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## Analysing the Montessori Principles from the Perspectives of Schools, Teachers, and Families

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∞ Education, especially early childhood education, is a responsibility that both families and schools share, so much so that children find themselves in two differentiated learning environments. Educational and parenting styles may join forces, sharing values and behaviours that enhance children's development, just as the Montessori Pedagogy has shown. It is for this reason that the present study will attempt to analyse the relations established between the opinions and the application of the principles of such pedagogy focusing on the first six years of life, both in educational and family environments, considering the degree of commitment the school has towards the Montessori Pedagogy.

**Keywords:** child development, educational style, Montessori Pedagogy, parenting style

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## Analiza načel montessori z vidika šol, učiteljev in družin

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∞ Vzgoja, predvsem predšolska, je odgovornost, ki si jo delijo družine in šole, in to tako, da se otroci znajdejo v dveh različnih učnih okoljih. Vzgojno-izobraževalni in starševski slogi so se zmožni združiti, deleč si vrednote in vedenja, ki spodbujajo razvoj otrok, kot je pokazala pedagogika montessori. Prav zaradi tega razloga ta študija preiskuje odnose med mnenji in izvedbo načel tovrstne pedagogike, pri čemer se osredinja na prvih šest let življenja v vzgojno-izobraževalnem in družinskem okolju, vseskozi upoštevajoč raven institucionalne pripadnosti pedagogiki montessori.

**Ključne besede:** razvoj otroka, vzgojni stil, pedagogika montessori, slog starševstva

## Introduction

Families and schools are unavoidably connected in their effort to attend to children's education (Hoover-Dempsey et al., 1987) and sociability (Vickers & Minke, 1995). This shared endeavour implies the participation of both parties, whose encounters may be characterised by communicative difficulties (Epstein & Becker, 1982; Paget, 1992). Nonetheless, a path must be found to work collaboratively and harmoniously for the good of humanity (Montessori, 2019). Different pedagogical currents, such as the Montessori Pedagogy, have focused on answering this issue. Their principles were created to facilitate child development on an individual scale (Montessori, 2019) on the basis of a joint effort from families and schools to reach a common objective: the individual development of each child.

Early childhood development is of fundamental importance because the foundations of our future are built on their achievements. Bainbridge et al. (2005) have demonstrated that attention at an early age will influence children's future educational success and their development of emotional and social competences (Kirk & Jay, 2018; Walker, 2010).

Because the Montessori Pedagogy has focused on the relationships between schools and families and on child development, the objective of this article is utilising the Structural Equation Model (SEM) to analyse how the school, the faculty, and the families understand the principles of the pedagogy itself and how they apply them in both the educational and the family environments. Analysed behaviours will be focused on the principles of environment preparation, order influence, freedom of choice, adaptation to society, guidelines of development, and the adult's role.

The relationships between the different individuals who participate in the educational stage will be specified from an eco-systemic perspective (Bronfenbrenner, 1979), and thus, so will the influences existing between the family, the school, and the child. Conversely, the synchrony of educational and parenting styles will be structured around the principles of the Montessori Pedagogy. The article will continue by presenting our selected methodology and will finish with the results, a discussion and the conclusions of the relationships established between the three agents—school, faculty and family—so as to determine the extent of shared work that is being offered in Spanish Montessori schools.

## Background of the School–Faculty–Family Relationships

The origin of the school–family relationships varies considering each child individually, as well as the families, the schools and the communities they inhabit (Hoover-Dempsey et al., 1987), since all of them are active agents in the educational endeavour.

Bronfenbrenner (1979) proposed a wider ecological frame with multiple overlapping systems, which affected the course of individual development. Based on this, children develop in a variety of contexts, and in each one, multiple relationships can be analysed at different levels. The level this article will focus on is the mesosystem of family-school, which involves the interactive processes inside and between families and schools (Bronfenbrenner, 1979) and in which we will find the family-teacher sub-system.

Hoover-Dempsey et al. (1987) have shown the importance of positive, high-quality relationships between families and schools as traits that not only favour the development of the child but also maximise **their education in sharing** a common objective (Christenson et al., 1992; Yaya-Bryson et al., 2020), especially during the early childhood period. However, personal situations and various educational projects may facilitate or complicate the relationship between both agents.

According to Epstein and Becker (1982), family involvement in aspects of education is considerably low. From the families' perspectives, certain facts—such as lack of time, a shortage of opportunities to participate, and the antagonistic, unsympathetic attitudes displayed by the school staff—diminish their involvement in schools (Becker & Epstein, 1982). In contrast, the faculty has difficulties negotiating the academic and social dimensions that are found in the classroom (Walker, 2009), in addition to fearing the assessments made by families regarding their professional competence (Power, 1985), the lack of productive encounters with families, and the absence of outside recognition towards the good practices between families and schools (Becker & Epstein, 1982).

It is clear that education needs to find a space where dialogue between the academic dimension (formed by the school and its faculty) and the social dimension (formed by the families) takes place in order to help the individual growth of every human being (Hoover-Dempsey et al., 1987; Walker, 2009), thereby contributing to the development of society (Montessori, 2009). Benefits such as scholastic achievements, behavioural improvements, decreased school absenteeism, positive attitudes towards school and involvement in domestic chores (Hoover-Dempsey et al., 1987) appear in trusting relationships

between families and schools. The children constantly perceive the influence of their immediate surroundings and their encroaching environment, whether from a physical or a social standpoint (Montessori, 2009) and because of this, positive emotions (such as passion and enthusiasm) or negative ones (such as anxiety and deception) shown by adults will impact their learning and development (Zembylas, 2007). Therefore, a quality relationship between teacher and family refers to the existence of a link between both, based on trust (Đurišić & Bunijevac, 2017), mutual insurance, affiliation, support and shared values, as well as expectations and feelings between them and towards the child (Vickers & Minke, 1995), thus creating a unified bond. This union allows them to guide the child towards his or her development through a stable path, in which early childhood education is of fundamental importance because the foundations of our future are built.

#### *Parenting and Educational Practices*

Trusting relationships, commitment, and joint work for a sole objective are features found in school-family or faculty-family relationships, as well as in parenting styles.

According to Baumrind (1991), parenting style is a bi-dimensional model of child socialisation in which multiple processes in each dimension exist. In the first dimension, we find *demandingness or control*, which implies expectations, supportive autonomy, and firm behavioural control, so as to demand maturity (Walker, 2009). In the second dimension, we find *responsiveness or nurturance*, which assumes warmth and care, providing resources, and adapting to meet individual needs. Variations between both dimensions create different parenting styles (Walker, 2010), among which we may find: authoritative (high on both dimensions), authoritarian (high demandingness and low responsiveness), permissive (low demandingness and high-moderate responsiveness), and neglectful (low levels of both) (Baumrind, 1991). Generally speaking, the authoritative parenting style is thought of as more successful than the others, since it balances the recognition of the individual's needs with their skill to adapt to expectations (Walker, 2010). Baumrind (1971) demonstrated this when he showed that children from younger ages with higher competence in autonomy, self-control or with successful social skills in school had parents that demanded appropriately from them according to their development; for example, favouring their independence when it came to homework, while at the same time commanding a mature behaviour through skills such as sensitivity, affection, and frequent, accurate communication. Simultaneously, the same sample of subjects was observed during their adolescence and revealed that

teenagers who were raised with an authoritative parenting style continued a trend of success when it came to self-control, empathy, understanding of other people's perspectives and inherent motivation. In contrast, children who had authoritarian and permissive parents showed less-than-ideal academic and social results (Baumrind, 1991).

Clearly, the parenting style influences the development of the child. However, Montessori (2009) stated that children absorb everything that surrounds them without any filter during the first three years of life. For this reason, the educational style, the behaviour of the teacher and/or the environment of the classroom may have a significant impact on the individual. Patrick et al. (2005) identified three types of classroom environments: *supportive*, which consists of high expectations for the student and goodwill and respect towards the teacher; *nonsupportive*, in which the teachers emphasise extraneous motives for learning, exercise authoritarian control, and demand that students neither misbehave nor cheat; and *ambiguous*, in which the teachers offer inconsistent attention to the students and present contradictory discourses. These characteristics of classroom environments adapt to the authoritative and authoritarian parenting styles (Walker, 2010).

A perspective that reconciles the dichotomy between parenting and scholastic knowledge is possible. Recent research has shown that teachers and parents are responsible for creating ideal contexts for the development of social and academic skills that favour the command of practices built around performance while also providing individual support to the child and a receptive, appropriately demanding context (Turner et al., 2003; Walker, 2010).

These supportive school environment mechanisms and authoritative parenting styles are possible when a shared objective exists between both parties. The Montessori Pedagogy seeks this alliance through its principles from the early childhood education period, which will be presented next.

### *The Principles of Montessori Pedagogy*

Montessori (2019) argued that the key to child development stems from the internal guidelines that lead him or her towards their highest potential, pushing them towards activities that meet their needs (Lillard, 2018). Education takes place in a prepared environment, designed to attend to children of different ages, in which class materials are created to stimulate their interests and skills through pleasant furnishings, open shelves (Berčnik & Devjak, 2017) and materials unique to specific activities (meaning that only one child can engage with each activity at a time). Kirk and Jay (2018) point out that the creation of a prepared environment is defined by its structure—the physical

component—and its process—the psychological component—which belongs to social relationships. The combination and harmony of both parts allow the children to enhance their knowledge both as creative and critical individuals, freely emancipating their talent (İslamoğlu, 2017), leading them to virtuosity. Therefore, the adult in charge of the classroom assumes the role of the guide (Montessori, 2019) since he/she orients and eases the child's development without direct instruction.

The guide is the link between the children and their surroundings. Research has shown that the quality of early child-teacher relationships and the bonds they share with the school may determine their success in education (Reynolds et al., 2009). Furthermore, the behaviour of the teachers towards the creation of a positive emotional and social environment may further the social-emotional competences of young children (Heller et al., 2012; Kirk & Jay, 2018). Consequently, Montessori (2019) pays special attention to the training of adults, since they are responsible for guiding the children's development. Therein lies the interdisciplinary nature of pedagogy, since it recognises the individual learning process of the child and the educational experience of the guide (Knewstubb & Nicholas, 2017).

The classroom rewards constructive decision-making and freedom of choice within certain limits (Gross & Rutland, 2019; Lillard, 2018) in order to aid the formation of critical individuals from early childhood education. Autonomy and independence continue throughout the school day, since children participate in real-life activities, favouring the acquisition of necessary everyday skills that will help them adapt to the society in which they live. Bone (2017) postulates that the mere fact of participating in such activities will promote long-term perseverance as children have the will to take part during the first six years of life. Furthermore, autonomy is known to be instrumental in setting the basis of responsibility in an individual's actions (Devjak et al., 2021).

The environment is designed considering the concept of order, since external order can create an internal order in the minds of the children (Montessori, 2019). The sets of materials are located in specific areas, which leads to the development of skills such as consideration, theory of mind (Lillard et al., 2017), tolerance (Gross & Rutland, 2019), self-control and respect for others as well as for the natural environment (Montessori, 2019), all of which constitute elementary attitudes for humanity.

On the basis of these principles, we can observe that a supportive environment is offered for the child's development, while at the same time, the child's skills match the ones elicited from an authoritative parenting style. This union will guide our research question: to what extent is there a relationship

between the opinions of the school, the faculty and the family and the application of Montessori principles in the educational and family environment?

## Method

It is the purpose of this study to determine and examine the relationship between schools that work under the Montessori Pedagogy in Spain, the opinions of the faculty and the families regarding the principles of such pedagogy and the application of said principles in an educational and family environment through the use of SEM. The hypotheses are as follows:

1. Teachers with opinions closer to the Montessori principles who apply them in a stricter manner will belong to the schools with a higher degree of commitment to the Montessori Pedagogy.
2. Families that come from schools with a higher degree of commitment to the Montessori Pedagogy will have higher opinions of the method and will adapt it to their own style with more ease.
3. The schools with a higher commitment will greatly value the development of harmonisation between faculty and families, and thus their opinions and behaviours will be very truthful to the principles of the Pedagogy.

The data obtained comes from three sources: schools, which have provided information as to the degree of commitment they have towards the Montessori Pedagogy; teachers, who have provided information regarding their opinions of the Montessori principles and how they are applied in their classrooms; and families, who have provided information regarding their opinions of the Montessori principles and how they are applied in their homes.

Considering our type of analysis and the different levels that we will examine, the use of SEM is required, since it will aid in the hierarchical structuring of data in such a way that, for example, families located in Level 1 (L1) will be nested with the teachers located in Level 2 (L2) of each typology of school, thus creating the possibility of analysing relations between the variables of two levels of examination.

### *Participants*

A total of 16 private Spanish schools that work according to the principles of the Montessori Pedagogy have participated in this research, seven of which are part of the Spanish Montessori Association (AME) and have already achieved a set standard of commitment to the Montessori Pedagogy. However,



it is important to highlight the fact that the dimensions of the schools vary considerably among themselves (see Table 1), since they offer different school courses (one school offers preschool education for ages 0 to 3; seven schools offer preschool education for ages 0 to 6; one school offers preschool education for ages 3 to 6 and primary education; and seven schools offer the entire preschool and primary education cycle); therefore, the volume of subjects fluctuates.

**Table 1***Families and faculty participants*

School code name	Participants		
	Faculty	Families	Total
S1	59	100	159
S2	4	14	18
S3	4	19	23
S4	5	32	37
S5	8	56	64
S6	6	33	39
S7	11	53	64
S8	8	38	46
S9	4	8	12
S10	2	10	12
S11	11	27	38
S12	2	7	9
S13	2	2	4
S14	0	5	5
S15	3	10	13
S16	2	2	4
<b>Total</b>	<b>131</b>	<b>416</b>	<b>547</b>

A total of 547 subjects responded to the questionnaire; 17 were discarded since they neither worked at a Spanish Montessori centre nor had children studying in a Montessori school. The family sample displays that 8.17% know the Montessori principles fairly well, 68.51% say they know them well, 22.84% say they know them a little, and 0.48% say they know them very little. Regarding the academic background of the faculty, we can see that 48.85% of them have a guide's degree recognised by the Asociación Montessori Internacional

(AMI), 5.34% have a guide's degree recognised by the **Instituto Montessori Internacional (IMI)**, 3.05% have guide certifications from various courses and associations, 0.76% have an assistant's degree from AMI, and 41.98% do not have a Montessori-related degree. Regarding faculty members, 0.76% are part of a managing team, 57.25% perform the role of guides, 27.48% perform the role of assistants, 10.69% are music, physical activity or psychology specialists, and 8.4% are or have been interns in the selected educational centres. Regarding family members, 8.41% have a secondary education, 7.21% have a high-school degree or equivalent, 52.4% have a university degree, 26.92% have a master's degree or a postgraduate degree, and 5.05% have a PhD.

In both groups, higher female participation is noticeable (81.25% of the families and 88.55% of the faculty who responded are women), as is their similar age average (41.24 years old in families, 39.35 in the faculty). The average number of children per family is 1.5, mainly between the ages of 0 and 6 years.

### *Instruments*

The assessment of each school's commitment to the Montessori Pedagogy was obtained through the questionnaire, which was based on the items utilised by the AME when granting certifications and on the enhancement of various principles. This offered schools an opportunity to add relevant information regarding their methodology and, at the same time, allowed us to detect the degree of commitment that each school had towards their faculty and their families, since it is the objective of this research to evaluate both subjects. This instrument allows us to sort schools into three different categories: very high commitment (5 schools), high commitment (5 schools) and moderate commitment (6 schools) to the principles of the Montessori Pedagogy.

In order to determine the opinions regarding the principles of the Montessori Pedagogy and how said principles are applied according to faculty and families during early childhood, two separate questionnaires were created with an equivalent number of questions and contents, with the wording of the possible behaviours in the family or educational environment being slightly modified.

The questionnaire is composed of three blocks: specific information of the respondent, questions regarding their opinions of the Montessori principles, and questions related to the application of said principles in school or at home during early childhood. The last two blocks are scored according to the Likert scale (5, strongly agree; 4, agree; 3, neither agree nor disagree; 2, disagree; 1, strongly disagree). The respondents who showed a predisposition towards applying the Montessori principles by selecting the strongly agree or agree

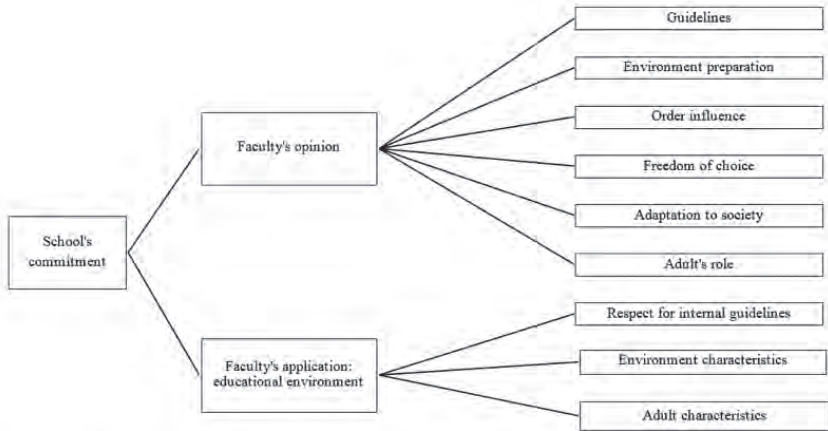
options were asked to elaborate on their answers so as to identify how they applied said principle, a helpful analytical tool since it provided information about predominant behaviours and attitudes. Each block is scored according to the total number of evaluated items, thus offering a maximum score of five points per item. Doing so meant that every subcategory is formed by different scores, which is an aspect that was taken into account in the final data analysis. In the opinions block (85 points), the information collected is divided into guidelines (15 points), environment preparation (25 points), order influence (10 points), freedom of choice (5 points), adaptation to society (15 points) and the adult's role (15 points). In the application block (65 points), the collected opinions concern the subject's behaviour, which is why the data is divided into respect for internal guidelines (5 points), environment characteristics (40 points), and adult characteristics (20 points).

Experts have assessed the validity of the questionnaire content during its creation and administration, scoring a .823 on Cronbach's Alpha, a result that ensures high reliability.

Before the questionnaire was applied, a pilot test was performed on 20 subjects (7 Montessori teachers, 7 families with children in Montessori schools, and 6 families with children who had already finished their schooling in a Montessori centre). Assessments were made regarding the wording of certain items, and later such items were modified for easier comprehension.

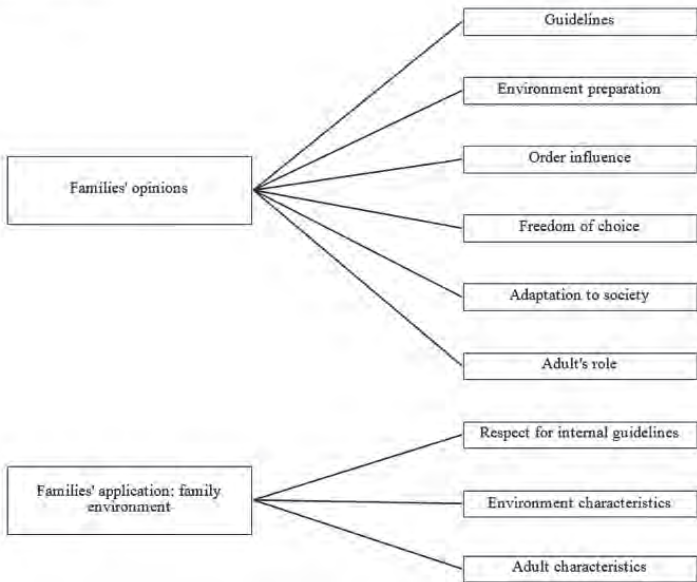
The questionnaire was administered in two different contexts: the educational environment and the family environment. Doing so led us to use SEM to answer our research question. Figure 1 shows the relations considered in this model, a set of conditions that allow correlations to be found between both contexts.

**Figure 1**  
Analysed categories between both levels



Educational Environment Level – L2

Family Environment Level – L1



*Note.* The subcategories agree with the principles of the Montessori Pedagogy analysed in the conceptual framework.

Considering that the set of participant schools have been grouped according to their commitment to the principles of the Montessori Pedagogy, each situation has been examined independently in order to offer a result comparison for each one.

## Results

The use of SEM enables analysing the relations established between both studied levels. **However, we must consider that the schools are organised in regard to their fidelity to the Montessori Pedagogy.** This dictates that the following results be organised in two ways: first, an outlook according to each analysed context in which the three possible types of schools are considered; and second, an analysis of both studied levels that presents the correlations between the variables of opinion and application according to the faculty and the families.

To determine whether statistically significant differences exist between the three types of schools, regarding the dimensions that compose the opinion and application of the principles in both faculty and families, a single factor ANOVA was performed for independent samples.

The assumption of normality and homoscedasticity was tried with the Kolmogorov, Smirnov and Levene tests, respectively, by which we were able to observe that both assumptions were not met ( $p < .05$ ). Nonetheless, a parametric ANOVA was performed, given the fact that our sample size was statistically meaningful ( $N = 547$ ). The Brown-Forsythe test was administered to evaluate the parity of the medians taken, since we had an uneven group size.

### *Faculty*

Considering the dependent variable of the faculty and each independent variable composed by the evaluated subcategories, we can see statistically significant differences between schools in the following subcategories: Guidelines, Environment Preparation, Adult Preparation, Environment Characteristics, Adult Characteristics, and Respect for Internal Guidelines. Statistically significant differences can also be seen in the general categories of Opinion and Application of the Montessori Pedagogy principles (see Table 2). No statistically significant differences are found between schools regarding the subcategories of Order Influence, Adaptation to Society, and Freedom of Choice.

After applying Bonferroni's Post Hoc test, we determined that significant differences exist between groups. **In the Guidelines subcategory, we can see differences between the Very high commitment group and the High and Moderate commitment groups.** No significant differences can be found between the

High and Moderate commitment groups ( $p > .05$ ). The same results can be seen in the Environment Preparation, Adult Preparation, Environment Characteristics, and Respect for Internal Guidelines variables.

The Adult Characteristics variable only finds significant differences between the Very high commitment and the High commitment groups, whereas the Opinion and Application totals from the faculty show significant differences between the Very high commitment group and the High commitment and Moderate commitment groups.

**Table 2**

*Medians, standard deviations and single-factor ANOVA for the school, as per the subcategories of Opinion and Application, according to the faculty.*

Variables	Very high commitment		High commitment		Moderate commitment		ANOVA	
	M	SD	M	SD	M	SD	F (df1; df2)	Post Hoc
Guidelines	13.6	.94	12.7	1.43	12.5	1.84	9.83 (2;128)	1>2.3 ***
Environment P	23.65	.85	22.12	1.28	22.50	1.57	25.07 (2;128)	1>2.3 ***
Adult P	18.75	.96	15.96	2.21	16.45	2.30	42.33 (2;128)	1>3.2 ***
Environment C	38.58	1.78	36.41	1.83	36.35	2.32	21.09 (2;128)	1>2.3***
Adult C	14.32	.68	13.41	1.17	13.80	1.10	12.24 (2;128)	1>2.3
Respect for IG	4.83	.38	4.23	.42	4.35	.48	28.62 (2;128)	1>2.3 ***
Opinion	78.86	2.79	72.92	5.11	74.15	6.01	28.63 (2;128)	1>3.2 ***
Application	57.73	2.13	54.06	2.82	54.50	3.47	29.69 (2;128)	1>3.2 ***

Note: \*\*\*  $p \leq .001$ ; M = median; SD = standard deviation; df = degrees of freedom. Environment P = Environment Preparation; Adult P = Adult Preparation; Environment C = Environment Characteristics; Adult C = Adult Characteristics; Respect for IG = Respect for Internal Guidelines; Opinion = Faculty Opinion; Application = Faculty Application.

### *Families*

The relationships established between the families and the subcategories' variables indicate that statistically significant differences exist between them in relation to the following subcategories: Order Influence, Adaptation to Society, Environment Characteristics, Adult Characteristics and Respect for Internal Guidelines. Statistically significant differences can also be seen in the general category of Application (see Table 3). Conversely, no statistically significant differences can be found between families regarding the subcategories of Guidelines, Environment Preparation, Adult Preparation and Freedom of Choice.

We determined significant differences between groups after administering Bonferroni's Post Hoc test, which shows that the Order Influence

subcategory displays differences between the Very high commitment group and the High and Moderate commitment groups, the first one having registered the highest median in the said variable. However, no statistically significant differences can be found between the High commitment and Moderate commitment groups ( $p > .05$ ). Similar results can be observed in the Environment Characteristics variable. In the Adaptation to Society variable, significant differences can only be found between the Very high commitment and the High commitment groups, and in the Adult Characteristics variable, significant differences are found throughout all families, the Very high commitment group having registered the highest median.

Finally, in the Respect for Internal Guidelines variable, differences can be found between the Very high commitment and the High commitment groups. No significant differences were found between the rest of the groups ( $p > .05$ ).

**Table 3**

*Medians, standard deviations and single-factor ANOVA for the school, as per the subcategories of Opinion and Application according to the families*

Variables	Very high commitment		High commitment		Moderate commitment		ANOVA	
	M	SD	M	SD	M	SD	F (df1; df2)	Post Hoc
Order I	9.03	1.01	8.64	1.14	8.71	1.09	6.23 (2;413)	1>3.2 ***
A Society	13.10	1.36	12.79	1.45	12.47	1.94	4.62 (2;413)	1>2.3 ***
Environment C	33.13	3.08	31.48	3.49	31.32	3.82	13.32 (2;413)	1>2.3***
Adult C	12.94	1.23	12.16	1.41	11.64	1.46	27.71 (2;413)	1>2.3***
Respect for IG	4.22	.54	4.03	0.70	4.21	.40	4.93 (2;413)	1>3.2 ***
Application	50.29	4.05	47.68	4.54	47.16	4.86	21.15 (2;413)	1>3.2 ***

*Note:* \*\*\*  $p \leq .001$ ; *M* = median; *SD* = standard deviation; *df* = degrees of freedom. Order I = Order Influence; A Society = Adaptation to Society; Environment C = Environment Characteristics; Adult C = Adult Characteristics; Respect for IG = Respect for Internal Guidelines; Application = Families Application.

### *Studied levels*

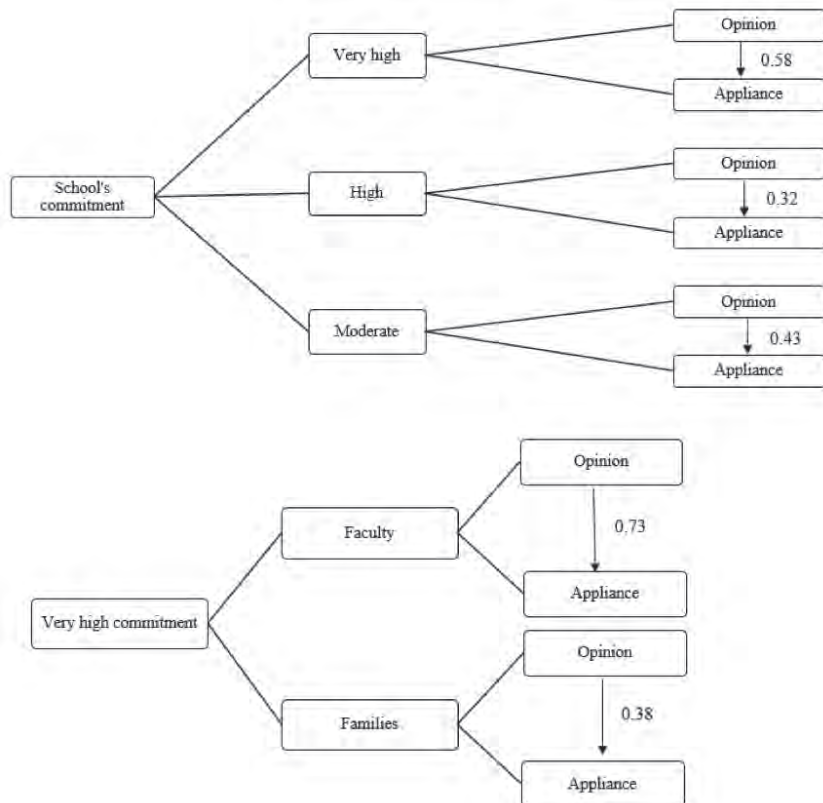
In order to prove the hypotheses related to the faculty and the families, the Pearson correlation was performed to study the opinion and application of the principles of the Montessori Pedagogy in each group of schools. According to the obtained results, a statistically significant correlation between the opinion and the application was apparent in Very high commitment schools ( $r = .58$ ;  $p < .05$ ), in High commitment schools ( $r = .32$ ;  $p < .05$ ) and in Moderate commitment schools ( $r = .43$ ;  $p < .05$ ). In all cases, the correlation is positive and moderate.

Considering this, the relation established between opinion and application was studied at every level (faculty and families), separated by the type of school. According to the faculty results, only one statistically significant correlation was found between the opinion and the application in the Very high commitment group ( $r = .73$ ;  $p < .05$ ), with the correlation being both positive and high. Nevertheless, in the High commitment and Moderate commitment groups, no relation was found between the opinion and faculty variables.

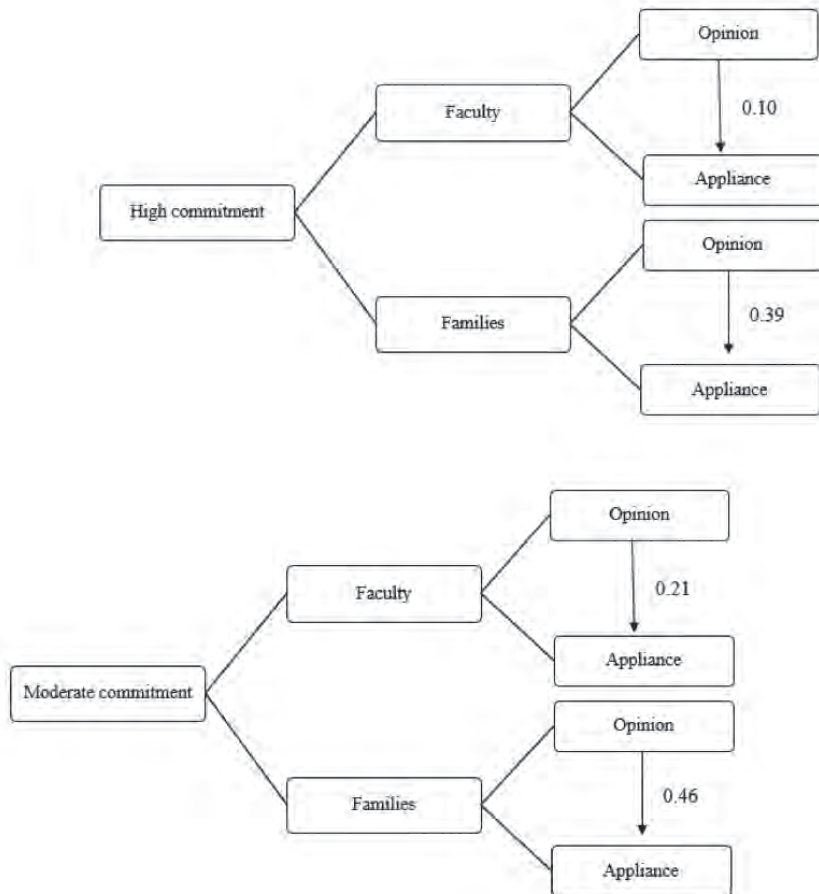
According to the families' results, statistically significant correlations were found in the three types of schools between the opinion and application variables, with all cases having positive and moderate correlations (see Figure 2).

**Figure 2**

*Established correlations in different studied levels*





**Figure 2***Continue*

## Discussion

The purpose of this study is to examine the relationship established between schools that apply the Montessori Pedagogy, the opinions of their faculty and their families, and the behaviour that educational and family environments display.

The three formulated hypotheses stated that a higher degree of commitment from the school, both from faculty and families, meant higher results in opinion and application of the principles of the Montessori Pedagogy during the early childhood period. Therefore, a decrease in opinions and application, both from faculty and families, would be shown in schools with a lower commitment.

The results show that this relation is not directly fulfilled. The schools with a higher faithfulness towards the Montessori Pedagogy score higher in opinion and in application in both faculty and family. However, the scores do not decrease with a lower school commitment, since both the faculty and the families of the other school types had similar results. Despite the differences between faculty and family, we can see a clear interest from both parties in applying the principles of the Montessori Pedagogy. The analysis of the qualitative data presented by the faculty and by the families shows that the principles can occur in an educational and familiar context. In the case of the families, they adopt an authoritative parenting style (Walker, 2010), where the child shows himself or herself to be an active, autonomous, and participatory agent inside the household, whereas in the case of the faculty, the principles are applied in the classroom, thus creating a supportive environment (Patrick et al., 2005). In the latter, the teacher maintains a firm demeanour, perceiving the child as an independent being who is responsible for his or her actions despite their young age. Both the supportive environment (Patrick et al., 2005) and the authoritative parenting style (Walker, 2010) place the child in the same area while the adult adopts attitudes that encourage respect and guide the child in his or her development, all of which are indispensable principles of the Montessori Pedagogy. Hence, we can see a similarity between both styles and environments, since the respondents have shown that diverse principles of the Montessori Pedagogy can appear in both contexts. The existence of this union between contexts proves that a feeling of mutual insurance and shared values exists between the educational and family environments (Vickers & Minke, 1995). However, the adult's attitude towards addressing each child individually (Montessori, 2019) must continue to be developed, since families have difficulties when it comes to **attending to diverse day-to-day situations and to offering a conditioned space that meets the child's needs.**

In contrast, our first hypothesis, which indicated that 'teachers with opinions closer to the Montessori principles who apply said principles in a stricter manner will belong to the schools with a higher degree of commitment to the Montessori Pedagogy', was not fulfilled. To answer this hypothesis, the categorisation of schools has not only helped their verification but also shown that the faculties of High and Moderate commitment schools have the same opinions and applications of the principles. The difference in results between both types of schools is minimal, whereas in the Very high commitment schools, the faculty ( $M = 78.86$  in opinion) firmly believes in the Montessori principles and that their application ( $M = 57.73$ ) in the classrooms is higher.

The achievement of **such principles in the classroom implies an adaptation** of the environment on physical and social levels (Kirk & Jay, 2018),

attending to the children who inhabit it and respecting the internal guidelines (Montessori, 2019). At the same time, the faculties in every school favour participation in real-life areas, including care of the environment and of the person, freedom of opinion, of thought and of choosing the tasks to be performed (Lillard, 2018). Nonetheless, the analysis of the qualitative data presented by the faculty indicated difficulties in the understanding of the outside environment as a workspace, an aspect that may be related to the structure of each school.

Differences exist among the opinions and applications of the Montessori principles. Both the faculty and the families maintain a respectful attitude towards the principles when voicing their opinion but present diminishing results when translating their opinions into behaviours. The faculty of High and **Moderate commitment schools had lower scores in their beliefs regarding the Montessori principles**. By contrast, the faculty of **Very high commitment schools exhibited a high and positive correlation** ( $r = .73; p < .05$ ), a result that shows that a devoted opinion towards the Montessori Pedagogy can bring about attitudes and behaviours more aligned with the pedagogy.

The qualitative analysis reveals that all faculties understand the adult's role as a guide (Montessori, 2019); however, in schools with a **Very high commitment**, the competences of the **guide to respond to the needs of each individual** and to prepare the environment are better suited. Furthermore, this type of school offers wide, varied and continuous training for its staff: an aspect that aids in their continuing to improve their early childhood educational practices. In comparison, schools with a High commitment offer specific training activities, and schools with Moderate commitment offer none. This continuous training offered by the school gives their faculty clearer, more concise opinions towards the pedagogy, which also allows them to translate their opinions into educational practices.

In the case of the families, the results in the opinions block show us that there are no statistically significant differences between them, which leads us to observe that, regardless of the degree of commitment of their schools, their opinions are the same. The analysis of qualitative data indicates that all families rely on self-preparation and **are thus interested in continuously informing themselves on the aspects related to early childhood development**. Schools with very High commitment offer continuous training activities for them, whereas other types of schools offer little or none. This shows that the very High commitment schools create positive, quality relationships in both contexts (Hoover-Dempsey et al., 1987). This aspect promotes a constant collective endeavour, focused on the creation of shared environments and attitudes for adults, which favours the children's development and maximises their

education (Christenson et al., 1992). In working together, both environments are in sync, and the interactive processes of both schools and families (Bronfenbrenner, 1979) are equally represented before the child.

The application of the Montessori principles in the family environment decreases when the child is enrolled in a lower commitment school. According to the information provided by the families, the environment tries to respond to the needs of the children, but their involvement in day-to-day activities is focused on caring for themselves. To a smaller extent, children can participate in activities that involve cooking or caring for their environment at a young age. However, Hoover-Dempsey et al. (1987) highlighted the importance of the children's involvement in these domestic chores. They establish a bond with the schools (Vicker & Minke, 1995), since it is there they will have an opportunity to participate in activities that allow them to adapt to society (Montessori, 2019).

Based on our research, families are the subjects that establish the most positive correlations in terms of thinking and acting. When their thoughts are faithful towards the Montessori Pedagogy, so are their behaviours. Therefore, schools must offer training for them in order to present spaces that encourage dialogue and deliberation. This allows both parties to reflect on their own practices and to strengthen the bond of trust they have with the children when participating in domestic chores with accurate communication, also improving undervalued aspects of the questionnaires that favour autonomy, competence and social skills (Baumrind, 1971).

Another aspect that the faculty and the families must consider is the fact that the characteristics of their environment will be transferred to the child. The creation of an environment that responds to the needs of the child (Montessori, 2019) is apparent in both contexts, whilst grace, courtesy and social relationships between adults are some traits that need to be developed. The qualitative analysis shows deficiencies when recognising good from bad practices, both from themselves and from other adults, which is why, in order for the child's education to be front and centre, communicative adults with shared interests are a must.

When generally analysing the application of the Montessori principles block, it becomes apparent that statistically significant differences exist both in the faculty and the families' variables, something that is highly related to individual and familiar situations, and to the school settings where the teachers are. This verifies that the use of SEM in social analysis is highly valuable, since it allows us to interpret each level separately and aids our understanding of the relations established between each variable. The analysis of individual situations is configured by a myriad of variables, which SEM both establishes and relates to each other, in so revealing the comprehension of society's own hierarchies. In this case,

it showed that particular situations and our own thoughts impact our behaviours and, consequently, the way we address early childhood education and sociability.

As the study shows, a mutual path between families and schools is possible, and the shared endeavour of education, especially in early childhood development, is vital to both. Bainbridge et al. (2005) indicated that attention during the early years will influence a child's future educational success and his or her development of emotional and social competences (Kirk & Jay, 2018; Walker 2010); hence, spaces for communication must exist in both contexts since they will have a direct influence on the child's development. The union of the Montessori principles both in educational and family environments will create shared values, shared objectives, and shared concerns that will guide the child with harmony, respect, and positivity, all of which are essential assets for the creation of autonomous, independent beings in society.

## Limitations and Conclusions

The present study focuses on the analysis of the principles of the Montessori Pedagogy in Spain, both in families and faculty considering early childhood education. The results show that a collective work between them exists and that both care for the child's education: an education centred on the rounded development of children, favouring their participation in day-to-day activities, allowing them to gain autonomy and independence, making them responsible for their actions and offering them the chance to express themselves and to take decisions. These characteristics are stronger in schools with a higher commitment to the principles of the Montessori Pedagogy. Nevertheless, it is the interest of all participants that the child be educated and attended to, so the preparation of the environment and of themselves is fundamental. Reflecting on their attitudes and creating spaces that respond to the needs of their children is possible as long as a collective effort exists between the schools and the families, as shown in Very high commitment schools.

Considering that the child's education is the main objective of families and schools, one limitation would be the selection of schools that exclusively apply the Montessori Pedagogy principles. In Spain, there is a great diversity of schools and family contexts; for this reason, expanding the number of schools and families that participated in this study would provide more comprehensive, varied data.

In contrast, the present research was restricted by the limited bibliography related to the usage of SEM when studying educational and family practices. This analytical method is currently receiving diverse contributions, which assist the growth of its literature and its appliance in social contexts.

Presently, the existing bibliography lacks analyses focused on the relationships established between schools, families, and children. Consequently, it would be interesting to research how the links that influence the development of the child are formed between the family and the educational contexts. Novel analytical methods, such as Multilevel Structural Equation Modelling (MSEM), could enable the analysis of each level that composes a single context, which is why it would benefit this future line of research, favouring the interpretation of the relations established between each level. This would greatly promote a higher and richer understanding, ultimately ensuring the consideration of different variables and the relations established among them.

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