

Gender Relationship Preferences in the School Contexts: A new measure for assessment of gender relationships in education

Preferencias relacionales de género en el contexto escolar: Una nueva medida para el diagnóstico de relaciones de género en educación

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Resumen

Este estudio evalúa un procedimiento nuevo para el análisis "micro-sociométrico" de los patrones relacionales de género en el alumnado adolescente, lo que se analiza aplicando Análisis de Correspondencias Múltiples (ACM). El propósito del estudio es desarrollar y validar la Escala de Preferencias Relacionales de Género (EPRG), con el fin de obtener datos válidos y fiables que permitan reconocer la predisposición de las chicas y los chicos adolescentes a relacionarse con sus iguales; y, si las relaciones que establecen están condicionadas por la socialización diferencial de género que propone el patriarcado (Bosch, Ferrer & Alzamora, 2006; Lagarde, 1996; Lomas, 2007; Lorente, 2007; Rodríguez-Mosquera, 2011; Simón, 2010; Tomé & Tonucci, 2013). La muestra está compuesta por 6.000 estudiantes adolescentes, de los cuales el 50,8% son mujeres y el 49,2% son hombres, con una media de edad de 13,82 años. Se demuestra validez de constructo y se obtiene una alta fiabilidad (Alpha de Cronbach = .92) en la determinación de las asignaciones de roles y estereotipos de género en el aula escolar, considerando al tiempo las "distancias sociales" y la estructura electiva de chicos y chicas en las aulas. La obtención con ACM de mapas "micro-sociométricos" facilita la interpretación de resultados, coincidentes con otras aproximaciones teóricas, identificando las "distancias sociales" entre personas, categorías y géneros. Los resultados destacan actividades relacionales que muestran patrones de género muy marcados tales como compartir la ropa o elegir pareja, así como las conductas relacionales asociadas a la diferenciación inequívoca inter-intra géneros.

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Abstract

This study evaluates a new methodological procedure for "micro-sociometric" analysis of gender relationship patterns in the adolescent students, which is analyzed using Multiple Correspondence Analysis (MCA). The purpose of the study is to develop and assessment of the Gender Relationship Preferences Scale (GRPS), in order to obtain valid and reliable data to recognize the willingness of the young (girls and boys) to interact with their peers; and to determine whether the relationships established between them are conditioned by the gender differential socialization proposed by patriarchy (Bosch, Ferrer & Alzamora, 2006; Lagarde, 1996; Lomas, 2007; Lorente, 2007; Rodríguez-Mosquera, 2011; Simón, 2010; Tomé & Tonucci, 2013). The sample size is 6000 cases, adolescent students, of whom 50.8% are women and 49.2% are men, with a mean age of 13.82 years. The construct validity is tested and it has obtained a high reliability (Cronbach's alpha = .92) for the determining the allocation of roles and gender stereotypes in the classroom, what it is obtained while considering the "social distance" and elective structure of boys and girls in classrooms. Maps "micro-sociometric", obtained with MCA, facilitates the interpretation of the results, which are consistent with other

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theoretical approaches, identifying the "social distance" between people, categories and both genders. The results highlight relational activities showing very marked gender patterns such as sharing clothing or choosing a couple, and the relational behaviors associated with inter-intra gender differentiation.

Keywords:

Coeducation; Adolescence; Peer Relations; Gender Differences; Sociometric Analysis; Educational Assessment; Reliability & Validity; Social Distance; Scales; Multiple Correspondence Analysis (MCA).

This study investigates gender relationship patterns in the school context. The subject of gender differences has been dealt with, even recently, using causal comparative logic as a differentiating factor (Murillo & Hernández-Castilla, 2015) and also by studying solely women (Jiménez-Cortés, Rebollo-Catalán, García-Pérez & Buzón-García, 2015). However, we have focused on relationships in this study, providing a novel perspective within the sociometric approach in schools, and we have done so with a large sample of school students of both genders. We have designed and validated an original assessment procedure entitled "Gender Relationship Preferences Scale" (GRPS), which has helped us to develop a new socioeducational measure. This procedure gauges the predisposition of adolescent girls and boys to relate to their peers (inter-intra gender) and the consequences of differences in gender socialization observed through a wide range of relationship activities in which they express their preferences.

The recognition of this type of gender relationship patterns at early stages and in the school setting was an objective included in Spain's national policies on gender in Organic Law 3/2007, of 22 March 2007 (text consolidated 27/07/2013), for the Effective Equality between Women and Men as a way of preventing the endemic problem of gender violence against women. Its objectives in schools included encouraging full equality between girls and boys with the elimination of obstacles and enabling the issue to be dealt with from the perspective of the coeducational school. In fact, one of the priorities in the 1st Plan for Equality of Men and Women in Education, set up by the Department of Education of the Regional Government of Andalusia in 2006 (currently in force pending

approval of the 2nd Plan for Equality), is to promote changes in gender relationships to achieve greater equality between women and men. This framework obliges schools to develop an assessment understanding of gender through different channels. In this case, it concerns developing another, complementary, procedure to inform specifically about the problem of social cohesion/distance of gender, to complete the school gender assessment.

Patriarchal culture and organization (Bosch, Ferrer & Alzamora, 2006) are seen by international and national bodies, and by researchers in gender and women's studies, as being the cause of the imbalance in the socialization of women and men. The school has also been highlighted as a context which favours the social reproduction of gender differences, and this can only be remedied by coeducation (Subirats, 2011). Assessment is crucial for preventing possible risk behaviors, such as the creation of unbalanced relationships based on sexist attitudes and gender prejudices, while at the same time it can help promote coeducational measures at school capable of permeating the attitudes and behaviors of students so that the change from patriarchal culture can be assimilated and manifested in relationships of equality between boys and girls.

In this sense, the main objective of our study is to provide new understanding (gender relationships preference patterns) and an original tool (EPRG) that is valid, reliable and useful for this type of assessment in the area of equality between adolescent girls and boys. This instrument also serves as a resource for highlighting gender relationship activities and practices which transmit patriarchal sexist stereotypes among adolescent students, to intervene in school culture, dealing with and

eliminating those situations which reproduce gender inequalities.

Gender identity, adolescence and coeducation

The construction of gender identity is understood as a dynamic process of interaction between personal and social factors, which leads people to assimilate, appropriate and reproduce different social cataloguing - beliefs, attitudes, behaviours, expectations, rules, roles and values - depending on whether one is male or female (Barberá & Martínez-Benlloch, 2004; Colás, 2007; Díaz-Martínez & Dema, 2013; Martínez-Benlloch & Bonilla, 2000; Subirats, 2011). The establishment of differential norms for men and women gains meaning in the cultural context of personal relations. The "doing gender" socio-connectionist approach (West & Zimmerman, 1987) argues that gender acquires meaning when interactions occur in sociocultural contexts (Crawford, 2006; Crawford & Chaffin, 1997). Hence, men and women assume and internalize the dichotomous social assignation of gender identity through interaction with people (Barberá, 1998; Barberá, 2006).

Some classic studies (Bosch et al., 2006; Lagarde, 1996; Lomas, 2007; Lorente, 2007; Lorente, 2009) have argued that the key to gender socialization is how men and women are assigned different activities and roles, whereby boys and girls are educated to behave in different ways and in diverse activity settings, also attributing unequal social value to what is masculine and feminine (Rodríguez-Mosquera, 2011; Simón, 2010). This process of differential gender socialization which women and men undergo through interaction with other people, reproduces the values, attitudes, expectations and the social behaviors of their own sociocultural settings for each gender. This occurs as the result of the influx of a series of subjective and cultural mediations (sexual origin, language, family, school instruction, peer groups, economic and social status, ideologies, life-styles, beliefs, messages from mass culture, etc.) which have

their origin in the patriarchal tradition and which play a decisive role in the construction of our identities.

Thus, differential gender socialization attributes certain stereotyped characteristic attitudes and behaviors to women and men which mark and define their personal identity, and which are clearly mutually antagonistic (Simón, 2008; Tomé & Tonucci, 2013). Hence, women constitute their gender identity with stereotypes such as: dependence, affectivity/sensitivity, understanding, empathy, dedication and care, being at other people's disposal, submissiveness, passivity, tranquility, beauty, obliging femininity, etc. Meanwhile men configure their gender identity with stereotypes such as: independence, non-emotionality/toughness, individualism, selfishness, competitiveness, self-centeredness, assertiveness, dominance, risk, strength, normative masculinity, etc. (Berk, 2009; Jensen-Arnett, 2008; Martínez-Sánchez, Navarro & Yubero, 2009; Simón, 2010). This dichotomous demarcation between genders does not just refer to the attitudes and behaviors of men and women, but also refers to the appearance of gender which is offered, being objectified in dress and whose social patterns are also mutually exclusive. Women are expected to wear eye-catching clothes, which are seductive and exclusively feminine without possible masculine interpretations; while men are expected to wear simple, comfortable and clearly masculine clothes (Zambrini, 2010). These social attributions of gender influence the characterization of women and men, while at the same time predisposing the establishment of their personal relations. So much is this the case that, within this dichotomous patriarchal order, a binary system is established in terms of sexuality: heterosexuality/homosexuality; naturalizing and normalizing heterosexuality, and, as a consequence, silencing and contemplating homosexuality as exceptional (Zambrini, 2013). This way, manliness or dominant masculinity is characterized by the absence of femininity and homosexuality (Chaves, 2012; Piedra, 2013), while traditional

femininity is typified in the lack of masculinity (Fernández-Sánchez, 2011).

Adolescence is a vital stage in the construction of gender identity (Berk, 2009; Jensen-Arnett, 2008; Morgade, 2009), because it is during this time that most of the physical, psychic and social or relational transformations of people take place (García-Santesmases, Herrero, Olaso, Martínez-Ten, 2012; García-Tornel et al., 2011). In fact, recent research has shown how differential gender socialization has permeated the attitudes and behaviors of adolescents, marking particularly the relationships they establish with their peers, which reproduce interactive imbalances depending on whether they are girls or boys and risk practices, such as sexist attitudes, in the creation of bonds (Bascón, Arias & De la Mata, 2013; Ceballos, 2014; De la Peña, Ramos, Luzón & Recio, 2011; Garaigordobil, 2012; García-Pérez et al., 2010; Herrera, Expósito & Moya, 2012; Muñoz-Tinoco, Jiménez-Lagares & Moreno, 2008; Ruiz-Pinto, García-Pérez & Rebollo-Catalán, 2013; Soler, 2009).

Specifically, De la Peña et al. (2011) revealed that sexism in adolescence is more evident, or becomes easier to see, when it concerns the assumption of gender roles. This refers to the tasks, roles, activities and responsibilities associated to one gender or the other, and this sociocultural tradition was seen as being more internalized in adolescent boys than in girls. As for gender differences among adolescents on a relationship level, Muñoz-Tinoco et al. (2008) observed that girls obtained higher scores in sociability (help, show concern, encourage dialogue and agreements) while boys scored higher in physical and relational aggressiveness (getting in trouble with other people and manipulating others to achieve their own goals). On the same lines, Ruiz-Pinto et al. (2013) showed, through sociometric social network analysis (SNA) that during adolescence girls are chosen more often to perform tasks based on caring while boys are chosen more often for competition activities. This also showed that

the relational networks for care are more fragile and disperse, while those related to competition are stronger and more cohesive. Soler (2009) studied these stereotyped behaviors in Physical Education classes in a school context, finding that boys opted to share the activity of playing football amongst boys and when girls took part they did not treat them in the same way. These studies highlighted the existence of sexist values and relational imbalance between adolescent girls and boys, which inevitably leads to actions of inequality between genders and possible risk practices such as episodes of gender violence (Bonino, 2005; Ferrer, Bosch, Navarro, Ramis & García, 2008; Lorente, 2007), and the justification of the use of violence, by both girls and boys (Garaigordobil & Aliri, 2013). This underlines the importance of educating with a sociocultural model guided by the principle of equality between people to facilitate a change in the attitudes, behaviors and relationships of adolescent boys and girls.

In the light of the results of these studies, there is clearly a need for educational programs to transform popular consciousness and facilitate new models of masculinity and femininity, resting on the central pillars of equality, respect and plurality. The eminently interactive nature of the school, and the structure of education itself: the educator, the educated and contents, has traditionally propitiated the reproduction of sociocultural inequalities towards women and men for reasons of gender (Bueno & Garrido, 2012). However, and precisely because of the interactive nature of education, a school which is based on an integral and gender perspective, will encourage the construction of equality and improve coexistence, while preventing any type of violence, including gender violence (Díaz-Aguado & Martín-Seoane, 2011).

Educational intervention, whose main pillar is equality between genders and non-discrimination for reasons of gender, requires a thorough knowledge of students' activity situations and their relationship contexts where the greatest social distances and lack of inter-

intra gender cohesion occur. This knowledge facilitates intervention in a co-educational system (Ferrer & Bosch, 2013; Simón, 2010; Subirats, 2009; Subirats & Tomé, 2007), which has to aspire to the construction of new gender identities, free of unbalanced social and relationship stereotypes between girls and boys, with the ultimate aim of achieving equality and recognizing the actual differences of each gender (Meseguer & Villar, 2011; Subirats, 2010).

Gender relationship preferences: a new system of assessment in education

Arteaga & Lara (2004) provide us with a very interesting perspective to situate the methodological approach behind relationship preferences scales in the framework of efforts linked to developing "sociological" knowledge and its derivation towards educational approaches capable of transforming today's society and gender violence. This gender violence is, at present, manifested from the first years of human life and school is, without doubt, the ideal place to study, improve our understanding and be able to tackle it. As Arteaga (2003) pointed out, sociology has, since its inception, been on a continuous journey, back and forth, between structural determinants and individual action.

The focus that guides the creation of "relationship preferences scales" are based on the overcoming of opposites. This involves: 1) the structuralist focus of Moreno (1934), which we have already adopted in this same context under the idea of the novel "Social Network Analysis" with UCINET (Ruiz-Pinto et al., 2013); and 2) the approach of Bogardus to the measure of the "Social Distance" construct with its origins in Durkheim (Collins, 1974). Both these approaches look at social cohesion, or rather the lack of it, as providing the conditions for the fermentation of "violence and aggression" of what are considered "contrary or opposite" and the negation of change and solidarity towards equality. This negation is based on the "normalization" of rejection and violence as part of relations that are natural (or rather

socially naturalized) in the area of social coexistence.

We therefore wish to build a new "educational micro-sociometric" tool, which does not just give us an assessment about where the problems lie, but also indicates and provides information about the best way to overcome them. To do this, both the structural approaches (with their analysis of cohesion and centrality through the acceptance and rejection of the other) and the approaches of social distance scales towards the "other group" (according to race, ethnic group, nationality, gender, social class, sexual orientation, affected by economic or health problems, etc.), allow an intermediate methodological point which shows us the "classes" and "categories" of acceptance and rejection in a new and integrated model of interpretation. The "Gender Relationships Preferences Scales" (GRPS) which we have formulated draw on both the classic formula of sociometric test started by Moreno (1934) and Bogardus' social distance scales; thereby constituting a new interdisciplinary methodological focus especially useful for the problem we have proposed. This new approach means considering simultaneously both the relationship attitude and the intersubjective "tele" and the disposition towards specific interaction according to the diverse "key relationship settings" which the theory marks out as conflictive, in this case, regarding gender relationships preferences and patriarchal mandates.

Amongst these theoretical elements which provide us with information about the structure of a gender relationship preferences scale, special attention needs to be directed at those known elements linked to the mainstay of the patriarchy (Guasch, 2007): the differentiation of sexual patterns and stereotyped assumptions about gender, and key elements related to homophobia. Bogardus (1965) himself indicated that fear is the most important and dynamic factor in the causal production and maintenance of social distance. Non-compliance with the patriarchal patterns

assigned to men (whose identities have been constructed on the basis of heteronormative sexual stereotypes) for the domination of the social world, and social role patterns based on caring and a framework of intimacy for women, constitute the basis of patriarchal "fear of social dislocation" transmitted by the family itself to individuals in their earliest years.

This type of scale involves variants of sociometric tests in which we do not expressly ask each person whether they accept or reject something, but we ask whether they think their social group would accept or reject an action. The social group is considered as complete and unfragmentable, it is not a case of person to person. For example, we ask adolescent boys and girls what combined actions they would or would not carry out with other "boys" and/or "girls" in their own classroom in specific theoretically proposed activity contexts.

This type of instrumentation and analysis, as we mentioned earlier, may be used in the framework of any analysis proposal of the "socio-structural distance" of the *groups* which may be formed according to variations in identity, status and cultural and intergenerational gaps. The responses to the relationship preferences scales (whether these are metric or non-metric - in our case they are category variables on a nominal scale) are analyzed in a multivariate sense (for example applying Multiple Correspondences Analysis and Cluster Analyses) to be able to represent them in the same multi-dimensional space in which the "social distances" investigated are manifested under the idea of "geometric spatial distance" (Cornejo, 2003b; 2006), indicating the elements which are crucial for educational intervention and socio-cultural prevention in very diverse fields which affect education. This conception of spatial approximation to social distances is supported by the methodological proposals of Cornejo (1988; 2003a) for detecting proximity, equality or similarity through Multiple Correspondence Analysis of the interactions between individuals and groups.

Objectives

The main objective of this study was to assess gender relationship preferences of students within a process of gender assessment in school, in order to intervene in school culture to prevent, from an early age, the imbalances and consequences of a very differential and extreme gender socialization. That is, we need to recognize the patterns in gender relationship preferences to prevent future risk behaviours on a relationship level, in terms of physical or psychological violence, or microviolence. Microviolence or microsexism (Bonino, 2005; Ferrer et al., 2008) are cultural forms of domination which are also manifested in the school organization (Castells & Subirats, 2007; Subirats & Tomé, 2007). Assessing these general patterns which can be taken from the overall dataset with the application of these hybrid sociometric techniques helps us, ultimately, to propose useful ideas for coeducation and the transition from the mixed school to the truly coeducational school.

We shall now break down this overall goal into two more specific objectives which give the value to this study:

- 1) Validate the Gender Relationships Preferences Scale (GRPS) which we have used to identify and assess relationship patterns between boys and girls in the school classroom; or more specifically, validate the measures with those obtained in this particular study. The fulfilment of this objective does not just mean obtaining valid and reliable data to complete our study; it also involves proposing to the educational community a new system for developing this type of socio-educational measure of gender.
- 2) Recognize and explain gender relationships patterns in Andalusian schools, in a multivariate sense, using the students' responses to the Gender Relationships Preferences Scale (GRPS); identifying and differentiating the main patterns associated to adolescents, in relation both to acceptance and rejection for

the groups of girls and boys. This way, we fulfil the overall objective of providing a sociological perspective of education with the global process of gender assessment in the school setting.

Method

We have developed a multivariate correlational study based on Multiple Correspondence Analysis of the data obtained using the Gender Relationships Preferences Scale (GRPS) in order to analyze gender relationships in adolescence and, specifically, apply this new assessment tool to evaluate the predisposition of students to choose/reject boys and/or girls depending on the nature of the activities, thereby revealing their gender role attributions and stereotypes.

Participants

The sample consisted of 6000 students (49.2% male and 50.8% female) who were attending 56 state and state-assisted schools (primary, secondary, vocational training and Baccalaureate) in Andalusia (Spain) during the 2009-2010 academic year. Most of the students were secondary school adolescent students (74.8%), and their mean age was 13.82 (median = 14; s.d = 2.42). The age ranges were distributed as follows: < 13 = 31%; 13-14 = 32.9%; 15-16 = 25.9%; 17-18 = 7.4%; > 18 = 2.8%. Students from urban areas accounted for 57.2% while 42.9% were from non-urban areas. We applied a cluster sampling (classrooms) of Andalusian state education schools, adopting inclusion criteria according to educational levels, geographical area and socio-cultural setting.

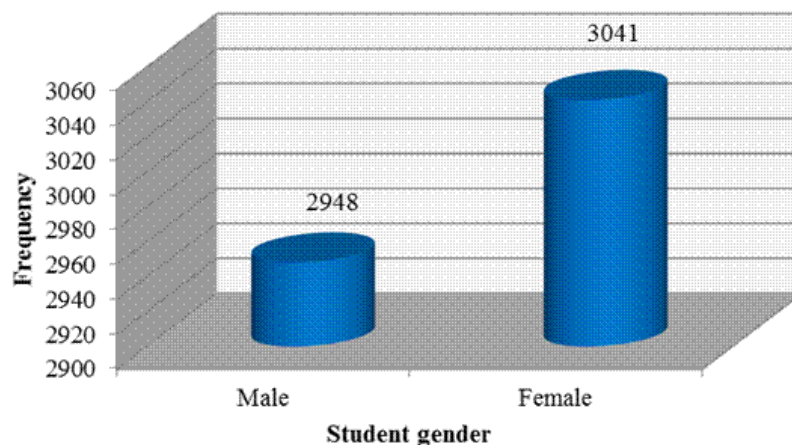


Figure 1. Socio-demographic sample data (student gender)

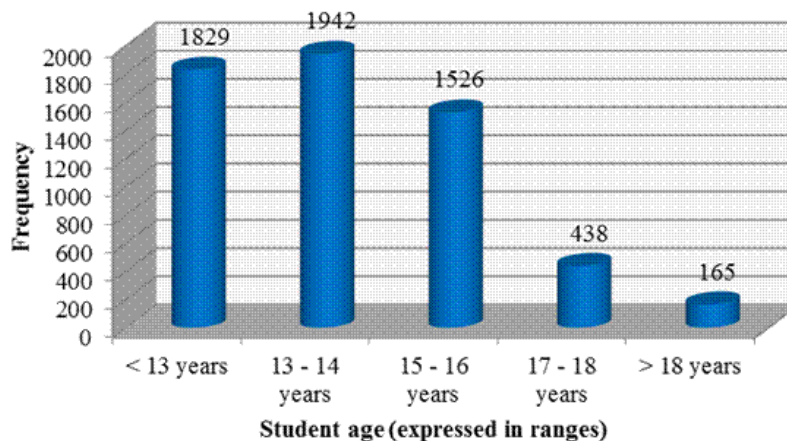


Figure 2. Socio-demographic sample data (student age expressed in ranges)

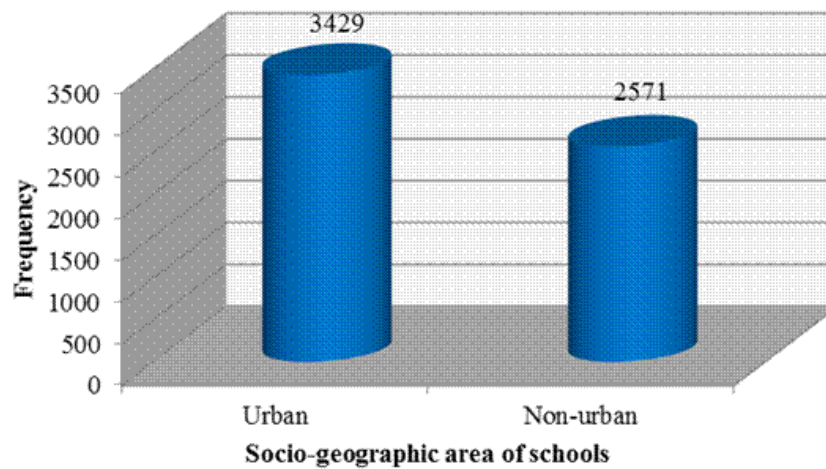


Figure 3. Socio-demographic sample data (socio-geographic area of school)

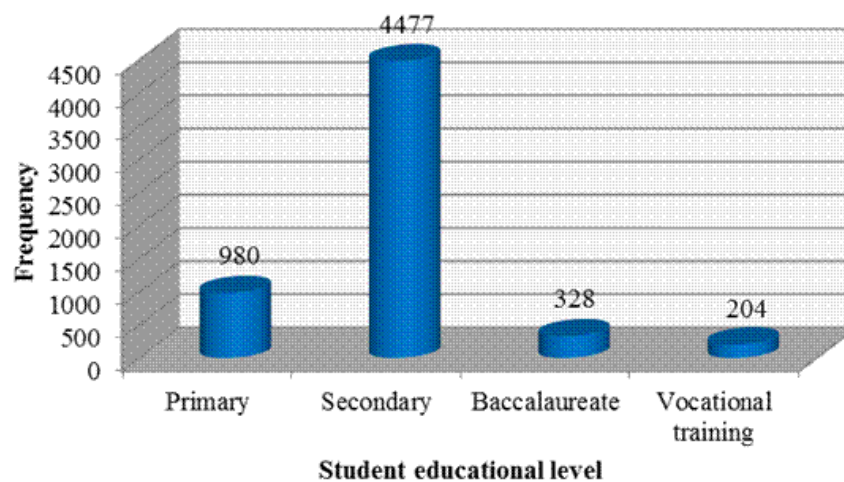


Figure 4. Socio-demographic sample data (student educational level)

Instrument

The survey technique used a questionnaire which gathered the usual sociodemographic data, where they were from, which allowed us to characterize the previous sample, and also the Gender Relationships Preferences Scale (GRPS). We have already pointed out in the conceptual introduction that this scale constitutes a new or "hybrid" sociological instrument lying between the social distance scales of Bogardus and the classic sociometric tests proposed by Moreno (1934), whose theoretical meaning and scientific utility has been emphasized above. In the following section we provide a methodological

breakdown of the (GRPS) scale which has been constructed for this specific study (see Figure 5).

As you can see, the scale consists of a set of dichotomous (yes/no) items referring to contexts and situations in possible gender relationship activities between boys and girls in the classroom, grouped according to dimensions which are repeated for each gender. There are therefore four dimensions (two to assess the relationship preferences with boys and another two for girls) each containing the ten items which measure each dimension. With these 40 items, we built a sociometric response matrix, as each pair of

dimensions for a gender refers to the acceptance or rejection of the boys and girls, according to the dimension, in relation to the ten contexts of relationship/communicative action which are under evaluation. These relationship contexts are:

1. Have a partner relationship
2. Study together
3. Share a secret

4. Sit next to in class
5. Lend each other clothes
6. Tidy up and clean
7. Do sports together
8. Play videogames
9. Be class representative
10. Go camping

GENDER RELATIONSHIPS PREFERENCES SCALE

This survey is completely anonymous and in it you can show your tastes and preferences with boys and girls in your class.

School: _____ Year and group: _____

Town/city: _____ Province: _____

Mark with an X the number on your back:	1	2	3	4	5	6	7	8	9	10	11	12	13
	14	15	16	17	18	19	20	21	22	23	24	25	26
	27	28	29	30	31	32	33	34	35	36	37	38	39

Female

Age (in years): _____ Male Sex:

For each question, put a cross next to the activities you would choose. Mark those activities you would most like to do. You can mark none, one or several (up to a maximum of five).

1) I would choose a girl in my class to...

Have a partner relationship.

Study together.

Share a secret.

Sit next to in class.

Lend each other clothes.

Tidy up and clean.

Do sports together.

Play videogames.

Be class representative.

Go camping.

2) I would choose a boy in my class to...

Have a partner relationship.

Study together.

Share a secret.

Sit next to in class.

Lend each other clothes.

Tidy up and clean.

Do sports together.

Play videogames.

Be class representative.

Go camping.

3) I would not choose a girl in my class to...

Have a partner relationship.

Study together.

Share a secret.

Sit next to in class.

Lend each other clothes.

Tidy up and clean.

Do sports together.

Play videogames.

Be class representative.

Go camping.

4) I would not choose a boy in my class to...

Have a partner relationship.

Study together.

Share a secret.

Sit next to in class.

Lend each other clothes.

Tidy up and clean.

Do sports together.

Play videogames.

Be class representative.

Go camping.

Figure 5. Gender Relationships Preferences Scale (GRPS)

Thus, the first dimension measures boys' and girls' (in other words, all 6,000 male and female subjects in the survey's) acceptance of the female gender (girls) for the relationship activity proposed in each of the 10 items. The second dimension is identical but for the male gender. Dimensions three and four measure identical relationship preferences but for rejection, not acceptance.

In other words, it includes data which express the approaches of the sociometric tests for the identification of choices (acceptance and rejection), but linked to gender as a whole (in the style of the "contrary and opposing" social distances of Bogardus). This constitutes the matrix for relationship preferences with 40 dimensions which are optimal for developing scalings based on the application of Multiple Correspondences Analysis

Procedure

The study was presented to the headteachers and staff of the schools in Andalusia which were asked to take part in the study. It was agreed that the Gender Relationships Preferences Scale (GRPS) would be applied to students collectively in each group/class, in less than 50 minutes in their weekly class slot for tutorials, thereby involving the staff and tutors of each class. Students were told how the information collected would be used, and

that their participation in the study was entirely voluntary and anonymous.

Data were processed with the SPSS statistical package (version 20 for Windows) and then analyzed using the SPAD programme (version 5.6 for Windows), so that the multiple correspondences analyses were conducted following the approaches of Cornejo (2003a), Joaristi & Lizasoain, (1999) and Sánchez Carrión, (1989).

Results

Validation of the measures obtained with the Gender Relationships Preferences Scale (GRPS)

There is not a long tradition of data quality analysis using the type of scale we are proposing, so we have looked for a similar analysis in the proposals of Bergesio & Golovanevsky (2008; 2013) and Letelier et al. (2010). The study of the validity and reliability for dichotomous data (choice/no choice and rejection/no rejection) obtained with the relationship preferences scales and organized using nominal data matrixes, as presented in this study, requires a detailed analysis of the values obtained in the multiple correspondences model. This model is considered valid for the observation and "geometric" grading of the spatial positions in the new euclidean area reduced to the main

components which can maintain a parsimonious yet precise explanation of the assessment problem presented. This means that the validity of the construct refers here to the finding of a model Multiple Correspondences Analysis (MCA) which can be used to represent the information with the least possible number of main components while ensuring a clear image in relation to the nature of the research question.

The model of MCA we are presenting here, taking the 40 -10x4- dimensions that the instrument contemplates plus the gender

variable as active variables, fits these requirements. Thus, this is a model which is useful for observing gender role assignments and stereotypes (according to the problem proposed in the study) which is in turn parsimonious, because it only needs to conserve the first two factors for the explanation, because from the third one on only residual aspects are explained, mainly a redundance of information contained in the first two and which have worse spatial representation.

NUMBER	EIGENVALUE	PERCENTAGE	CUMULATED PERCENTAGE	
1	0.2610	26.10	26.10	*****
2	0.0768	7.68	33.78	*****
3	0.0580	5.80	39.58	*****
4	0.0400	4.00	43.57	*****
5	0.0330	3.30	46.88	*****

Figure 6. Extraction of the 5 main components of the MCA

Once the issue of finding the appropriate model of MCA had been resolved, we needed to check that the cases and variables represented together in the Euclidean space characterized thus are clear (reliable) enough. To do this, we used the generalization of the cosine theorem in the Euclidean space, with the result that the squares cosines accounted for the representative power of an element in the vectorial space elaborated with the chosen MCA model. In other words, in practice these were indicators, in the form of correlation coefficients between dimensions and variables, about the clarity of observation of the element (categories of variables) on each geometric plane on which these dimensions were involved (axes 1 and 2). In our study, the clarity that dimension 2 (elaborated with the

main contribution of the participant's gender) offered to gender role distributions reached a very high coefficient (Squares Cosines = .71 = Boy/Girl). From this, we can deduce that the observations on gender differences (distances), which constituted the essence of this study, on the planes conformed by Axis 1 (representing either choice or rejection) and 2 were clearly reliable and could lead to a useful scientific interpretation.

We shall only display the values of the gender categories (boy/girl) and the first 10 category elements (yes/no) referring to the variables of Item 1 of the gender relationship preferences scale (GRPS) to avoid repetition because the remaining items follow exactly the same pattern and provide identical information to what we present here.

CATEGORIES			CONTRIBUTIONS					SQUARED COSINES				
IDEN - LABEL	REL. WT.	DISTO	1	2	3	4	5	1	2	3	4	5
1 . Gender roles (students)												
sexH - MALE	1.20	1.03	0.0	11.4	0.4	0.0	0.0	0.00	0.71	0.02	0.00	0.00
sexM - FEMALE	1.24	0.97	0.0	11.0	0.4	0.0	0.0	0.00	0.71	0.02	0.00	0.00
6 . 1.1. Have a partner relationship.												
s11s - I would choose a girl	0.54	3.50	0.3	7.2	0.6	0.1	5.0	0.04	0.29	0.02	0.00	0.09
s11n - I would <u>not</u> choose a girl	1.90	0.29	0.1	2.1	0.2	0.0	1.4	0.04	0.29	0.02	0.00	0.09
7 . 1.2. Study together.												
s12s - I would choose a girl	1.59	0.53	0.5	0.8	1.7	0.7	0.4	0.15	0.08	0.12	0.03	0.02
s12n - I would <u>not</u> choose a girl	0.85	1.89	0.9	1.6	3.2	1.3	0.7	0.15	0.08	0.12	0.03	0.02
8 . 1.3. Share a secret.												
s13s - I would choose a girl	1.50	0.62	0.5	2.4	0.8	0.0	1.9	0.13	0.20	0.05	0.00	0.07
s13n - I would <u>not</u> choose a girl	0.94	1.60	0.8	3.9	1.2	0.1	3.0	0.13	0.20	0.05	0.00	0.07
9 . 1.4. Sit next to in class.												
s14s - I would choose a girl	1.70	0.43	0.4	1.6	0.8	0.5	0.1	0.14	0.17	0.06	0.03	0.00
s14n - I would <u>not</u> choose a girl	0.73	2.32	0.9	3.8	1.8	1.1	0.2	0.14	0.17	0.06	0.03	0.00
10 . 1.5. Lend each other clothes.												
s15s - I would choose a girl	0.71	2.45	0.5	8.6	0.0	0.6	1.6	0.08	0.38	0.00	0.01	0.03
s15n - I would <u>not</u> choose a girl	1.73	0.41	0.2	3.5	0.0	0.2	0.7	0.08	0.38	0.00	0.01	0.03
11 . 1.6. Tidy up and clean.												
s16s - I would choose a girl	0.69	2.55	2.7	0.0	0.6	5.6	1.5	0.40	0.00	0.02	0.13	0.03
s16n - I would <u>not</u> choose a girl	1.75	0.39	1.0	0.0	0.2	2.2	0.6	0.40	0.00	0.02	0.13	0.03
12 . 1.7. Do sports together.												
s17s - I would choose a girl	1.15	1.13	1.5	0.3	1.7	0.2	0.7	0.29	0.02	0.08	0.01	0.02
s17n - I would <u>not</u> choose a girl	1.29	0.89	1.3	0.3	1.5	0.2	0.6	0.29	0.02	0.08	0.01	0.02
13 . 1.8. Play videogames.												
s18s - I would choose a girl	0.80	2.06	2.4	0.0	1.1	2.2	1.1	0.39	0.00	0.04	0.05	0.02
s18n - I would <u>not</u> choose a girl	1.64	0.48	1.2	0.0	0.5	1.1	0.5	0.39	0.00	0.04	0.05	0.02
14 . 1.9. Be class representative.												
s19s - I would choose a girl	0.92	1.64	1.9	0.0	1.2	1.5	2.6	0.32	0.00	0.05	0.04	0.06
s19n - I would <u>not</u> choose a girl	1.52	0.61	1.1	0.0	0.7	0.9	1.6	0.32	0.00	0.05	0.04	0.06
15 . 1.10. Go camping.												
s10s - I would choose a girl	1.20	1.04	1.2	0.9	1.1	0.3	1.5	0.26	0.05	0.05	0.01	0.04
s10n - I would <u>not</u> choose a girl	1.24	0.97	1.2	0.8	1.0	0.3	1.5	0.26	0.05	0.05	0.01	0.04

Figure 7. Description of the main dimensions from the MCA

Furthermore, for the approaches of the non-active (illustrative) variables we used t values (which indicate the positive and negative values of distances normalized in relation to the centre of the factor or dimension) which fitted via a Chi-square test indicating their significance in the definition and explanation of their association with each calculated factor and/or cluster. However, as we shall see below, the graphical analysis is even more expressive on the main planes which conform both axes, which is why they are not included in this document.

In addition, we calculated Cronbach's Alpha coefficient for the whole GRPS scale (with the reliability procedure of the SPSS) obtaining an optimal result in internal consistency (Alpha = .92), which was to be expected given how

marked the gender roles promoted by the patriarchy are in the socialization processes of boys and girls (both are very consistent both in choice and rejection, promoting high levels of group agreement among the groups). These results demonstrate that this novel assessment approach, the gender relationships preferences scale, offers a clear characterization of the study issue tackled in gender assessment in a school setting. It is also fair to say that the sample size was very large (n = 6000 cases; 2948 boys, 3041 girls -and 11 participants who did not indicate their gender-) which affects the elevation of this coefficient. Finally, to comply with measurement level suppositions, we considered the case of the calculation of an optimal scaling model (CATPCA for nominal data with multiple unordered categories -in

our case for the 40 variables of the GRPS each category takes the values 1= yes, 2= no and 3= do not know/no answer; and gender 1=girl, 2=man and 3=no answer). This basically gave us a model with two main factors in which gender saturated obtaining high discrimination

measures in the second dimension (.707; with Cronbach's Alpha coefficient of = .701) and the variables of acceptance/rejection generally saturated with greater values in dimension 1 (with Alpha = .93).

Summary of the model

Dimension	Cronbach's Alfa	Explained variance	
		Total (Eigen values)	Inertia
1	.930	10748	.262
2	.701	3162	.077
Total		13910	.339
Mean	.878 ^a	6955	.170

a. The mean of Cronbach's Alpha is based on mean eigenvalues

Discrimination measures

(only the gender variable is displayed)

	Dimension		Mean
	1	2	
Gender of student in the network	.000	.707	.354

Figure 8. Reliability of category measures and discrimination by gender

Considering the set of results displayed for discussion, we can state that the measure obtained in the socioeducational data collection process with the gender relationship preferences scale (GRPS) constitutes a fairly reliable (consistent) and valid approach (construct: role assignments and gender stereotypes in the school classroom) considering at the same time the "social distances" and the elective structure of girls and boys in the classroom. With this reassurance, in the following section we shall characterize gender relationship preferences.

Gender relationship patterns of boys and girl in the school setting

Once the novel sociometric analysis procedure had been validated, we indicated that our objective was to recognize and explain the gender relationship patterns shown by adolescent boys and girls in school contexts,

through their choices/rejections, in the framework of specific relationship situations; following the logic of the new measurement procedure.

Therefore, once these choices and rejections had been obtained from the students' responses to the GRPS, we analyzed the contributions to the dimensions obtained in the MCA, identifying factors 1 and 2 as the main ones for study.

We continued differentiating the main patterns associated to boys and girls, from the inter-distances confirmed in the new metric space generated by the plane of axes 1 and 2, which was repeated for both boys and girls (for the purpose of visibility) and related both to acceptance and rejection (Figures 9, 10, 11 and 12) for both gender groups. They are presented below:

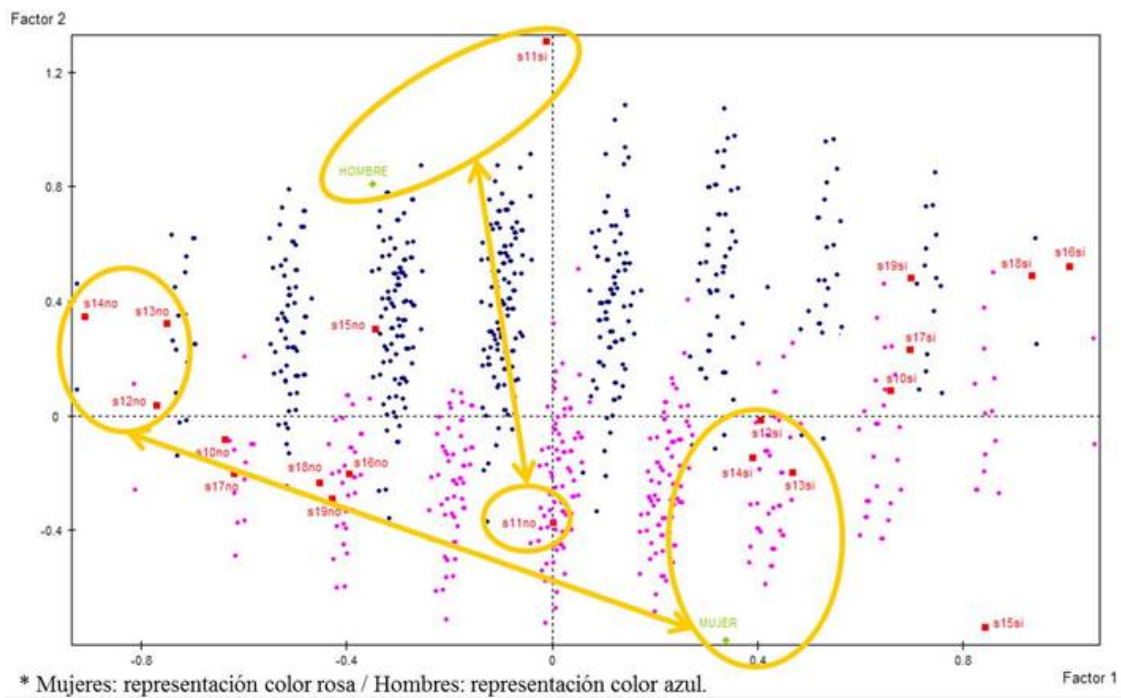


Figure 9. Distribution of gender relationship preferences of adolescent girls and boys in the choice of girls for cases of interaction

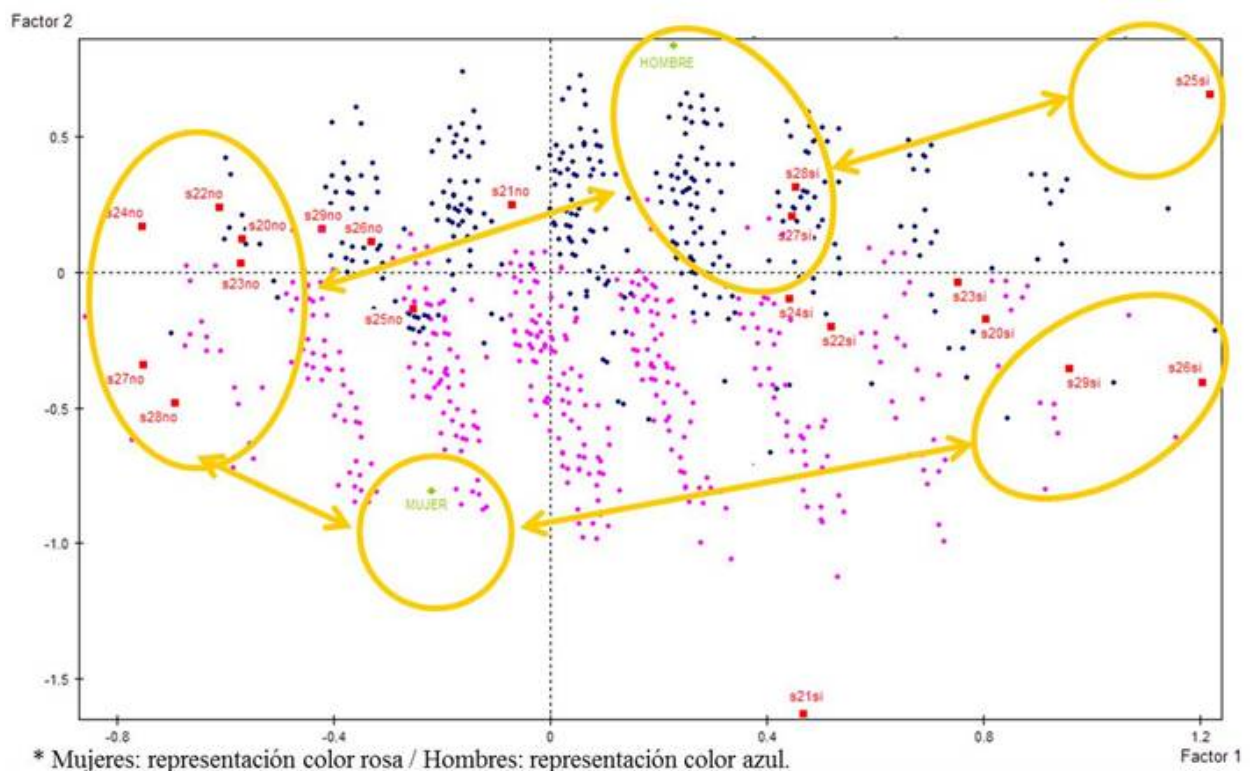


Figure 10. Distribution of gender relationship preferences of adolescent girls and boys in the choice of boys for cases of interaction

These two planes include the acceptance of boys and girls, indicating positive relationship

preferences, which is taken into account for interpretation.

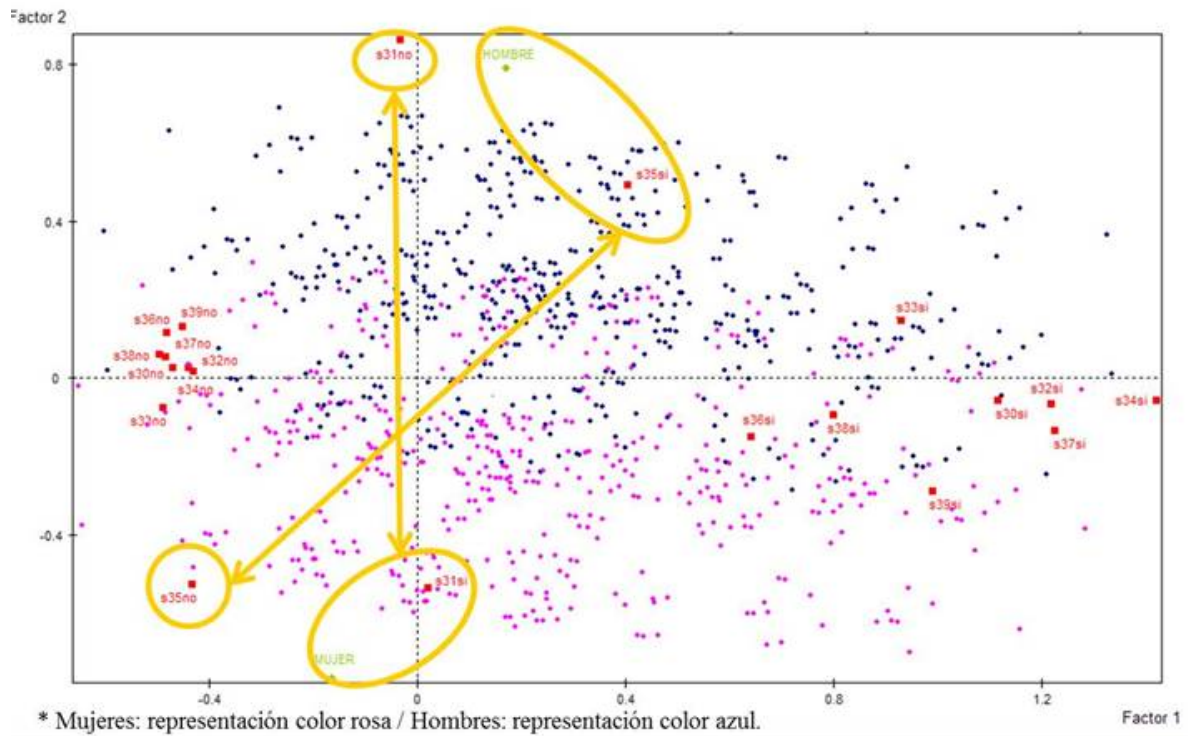


Figure 11. Distribution of gender relationship preferences of adolescent girls and boys in the rejection of girls for cases of interaction.

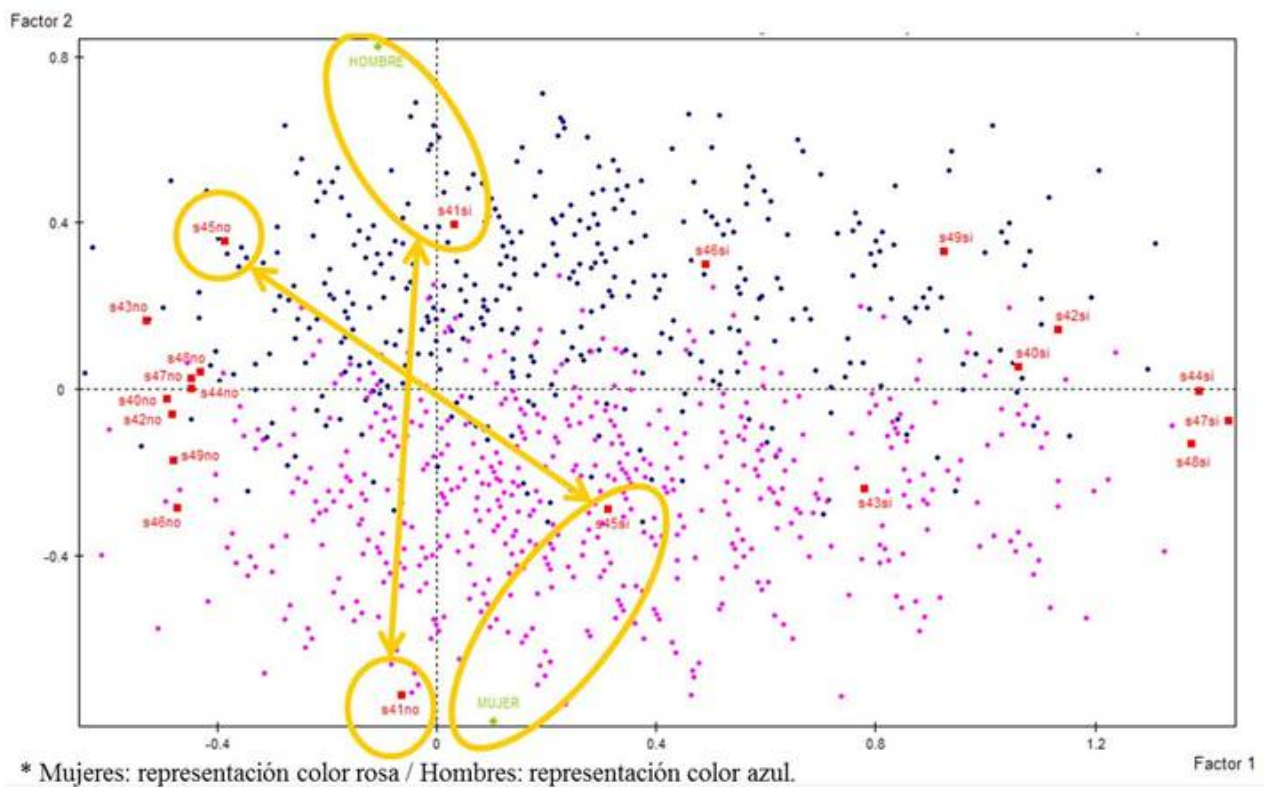


Figure 12. Distribution of gender relationship preferences of adolescent girls and boys in the rejection of boys for cases of interaction

This second pair of planes includes the rejection of boys and girls, indicating negative relationship preferences, which is taken into account for interpretation.

Considering all the quantitative information offered by the factors and categories in their relation with the dimensions and graphical representations displayed in the figures above (Figures 9, 10, 11 and 12), we can evaluate the main features of gender relationship patterns among adolescents. Figure 9 includes the relationship preferences of adolescent boys and girls for interacting with girls. On this graph we have marked the relationships. Thus, we can see that a majority of adolescent boys in the sample chose girls for having a partner relationship [s11si], while girls of the same sample chose girls to share a secret [s13si], to sit next to in class [s14si] and to study together [s12si].

In turn, Figure 10 shows boys' and girls' choices for doing activities with boys. Boys preferred being with other boys to play a videogame [s28si], do sports together [s27si] and lend each other clothes [s25si]. Girls chose boys for a range of activities, although no choice stands out.

On the plane of negation of relationships, Figures 11 and 12 reflect the gender relationship preferences in terms of explicit rejection of girls and boys, respectively. It is noteworthy that in both Figure 11 and Figure 12 the same tendency appears in relationship rejection in girls and boys. In Figure 11, girls in the sample showed a clear rejection of having a partner relationship with another girl [s31si] and boys for sharing clothes with a girl [s35si]. Similarly, in Figure 12 the relationship predisposition was identical, but inverse: girls reject a relationship with boys to share clothes [s45si] and boys did not want to have a partner relationship with other boys [s41si].

In this way, we can see how technically we have outlined the patterns of the patriarchy on the basis of the multiple responses given by the sample of adolescents. But perhaps the most significant aspect of this analysis is that we are able to identify and differentiate the

individual positionings of each case (person), boy or girl, establishing their distance or proximity with the patterns drawn here. We can therefore establish the basis for the assessment of how far a person does or does not identify with patriarchal patterns that have been theoretically and empirically demonstrated with the gender relationship preferences scale (GRPS).

Discussion and conclusions

As far as common ground with other studies is concerned, the results in this study corroborate the construction of different gender identities between boys and girls, and patriarchal gender stereotypes (Barberá & Martínez-Benlloch, 2004; Berk, 2009; Colás, 2007; Díaz-Martínez & Dema, 2013; Martínez-Benlloch & Bonilla, 2000; Subirats, 2011; Tomé & Tonucci, 2013). This is demonstrated for both general inter-intra gender attitudes and attitudes linked to contexts of relationship activity and specific behaviours. Hence, girls are chosen more for trust and other elements related to caring and attending to others, while boys are preferred for competitive activities, corroborating that established in previous research (Ruiz-Pinto et al., 2013). The inter-intra gender choice for partner relationships confirms the dominant heteronormative patriarchal pattern (Chaves, 2012; Fernández-Sánchez, 2011; Piedra, 2013; Zambrini, 2013). Similarly, intragender identities are emphasized, running against any androgynous fashion, with lines clearly drawn (no room for confusion) in relationship activities and contexts such as the clothes worn (Zambrini, 2010) and/or the choice of a partner (Guasch, 2007) which shows the fear of sexual indifferenciation/confusion, indicating the patriarchal homophobic pattern. These findings underline the need to extend those approaches which foster coeducation and the freedom to differentiate personal identity at school (Meseguer & Villar, 2011; Simón, 2010; Subirats & Tomé, 2007).

Although these results confirm what has already been established in gender theory, they do so from a novel sociometric approach. The

scales of the gender relationships preferences scales (GRPS) show high indicators of validity and reliability, providing different information to other sociometric procedures which we have already tested in this same research area: gender relationship patterns among adolescent students (Ruiz-Pinto et al., 2013). This new approach which we have presented here differs from other more classical sociometric ones because it expresses social patterns of acceptance/rejection and cohesion/distance from a specific link with "relationship contexts and situations". This gives us a bonus from an informational point of view because it allows us to qualify the differences in social patterns, indicating the specific relationship areas, subjects and contexts in which "friction" or disengagement has a greater presence, providing such a specific understanding of this that we could almost call it "micro-sociometric". Thus, this approach may be used as a sociometric tool to highlight and perhaps explain in a dynamic causal sense the gender microviolence referred to by Bonino (2005) and Ferrer et al. (2008).

This study specifies the patriarchal gender patterns which affect our adolescent students. With multivariate correlational techniques it studies a broad sample, to define a social metric space which is configured empirically from the responses of acceptance/rejection of the subjects, indicating the position of each subject, category and group in each given analytical space. This gives us a map of inter-distances which does not just outline and allow us to highlight gender relationship patterns, clearly outlined in the last results section, but also reveals the existence of multiple individual positionings (thereby manifesting diversity) which do not always respond to the established or expected pattern for both boys and girls. This property or contribution of this technique could be used to identify typical/atypical cases for more specific and/or qualitative studies, such as those applied for the study of new gender identities.

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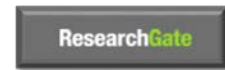
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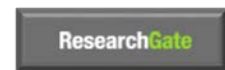
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