Analysis of the Psychoeducational Intervention Models in Students with Autism Spectrum Disorder

Manuel Ojea Rúa

University of Vigo, Spain

Abstract: This research consists of a comparative analysis of the results obtained in the development of students with autism spectrum disorders (ASD) found as a consequence of the application of three basic models of educational guidance: 1) the social mediation model; 2) the counselling model; and 3) the service model, delivered through services developed over three years, distributed across three experimental groups corresponding to each of these guidance models.

A total of N: 18 students with ASD of different levels, ages and genders have participated in the study, assigned to one of the three following groups: a social mediation model group, a counselling model group and a services model group.

Study of the data was undertaken by analysing the multivariate contrasts of repeated measures *ANOVA* for a factor of three measures, both for the variable group types (three groups), as well as for the participants' level, age and gender variables. The results show the statistically significant benefits of the social mediation model.

Keywords: Autism Spectrum Disorders, Educational Counselling, Social Mediation, Psychoeducational Intervention.

INTRODUCTION

According to the studies of Fiorella & Mayer, Darling-Hammond & Bransford, Kunter, Baumer & Köller, Wang and Coleman and Coley & Phelps [1-4] orientation models make up a basic representation that indicates design, structure and essential components of the processes of psychoeducational intervention, as soon as they represent the existing reality on which it is necessary to promote the mediation processes necessary to generate the plans and methods of intervention. In this sense, there are many different intervention models, among which the following are worthy of mention: 1) the advice or *counselling* model, 2) the consultation model, 3) the services model, 4) the program methods, 5) the service methods by programs, 6) the technological model, 7) the psycho-pedagogical model, and 8) the fear based on the recent incorporation of approaches based on social mediation. However, in practice, these models, in the practice of the intervention, can be mixed so that three basic models are built on which all the general characteristics of each one are combined: 1) the counseling model, 2) the service model, acting by programs, and 3) the social mediation model.

Joker & Ghaderi, Thamaresseri and Vianden & Barlow and Wilson & Remley [5-8] define the *counselling* model as it involves the contribution of direct and personal help to the target people of the intervention, as it implies: 1) the assessment or initial evaluation, 2) the interpretation of the information obtained, and 3) the planning of the help that is necessary to facilitate the orientation. Through these intervention models, people with autism spectrum disorders (ASD) increase their capacity for response and improve, in effect their individual and social development, as well as cognitive and emotional growth [9].

Barandeh and Cook & Kaffenberger [10-11] define the service model as a process of intervention carried out by specialist professionals directed to a group of students with educational needs, through support strategies elaborated on a basis to the prior assessment of needs, incorporated through the design of specific intervention programs and the provision of the necessary services for its implementation.

Ojea and Todd [12-13] propose an intervention based on the social mediation model, whose main objective is to facilitate psychoeducational intervention in an indirect way, since it involves the specific formation of all the factors involved in the educational process of the students with needs, so that they are the same factors that, afterwards, apply the processes of intervention in the natural environment in which these people are brought up: the family and the school.

Social mediation models are not exclusive of the need for service provision, nor of the elaboration of specific programs, but they emphasize professional and formative empowerment, in order to generate the competencies needed by teachers and families for

*Address correspondence to this author at the University of Vigo, Spain; Tel: 630189639; E-mail: moxea@uvigo.es

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adequately addressing students in their context, trying to provide a global response to demanded situations [14-17].

In effect, the intervention processes thus considered must be translated, in applied terms, into specific intervention plans, duly contemplated in the official plans of the educational centers, which constitutes an updated proposal of the current educational intervention, as it is noted, both in the studies of Aronson & Patnoe [18] and in the contributions made by the Commission of the European Communities, la European Commission and Eurydice [19-22] consolidating the implementation of this type of guidance model through the results of current educational research [23-28].

OBJECTIVES

This research analyses the conclusive comparative data of the analysis of the implementation of three guidance models in students with ASD, and its general objectives are:

1. Design the processes of psychoeducational and social intervention using the theoretical framework of three guidance models, specifically: a) the social mediation model; b) the counselling model, and; c) the service model delivered through services.

2. Implement the three models of educational and social guidance to three groups of students with ASD.

3. Analyse the development of the participants' performance, as a result of the implementation of the three educational guidance models.

4. Comparison of those results obtained by the students in relation to their allocation of group type, as well as in relation to their level, age and gender.

5. Deduce those conclusions that correspond to the analysis data.

METHOD

Research Design

A total of 18 students with ASD of the different levels [29] participated in the study distributed equitably in respect to age and gender variables into three subgroups corresponding to the three models of the intervention that were implemented: 1) the social mediation model, 2) the counselling model, and; 3) the services model (see Table **1**).

Variables

This research is made up of the following variables:

1) the "development" variable analyzed by the Gilliam Autism Rating Scale (GARS) [30], which analyzes the social, emotional and behavioral development of students with ASD and which are the variables $GARS_1$, $GARS_2$ y $GARS_3$ corresponding to the three successive repeated measures, which constitute the **"factor 1"** of the study.

Table 1: Distribution of participants (N: 18).

GROUP	ASD Level*	AGE					
		8-10 Years		11-13 Years		14-16 Years	
		Man	Woman	Man	Woman	Man	Woman
Social Mediation	1	1		1			
	2		1			1	
	3			1		1	
Counselling	1		1	1			
	2	1		1			
	3					2	
Services	1	1		1			
	2			1	1		
	3					2	
Total	18	3	2	6	1	6	

*According to American Psychiatric Association [29, p52].

2) The variable "level" or degree of intensity of the diagnosis of ASD, constituted by levels 1, 2 and 3 corresponding [29].

3) The "group" variable is in turn formed by three subgroups, which correspond to the three studied models: 1) the social mediation model; 2) the *counselling model* and; 3) the services-programs model, delivered through programs.

4) The variable "age" of the participants.

5) The variable "sex" of the participants.

Procedure

The study, which has been carried out over 3 years between 2014 and 2017, the first analysis ($GARS_1$) was carried out in all the integrated participants in the 3 intervention groups. Subsequently, at the end of a school year, the second analysis ($GARS_2$) was carried out and finally the third measure was taken one year later ($GARS_3$), both of which were carried out by all participants in the sample.

Analysis of Data

The data analysis was performed using the multivariate comparative test of repeated measures *ANOVA* of the SPSS 23 statistical package. The results reflect the comparative differences between the different groups of psychoeducational intervention or orientation models, based on the analysis of the level of development of the participants, found along the three repeated GARS measures, comprising the **factor 1**, analyzed both in relation to the diagnostic level, and in relation to the age and sex of the participants.

RESULTS

The basic analysis of the successive repeated measures of the "development" variable (GARS 1,2,3) of the study, based on the type of group assigned to the participants: social mediation model, counselling model and services model, has allowed us to find the following mean scores of a 95% confidence interval level (see Table **2**).

As can be seen, the mean scores obtained in the first measurement ($GARS_1$) indicate similar means found in the 3 groups (μ: 1,16), while in the successive measures there were important differences between the different groups of participants in the second measure, with μ: 2,66 in the social mediation model, μ: 2,00 in the counselling model and μ: 1,50 in the participants that integrate the service model, while the largest difference was obtained in the third measure, in which the social mediation model stands out with a μ: 4,00, followed by the counselling model (μ: 2,66) and the services model (μ: 2,33).

The multivariate comparative *ANOVA* study of repeated measures was defined by 3 assigned values to **factor 1**, defined by the repeated measures of the variable "development" ($GAR_{1,2,3}$), compared to: 1) the type of group assigned to the participants, 2) the ASD level of diagnostic, and 3) the interaction of the group type and the level of ASD exerted on the variable **factor 1** (see Table **3**).

The observed intergroup results allowed us to deduce that there are significant differences in the repeated measures **(factor 1)** both in relation to the group type variable (*Pillai's Trace*: ,01, *Wilk's Lambda*: ,00, *Hotelling's Trace*: ,00 and *Roy's Lagest Root*: ,00),

Table 2: Comparative analysis of the variable factor 1 for group type.

Group	Development	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Social Mediation Model	GARS1	1,16	,16	,79	1,54
	GARS2	2,66	,31	1,94	3,38
	GARS3	4,00	,23	3,46	4,53
Counselling Model	GARS1	1,16	,16	,79	1,54
	GARS2	2,00	,31	1,27	2,72
	GARS3	2,66	,23	2,13	3,20
Services Model	GARS1	1,16	,16	,79	1,54
	GARS2	1,50	,31	,77	2,22
	GARS3	2,33	,23	1,80	2,86

Table 3: Multivariate tests (c) of the variable factor 1 (GARS 1,2,3) for group type and diagnosis (ASD).

Effect		Value	F	Hypothesis df	Error df	Sig.
factor 1 ($GARS_{1,2,3}$)	Pillai's Trace	,97	164,76[a]	2,00	8,00	,00
	Wilks' Lambda	,02	164,76[a]	2,00	8,00	,00
	Hotelling's Trace	41,19	164,76[a]	2,00	8,00	,00
	Roy's Largest Root	41,19	164,76[a]	2,00	8,00	,00
factor 1 * Group	Pillai's Trace	,96	4,15	4,00	18,00	,01
	Wilks' Lambda	,12	7,32[a]	4,00	16,00	,00
	Hotelling's Trace	6,33	11,08	4,00	14,00	,00
	Roy's Largest Root	6,22	28,01[b]	2,00	9,00	,00
factor 1 * level ASD	Pillai's Trace	,90	3,71	4,00	18,00	,02
	Wilks' Lambda	,17	5,61[a]	4,00	16,00	,00
	Hotelling's Trace	4,33	7,58	4,00	14,00	,00
	Roy's Largest Root	4,22	19,02[b]	2,00	9,00	,00
factor 1 * Grupo * level ASD	Pillai's Trace	,55	,86	8,00	18,00	,56
	Wilks' Lambda	,48	,88[a]	8,00	16,00	,55
	Hotelling's Trace	1,00	,87	8,00	14,00	,55
	Roy's Largest Root	,91	2,06[b]	4,00	9,00	,16

[a]Exact statistic.
[b]The statistic is an upper bound on F that yields a lower bound on the significance level.
[c]Design: Intercept + Group+ ASD+ Group * ASD.

as well as in relation to the variable level of ASD (*Pillai's Trace*: ,02, *Wilk's Lambda*: ,00, *Hotelling's Trace*: ,00 and *Roy's Lagest Root*: ,00) in all the developed tests of multivariate analysis, which allows to conclude that both the type of group and the level of diagnosis affect the changes found in the variable "development" defined by **factor 1**.

In contrast, when the interaction of both variables, group type and ASD levels are analyzed, scores do not significantly influence the explanatory variance of the changes found in successive measures of **factor 1** (*Pillai's Trace*: ,56, *Wilk's Lambda*: ,55, *Hotelling's Trace*: ,55 and *Roy's Lagest Root*: ,16).

In these analyzes, the adequacy of the data found between groups is determined by the level of sphericity obtained by the Mauchly test (see Table **4**).

In fact, according to the sphericity hypothesis, it is assumed that the variances/co-variances explaining the changes found in the variable **factor 1**, in relation to the 3 groups of participants and the level of intensity of the diagnosis, are spherical since they indicate a level of significance of *Mauchly*: ,54.

Figure **1** shows that the intergroup differences show a significant improvement in the data of **factor 1** in relation to the social mediation model, followed by the counselling and the service model.

The progressive lines of data related to the group that forms the intervention model based on social mediation, show the highest increases or improvements in students ahead of the counselling and the service model respectively.

Table 4: Mauchly´s test of sphericity (b).

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
factor1	,85	1,23	2	,54	,87	1,00	,50

[a]May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of within subjects` effects table.
[b]Design: intercept + Group within subjects' design: factor 1.

The differences indicated in the multivariate analysis for **factor 1** according to the 3 group models are observed in the 3 diagnostic levels (1-2-3) (see Figures **2**, **3** and **4**).

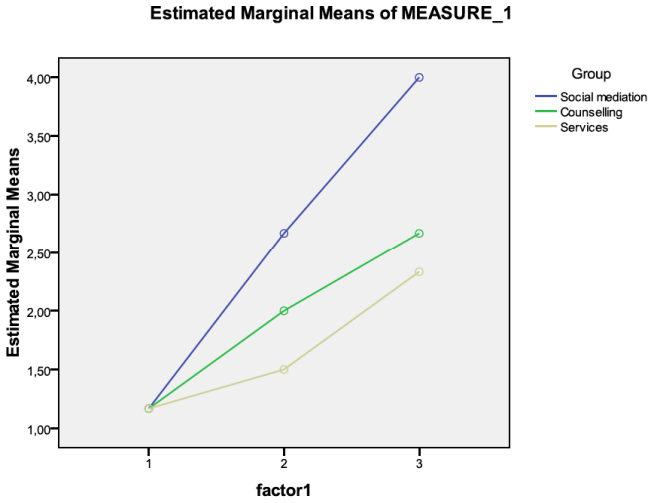

Figure 1: Differences found in the variable **factor 1** in relation to the group type (intervention models).

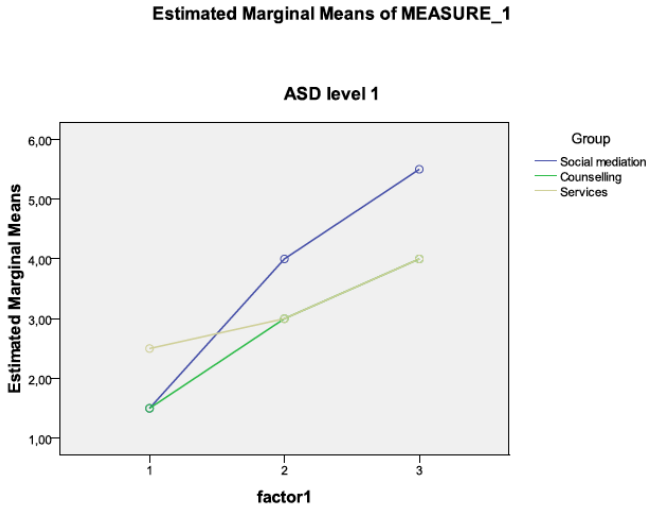

Figure 2: Intergroup differences for level 1.

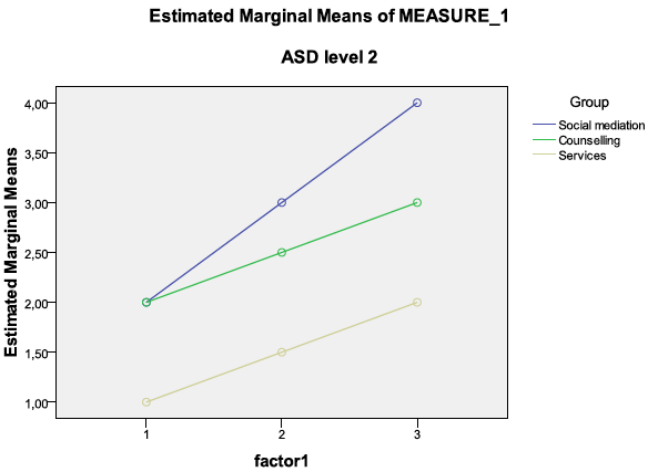

Figure 3: Intergroup differences for level 2.

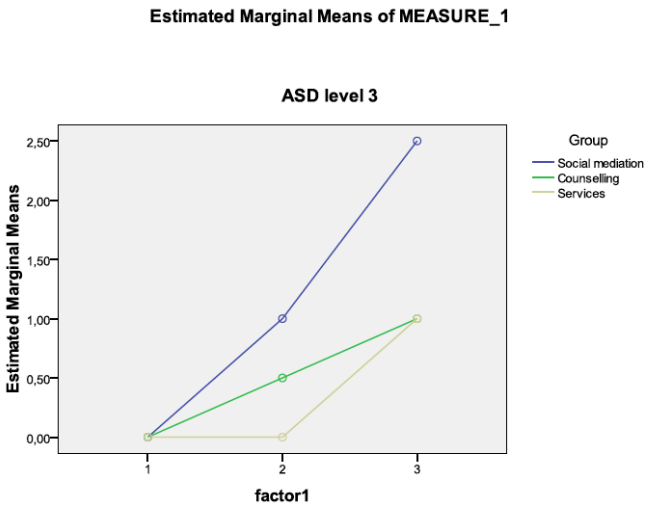

Figure 4: Intergroup differences for level 3.

Likewise, there´re significant differences in the changes found in **factor 1** in relation to the level of diagnosis (see Figure **5**). The representation shows that participants of level 1 enhance successively the values, followed by the participants of level 2 and finally 3.

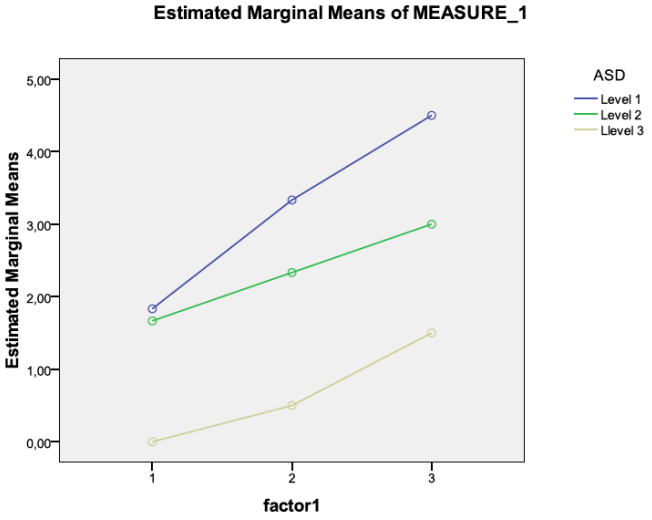

Figure 5: Changes found in the variable “development” in relation to the level of diagnosis (1,2,3).

Finally, we performed a comparative analysis of the repeated measures in **factor 1**, in relation to the variables of age and sex of the participants, as well as their interaction with the type of group assigned to the participants (see Table **5**).

So, all the scores found in relation to the variables of age and sex and their interaction with the type of group indicate that there are no explanatory significance levels of the changes found in the variable **factor1** according to the type of group, of so that

Table 5: Comparative analysis for factor 1 to age and sex with group type.

Effect		Value	F	Hypothesis df	Error df	Sig.
factor 1 * Age	Pillai's Trace	,37	1,03	4,00	18,00	,41
	Wilks' Lambda	,63	1,03[a]	4,00	16,00	,42
	Hotelling's Trace	,57	1,00	4,00	14,00	,43
	Roy's Largest Root	,56	2,52[b]	2,00	9,00	,13
factor 1 * Grupo * Age	Pillai's Trace	,34	,46	8,00	18,00	,86
	Wilks' Lambda	,68	,42[a]	8,00	16,00	,89
	Hotelling's Trace	,44	,38	8,00	14,00	,91
	Roy's Largest Root	,35	,80[b]	4,00	9,00	,55
factor 1 * Gender	Pillai's Trace	,02	,13[a]	2,00	11,00	,87
	Wilks' Lambda	,97	,13[a]	2,00	11,00	,87
	Hotelling's Trace	,02	,13[a]	2,00	11,00	,87
	Roy's Largest Root	,02	,13[a]	2,00	11,00	,87
factor 1 * Grupo * Gender	Pillai's Trace	,14	,46	4,00	24,00	,76
	Wilks' Lambda	,85	,44[a]	4,00	22,00	,77
	Hotelling's Trace	,16	,41	4,00	20,00	,79
	Roy's Largest Root	,15	,95[b]	2,00	12,00	,41

differences in successive measures and their progressive differentiation regarding to the type of group are not influenced by the interaction of the age or sex of the participants.

DISCUSSION

The study shows that current models based on social mediation processes point out important benefits in the socio-personal development of the participants compared to other analyzed orienting proposals. And although in psychoeducational practice these guidelines are not mutually exclusive, the social mediation process must necessarily include specific proposals that are properly planned and facilitate, according to the situation, the provision of the corresponding resources or services. However, taking these results with caution, due to the small number of participants in the study, it can be concluded that during the processes of the guiding intervention, the specific training plans must be prioritized for those factors directly involved in the education of the students to whom they are directed.

Indeed, people with ASD have been clearly favored by the social mediation model, which has been implemented on the basis of the development context itself, mainly due to the fact that this model has a greater impact on the specific intrinsic characteristics of people with ASD, which are related to obvious limitations in the processes of social interaction.

Despite this, studies conducted by the School Leadership in Alberta and Watt [31-32] indicate that these models of social mediation have demonstrated their effectiveness, both in the resolution of social situations, and in the framework of psychoeducational and social intervention in the systemic scope of the educational system as a whole, conceptually, they form global approaches to educational-social action.

However, the educational orientation, based on the theoretical processes of the social mediation approach, focuses on a psychoeducational and social intervention that is not developed directly on the students, but, around this model generates a psycho-educational and social work environment facilitating the specific training of the sectors involved in this specific intervention process: families, teachers, students, health and social services, whose main purpose is to ensure that these sectors are competent in relation with the knowledge and strategies necessary to be able to implement the educational process in a strict sense.

Then, the guiding function should be located at a level of coordination - mediation between these sectors, with two fundamental general objectives: on the one hand, to design, plan and implement the

training process, distributing among them the different aspects that make up the action and, secondly, to coordinate the implementation of the previous measures, in order to carry out the proposals based on the training processes initiated in the sectors involved in the development of students and situations, as well as, evaluate and monitor their implementation.

In summary, it is necessary that, from the approaches of educational guidance, the competence development of the orientation models, based on the social mediation approach, should be promoted based on the following development structure:

1. Analysis of educational needs from the ecological and social consideration of people and situations.

2. Design of the training needs of the intervening factors in the regular context of the students.

3. Elaboration of the specific plans of the educational action from the framework of the indirect global intervention, which is implemented directly by the factors previously formed.

4. Determination of the services or resources necessary to facilitate the previously planned intervention.

5. Design of a systematic process of monitoring the expected objective criteria.

6. Analysis of results in accordance with the proposed objectives.

REFERENCES

[1] Fiorella L, Mayer RE. The relative benefits of learning by teaching and teaching expectancy. Contemporary Educational Psychology 2013; 38(4). https://doi.org/10.1016/j.cedpsych.2013.06.001

[2] Darling- Hammond L, Bransford J. (eds.). Preparing teachers for a changing world. Report of the committee on teacher education of the national academy of education. San Francisco: Jossey-Bass 2005.

[3] Kunter M, Baumert J, Köller O. Effective classroom management and the development of subject related interest. Learning and Instruction 2007; 17(5): 494-509. https://doi.org/10.1016/j.learninstruc.2007.09.002

[4] Wang AH, Coleman AB, Coley RJ, Phelps RP. Preparing teachers around the world. Princeton, NJ: Educational Testing Service 2003.

[5] Joker H, Ghaderi Z. Effectiveness of a solutions based counselling on students' self-perception. Educational Research and Reviews 2015; 10(15): 2141-2145. https://doi.org/10.5897/ERR2015.2332

[6] Thamarasseri I. Meta narrative on guidance and counselling in schools. Journal on Educational Psychology 2013; 7(3): 1-8.

[7] Vianden J, Barlow PJ. Strengthen the bond: Relationships between academic advising quality and undergraduate student loyalty. NACADA Journal 2015; 35(2): 15-27. https://doi.org/10.12930/NACADA-15-026

[8] Wilson NS, Remley TP. Leadership in guidance: A survey of school counselling supervisors. Counsellor Education and Supervision 1987; 26: 213-220. https://doi.org/10.1002/j.1556-6978.1987.tb00720.x

[9] Mahoney G, Solomon R. Mechanism of developmental change in the PLAY Project Home Consultation Program: evidence from a randomized control trial. Journal of Autism and Developmental Disorders, 2016; 4: 1860-1871. https://doi.org/10.1007/s10803-016-2720-x

[10] Barandeh N. The effect of solution-focused group counselling techniques to reduce stress on the job training by what the scientific foundation. MA thesis. Islamic Azad University: Faculty of Education and Psychology 2009.

[11] Cook BJ, Kaffenberger CJ. A solution- focused counselling and study skills program for middle school. Professional school counselling. Career and Technical Education 2007; 7: 2.

[12] Ojea M. Programa de orientación vocacional "CONSTRUYE" [Vocational orientation program "CONSTRUYE"]. Sevilla: Alfar 2014.

[13] Todd H. Channing the self-conception of person: Effect of enneagram on the self-conception of person. Journal Abnormal Social Psychology 2007; 68(4).

[14] Andersen HM, Nielsen BL. Video based analyses of motivation and interaction in science classrooms. International Journal of Science Education 2011; 35(6): 906-928. https://doi.org/10.1080/09500693.2011.627954

[15] Cook K, Trepal H, Somody K. Supervision of school counsellors: The SAAFT model. Journal of School Counselling 2015; 10(21): 1-22.

[16] Duncan TE, Duncan SC, Strycker LA. An introduction to latent variable growth curve modelling. Concepts, issues, and applications (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates 2006.

[17] Schütte K, Köller O. Discover, understand, implement and transfer: Effectiveness of an intervention programme to motivate students for science. International Journal of Science Education 2015; 37(14): 2306-2325. https://doi.org/10.1080/09500693.2015.1077537

[18] Aronson E, Patnoe S. Cooperation in the classroom: The jigsaw method. London: Pinter & Martin 2011.

[19] Commission of the European Communities. Communication from the commission to the council and the European parliament. Improving the quality of teacher education. Brussels: European Commission 2007.

[20] European Commission. Implementation of 'education and training 2010' work program. Key competences for lifelong learning. A European reference framework 2004. http://ec.europa.eu/education/com392_en.pdf

[21] European Commission. Common European principles for teacher competences and qualifications. Brussels: European Commission 2005.

[22] Eurydice. Key topics in education in Europe, the teaching profession in Europe: profiles, trends and concerns. Report I: Initial training and transition to working life. General lower secondary education (vol. 3). Brussels: Eurydice 2002.

[23] Caena F. Comparative "global" perspectives on European teacher education. European Journal of Teacher Education 2014; 37(1): 106-122. https://doi.org/10.1080/02619768.2013.845165

[24] Abubakar SH. Some viable techniques for assessing and counselling cognitive processing weakness. Journal of Educational and Practice 2016; 7(2): 118-121.

[25] Haruna AS, Mayanchi ML. Attention deficit disorders among stressed pre-NCE students in Federal College of Education, Kano. International Science Index 2015; 13(1): 2182-2186.

[26] Kipkemboi V, Ngumi O, Chege K. The role of guidance and counselling in enhancing student discipline in secondary schools in Koibatek district. Journal of Education and Practice 2016; 7(13): 142-151.

[27] National Research Centre for Learning Disabilities. Research consensus statement. New York: National Centre for Learning Disabilities 2001. www.nationalresearchcenteronlearningdisabilities.htm

[28] Waseka EL, Simatwa EMW. Student factors influencing academic performance of students in secondary education in Kenya: a case study of Kakamega County, Kenya. Educational Research 2016*; 7*(3): 072- 087.

[29] American Psychiatric Association. Manual diagnóstico y estadístico de los trastornos mentales DSM- 5^{R}. [Diagnostic and Statistical Manual of Mental Disorders DSM-5^{R}]. Madrid: Panamericana 2013.

[30] Gilliam JE. *GARS*. Gilliam Autism Rating Scale. Austin: Texas, Proe-ed, 1995.

[31] School Leadership in Alberta 2013. http://education.alberta.

[32] Watt HMG. Development of adolescents' self-perceptions, values, and task perceptions according to gender and domain in 7th through to 11th grade- Australian students. Child Development 2004; 75(5): 1556-1574. https://doi.org/10.1111/j.1467-8624.2004.00757.x

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