THE INFLUENCE OF THE SOCIOMETRIC STATUS OF STUDENTS ON ACADEMIC ACHIEVEMENT

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Abstract: The mission, desire and preoccupation of each teacher are or should be to ensure academic achievement for each student, by mobilizing all necessary resources. We observe the academic achievement through a variety of educational finalities, and involving socio-affective and personality dimensions indispensable for an effective functioning of the individual within the community. The objective of the research is to underline the influence of the sociometric status of students upon academic achievement. We formulated the hypotheses that positive sociometric status is associated with academic achievement, while negative sociometric status is associated with academic failure. In order to assess them, we applied a three-item sociometric test, and we elaborated the sociomatrices and the sociograms for each group/class in order to extract the annual qualifications for the students within the investigated sample from class registers; afterwards, we carried out the statistical analysis of the data. The findings partially confirm the working hypotheses. Overall, we found a significant relation between the sociometric status of students and academic achievement. A difference was found between students with a positive status and those with zero sociometric status, from the perspective of academic achievement. The investigation revealed that the *gender* variable has no significant influence on the degree of the relation between sociometric status and academic achievement; while the *degree* / the *stage of schooling* variable has a moderating role.

Keywords: academic achievement, sociometric test, sociometric status, cross-sectional study

INTRODUCTION

In the past years, the term *achievement* has been increasingly used, because success is a priority in all the domains where man carries out activities and expresses himself (in: economy, culture, sport, politics

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and, certainly, in education, for which academic achievement has always been an important subject).

Scientific literature underlines a series of factors that influence academic achievement in a positive or negative manner, as follows: psychological, pedagogic, socio-cultural factors; physical, physiological and psychosocial stressors. The affective dimension of didactic communication is one of the factors that have triggered our attention. Naturally, this concept itself defines a highly complex reality in an educational context, a reason why we have focused on a resultant or reflection of socio-affective communication within the classroom, more precisely on the student's sociometric status. Hence, our investigation focuses on the following questions: does the sociometric status of the student influence academic achievement and, if so, to what extent can a positive sociometric status contribute to the improvement of academic performance and achievement?

The term *academic achievement* designates the degree to which a student possesses the verbal information, the intellectual and practical abilities and cognitive strategies stipulated in school syllabuses. The student's academic achievement (or failure) is assessed by the demands of school regulations, considering the educational goals. The student experiences academic achievement (adequate efficiency, be it higher or lower) as *success*, whereas failure (low efficiency, inability to promote) as *lack of success*. The feeling of success represents an important motivational stimulus, an energiser for learning activities, while the feeling of failure implies negative or inhibitory motivation.

Academic achievement expresses the fit degree between the student's level of psychophysical development and the objective demands addressed to him/her within the educational process. In other words, academic achievement/success represents the concordance between demands and the student's level of psychophysical development.

Academic failure represents the situation when students fail to meet the compulsory demands within syllabuses; it constitutes the effect of the discrepancy between demands, possibilities and results. In other words, academic failure expresses discordance between the instructive-educative demands on the one hand, and the student's physical and mental possibilities on the other. Because failure involves both poles of this relation, it can be seen as the result of a double maladjustment: of the child to school activity and of the school to the student's internal factors. The notions of *academic failure* and *academic lack of success*

have been used alternately, and they are considered synonymous to a certain extent.

Obviously, academic failure comprises a subjective dimension. If we consider the norms, the performance standards set by the education system, findings have shown that, in elementary school, students suffer more because of the struggles to get integrated in the school peer group than because of learning difficulties experienced in the classroom. Group norms have proven more powerful than school norms.

School peers can easily adopt the teacher's opinions. Hence, negative assessments will influence interpersonal relationships, thus leading to the marginalization and even the rejection of students who experience academic failure. Failure at school can generate feelings of guilt, inferiority and exclusion, expressed in deviant behaviours – such as missing classes, running away from home, abandoning school, bullying – that psychologists define as *the cumulative effects of academic failure.*

The place occupied by each student within the group plays a special role in both social development and its impact upon school well-being and learning. The educator's responsibility is to pay attention to the relationships between students and to detect the cases of students who experience dysfunctional relational scenarios. This is possible by using sociometry, as a research method and theory, according to Jacob Levy Moreno. Sociometry subordinates a set of instruments and proceedings: the sociometric techniques, developed to record and measure the configuration and intensity of interpersonal relationships within the group of students, as well as aspects concerning its dynamics. The main sociometric techniques used in academic practice are the *sociometric test, sociomatrix, sociometric indices, sociogram* (individual and collective), *sociometric cliques.*

Sociometric techniques start from the premise that people make interpersonal choices when they wish to conduct a certain activity, due to the positive, the negative or the indifferent opinions of other group members. It is possible to pinpoint the network of interpersonal relations between group members and the sociometric status of each member. The sociometric status of students (popular, accepted, isolated, marginalized and rejected) is a powerful indicator not only regarding the evolution of socio-affective relations within the classroom as a group or the personality of students throughout school, but also concerning their academic performance. Consequently, the relation between the sociometric status of students and academic

achievement constitutes the subject of numerous investigations, offering educators a reliable support for students, with the ultimate goal of experiencing academic achievement.

THE RELATION BETWEEN SOCIOMETRIC STATUS AND ACADEMIC ACHIEVEMENT – AS REFLECTED IN THE INVESTIGATIONS OF SCIENTIFIC LITERATURE

Many investigations have found that students invest significantly from a psychological perspective in the group they belong to, especially in terms of the support they expect from their peers.[1] As a consequence, the quality of the relations between students and their classmates is important in order to understand the impact of these relations upon adjustment and academic achievement.

Numerous studies that focused on sociometric status and on acceptance within the group of students underline the existence of a significant relation between these variables and school adjustment from a social and academic perspective. More precisely, students with high sociometric status (who are popular and liked by their peers) are likely to adjust better to school, from the perspective of both school proficiency (through good grades) and social adjustment, through adequate behaviours.[2] It is very interesting that especially students "neglected" by their peers – those who are neither popular, nor rejected – express a positive profile from the perspective of academic achievement and social adjustment at school.[3]

Sociometric status is determined statistically, depending on how frequently a student is nominated by his peers as "the best friend" and depending on the degree to which he/she is rejected by his/her peers.[4]

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[1] See T.J. Berndt (1979). "Developmental changes in conformity to peers and parents". *Developmental Psychology*, *15*; W. Furman (1989). "The development of children's social networks". In D. Belle (ed.), *Children's social networks and social supports*. New York: Wiley, pp. 151-172.

[2] See M.E. DeRosier, J.B. Kupersmidt & C.J. Patterson (1994). "Children's academic and behavioral adjustment as a function of the chronicity and proximity of peer rejection". *Child Development*, *65*, 1799-1813; K.R. Wentzel (1991a). "Relations between social competence and academic achievement in early adolescence". *Child Development*, *62*, 1066-1078; K.R. Wentzel (1991b). "Social competence at school: Relations between social responsibility and academic achievement". *Review of Educational Research*, *61*, 1-24.

[3] K.R. Wentzel & S.R. Asher (1995). "Academic lives of neglected, rejected, popular, and controversial children". *Child Development*, *62*, 1066-1078.

[4] S.R. Asher & K.A. Dodge (1986). "Identifying children who are rejected by their peers". *Developmental Psychology*, *22*, 444-449.

The sociometric status is always based on the relations between students that belong to a certain classroom, not to a larger group, such as a certain academic level or the school. By definition, students with few nominations by their peers as "the best friend", but frequently rejected by them, are labelled "rejected". Students with few nominations as "the best friend", but not frequently rejected by peers are labelled "neglected". Finally, students often nominated as the best friend, but at the same time rejected by their peers, are labelled "controversial/contested", while students often nominated as "the best friend" and preferred by peers are labelled "popular".

Sociometric status has been constantly associated with school adjustment, manifested by students' academic and social competence. Regarding social competence, popular status students tend to be more prosocial, while those within the "rejected" group tend to be less conformist – in the sense of submission to school norms and rules – and more aggressive. The neglected ones tend to be more motivated and more conformists, while "controversial" students tend to be less conformist and more aggressive, compared to students with average sociometric status, that is, those with scores that do not place them – statistically – within a predefined group.[5] The sociometric status was also correlated with academic performance expressed in school proficiency and quantified in school grades. Hence, popular and neglected students have significantly higher grades, while the ones rejected have significantly lower grades than their average sociometric status peers.

Scientific literature supports the idea that students' sociometric status influences short-term school adjustment. Nevertheless, some studies underline that sociometric status may have a significant impact on students in subsequent stages of their development. Research has shown that sociometrically "rejected" children tend to maintain this status over time, while small children's belonging to other sociometric groups – such as "neglected" or "popular" – may only be transitory.[6] It

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[5] See J.T. Parkhurst & S.R. Asher (1992). "Peer rejection in middle school: Subgroup differences in behaviour, loneliness and interpersonal concerns". *Developmental Psychology*, *28*, 231–241; K.R. Wentzel (1991a). "Relations between social competence and academic achievement in early adolescence". *Child Development*, *62*, 1066-1078.

[6] See J.B. Kupersmidt & J.D. Coie (1990). "Preadolescent peer status, aggression, and school adjustment as predictors of externalizing problems in adolescence". *Child Development, 61,* 1350–1362.

is worth mentioning the studies that investigate the relation between sociometric status and academic achievement from a temporal perspective, meant to determine whether the sense of this relation is maintained throughout various development stages of students, as well as the extent to which the sociometric status of students in a certain stage is predictive of their academic achievement in a subsequent stage.[7]

Generally, scientists have analyzed simple causal models where academic achievement is seen as a direct function of sociometric status.[8] On the contrary, more complex causal models – focusing on the moderating role of certain psychological processes within the relation between academic achievement and sociometric status – have not benefitted from as many investigations.[9] Nonetheless, some researchers have managed to highlight certain moderating variables, such as motivation and perceived support from the peer group. There is limited evidence that perceived support from the peer group, just like motivation, explains the significant correlation between school adjustment and sociometric status. Such studies have underlined that it is the degree of perceived peer acceptance or rejection, rather than the actual degree of peer acceptance or rejection, that plays a crucial role in school adjustment.[10]

From the teacher's perspective, the findings of such investigations are extremely important in supporting the effort to keep an open mind concerning a complex educational reality, constantly modelled by contextual factors, which requires transparency, avoiding universal grids and projecting the educational act here and now. Consequently, the investigation aimed at detecting and analyzing a direct connection between academic achievement and sociometric status must be projected in a broader context, allowing for the identification of psychological and social stimuli through which the affective - sympathetic relations within the classroom can be influenced to increase academic achievement and to reduce academic failure.

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[7] K.R. Wentzel (2003). "Sociometric Status and Adjustment in Middle School: A Longitudinal Study". *The Journal of Early Adolescence, 23*, 5-28.

[8] M.E. DeRosier, J.B. Kupersmidt & C.J. Patterson, *op.cit.*

[9] K.R. Wentzel (2003). *op.cit.*

[10] J.G. Parker & S.R. Asher (1987). "Peer relations and later personal adjustment: Are low accepted children at risk?" *Psychological Bulletin*, *102*, 357-389.

STUDY ON THE INFLUENCE OF STUDENTS' SOCIOMETRIC STATUS UPON ACADEMIC ACHIEVEMENT

The current paper represents a quantitative empirical investigation – materialized in a *correlational study* – that focuses on the presumption that there is a connection between the sociometric status of the student and academic achievement. Hence, the objective of the investigation is to pinpoint the presence of such a connection, but also its meaning; in other words, to underline to what extent positive sociometric status within the peer group is associated with academic achievement, while negative sociometric status – with academic failure.

Research hypotheses and design:

Main hypotheses:

1. There is a significant connection between the sociometric status of students and academic achievement, in the sense that positive sociometric status (popular and accepted students) correlates positively with academic achievement, while negative sociometric status (marginalized or isolated students) correlates negatively with academic achievement.

2. Students with zero sociometric status (indifferent/neglected) are not significantly different from those with positive sociometric status (popular and accepted) from the perspective of academic achievement.

Secondary hypotheses:

1. Students' gender does not influence the sense of the correlation between their sociometric status and academic achievement.

2. Students' grade influences the sense of the correlation between their sociometric status and academic achievement.

Independent variable:

- the sociometric status, with three variation levels: positive (including popular and accepted students); negative (including rejected or isolated/marginalized students); zero (including indifferent students)
- the gender of subjects, with two variation levels: female/male
- the grade, with four variation levels: the first, the second, the third, and the fourth grades

Dependent variable: academic achievement, with two variation levels: success (distinction, credit, pass) / failure (fail).

Research plan:

Because the current study is correlational, there was no pre-selection of subjects by the various levels of variables considered, a reason why we have not elaborated a graphic representation, specific to experimental studies.

Consequently, the variables by which we formulated the hypotheses of the current investigation are *the sociometric status of students* within the classroom as a group, as independent variable, and academic achievement, as dependent variable. Beside the sense of the relation between the two main variables, we also aimed at pinpointing the moderating effect of two other variables – *gender of subjects* and *students' grade* – on the connection between the sociometric status and academic achievement.

The sociometric status, as dependent variable, was operationalized as social preference index, which shows the position of subjects within the group. Hence, depending on the social preference index, students were included in the following three categories: students with positive sociometric status (popular and accepted), students with zero sociometric status (indifferent) and students with negative sociometric status (rejected or isolated/ marginalized).

Considering the vastness of the academic achievement concept, we operationalized it as *academic achievement/failure*, defined – in its turn – by the annual qualifications obtained by students, where academic achievement comprises the categories of *distinction*, *credit* and *pass*, while academic failure comprises *fail*.

Overall, we formulated the assumption that there is a significant connection between the sociometric status of students and academic achievement, in the sense that positive sociometric status is associated with academic achievement, while negative sociometric status is associated with academic failure. We also formulated the assumption that there is no significant connection from the perspective of academic achievement between students with positive sociometric status and those with zero sociometric status. We also assumed that the *gender of subjects* does not influence significantly the extent of the connection between the sociometric status and academic achievement, while *students' grade* (*students* seen as a stage of school education, not as a particular group) does manage to do so.

In order to assess these hypotheses, we applied a three-item sociometric test, we elaborated the sociomatrices and sociograms for each group/classroom of students and we extracted the annual

qualifications of each student of the investigated sample; finally, we analyzed the data statistically.

We have obtained intriguing findings, which confirmed only partially the working hypotheses. Hence, as expected, the findings confirmed the existence of a significant connection between the sociometric status of students and academic achievement, in the sense that positive sociometric status is associated with academic achievement, while negative sociometric status, with failure. However, against our expectations, a significant difference was found between students with positive status and those with zero sociometric status, from the perspective of academic achievement. Both secondary hypotheses were confirmed, and findings have underlined that *gender* does not influence significantly the extent of the connection between sociometric status and academic achievement, while the variable *grade* does play such a moderating role.

In conclusion, in agreement with most data provided by scientific literature on this theme, the findings of the current investigation can represent – from a practical-applicative education perspective – a solid starting point in the projection of learning situations and in the use of certain strategies. We refer here to strategies such as those based on cooperative learning and teamwork, meant to maximize students' academic achievement.

Presentation of the investigated sample and of the research work
The investigation was carried out on an experimental sample comprising 90 students aged between 7 and 12 (44 girls and 46 boys) from an Elementary and middle school in one village in east of the country. The subjects were divided into four groups of students (cross-sectional study) from first to fourth grade, who attend (one first grade class = 22 students, comprising 12 girls and 10 boys; one second grade class = 24 students, comprising 11 girls and 13 boys; one third grade class = 27 students, comprising 13 girls and 14 boys, and one fourth grade class = 17 students, comprising 8 girls and 9 boys).

Tests and instruments used to measure the variables
We used the following instruments to measure the independent and the dependent variable:
1. The independent variable – *sociometric status* – was measured by applying *the sociometric test*, hence being operationalized as *social preference index*. It was calculated by the number of choices and

rejections received by each student within the sociometric test, compared to the total number of students within the classroom.

The sociometric test comprises three questions. The students were asked to indicate three names of classmates for each question. The items chosen to elaborate the sociometric test pinpoint three important aspects of the students' life within the group, as follows: the relational–affective aspect, expressed by the acceptance/ liking or rejection/ disliking of the proximity of certain classmates (*Name three classmates that you would like/ dislike as desk-mates*); spending leisure time (*Name three classmates with whom you would like/ dislike to play during recess*); and academic performance *(Name three classmates with whom you would like/ dislike to work for a team task*).

2. The dependent variable – *academic achievement* – was measured by *recording the academic results,* in terms of the *qualifications* obtained throughout an entire school year.

Investigation stages:

a. *Collecting the data by applying the sociometric test.* Toward the end of the school year, students completed the sociometric test. Though they signed the answer sheet, they were assured that the data would be confidential and that relations with their classmates would not be affected in any way. Subsequently, students' academic results – in terms of their annual qualifications – were extracted from class registers for each student of the investigated sample.

b. *Analyzing and processing the data with the help of the sociomatrix, sociogram and sociometric indices*.

RESULTS AND THEIR PSYCHOLOGICAL INTERPRETATION

1. The first hypothesis confirms that the positive sociometric status of students correlates positively with academic achievement, while the negative sociometric status of students is associated with academic failure.

a. The statistical analysis has shown a significant correlation between sociometric status and academic. This correlation has a mean value [$r = 0.320$; $p = 0.002$] and it means that high sociometric status is associated with academic achievement. In other words, the more positive the sociometric status of students, the better chances they have higher qualifications and vice versa.

b. After applying the One-Way ANOVA, we found significant differences between subjects concerning academic achievement, depending on their sociometric status. Hence, students with positive

sociometric status differ significantly regarding academic achievement from those with negative sociometric status, as well as from those with zero sociometric status. Furthermore, a significant difference was found concerning school results between students with negative status and those with zero status. Thus, significant results were obtained for all groups.

c. In order to determine precisely the sense of the aforementioned differences, we applied the T test for independent samples. Hence, subjects with positive sociometric status [M= 1.00] differ significantly [t= 15.85; p= 0.00 for p< 0.05] from those with negative sociometric status [M= 0.13], concerning academic achievement. The sense of the difference between means indicates that popular and accepted students within the group have significantly better results in school than rejected or marginalized ones. In addition, students with negative status [M= 0.13] have significantly lower results in school [t= -5.99; p= 0.04 for p< 0.05] than the ones with zero sociometric status [M=0.76], while students with positive status [M= 1.00] have significantly higher academic results than the ones with zero sociometric status [M=0.76], as indicated by the sense of the difference between means [t= 3.34; p= 0.00 for p< 0.05].

Thus, considering the statistical analyses and the graphic processing, it can be concluded that the first hypothesis – according to which the positive sociometric status of students correlates positively with academic achievement, while the negative sociometric status of students is associated with academic failure – is confirmed. As expected, our findings are in agreement with other findings within the scientific literature reported by numerous scientists who focused on the relation between the two variables in our investigation. Such research has underlined that popular students and those neglected or indifferent have significantly higher grades, while the ones rejected or isolated have significantly lower grades than their peers with average sociometric status. [11] It has also been shown that, throughout primary school, affiliation with classmates (vs. being marginalized or rejected) is associated with active participation in the classroom and with positive academic results. This has proven true for teenagers too: students tend to affiliate with classmates with the same motivational

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[11] See K.R. Wentzel (1991a, 1991b), *op.cit*.

orientation[12], and the latter serve as models of efficient engagement in learning activities and – as a consequence – of academic achievement.[13]

2. In order to assess the second working hypothesis – according to which there is no significant connection concerning academic achievement between students with positive sociometric status and those with zero status –, we applied the T test *for independent samples*. The sense of the difference between means [t= 3.34; p= 0.00 for p< 0.05] indicates that positive status students [M= 1.00] have significantly higher academic results than the ones with zero sociometric status [M=0.76]. Apparently, these findings contradict the ones reported by scientific literature concerning this aspect, according to which students "neglected" by their peers – neither liked nor rejected – express a particularly positive profile from the perspective of academic achievement and of social adjustment at school. However, this appearance no longer stands when the data of this analysis are interpreted in a broader context, meaning when we compare the academic results of students with zero status and those of students with negative status, not just with the results of those with positive status.

By applying the *T test* for independent samples, we have found that students with zero sociometric status have significantly higher school results than the ones with negative sociometric status. Consequently, though the hypothesis according to which students with zero sociometric status are not significantly different concerning academic achievement from those with positive sociometric status was not confirmed, our findings do not contradict those of the scientific literature according to which students from this category get good grades. Actually, it appears that students with zero sociometric status do not experience academic failure, which means they have good academic results, but not as good as students with positive sociometric status.

3. In order to analyze the relation between the sociometric status and academic achievement, we first assessed the possible connection

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[12] See A.M. Ryan (2001). "The peer group as a context for the development of young adolescents' motivation and achievement". *Child Development*, *72*, 1135 – 1150; T.A. Kindermann (1993). "Natural peer groups as contexts for individual development: The case of children's motivation in school". *Developmental Psychology*, *29*, 970 – 977.
[13] K.R. Wentzel (1991a); K.R. Wentzel and S.R. Asher (1995), *op. cit*.

between the variables within our research – sociometric status and academic achievement – by the gender of subjects.

a. By applying *Pearson*'s coefficient for parametric data, where r = 0.388 (average), p = 0.008 (male subjects) and r = 0.251 (low), p = 0.100 (female subjects), we found a correlation between the sociometric status of students and their level of academic achievement, in both boys and girls. The difference is that this correlation is average in the case of male subjects and low in the case of female subjects.

b. For a more refined analysis of the influence of the gender variable upon the relation between sociometric status and academic achievement, a more complex statistical analysis was necessary.

Hence, we measured the interaction between the gender variable and sociometric status by applying the *Simple Factorial ANOVA*. The *F test* [5.84] = 10.99; p < 0.05 is significant [sig. = 0.00], as it highlights a main effect of the variable *sociometric status* [sig. = 0.00 for p < 0.05]. More precisely, irrespective of the gender of subjects, they differ significantly concerning academic achievement depending on their positive, negative or zero sociometric status. Furthermore, there is no main effect of the gender variable [sig. = 0.538 for p < 0.05] and no interaction effect between the variables gender and sociometric status [sig. = 0.723 for p < 0.05] in modelling the level of academic achievement. These data confirm the hypothesis according to which the gender variable does not significantly influence the sense of the connection between the sociometric status of students and academic achievement.

4. In scientific literature, students' age and development over time and the various levels of learning they went through were found to influence the sociometric status of students within the classroom as a group. As a consequence, these were found to also influence the relation between the variables within the study, meaning between sociometric status and academic achievement. Hence, the analysis of this relation by the variable *grade* seems to be relevant for the current investigation. The reason why we preferred the variable *grade* (understood as educational stage, not as particular group) instead of the variable *age* was that some of the students within our sample who repeated the grade were older than most of their classmates. To this end, we first assessed if there was a connection between the variables within the study, the sociometric status and academic achievement, by grade.

A. By applying *Pearson*'s correlation for parametric data, we obtained the following findings:

a. In the case of first graders, we found the existence of a low value [r = 0.196 for p < 0.01] correlation between sociometric status and the level of academic achievement. This finding can be explained by the fact that, in the first grade, students are only at the beginning of their crystallization as a group.

b. In the case of second graders, there is a strong correlation [r = 0.581 for p < 0.01] between sociometric status and academic achievement. From a psycho-pedagogical perspective, it can be explained by the fact that – at the end of the second grade – the socio-affective relations within the classroom as a group and the position of each group member are significantly better defined.

c. In the case of third graders, we found the existence of an almost average correlation [r = 0.287 for p < 0.01] between sociometric status and academic achievement.

d. In the case of fourth graders, we found no correlation between sociometric status and academic achievement [r = 0.076 for p < 0.01].

We found a curve in the correlation between the sociometric status of students and academic achievement, initially ascending and then descending. In other words, whereas in the first grade – when the group is not very well defined – there is only a weak connection between the two variables, the situation changes dramatically in the case of second graders. For second grade, there is a strong correlation between sociometric status and academic achievement; this connection weakens gradually toward a mean value in the case of third grade students; it almost vanishes in the fourth grade. These findings seem to confirm the hypothesis according to which the variable *grade*, understood as educational stage, influences the relation between the sociometric status of students and academic achievement.

B. In order to assess this supposition once again, we analyzed the interaction between the two independent variables, the sociometric status and the variable *grade*. Hence, the interaction between the two variables was measured by applying the *Simple Factorial ANOVA*.

The *F test* [11. 78] = 12.65; p < 0.05 is significant [sig. = 0.00], as it underlines a main effect of the variable *sociometric status* [sig. = 0.00 for p < 0.05], in the sense that, irrespective of the students' grade, they are significantly different concerning academic achievement depending on their positive, negative or zero sociometric status. The sense of this difference was already determined through the T test of

significance for independent samples, when we discussed the first hypothesis, according to which subjects with positive status have significantly better results in school than the ones with negative sociometric status. The data of the aforementioned table also indicate the absence of a main effect of the variable *grade* [sig. = 0.343 for p < 0.05], but the presence of an interaction effect of the two variables – *sociometric status* and *grade* [sig.= 0.015 for p < 0.05] – in modelling the level of academic achievement. In psychological terms, the findings are interpreted as follows: though the sociometric status as a variable is very important in modelling the level of academic achievement, the variable *grade*, not important enough to generate a main effect, does play, however, a significant role in modelling the level of academic achievement, while interacting with sociometric status. Hence, it can be concluded that this method of data analysis confirms once again the hypothesis according to which the variable *grade* influences the relation between sociometric status and academic achievement.

In conclusion, the statistical and psychological analyses of findings have shown a significant relation between the sociometric status of students and academic achievement: positive status was associated with academic achievement, while negative sociometric status was associated with academic failure. At the same time, against our expectations, a significant difference concerning academic achievement was found between students with positive sociometric status and those with zero status, though the latter have significantly higher academic results than those with negative status. In other words, though sociometrically indifferent or ignored students do not experience academic failure, their academic grades are not as good as those of their popular and accepted classmates (with positive sociometric status).

Concerning the secondary hypotheses, the gender of subjects does not significantly influence the relation between sociometric status and academic achievement, while the variable *grade* plays a role in modelling this relation.

CONCLUSIONS AND DISCUSSIONS

The findings of the present investigation underline several interesting aspects on the relation between the variables within the study: the sociometric status of students within the classroom as a group and academic achievement. Why do we say interesting? Because, though

the hypotheses formulated initially were partially confirmed, they also emphasized the role of certain contextual factors in modelling the relation between the two variables. This opens the perspective of new interrogations concerning the way in which practical didactic approaches can integrate and even manipulate such factors, in order to improve academic achievement and minimize academic failure.

As expected concerning the first working hypothesis, we found a significant connection between the sociometric status of students and academic achievement; the sense of this correlation indicates that positive sociometric status is associated with academic achievement, while negative sociometric status is associated with academic failure. Our findings are in agreement with those of the scientific literature on the same topic mentioned in the research presentation, a fact that confirms they can be used as a solid basis in the psycho-pedagogical interpretation of affective – sympathetic relations within the classroom. In consequence, these socio-affective stimuli can be used in the projection of concrete learning situation, for the academic achievement of students.

From the perspective of these findings, it is logical to pinpoint that – by manipulating the sociometric status of students – you can influence academic achievement or better grades, even indirectly. The natural question is how to change the sociometric status of students, in order to get the positive status leading to the improvement of academic performance. Among the various available strategies in this sense, cooperative learning has been reported in the scientific literature as having beneficial effects upon the socio-affective relations within a group, thus upon students' academic performance. Hence, a practical solution to minimize – and eventually eliminate – academic failure is to project, on the basis of concrete information provided by sociometric techniques, learning activities that stimulate cooperation between students and teamwork.

Concerning the second working hypothesis, against our expectations, we found a significant difference between students with positive sociometric status and those with zero status from the perspective of academic achievement, though the latter have significantly higher academic results than those with negative status. In other words, though sociometrically indifferent or ignored students do not experience academic failure, their academic grades are not as good as those of their popular and accepted classmates (with positive sociometric status). Hence, though the hypothesis was not confirmed,

our findings do not contradict the ones presented by scientific literature, according to which indifferent students usually report a positive profile from the perspective of school adjustment. These findings are highly valuable from a practical educational perspective, because they show that – in the projection of the teaching approach and in classroom management –, though generalizations may prove useful sometimes, they can also bias, mostly when they are taken out of context, the way the teacher assesses a certain situation or operates with a certain category. More precisely, it is worth taking into account that, though students with zero sociometric status may not experience academic failure, they do not perform as well as popular or accepted students, which makes them a target for future didactic approaches aimed at improving their performance. One of the potential concrete ways to reach this goal is to get these students involved in cooperative learning activities, meant to make them more "visible" to the group; the premise is that, by continuing to make their sociometric status more positive, their school performance will be improved.

Concerning the secondary hypotheses, *the gender of subjects* does not influence significantly the relation between sociometric status and academic achievement, while the variable *grade* plays a role in modelling this relation.

The gender of subjects often plays an important role in the polarization of classroom subgroups. However, as expected, the *gender* variable *does not have a significant influence* in modelling the relation between sociometric status and academic achievement.

According to longitudinal studies in scientific literature, the sociometric status of students tends to be a reliable predictor of academic achievement over time. Based on the concrete observation of socio-affective relations between primary school students, we found that it evolves over time and that it changes throughout the first four years of school. However, it does not differ radically in first graders compared to fourth graders. This is probably due to the fact that the choices or rejections of primary school students [first, second, third or fourth graders] generally have the same motivations. Hence, the qualitative analysis of sociometric tests shows that most students – including the marginalized ones or the ones with low grades – choose as friends and often prefer their peers who have good grades and whom they see as being appreciated by the teacher. In addition, the main justification of rejections – in the case of most students – is that the ones they reject have bad grades and the teacher does not

appreciate them. Under these circumstances, chances are the formal and the informal leader of the classroom as a group is the same person throughout primary school. Regularly, the situation changes over time, during puberty and adolescence, when a significant change in motivation emerges, which is the basis of their choices and rejections. Hence, most of the time, the formal leader is ignored or even marginalized, because he is seen as a "nerd", while the group polarizes around the informal leader. Though he may not have the best grades, his peers consider him "cool".

As shown by the statistical analysis of the data, the relation between sociometric status and academic achievement features a curve throughout primary school. Hence, in first grade, when the relations within the group are not clearly crystallized, the correlation between the two variables is not as strong as in the case of second graders, where a strong correlation was found between the sociometric status and academic achievement. The correlation drops to average in the case of third graders and it is almost absent in the case of fourth graders. As we assumed in the working hypothesis, this initially ascending and then descending evolution of the strength of the connection between sociometric status and academic achievement plays an important role, over time, in modelling this relation. Furthermore, the two effects underlined by the statistical analyses – that is, the main effect of the variable *sociometric status* and the interaction effect between the sociometric status and the variable *grade* – support this interpretation. In other words, irrespective of their grade, the sociometric status of students always tends to be connected with success, but the strength of this connection seems to be influenced by students' passage from one grade to another over time. Such a statement seems grounded, but it must be analyzed cautiously, because this study is cross-sectional, thus pinpointing the relation between the two variables in students within different groups, not in the same group of students over time. Only a longitudinal study could make such a conclusion definitive, which, on the one side, draws attention upon one of the limits of the current investigation: we have tried to test the hypotheses through a cross-sectional study, while a longitudinal study would have been more suitable to this end. On the other side, it opens a new interrogation lead for future research.

However, this is not the only limitation of the current research. From the perspective of concrete educational approaches, the confirmation of the first hypothesis provides a starting point in the effort to maximize

academic achievement and minimize academic failure by manipulating the sociometric status of students within the classroom as a group. Such an approach is based on the idea of a direct causal relation between the two variables, sociometric status and academic achievement. However, the current investigation emphasizes only the existence of a connection, of a correlation between these two variables, which makes it difficult to determine the sense of the possible causality relation between them. Furthermore, throughout this connection, numerous variables can intervene and moderate the process, thus altering the purpose: academic achievement. Scientific literature has often underlined the moderating role of students' motivation of perceived status – the way students believe they are seen by their peers – to the detriment of the real sociometric status, determined by the sum of choices and rejections of others. Consequently, this investigation provides information concerning one of the factors that may influence academic achievement – the sociometric status of students –, but it leaves a door open for future investigations. Any future study – experimental, if possible – should aim at determining more precisely the nature of the relation between the variables within the study and the importance of other factors that intervene within its modelling.

Another limitative aspect of the current investigation is that we operated – in the case of both variables within the study – with rather broad categories. Hence, in the case of sociometric status, the popular and accepted student subcategories were grouped into the category of *positive status*, while variable academic achievement comprised all categories of students who obtained the qualifications *distinction, credit, pass*, while academic failure comprised the qualification *fail*. We cannot be certain that a more refined analysis considering these subcategories would have provided different findings or additional interesting ones, but we believe that this aspect is worth mentioning. It may even represent the topic of a future investigation regarding the relation between academic achievement and the sociometric status of students, as well as other factors involved in modelling this relation.

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