

Full Length Research Paper

Avoidance attitude towards learning of mathematics in secondary school

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Abstract

From a context characterized by a preoccupation of developing mathematics competence and other scientific competences, as well as a manifestation of a negative attitude towards the learning process of mathematics, the present study had two main objectives as follows: (1) to determine the link between the teachers' attitude in classroom situation and the learner's development of an avoidance attitude towards mathematics; (2) to examine the likely effects of a positive variation of the teachers' attitude in classroom situation on the extinction of avoidance attitude towards mathematics. From data collected on the field through questionnaires addressed to form three students and mathematics teachers, enriched by a classroom observation; the study reveals amongst other aspects that, the learning conditions of mathematics in the school milieu were unpleasant; a negative affective relationship exists between the learner and mathematics. In short, the study confirms that the more negative the teachers' attitude in classroom situation the more likely would be the learner's development of an avoidance attitude and the less likely will be the extinction of an acquired avoidance attitude towards mathematics.

Keywords: Mathematics, avoidance attitude, extinction, the attitude of the teacher in classroom situation.

INTRODUCTION

One of the important goals of teaching is to condition the learner such that, he is disposed to use the knowledge and competences acquired and that he deepens the resources and the contents studied. To succeed, one of the means was to guide the learners against all avoidance tendencies. Such caution implied not only a therapeutic action-suitable for healing, but also preventive measures destined to hinder the appearance and the development of avoidance. The pertinence of this step is its power to increase the learner probability of success, through a permanent modification of the teachers' behaviour to introduce a continuous renewal of the immediate environment of the education situation.

In reality, the classroom in its generic sense was considered as an environment for which the teacher seem to have a higher probability of effective action compared to that which he could have in others such as the family, street which could get out of his control. The intention here was not to underestimate the other explanative factors of school in adaptation such as those linked to the milieu or personal factors, whose influence could sometimes be very important and more complex.

However, the tentative conviction was that if the teacher sufficiently relied on asking himself questions with the aim of knowing how to maximize the probability of the pupil's success in spite of a possible contrary influence no matter how big it is of his aptitude his family or all other environment factor, the teaching learning process in general will gain effectiveness. But why should be preoccupied with avoidance with towards mathematics?

The importance of a study on avoidance with respect to mathematics learning

A large majority of school systems in the world tend to give a great importance to mathematics. More than ten years ago in Cameroon the instructions and particular recommendations have been taken with the aim of increasing the number of students who succeed into the 5th year arts class. Throughout the world, the school systems tend to under-rate in clear or implicit manner mathematics and its associated disciplines to the detriment of other subject which are dominantly arts or

others. Sometimes he has made allusion like Guran (1987, p 63) declares: "A royal pathway which leads to upper sixth sciences and carries it to a higher scientific school".

The importance given to this field of training and education throughout the world have contributed to the development of snobbism for mathematics and with possible consequence such as the manifestation in certain subjects diverse psychopathological states - anxiety anguish, etc, in reaction to the hypothesis of a conflict between real situation of the child and the imagined situation. To parents and teachers, it was instead a very big responsibility to heal and a minimal probability of success. Finally an important number of students found themselves in a school failure situation in one manner or another, which could not be without slowing down the economic, social, physical and mental health or others of the whole society.

If it is evident that the development of mathematics as a scientific discipline plays a fundamental role in the (scientific, technical, technological, economic) progress of man and the world, it does not remain less true that mathematics remains a discipline and a domain in the same tithé as others whose no longer to be demonstrated. This is in fact because the equilibrium and prosperity of a society should uniquely rely on the scientific, technical and technological progress. Considered as the other subjects, mathematics should therefore attract the same attention from teachers and students. Should the teaching of mathematics operate effectively? But is it always the case? Do the students engage themselves in its learning in the same way as they do with other disciplines?

Observations carried out in primary and secondary classrooms lead us to deduce that a very important proportion of students approach this discipline with negative prejudices. Mathematics was and is still considered not different from the others, but equally the most difficult of all the disciplines. This explains to a certain extend the apprehension with which its teaching is received from first contact. This often negative affective reaction are very early reinforced by negative mystifying discourses with respect to mathematics and a corresponding type of attitude on the part of the teacher. Thus, if we were to take into account the performance in mathematics, we will realize that in the end of the first cycle of secondary school, a very low performance rate generally less than 50% which is not favourable for the orientation of students into the scientific series.

Whereas mathematics in the first cycle of secondary school, has a higher coefficient (3 or 4), as compared with other disciplines besides French for the Francophone sub-system and English for the Anglophone sub-system. More to that this high importance accorded to mathematics is equally seen in the weekly frequency given to its teaching. With respect to all these, a great importance is accorded to this discipline with respect to

the clear or veiled intentions associated to its teaching and with regards to the performance during evaluations or the affective reactions clearly expressed or masked forces to say that the teaching of mathematics has problems amongst which those related to the negative attitude of learners? But how have we orientated the problem in this study?

Avoidance attitude towards mathematics: The problem of the effectiveness of the teaching-learning of the mathematics in question

In a quest to increase the probability of the effectiveness of the teaching-learning process of mathematics in school, the problem to be solved was orientated towards determining the limit to which the attitude of mathematics teacher in classroom situation could influence the development of avoidance attitude towards mathematics by the student. In other words, what is the responsibility attributed to teachers, in the development of avoidance with respect to mathematics in the school milieu? To what extend is effectiveness of the teachers' actions on the prevention and extinction of avoidance attitude towards mathematics in the school milieu?

The study focused on the question of the effect of teacher's attitude on the effectiveness of learning of mathematics in school. The effectiveness of learning to a large extend depends on the attitude of the student towards it. If in a general manner, it was a question of making the learning of mathematics more efficient and effective, it is necessary to precise through a specific plan, that the worry was a maximal development of aptitudes in mathematics. It was not a question of making mathematicians by creating aptitudes in students who were destitute, but instead to contribute in demystifying the discipline; help the students to maximally develop their aptitudes in mathematics, giving those who are particularly gifted, an opportunity to orientate themselves towards scientific disciplines in order to maintain continuity with their ideal environment, and those with inferior aptitudes, an opportunity to easily finish their school, thanks to a minimal mastery of the basic competences and the more or less acceptable performance in mathematics (Delledale, 1965 cited by Bipoupout, 2005); which is consequently that, they are not subjects who suffer from mental backwardness. To get to the expected results the work had been orientated by a set of written work.

The avoidance attitude from written works

Avoidance attitude and its development

Avoidance attitude designates the tendency in an individual to manifest in a solution or a given object,

reaction or a set of conducts which goal is to take him away in an anticipative manner from this situation which is aversive or disagreeable. Avoidance towards a learning object generally is developed in aversive or disagreeable learning conditions. As to what particularly concerns the avoidance with respect to a teaching discipline, it concerns an attitude which manifests itself through a weak disposition or inclination in class participation and a negative or fairly positive disposition in class participation

Avoidance towards mathematics manifests in learner through a set of attitudes. The student does not study mathematics or if he does, it is with a prior aim to succeed in the evaluation and not in the learning, it manifests itself through declarations or other attitudes, a more or less negative perception of the mathematics teacher. They do not envisage furthering their studies in the series of mathematics or scientific dominance. They do not talk or like to talk about mathematics, they hardly or never participate (do not ask questions, answer questions) unless it is obligatory. They manifest a strong disposition to react negatively to the attitude of the teacher tending to expand his didactic act above the usual limits (catch up classes, compensatory classes...). They take advantage of the least physical or affective indispositions to stay away from mathematic classes. They manifest some disturbance during mathematics lessons and are not enthusiastic or have no thought of being present. They equally manifest certain psychological or psychopathological states (fear, anguish, anxiety, phobia...) to attend mathematics classes or evaluations.

The avoidance attitude or behaviour develops in particular conditions of teaching- learning characterized by aversive circumstances of learning which are of negative casual reinforcement. By reinforcement, it is necessary to understand according to Lieury (1997, p. 78), "that which increase the probability of issue or reduction of a response". The negative or aversive contingencies implies the use of events, or stimuli to which the subjects seeks to withdraw himself from, such as electric shock, unpleasant learning conditions characterized for example by fear, disturbance, disagreement and other negative consequences.

The acquisition of avoidance conducts can only occur in negative contingencies, which includes punishment contingencies, which results in aversive stimulus (noxious or unpleasant stimulus) sanction of a precise response with the objective of extinguishing it, the escape contingencies which offers the organism, a possibility to withdraw from any aversive stimulus already present, through the production of a behaviour with a high probability of reproduction of a noxious stimulus coming from a new one, the avoidance contingencies in which the subject is placed, is a particular situation characterised by a power to withdraw in an anticipative manner to an aversive stimulus, through the help of a

well-defined behaviour. There also exist positive contingencies, which imply a stimulus whose presence or absence increases the strength or response maintenance.

In the psycho affective domain, the circumstances which characterise the development of avoidance attitude with respect to learning in general and mathematics in particular are negative emotions. Amongst the latter is the appearance of displeasure which above is a primitive form whose birth is associated with more or less excitations or superior stimulation which gives the organism a possibility to react to obstructed activity, distracted from its objective, "all events which provoke a physical or mental hindrance (...) cursing a person to doubt his own value, love, dignity or to expect lost" (Mager, 1978 p.49; Bipoupout, 2005; Boumela, 2007).

Fear and avoidance attitude

Fear is another condition of pedagogic situation favourable for the manifestation of avoidance. Fear as well as all negative affective states, defines the properties and the associated manifestations: anguish, anxiety, apprehensive, etc; have a real impact on the development and execution of a runaway attitude by a subject in a pedagogic situation, no matter who he is. Their low or high intensity, higher, or lower frequency, can equally, besides psycho-physiological consequences- chemical variation of the brain exposing the individual to more sensitive adrenaline release and a corresponding conduct modification- favouring the constitution of a nucleus of a particular type of behaviour.

The learning circumstances and the development of attitude with respect to learning

Research realized by Mager (1978) have put forward first of all, the influence of subjects attitude towards the taught discipline on the realization of an authentic learning understood as a relative permanent modification of behaviour, then the place of the teacher and the pedagogic situation in the learning processes and the main role that he plays in the orientation and development of students of students approach or avoidance attitudes towards a study subject. In a study of which the goal was to determine the evolution of the tendencies with respect to the school disciplines, they have established during an interview with 65 students that a discipline becomes a favourite for three fundamental reasons: (1) Students succeed in it; (2) Its teaching is given by admired or sympathetic teachers, (3) The students feel at ease when teacher is teaching.

In return, a discipline is avoided for at least one of the following conditions: (1) The students seem to have more or less self aptitude (2) the discipline tends to associate

with antipathy persons and generally aversive conditions (fear and anguish, pain, frustration, humiliation embarrassment disturbance and physical discomfort...). The author equally noted as well the development of tendencies with respect to such activities which are influenced by inborn aptitudes. It will be above all being a function of an environmental event which surrounds the subject during learning, under such circumstances which hinders contact and reaction of others towards the subject (learning by imitation). The above inquiry has brought out the factors linked to the pedagogic situation or the pedagogic attitude in the development of tendencies with respect to the taught discipline.

In summary, avoidance refers to a behaviour whose origin is enrooted in negative pedagogic situation through aversive learning circumstances (poor performances, negative emotions, frustration, antipathy teacher), which favours the development of inaptitude with respect to learning and consequently, the uncontrollability to accomplish activity (Mager, 1978; lebeau, 1992; Viau, 1997). On the contrary, an affective teacher-pupil relation marked by the pedagogic competence, sympathy, an open and understanding attitude, warmth, affective relationships; which does not encourage the use of punishment techniques in class control; which instead favours school success (Mauco, 1995; Morrison and Mc Intyre, 1984; Deci and al; 1991); which ease the development in the student of taste for study and effort the awakening of latent intellectual faculties and growing variation of the feeling of aptitude and the security of students. (Dogbe, 1979; Mauco, 1995) constitutes a fertile field for an attitude of approach towards the discipline. Besides, a pedagogic behaviour which manifest in the teacher through a tendency to seek the insufficiency of his didactic action in the failure of the students is susceptible to produce an increase variation of the student's competence to accomplish activities proposed to them for evaluation (Sympson, 1976). Some written work have permitted us to temporary suggest a certain orientation to the work.

The hypothesis of a very determinant teacher' effects

The more unfavourable the pedagogic situation the more likely will be the development of avoidance and the less likely the extinction of attitude acquired towards mathematics. It is necessary to verify in more concrete terms the following two propositions: (1) the proportion of students in whom the development of mathematic avoidance attitude was as a result of the teacher's attitude in situation is higher than that of students in whom the development of avoidance is caused by other factors; (2) The proportion of students in whom the process of extinction of avoidance attitude towards

mathematics could be reversed by a positive change of teachers behaviour in situation is higher than that of learners in whom the amelioration of feelings towards mathematics is not influenced by a positive qualitative variation of teachers behaviour in situation.

A three part analysis

After introduction the methodological aspect is presented, then results and finally tracks for a pedagogic and didactic action as a preventive and curative measure for avoidance attitude towards mathematics.

A verification method of hypothesis of the influence of the pedagogic situation on the development of avoidance towards mathematics

The subjects of the study

The study targeted group of subjects was made up of two sub-groups for which one represented the form three students of Government school Anguissa and the other, mathematics teachers of the same establishment and teaching the same classes. The choice of form three students of Government high school was motivated amongst others by the place that mathematics occupied or was supposed to have in the syllabus in this level of the system. The place of a fundamental discipline is to be seen from the importance of the coefficient and weekly hours of teaching that is attributed to it. Concerning the form three classes, the argument of choice is based on the attention accorded to factors susceptible to positively or negatively influence the development of avoidance attitude. It is necessary to eliminate the classes in which, from their nature or profile was offering a high or low probability of development of avoidance with respect to mathematics, it is the case with classes of the second cycle. The students who were already schooling were supposed to have improved at least theoretically from their orientation into the scientific series or others from positive or negative reactions with respect to mathematics. In addition the first cycle classes considered as common base show interesting characteristics. Thus a hundred (100) students of which 54% were boys (54 subjects) and 46% were girls (46 subjects) were chosen using the stratified sampling method from a population of 257 students of which 46.30% were girls and 53.70% were boys registered in form three and manifesting the avoidance attitude with respect to mathematics. The selected subjects were all at the same developmental stage (adolescence) but their ages, social milieus and intellectual aptitudes were different.

Instruments for data collection

Two questionnaires of which one was addressed to students and another to teachers as well as an observation grid were used. The questionnaire addressed to teachers were conceived not only to determine in what extend the negative conditions susceptible to favour the development of avoidance towards mathematics were on place during mathematics classes but also to identify the therapeutic means against the phenomenon. It had two main sections teacher's activity and the pedagogic situation. Questionnaire addressed to students were constructed not only to determine the quality of the affective relation between the taught school discipline from the feeling manifested by students with respect to mathematics but also their attitude relative to the discipline, and also to evaluate the attitude of the teacher in classroom situation. In addition to the section relative to identification this instrument had a section relating to the pedagogic situation and that reserved for the behaviour of the students towards mathematics.

Practical class observation was done by using appropriate material and an observation grid. It was constructed to permit the evaluation of the positive or negative nature of attitude manifested either by the teacher in classroom situation or by the students during mathematics classes. The behavioural aspects targeted extended amongst others to the participation of the students to the learning activities, teachers' intervention, reaction to students questions, to reinforcement, to reaction with respect to individual differences.

Validation of instruments, procedure for data collection and analysis

The instruments mentioned above were constructed respecting the congruence between the objective and the content. Next specialists in the discipline of construction of instrument to measure also appreciated it. In addition, the different instruments have been successfully tested on two occasions on a reduced sample of learners for the questionnaires addressed to students and on two small groups of teachers for those addressed to teachers. The different results have been correlated. The administration of the questionnaires, as well as the observation of the class practice was preceded an interview with subjects as well as a training section of the research team. The collected data was analysed using comparing percentages.

RESULTS OF THE STUDY

The pedagogic situation

By comparing the frequencies of negative circumstances

of the pedagogic situation to that of positive circumstances, it results that for a set of 16 aspects of the pedagogic attitude retained, the negative circumstances represent the opinion of the students, a relative mean frequency of 98%, and the opinion of teachers, a relative mean frequency of 60%. The pedagogic situation which characterized the teaching-learning of mathematics was therefore constituted of more negative than positive conditions as shown in Table 1

Class observation

From the rate of mean time table interventions which was 90% for teachers and 7% for students and in making reference to mean percentage participation of students during mathematics classes (8% of students have either showed the desire to participate or effectively participate at least once and 92% did not neither participate nor manifest the desire to do so during classes), the following were noticed: The teacher manifested a pedagogic attitude characterized by a monopolization of the word, teaching method used was more passive than active. For other aspects of his behaviour, results have revealed a tendency of negative attitude, with a mean per class frequency of 82% per teacher, against 18% for positive attitude.

Attitude of students towards mathematics

The behaviour of students with respect to the discipline is much more the feeling expressed (each time the period of mathematics lessons approached, if the weekly time allocated to the teaching-learning of mathematics has been reduced; if the test of mathematics was to be cancelled from the planning of examinations) in the personal activity linked to the learning of mathematics (annual frequency of mathematics corresponds at least to the mean or a fair mark, the importance of the time interval given to personal study of mathematics compared to that given to other disciplines) was negative with a mean of 97% as shown in Table 2.

The avoidance attitude with respect to mathematics

Development of avoidance attitude with respect to mathematics

The questions related to the importance of the teachers effect in the development of avoidance attitude towards mathematics, results revealed that the proportion of students in which the development of avoidance attitude towards mathematics were as a result of the teachers attitude in classroom situation had a 76% rate greatly higher than that of students in which the development of

Table 1. The recapitulation table of the quality of the aspects of pedagogic attitude

Aspects of pedagogic attitude	Frequency of negative circumstances				Frequency of positive circumstances			
	Students		Teachers		Students		Teachers	
	N	%	N	%	N	%	N	%
1-Guide to the solution	99	99	3	60	1	1	2	40
2-Development of group spirit	92	92	3	60	8	8	2	40
3-Desire expressed by the teacher to know the problems of students	98	98	4	80	2	2	1	20
4-Understanding in the relation ship teacher-pupil	96	96	3	60	4	4	2	40
5-Promptness in response to students questions	95	95	3	60	5	5	2	40
6- Ability in solicitation of questions from pupils	99	99	4	80	1	1	1	20
7-Perseverance in the assistance of the less apt during classes	100	100	5	100	0	0	0	0
8-Corresponding evaluation to knowledge of students	94	94	2	40	6	6	3	60
9-Marks often obtained	99	99	4	80	1	1	1	20
10-Consequences in case of failure	99	99	3	60	1	1	2	20
11-Selfevaluation of teachers action	100	100	4	80	0	0	1	20
12-Regularity in seeking for his own responsibilities with respect to failure	100	100	5	100	0	0	0	0
13-Contribution to the development of positive feelings with respect to discipline	99	99	4	80	1	1	1	20
14-Class contribution to the amelioration of feelings with respect to discipline	100	100	2	40	0	0	3	60
15-Satisfaction of pupils with respect to the didactic action	100	100	4	80	0	0	1	20
16-Contribution of the didactic action in the amelioration of performance	100	100	2	40	0	0	3	60
Mean	98	98	3	60	2	2	2	40

Table 2. The attitude of students with respect to mathematics

Domain of behaviour	Frequency by quality of behaviour			
	Negative		Positive	
	N	%	N	%
1. feeling with respect to mathematics	95	95	5	5
2. Activity of students	99	99	1	1
Mean	97	97	3	3

Table 3. Main factors which induce the development and extinction of avoidance in students and the avoidance extinction possibility through the amelioration of the attitude of the teacher in classroom situation.

Aspect of behaviour	Frequency per type of responses			
	Positive		Negative	
	N	%	N	%
Development of avoidance attitude with respect to mathematics				
1. Factor linked to the attitude of the teacher in classroom situation (perception by the students of their behaviour)	76	76	24	24
2. Other factors	24	24	76	76
Extinction of avoidance attitude with respect to mathematics				
1. Factors linked to positive change of attitude of teacher in classroom situation (perception of the students)	81	81	19	19
2. Other factors	19	19	81	81
Teachers Perception				
1. factors linked to positive change of attitude of teacher in classroom situation	5	100	0	0
2. Factors linked to the revision of curriculum (syllabus, methods, system of evaluation.....)	1	20	4	80
Effect of a positive variation of teachers attitude in classroom situation on the (100) students affected by avoidance				
1. likely extinction (positive effect)	91	91	9	9
2. Not at all likely extinction (no effect)	9	9	91	91

avoidance was caused by other factors. This last group had a rate of 24%. These results have led us to confirm the hypothesis linked to the importance of teachers' attitude in the acquisition of avoidance attitude towards mathematics.

Extinction of avoidance attitude with respect to mathematics

Concerning extinction the result had, opinions of 81% of students and 100% of teachers, revealed that factors linked to positive changes of teachers' attitude in the classroom could be considered as a therapeutic, which is more effective than those relating to other factors which represent a rate of 19% students and a rate of 20% teachers.

The effect of positive teachers' attitude variation in classroom situation on those affected by avoidance

In continuity with the observed tendency from data presented in previous sections which brought out a very important effect of teachers' attitude in the acquisition and extinction of avoidance towards mathematics, it was realised from this study that the percentage of students affected in whom the extinction of avoidance attitude could be reduced through an amelioration of the teachers' attitude in classroom situation was 91%. Consequently, the proportion of students in whom the extinction process of avoidance attitude with respect to mathematics could be reduced through a positive change of teachers' attitude in classroom situation were effectively higher than that of learners (9%) in whom the amelioration of feeling towards mathematics was not influenced by a qualitative positive teachers' attitude in the classroom situation.

A very determinant of teachers' effect hypothesis in the development and extinction of avoidance towards the learning of mathematics in school milieu

Briefly, the results of the study had furnished data, as presented in the above table and the previous sections, which have permitted us to confirm the following two propositions: (1) the proportion of students in whom the development of avoidance towards mathematics resulted from teachers' attitude in classroom situation is higher than that of students in whom its development was caused by other factors, (2) the proportion of students in whom the process of development of avoidance attitude with respect to mathematics could be reduced by a positive change of teachers' attitude in classroom situation is higher than that of learners in whom the amelioration of feelings with respect to mathematics is not influenced by a positive qualitative teachers' attitude

variation in classroom situation. Consequently, the results of the study show that, the more negative the pedagogic situation, the more likely will be the development and the less likely the extinction of an avoidance attitude acquired towards mathematics.

DISCUSSION OF THE RESULTS

In a general manner, the results of the study have furnished data on the attitude of the teacher in classroom situation, the attitude of the students with respect to mathematics, the influence of factors linked to the attitude of the teacher on the avoidance attitude with respect to mathematics compared with that of other factors and the likely effect of the positive teacher attitude variation of the avoidance attitude with respect to mathematics.

The development of avoidance towards mathematics: a negative pedagogic situation the one responsible

The results have revealed that the teacher's attitude in the presence of students learning mathematics was more negative than positive. The pedagogic situation was characterised by the passivity of the students, the absence of a confidence relationship between the teacher and the students, the presence of conditions and consequences of contact with the discipline unfavourable or negative circumstance such as frustration, poor marks, humiliation, and a contribution which is judged as insufficient on these three aspects. (1) the contribution of the evaluation to develop positive feelings towards the discipline and (2) the contribution to ameliorate feelings towards the discipline and (3) the contribution of didactic action to increase performances, to name just these few.

Common view of the quality of the pedagogic situation already helps us to understand the negative nature of the attitude manifested by the students with respect to the mathematics classes. Indeed, according to the different aspects of students' attitude observed participation to learning activities, the expressed with regard to mathematics, personal activities of students during and after the class to assimilate and accommodate mathematic knowledge- was on average 97% in the subjects

A determinant teacher effect in the fight against avoidance

Concerning the third theme, it resulted that out of (100) students manifesting the avoidance attitude with respect to mathematics 76 had the conviction that it was due to the development of a negative teacher attitude and 24 attributed it to other factors (those linked to a lack of insufficient superficial aptitude in the students or

influence from friends, parents, peers). These results, compared to data relative to the main factors to induce extinction of avoidance in the same students permitted us to realize a slight deviation even if the observed tendency remains the same. This is thus how instead of a 76% proportion, the proportion of subjects in whom the extinction attitude is conditioned by the amelioration of the teacher attitude in classroom situation is 81%. What can explain this difference?

In fact, the positive effects of the curative action of the teachers' action extend above the only group interested by it. The positive change of teachers attitude, also positively influence the subjects in whom avoidance is mainly because of a negative or unfavorable teachers attitude, than those in whom its development is because of other factors. Such as influences from friends, parents, peers etc. it is evident that, the more the teacher makes the affective relationship teacher-learner and learner-discipline of school, its influence on the students under the development of attitudes with respect to mathematics will in general also if not be higher than that of any other person (parents, peers, private-teacher).

The data which relates with the fourth theme agrees with the former one, because the opinions of the affected students for which, the induce extinction avoidance difference is 81%. Proportion for which factors linked to positive change of teachers attitude is 19% against that of other factors; opinions of the mathematic teachers, a unanimously (100% for the interrogated subjects) on the positive influence of the amelioration of the teachers' attitude on the extinction of avoidance.

The opinion of the affected student by avoidance and concerning the question of possible effect of an amelioration of teachers' attitude on the extinction of avoidance developed with respect to mathematics, an efficiency rate of 91% through the declarations of the subjects concerned that were registered. Although deviation exist between the conviction and the real situation, the expression of a conviction constitutes a very important psychological element which will translate a powerful feeling and which could play a dominant role in the extinction with respect to mathematics in particular. As to that which concerns those on whom the amelioration of teachers' attitude will be without effect (9%), it concerns students in whom avoidance was a very powerful force, and who had acquired weak feelings (Viau, 1997). This subject was more or less linked to the conviction of never being able to stop this attitude. Yet, in practice, has there ever been hope for students of this group?

From the moment when the students are not in the category of mentally retarded subjects, the extinction process of their avoidance towards mathematics could be accelerated, even if its duration will be longer. In fact, the reaction could be compared with the attitude of a person that attacks by a chronic illness he judges incurable. Consequently, the very long affection duration, varieties

of treatment administered could lead the patient to lose all hopes of healing, to remain in a discouragement state and think that the illness is incurable. Such pessimistic conviction that the patients' state will not result to any amelioration no matter the treatment, is that which he submitted. By analogy if the students are firmly convinced of the irreversibly of their attitude with respect to mathematics and were submitted to a treatment which produced positive effects, it strength, it will lead to the extinction of the avoidance attitude. This result suggests a pedagogic and didactic action centered on a qualitatively increasing variation of the pedagogic situation and with an emphasis on the reaction with respect to less apt who constitute the group in which the disposition of the avoidance development with respect to mathematics is the strongest.

CONCLUSION

In conclusion, tracks for a pedagogic and didactic action which can be preventive and curative of the avoidance with respect to mathematics

Demystify mathematics by an appropriate discourse and action

According to Bipoupout (2005), the presentation of mathematics teaching should take place by means of a discourse which is favourable to the learners, the development of the feeling of aptitude and extinction of feeling of inaptitude with respect to learning and evaluation of mathematics. It constitutes a positive discourse that does not previously exclude the presence of difficulty in the process of realization of the objective or the acquisition of competence or the attainment of the objective but seeks to maintain in the learner, a psychological state dominated by optimism with respect to overcoming the obstacle. The preparation and presentation of a learning content which sufficiently contribute in each of its parts, to ameliorate the learner's capacity to solve the problem-situations linked to the targeted competence. Thus, the demystifications of mathematics should sufficiently characterize the discourse, pedagogic and the didactic action.

Create and maintain favourable learning conditions

The putting in place and the permanent maintenance of a pedagogic relation in which the teacher regularly and with sincerity express a desire to acquire the learning problems of the learners were suggested. It concerns a relationship in which the spirit of understanding, sympathy for the learners strongly manifests itself, briefly a pedagogic relationship that creates socio-affective frameworks, favorable for the resolution of tensions and

the extinction of worrying disposition of the learners with respect to learning and evaluation.

A particular interest in the subjects predisposed to the development of avoidance towards mathematics: subjects less apt in mathematics

A pedagogic attitude equally profitable will consist of increasing the assistance of less apt learners. In a more general manner, in groups where the disposition of development of avoidance with respect to mathematics is very likely, for example the case of learners having performances less than or equal to average in mathematics. This is not only concerning the weak, but also so, that learners should not develop it from repeated failure. The inability to learn, succeed, and make progress in this domain (The Ministry of National Education, 1995). The development of a didactic attitude characterized by a positive reaction, with respect to the less apt implies perseverance on the part of the teacher in assisting the students who are less apt during the teaching learning process, within or above the temporal limit of a pedagogic sequence (by appropriate activities susceptible to increase the level of the less apt).

The didactic action of the fight against avoidance attitude is that which is orientated with priority towards the production of a variation of always increasing performance of less apt students, it is marked by patience, kindness, tolerance, particular attention on the efforts of very slow learners. It is necessary that through a periodic evaluation of their performance not with those very apt students, but with their past performance, so that they will understand that they can "do better".

At the beginning of learning, develop a positive attitude in students

Another aspect of a profitable pedagogic attitude will consist of watching for the development in the students at the beginning of a new program or a new teaching discipline positive attitude, in helping them to get a complete mastery of the first learning unit. During all the process, the didactic and evaluation action should sufficiently contribute to the amelioration of the quality of feelings of the learners with respect to the discipline. That which favours a decreasing variation of the inferiority or insufficiency feeling or an increasing variation of aptitude feeling with respect to the discipline and evaluation. The periodic appreciation of attitude development approach and avoidance with respect to learning mathematics will equally be desirable.

Treating the teacher-student affective relationship during the teaching of mathematics

The maintenance of a positive effective climate is highly recommended. This is because, a spontaneous sympathy, real interest, optimism, openness, dynamism, understanding, enthusiasm, devotedness, availability, respect for others, patience, future confidence for the aptitudes of learners; calm and cold blood in moments of uncertainties and deceitful situations, flexibility and assurance, acceptance of others (in reality and not as fantasized) as they are, cordiality are the many traits of a profitable affective school relationship. It concerns attributes of behavior that permits the putting in place of psychological and pedagogical environment, where students, no matter their potentialities, find pleasure in the mobilization of their physical, intellectual, and affective energies in order to obtain an optimal development of their diverse capacities (Dogbe, 1979; Dobson, 1993 cited by Bipoupout, 2005). This referential suggestions should be sustained by a regularity of not only objective self-evaluation of his mathematics lessons, but also of objective research of his responsibility, no matter how low these propositions, in the failure of the students in mathematics. Students with other partners can be urged through interviews and questionnaires addressed to them, for the realization of the operation

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