What Factors Explain the Anxiety Level Towards the Study of Mathematics among Elementary School Students?

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Abstract

*In this paper we examine anxiety towards mathematics among elementary school students, utilizing an anxiety scale (Muñoz and Mato 2007). To achieve this, 228 registered students, all enrolled in the fifth and sixth elementary school year in the region of San Juan Bautista Tuxtepec Oaxaca, México, were surveyed during the period July-December, 2013. To achieve the tests validity, we obtained an Cronbach alpha 0.944 (extended) and 0.842 (grouped), which are very acceptable if we consider the criterion AC > 0.8 (Hair et al 1999). The statistical procedure used is the factorial analysis with an extracted principal component in order to measure data. The results obtained from the Bartlett test of Sphericity KMO (0.871), X^2 calculated, 865.970 with 10 df > X^2tabulated, Sig. 0.000 p< 0.01, MSA (ANSIEVAL **.815**[a]; ANSITEM **.835**[a]; ANSICOM **.905**[a]; ANSINUM .**906**[a]; ANSISIMA **.919**[a]) and the determinant value of 0.021, which indicate high correlations in all variables (>0.5), and demonstrate that the variables of the scale utilized help us to understand the elementary school students' anxiety towards mathematics.*

Keywords: *Anxiety towards Mathematics, Mathematics abilities, Temporality towards mathematics, Evaluation towards mathematics.*

1. Introduction

1.1 Statement of research problem

According to the results of the Assessment of Academic Performance of students in their sixth year of primary school education in Mexico, which include the use of a diversity of tests and questionnaires, 48% of the students evaluated reached a good-to-excellent performance rate in the area of Mathematics. The same study, "Evaluación Nacional del Logro Académico en Centros Escolares" (ENLACE, 2013), or "National Assessment of Academic Achievement in Educational Institutions", indicates that 52% of the students sampled displayed insufficient and basic performance in the same academic area.

The results of the Program of International Students' Assessment (PISA, 2012) also indicate that 55% the students do not display the minimum level of basic skills. Level 1 indicates that Mexican students present an academic backwardness of almost two years in terms of scholarly development, compared to the average country indicators (494 points) established by the Organization for Economic Co-operation and Development (OECD). Amongst the 65 countries evaluated in 2012, Mexico ranked number 52, which could be considered improvement if compared to the 37th rank given in 2003 among a total of 41 countries included in that sample. The data presented above raises questions such as: Which factors are associated with the low academic performance? Which are the causes of these results in terms of behavioral patterns? What are the responses and actions of the academic authorities? These questions motivated us to plan and implement an empirical research project that could help us obtain enough evidence about this issue, beginning with the analysis of the primary school students' attitude towards the study of Mathematics.

To begin our approach to the study of this problem, we considered the theories developed by Carmona (2004), who indicated that the level of students' anxiety towards Mathematics is linked to preexisting negative attitudes towards this specific academic subject. According to Carmona, students build up negative attitudes over time, as a result of high levels of stress experienced during class, assignments, and/or examinations. We also considered the analysis that Onwuegbuzie (1993) offered about the prevailing anxiety towards Statistics as a subject, supported by data indicating that 75% of the students in his sample experienced high levels of anxiety.

Could it be said, then, that anxiety towards Mathematics is the basic element that explains lower academic performance among students? In order to answer this pressing question, we looked towards Fenemma & Sherman's model (1976), which provides a scale of 108 factors used to measure the students' levels of anxiety towards Mathematics, specifically in the area of Statistics.

Returning to our opening statement, and taking into consideration the theoretical framework briefly presented above, we developed the following research question: *Which are the combined latent variables that could allow us to better understand anxiety towards the study of Mathematics?* Consequently, it is our research goal to *identify these latent variables in order to better comprehend the phenomenon of students' anxiety towards the study of Mathematics.*

2. Review of Literature

Many studies have been conducted with the goal of identifying the underlying latent variables that could facilitate a better understanding of the students' perception and attitudes towards the study of Mathematics. In Mexico, García-Santillán, Venegas and Escalera (2013), and García-Santillán, Venegas, Escalera and Córdova (2013) have conducted research aimed at identifying latent factors that could explain university students' attitudes towards the study of Statistics, both in public and private institutions.

In Spain, Muñoz and Mato (2007) developed a scale to measure anxiety towards the study of Mathematics among secondary school students enlisted in the Compulsory Secondary Education system. Their sample included 1220 students attending both public and private institutions. They obtain an instrumental corpus of 24 items with Alpha-Cronbach's validity of 0.954 (>.9), highly acceptable within theoretical framework established by Hair et al (1999), which presents five dimensions: anxiety towards evaluation; anxiety towards the understanding of mathematical equations; anxiety towards numbers and mathematical operations; and finally, anxiety towards real-life situations with a "mathematical" content.

The results reported by Muñoz and Mato (2007) matched their initial research goal, which intended to test anxiety levels, and also allowed them to identify a clear theoretical framework. It is also of interest that they could find differences in the mid-level range of demonstrated anxiety measured against the factors, which indicated that the highest cause of anxiety was produced by exam situations. Equally, real-life situations of a mathematical character were identified as causing levels of anxiety in the lower range.

Given the importance of the anxiety factor towards the study of Mathematics, and its undeniable influence on the students' successful development, Muñoz and Mato (2007) suggest that the value of this information lies in the fact that it should aid us to provide better and more effective advice and support to our students. They also indicate that they evaluation scale could be used as an assessment platform upon which to build a solid framework that would support a more effective decision-making process, in particular associated with prevention, remedial intervention, and/or instructional change within the class environment. These changes would, in turn, improve anxious behaviour and attitudes, as well as help understand and control fear and emotional issues connected with the study of Mathematics and its related fields.

Eagly and Chaiken (1998) define the attitude variable as a "psychological tendency manifested through the assessment of a specific entity, which could be favorable or unfavorable to a certain degree." Auzmendi (1992) defines attitudes as "aspects which are not directly observable, but inferred; a composite of beliefs, feelings, and behavioral tendencies or predispositions towards a particular object."

In the specific case of attitudes towards the study of Statistics, there is a clear development of responses built over time as a result of emotions and feelings experienced within the learning context associated with the study of Mathematics and Statistics (Gal, Ginsburg and Schau, 1997). Young and others (1967) discuss attitudes as essentially an anticipatory response, the beginning or onset of an action that is not necessarily completed.

Although an important number of researchers share these general definitions regarding students' attitudes towards the study of Statistics, there is no definitive agreement when it comes to determining which specific dimensions constitute the structure that contains this psychological domain. For example, Wise (1985) argues that there are two relevant dimensions to be considered when researching students' attitudes towards the study of Statistics: one, attitudes towards the subject *per se*, and two, attitudes towards the use of Statistics in their specific fields of specialization. Schau et al. (1995), Schau, Stevens, Dauphinee and del Vecchio (1995), however, identified four different attitudinal dimensions:

a) Emotional Attachment: positive or negative feelings related to the study of Statistics.
b) Cognitive Competency: attitudes towards knowledge and skills applied to the study of Statistics.
c) Value: attitudes towards the usefulness, relevance, and value of Statistics in the subject's private and professional lives.
d) Difficulty: attitudes related to the degree of difficulty that the study of Statistics as a subject actually presents.

Anxiety towards the study of Statistics can also be defined as a specific phobia, i.e.: an extreme fear towards a particular object, in this case, Statistics itself. As Zeidner (1991) points out, anxiety towards Statistics can take the form of excessive preoccupation, worrisome thoughts, tension, stress, and a certain degree of physiological excitement given specific academic situations.

Richardson y Suinn (1972) define anxiety towards Mathematics as a feeling of tension and stress, which interferes with the effective use of numbers and mathematical problem-solving skills in a wide variety of situations, from the daily to the specifically academic.

The factors that contributed to produce lower academic performance levels among students in the area of Mathematics have been widely researched. The classic work by Fenneman and Sherman (1976), presents emotional variables (including attitudes) and highly influential, not only on the students' dedication and effort potentially invested in the learning process, but also on the students' motivation when it comes to their tertiary career choices. It is important to note that this particular research was selected as part of our discussion because it provides us with a clear reference regarding attitude measurement strategies, specifically in the context of the study of Mathematics.

As examples of research conducted using the measuring methods mentioned above, it is important to cite Pérez-Tyteca (2007), Leedy, LaLonde and Punk (2003), Martin (2002), and Kloosterman and Stage (1992). A further outstanding example is that of Auzmendi (1992), who designed a scale to measure anxiety, self-confidence, willingness, and motivation towards the study of Mathematics. Other studies, such as Cervini's (2001), emphasize the fact that during the two decades previous to his publication, research on the factors that influence students' academic performance increased noticeably.

It is also worth considering a more general approach to the issue of learning stress and anxiety within an institutionalized environment. Goffman (1967) discusses the importance of identifying and understanding the phenomenon of *alienative misinvolvement*, which could manifest itself into four basic forms:

1. ***External preoccupation***: the individual does not fully engage in interaction due to personal concerns he failed to or was not capable of dismissing or controlling when entering the new environment;
2. ***Self-consciousness***: the individual may focus his attention more on his own performance than on the general interaction process, thus failing to achieve a natural level of exchange with other participants or to effectively become an active part of the conversation;
3. ***Interaction-consciousness***: the participant may feel "too involved" in the conversation and withdraw or refrain from participating any further, or judge his involvement, his skills, and even his presence inappropriate, thus refraining from interacting. E.g.: Students who are asked to sit at the computer or work in isolation to solve problems, while the rest of the attendees continue with their regular group tasks, may experience a noticeable change on their level of interaction-consciousness, which could affect the quality of their answers.
4. ***Other-consciousness***: the individual may become focused on another participant or distracted by another person, or be too concerned with the attitude of the others towards his presence or his opinions, which would cause him discomfort and the desire to withdraw from the interaction (or to remain in the periphery).

Considering the heterogeneous characteristics of the Mathematics and Statistics students, it is important to remember that at different times, different "alienating distractions" affect the learning interactions that participants are building, and provoke a certain degree of uneasiness, even among those who are more motivated or appear to be in control of their anxiety.

Having hereby established and presented the theoretical and empirical framework for our research project, we return to the consideration of the main question: Which are the latent variables that would allow us to better comprehend anxiety towards the study of Mathematics?

3. Methodological Design

This study is not experimental, because independent variables are not manipulated; hence, the effects (dependent variables) are not conditioned towards a certain result. We apply a cross-sectional type, considering that it is performed at one specific moment, collecting data on the field of application of the instrument, which is then analyzed and interpreted. This study is explanatory, as we seek to measure anxiety levels towards mathematics based on the scale of Muñoz and Mato (2007).

In this research, the test denominated "anxiety test towards mathematics" designed by Muñoz and Mato (2007) was replicated, as it befits a study that seeks to identify the relevance of the variables under study, such as: (Anxiety towards evaluation [ANSIEVAL], Anxiety towards temporality [ANSIETEM], Anxiety towards understanding mathematical problems [ANSICOM], Anxiety towards the number and operations [ANSINUM], and Anxiety towards real life situations [ANSISIMA]) and its probable correlation to explain the students' attitudes towards mathematics. 228 students (registered) were surveyed, who are enrolled in the fifth and sixth elementary school year in the region of San Juan Bautista Tuxtepec Oaxaca, México, during the period July-December 2013.

3.1 Statistical Procedure

The evaluation and interpretation of the data collected follows the statistical procedure of multivariate factorial analysis. The following criterion was applied: Statistical hypothesis are: Ho: $\rho=0$ there is no correlation Hi: $\rho\neq0$ there is a correlation. The statistical test is $\chi2$ and the Barlett´s test of sphericity KMO (Kaiser-Meyer-Olkin), MSA (Measure Sample Adequacy) for each variable of the model. This statistical is asymptotically distributed with $p(p-1)/2$ freedom degrees, a significance level: $\alpha = 0.01$, $p<0.01$ *or* <0.05 [load factorial of 0.70; and loads increased to 0.55].

After determining the correlation, it is necessary to test if there is a set of factors which could allow us to understand anxiety towards mathematics in among elementary school students. Therefore, If *Ho* is true, values worth 1 and its logarithm would be zero, therefore the statistical test's worth zero, otherwise with high values of $\chi2$ and a low determinant, it would suggest that there is a high correlation, then if the critical value: $\chi2$ calc > $\chi2$ tables, there is evidence to reject of *Ho,* so the decision rule is: Criterion: KMO > 0.5 ; MSA >0.5 ; p<0.01 Thus: Decision: Reject: Ho if $\chi2$ calc > $\chi2$ tables. Now we have achieved the next empirical outcomes:

4. Data Analysis

4.1 Test reliability

With the purpose of evaluating whether the relationships found in the literature are also similar to the sample obtained in the application of our analylitical instrument, a reliability analysis was performed applying the Cronbach alpha coefficient. As a point of note, the Cronbach's alpha is a squared correlation coefficient that measures the homogeneity of the questions, averaging all correlations among all items. If the index is close to 1, then the reliability is better. According to the argument presented by Hair, Anderson, Tatham & Black (1999), a respectable reliability is given from 0.80, which allows us to propose that reliability is the degree to which the repeated application of the instrument to the same subject or object produces the same results. Thus, the Cronbach's alpha can be set as a function of the number of items and the average of correlations among the items.

$$\partial = \frac{N*\bar{r}}{1+(N-1)*\bar{r}}$$

Where: N **=** Number of items (or latent variables), $\bar{r}$ **=** average of correlations among the items.

The result of processed cases is shown in table 1:

Table 1. Statistical reliability Cronbach's alpha (α)

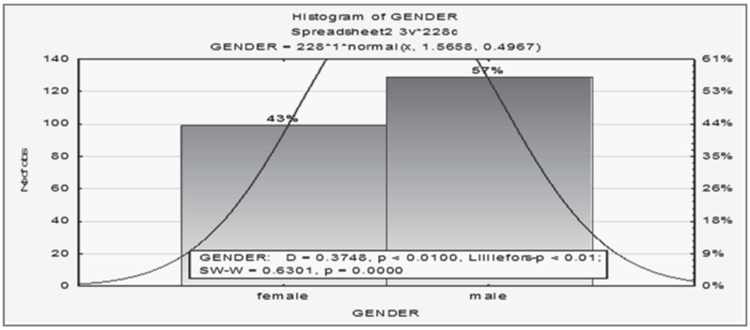
Grouped	ANSIEVAL, ANSIETEM ANSICOM, ANSINUM, ANSISIMA	0.842	Extended 0.944
Number of cases	227	%	99.6
Excluded cases %		1.0 0.4	
Total Items		24	

Source: own

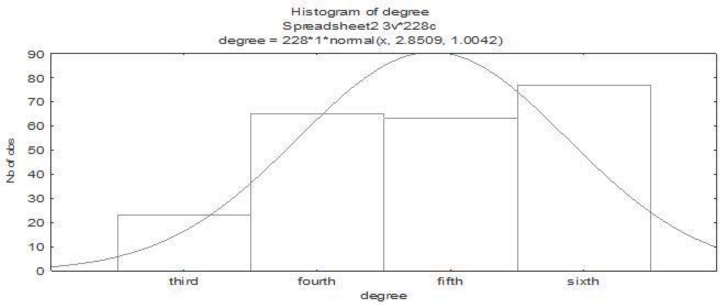
The results obtained from 0.944 (extended) and 0.842 (grouped) are very acceptable because if we consider the criterion AC > 0.8 (Hair et al, 1999), we may say that the analytical instrument provides the characteristics of consistency and reliability required for this case; which supports the high reliability of the test (Muñoz and Mato, 2007).

5. Results

Firstly the main characteristics about the population under study, such as: gender, specialty, semester or grade. Immediately after, the results obtained from the factorial analysis with extracted components rotated are given.



Graphics 1 Gender (source: own)



Graphics 2 Semester or grade (source: own)

The values obtained from Bartlett's test of Sphericity with Kaiser (KMO) and goodness of fit index X^2 with *df* and p-value < 0.01 are shown in Table 2. These values allow us to verify the practical validity of the construct and thus, to justify whether it was feasible to conduct a factor analysis to analyze the data.

Table 2 Bartlett's test of Sphericity with Kaiser (KMO) and Goodness of Fit Index

Measure sampling adequacy Kaiser-Meyer-Olkin.		.871
Bartlett's test of Sphericity	Chi-squared approximated	865.970
	df	10
	Sig.	0.000

Source: own

In Table 2, the results of the Bartlett test of Sphericity, *KMO*, X^2, with significance (p-value <0.01) are shown. Observed values X^2 (865.970 with 10 df) shows that are high, the measure of sampling adequacy (overall) KMO (.871) is located within the rank of acceptance because this should be higher than 0.5, indicating that the variables are intercorrelated.

Table 3 shows the values of correlations obtained from the variables studied, where we can see that they are all inter-correlated, and the correlation among the variables present high values (> 0.05) in all the cases shown, which leads us to think that there is a concordance among the set of variables in the model, practice as well as statistics, which means, that factorial analysis is appropriate.

Table 3 Correlation Matrix

VARIABLES	ANSIEVAL	ANSIETEM	ANSICOM	ANSINUM	ANSISIMA
ANSIEVAL	1.000				
ANSIETEM	.845	1.000			
ANSICOM	.745	.685	1.000		
ANSINUM	.751	.690	.720	1.000	
ANSIEVAL	.658	.664	.667	.663	1.000
Determinant= 0.021					

Source: own

Moreover, the value of the determinant (0.021) is lower than <0.05, which also gives evidence of the presence of significant correlations in the set of variables studied. Let us remember that, with the transformation of the correlation matrix determinants, we obtained Bartlett´s test of Sphericity as shown in table 3, and it is given starting from the equation:

$$d_R = -\left[n - 1 - \frac{1}{6}(2p+5)\ln|R|\right] = -\left[n - \frac{2p+11}{6}\right]\sum_{j=1}^{p}\log(\lambda_j)$$

Another difference is the measure of sampling adequacy (MSA), the values shown in Table 4, which reveals that each variable exceeds the threshold value of 0.5, an indication of the strength of relationships between variables, and therefore of the appropriateness of factor analysis. In the diagonal of the correlation matrix anti-image, we can observe measures sampling adequacy for every variable (MSA). To determine if the selected factorial model is appropriate to explain the information collected, the values in the diagonal of the matrix of correlations anti-image should have a value close to 1.00, hence, the correlation coefficients anti-image that appear in diagonal range from 0.815[a] to 0.919[a] are significant, and it is confirmed that factor analysis it is optimal to explain the phenomenon studied.

Table. 4 Anti-image matrix

Variables	ANSIEVAL	ANSIETEM	ANSICOM	ANSINUM	ANSISIMA
ANSIEVAL	**.815**[a]				
ANSIETEM	-.603	**.835**[a]			
ANSICOM	-.267	-.049	**.905**[a]		
ANSINUM	-.280	-.056	-.275	**.906**[a]	
ANSISIMA	-.023	-.212	-.245	-.224	**.919**[a]

Source: own

Once it has been determined than the Factorial Analysis is an appropriate technique to analyze the data, we proceeded to examine the factors and components. Table 5 shows the component matrix and communalities as well as eigenvalues, whose explanatory power will show the total variance.

Table 5. Components Matrix, Communalities, Eigenvalue and total Variance

	Component 1	Communalities
ANSIEVAL	.916	.840
ANSIETEM	.889	.790
ANSICOM	.871	.759
ANSINUM	.873	.762
ANSISIMA	.829	.687
Eigenvalue	3.838	
Total Variance	.76765=76.76%	

Source: own

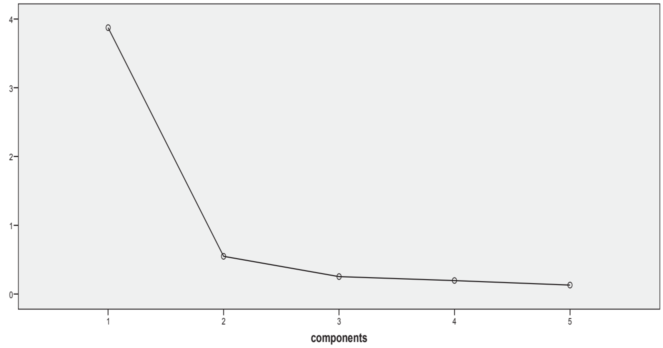
Based on the criterion of eigenvalue greater than 1 (3.838) which suggests the presence of 1 factor (graphic 3), it is possible to explain the total variance in 76.765% of total variation on the data (table 6).

Furthermore, in the same Table 5, factorial weights obtained by the extraction principal components method are shown. The above corresponding to each of the factors that integrate component 1, where it is clear that all have a factorial weight > 0.50, being ANSIEVAL (.916) the largest weight (anxiety towards evaluation), followed by ANSIETEM (.889) and less factorial weight, but always observing behavior >0.5 is ANSISIMA (.829). In addition, right beside the proportion of variance explained through the communalities, we have ANSIEVAL (.840) the highest value, and at the opposite extreme or lesser value, we have ANSISIMA (.687).

Table 6. Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.838	76.765	76.765	3.838	76.765	76.765
2	.399	7.974	84.739			
3	.341	6.827	91.565			
4	.280	5.591	97.156			
5	.142	2.844	100.000			
Extraction Method: Principal Component Analysis						

Source: own



Graphic 3. Plot component (source: own)

6. Conclusions

Mathematics is an important problem in the field of Education. Even though it is considered a key factor in academic development and a necessary one to move forward into the workplace, this fact is still relatively ignored in Mexico. A large part of this difficulty, as Carmona (2004) maintains, is due to the levels of anxiety that the student has experimented during the discipline's learning process. Students with intense anxiety tend to avoid the learning process of mathematics, which causes that learning output to be of low quality, as well as explains low student performance. If training is given at low levels because the student avoids training routes, then, the student's skills will probably be deficient in their professional development related to the field of numbers, finance, and statistics, among other disciplines.

The results of this study provide evidence that is consistent with research developed by Carmona (2004), about the factors that cause anxiety among students towards mathematics. In this regard, it is important to note that the evaluation process is the component which most saturates (0.916) and that contributes with greater variance (84%), while the remaining 16% of the variability is due to other variables not considered in this research. The factor which corresponds to the mathematical situations in real life presents less weight (0.829) and contributes 68.7% to the total variance. Furthermore, it was proved that all factors are directly associated, i.e. if anxiety towards assessment increases, then there is also more anxiety towards the understanding of mathematical problems, towards numbers as a concept, and therefore also towards mathematical situations in real life.

Previous results provide evidence that there is a set of latent variables that allow understanding anxiety towards mathematics, answering the question raised in agreement with several authors (Richardson and Suinn, 1972; Hembree, 1990; Hopko, Mahadevan, Bare, and Hunt, 2003; Ashcraft and Ridlye, 2005) who postulated that people with higher levels of anxiety are, -in a high percentage-, the same people who also show higher levels of anxiety in other areas of life.

7. Recommendations and Future Research Lines

The research results may be utilized in educational systems to generate methods for working with the students in order to try to reduce the aspects that cause anxiety and some specific behaviors that affect the mathematics learning process. We must keep in mind that anxiety about the study of math not only affects groups of students or schools with very low yields; many students with a relatively good performance are held back by their negative approach and anxiety towards mathematics. Hence the actions of teachers should aim at correcting and preventing these situations. It is important to point out that professional training and improving the understanding of the factors that cause anxiety in general, and anxiety towards the study of mathematics in particular are key actions to promote and provide emotional contention, needed among students as much as among teachers.

Within the scope of Higher Education, there are other areas of mathematics such as integral and differential calculus which are closely linked to core topics in the mathematical field, and have greater impact on this area. It is therefore recommended to conduct research on whether there are factors that cause anxiety among students of these disciplines. By the same token, it is important that further research is conducted about the situation and conditions of teachers and researchers, and about the lack of institutional support when it comes to anxiety specifically linked to the academic environment.

It is very important to point out that there are no clearly established protocols to solve the problems of teaching and learning of mathematics. In fact, these do not even exist unequivocally in a theoretical framework. This absence results in a great need, and consequently, a great demand for proposals and results that would allow a better understanding and facilitate a more efficient way to face this situation. This demand is not only present within the realms of Education, but also in other environments: academic (mathematicians, physicists, philosophers, etc.,) and technological (phenomenological models and use of technology).

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Annexes
Instrument (Spanish original version**)**

Test to measure anxiety towards mathematics
Test para medir la Ansiedad hacia la matemática
Muñoz y Mato (2007)

Instrucciones: Para cada una de las siguientes afirmaciones marcar la categoría de clasificación que más indique cómo se siente actualmente acerca de la afirmación. Responder por favor a todas las preguntas
Carrera / grado: ________________________ Hombre_______ Mujer_______

Significa nada 1	Poco veces 2	Neutral 3	La mayoría de las veces 4	Siempre Mucho 5

Ítem	1	2	3	4	5
1. ¿Me pongo nervioso(a) cuando pienso en el examen de matemáticas el día anterior?					
2. ¿Me siento nervioso(a) cuando me dan las preguntas del examen de matemáticas?					
3. ¿Me pongo nervioso(a) cuando abro el libro de matemáticas y encuentro una página llena de problemas?					
4. ¿Me siento nervioso(a) al pensar en el examen de matemáticas, cuando falta una hora para hacerlo?					
5. ¿Me siento nervioso(a) cuando escucho cómo otros compañeros resuelven un problema de matemáticas?					
6. ¿Me pongo nervioso(a) cuando me doy cuenta de que el próximo curso aún tendré clases de matemáticas?					
7. ¿Me siento nervioso(a) cuando pienso en el examen de matemáticas que tengo la semana próxima?					
8. ¿Me pongo nervioso(a) cuando alguien me mira mientras hago los deberes de matemáticas?					
9. ¿Me siento nervioso(a) cuando reviso el ticket de compra después de haber pagado?					
10. ¿Me siento nervioso(a) cuando me pongo a estudiar para un examen de matemáticas?					
11. ¿Me ponen nervioso(a) los exámenes de matemáticas?					
12. ¿Me siento nervioso(a) cuando me ponen problemas difíciles para hacer en casa y que tengo que llevar hechos para la siguiente sesión………?					
13. ¿Me pone nervioso(a) hacer operaciones matemáticas?					
14. ¿Me siento nervioso(a) al tener que explicar un problema de matemáticas al profesor?					
15. ¿Me pongo nervioso(a) cuando hago el examen final de matemáticas?					
16. ¿Me siento nervioso(a) cuando me dan una lista de ejercicios de matemáticas?					
17. ¿Me siento nervioso(a) cuando intento comprender a otro compañero explicando un problema de matemáticas?					
18. ¿Me siento nervioso(a) cuando hago un examen de evaluación de matemáticas?					
19. ¿Me siento nervioso(a) cuando veo/escucho a mi profesor explicando un problema de matemáticas?					
20. ¿Me siento nervioso(a) al recibir las notas finales (del examen) de matemáticas?					
21. ¿Me siento nervioso(a) cuando quiero averiguar el cambio en la tienda?					
22. ¿Me siento nervioso(a) cuando nos ponen un problema y un compañero lo acaba antes que yo?					
23. ¿Me siento nervioso(a) cuando tengo que explicar un problema en clase de matemáticas?					
24. ¿Me siento nervioso(a) cuando empiezo a hacer los deberes?					

Gracias por su cooperación
Thanks for your cooperation