividades, recursos, experiencias creativas.* Madrid: Narcea.

Fromm, E. (1981): *El miedo a la libertad*. Buenos aires: Paidós.

Fromm, E. (1984): *El arte de amar.* Buenos aires: Paidós.

García, N.; Cermeño, F. y Fernández, M.T. (1991): *La tutoría en las Enseñanzas Medias*. Madrid: Publicaciones ICCE.

García, F. y Musito, G. (1995). *AF5 Autoconcepto forma 5.* Madrid: TEA Ediciones.

Gil Martínez, R. (1997). *Manual para tutorías y departamentos de orientación.* Madrid: Escuela Española.

Gillham, H.L. (1982). *Cómo ayudar a los niños a aceptarse a sí mismos y a aceptar a los demás.* Barcelona: Paidós educador.

Gómez, P. Estrategias didácticas para trabajar las habilidades sociales en el contexto escolar. Recuperado de: http://convivencia.educa.aragon.es/admin/admin_1/file/Estrategias%20did%C3%A1cticas%20para%20trabajar%20las%20HABILIDADES%20SOCIALES%20EN%20EL%20CONTEXTO%20ESCOLAR%20%20%20%20.PDF

Gorostegui, E. y Dorr, A. (2005). Género y Autoconcepto: Un Análisis Comparativo de las Diferencias por Sexo en una Muestra de Niños de Educación General Básica (EGB) (1992-2003). Recuperado de: http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0718-22282005000100012

Hay, L.L. (1996): *El poder está dentro de ti.* Barcelona: Urano.

Hernández, P y García, Mª D (1992): PIELE. Programa Instruccional para la Evaluación y Liberación Emocional "Aprendiendo a vivir".

Lacasse, M. (1994): *Tengo una cita conmigo.* Santander: Sal Terrae.

Lázaro, R. y otros (1981): *Identidad personal.* Madrid: CENIEC.

Machargo, J. (1991*): El profesor y el autoconcepto de sus alumnos*. Madrid: ESCUELA ESPAÑOLA.

Markus, H. y Kunda, Z. (1986): "Stability and malleabillity of the self- concept". *Journal of Social Psichology*, 51.

Marsh, H, W, y Shavelson, R. (1985): "Self- concept. Its multifaceted, hierarchical structure". *Educational Psicologist*, 20.

Martín Mateo, A. (1989): *Puedo ser otro y feliz.* Madrid: Sociedad de Educación Atenas.

Martín Mateo, A. (1992): *El hombre en busca de la felicidad*. Madrid: Sociedad de Educación Atenas.

Maslow, A. H. (1994): *La personalidad creadora*. Barcelona: Kairós.

McKay, J. (1991): *Fomento de la autoestima en los niños*. En Mckay, M. Y Fanning, P.: Autoestima. Evolución y mejora. Barcelona: Martínez Roca.

Navarro Suanes, M. (2009). Autoconocimiento y autoestima. Recuperado de: http://www2.fe.ccoo.es/andalucia/docu/p5sd6409.pdf

Palmer, P. y Alberti, M. (1992): *Autoestima*. Valencia: Promolibro-Cinteco. Valencia.

Pieczenik, S. (1991): *Vivo bien, ¿por qué me siento mal?* Barcelona: Grijalbo.

Rigón E. (2002). *Cómo desarrollar la autoestima en los niños.* Bilbao: Mensajero.

Rodríguez Espinar, S. (1986): *"Factores que influyen en el rendimiento escolar".* Apuntes de Educación.

Rogers, C. (1971): *Psicoterapia y relaciones humanas*. Madrid: Alfaguara.

Rogers, C. (1986): *El camino del ser*. Barcelona: Kairós.

Rogers, C. (1994): *El proceso de convertirse en persona*. Paidós. Barcelona. (9ª reimpresión).

Rosenthal, R. y Jacobson, L. (1980). *Pigmalión en la escuela*. Madrid: Marova.

Ruiz, S. (1994). *Crecer como persona*. Madrid: S. Pablo.

Saura, P. (1996). *Cómo educar el autoconcepto*. *Propuesta pedagógica.* Servicio de publicaciones. Universidad de Murcia.

Tierno, B. y Giménez, M. (2004). *La educación y la enseñanza de 6 a 8 años: !Juega conmigo!* Madrid: Aguilar.

Tierno, B. y Giménez, M. (2004). *La educación y el desarrollo escolar del preadolescente de 10 a 12 años: ¡Ya no soy un niño!*. Madrid: Aguilar.

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