

Prevalence and comorbidity of emotional, behavioral and learning problems: a study of 7th-grade students

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Abstract

This study was carried out to investigate the prevalence of emotional, behavior and academic problems and their association in a 7th grade school-based sample. Behavioral data were gathered in the beginning and end of the school year and academic data were collected six times throughout the year (twice every trimester). In the whole we found that, in the beginning of the school-year 42% perform under the pass/fail threshold, against 46% at the end of the school year; 19% exhibited significant behavior problems and around 10% showed emotional problems. However, by the end of school-year there was a dramatic increase in the number of reported emotional and behavior problems while academic performance was slightly worse. Also, in the beginning of the school year, students who received lower academic grades exhibited more emotional and behavior problems than their normal peers; by the end of the year differences were much larger. Regression analysis showed that academic achievement better predicts emotional problems than behavior problems, and odds ratio showed that both externalized and internalized problems were much more likely in poor than in normal/high achievers.

Schools everywhere are increasingly concerned with violence, classroom disruption, challenging behaviors, discipline problems, disrespectful conduct, bullying, etc. (Scott, Nelson & Liaupsin, 2001; Snell, Mackenzie, & Frey, 2002; O'Donoghue, 1995; Watkins, Mauthner, Hewitt, Epstein, & Leonard, 2007). In Portugal there are no systematic data on levels of disruptive behavior in the schools. However, some studies point out that despite increasing levels, most disruption is slight, consisting of deviance to classroom rules and procedures, with violence being only marginal (Amado, 2001). The problem is the fast rising levels of challenging behaviors mainly in compulsory education grades (grades 1 to 8). In secondary education discipline problems are not a major issue, and there is no reported violence at that educational level.

Some 30 years ago there were only four years of compulsory

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education in Portugal and challenging behaviors were not a significant problem because only a few students remained in schools after 4th grade and disciplinary acts were very strict. Two severe problems would result in exclusion from school. The extension of compulsory education to 9th grade (in 1986) and more recently to 12th grade (in 2004) dramatically changed the school population of both students and teachers. Not surprisingly problems with students' behaviors, academic engagement, motivation, social skills, etc., became prominent (Cruz, 2000; Lopes, Rutherford, Cruz, Mathur, & Quinn, 2006). Also, teacher education faced significant problems because, by the middle 1980s, the educational system required a great number of teachers to face the massive entrance of students in schools. Also, from 1992 on there was an important shift in the politics regarding retentions: what was previously the rule became an exception. Like in many other countries it is now common to have in the same classroom students with very different skills. Therefore, teaching is much more demanding and student disruptive behavior is more likely (Fonseca, Simões, & Formosinho, 2000). It is not easy to state the implication of this for the E/BD prevalence in Portugal because there are no reliable statistics. We can only say that this is now a first line problem in the media but this can be just a consequence of better identification procedures. Indeed when most of these disruptive students were not in schools (30 years ago), there were no identification procedures.

Research on emotional and behavior disorders and research on academic deficits did not converge until relatively recently (Lane, 2004). However, as Kauffman (1997) states "low achievement and behavior problems go hand in hand" (p. 247). Recently there has been a growing interest in the interconnection of academics and behaviors, with researchers stressing that the management of classroom behavior is conditioned by academic achievement (Scott, Nelson, and Liaupsin, 2001). Scott et. al. (2001) state that effective instruction is the "forgotten component in preventing school violence" (p. 309) and Witt, VanDerHeyden, and Gilbertson (2004) suggested that "strategies for responding to behavior problems can be successful" only "if there is a solid academic program and if positive behavioral expectations have been taught by teachers" (p. 427).

The direction of the relationship between misbehavior and academic deficits is far from clear and may well be a matter of chicken and egg (Scott et al., 2001). It seems clear that there is a reciprocal reinforcement of these problems and that the establishment of one of them is a risk factor for the other (Lopes, 2005a; Skiba & Peterson, 2000). Moreover academic deficits do not seem to improve over time (Borkowski & Thorpe, 1994; Greenbaum et al., 1996; Mattison, Hooper, & Glass-

berg, 2002) and comorbidities with emotional/behavioral disorders make prognosis even poorer (Abikoff & Klein, 1992; Hinshaw, 1992a, 1992b; Rutter, 1974).

It is also important to stress that the still limited literature on the subject typically relates categorical behavior/emotional disorders with academic deficits, not with misbehavior (defined as behaviors students are not supposed to exhibit in classroom). For instance, academic deficits are said to have a specific connection with ADHD in primary grades and with conduct disorder in high school, motivating high levels of drop-out (Barkley, 2006; Frick, Kamphaus, Lahey, & Loeber, 1991). However, studies that relate academic deficits with misbehavior, i. e., behaviors that disrupt or disturb classroom flow but are not syndrome related behaviors, are much less common. This is unfortunate because most disruption in classrooms has to do with high incidence but low impact behaviors (Amado, 2001; Lopes, 2002; 2005) that are more threatening by their frequency than by their intensity. Examples include talking-out, not paying attention, restlessness, daydreaming, not finishing classroom tasks, using cellular phones and arriving late to class (Perlemutter, 2004; Seidman, 2005). Most of these behaviors fall in the category of misbehaviors that, for the purposes of our study, we will define as behaviors that students are not supposed to exhibit in classroom and/or behaviors that students are supposed to exhibit but they are not exhibiting.

Lane (2004) states that researchers' lack of attention to academic issues of EBD students may originate in the tendency to focus on social or emotional characteristics of these students, on the relevance of conflicts over learning or on the straight notion that students must behave properly before learning occurs. We would add to this list the commonly held belief that to disrupt a classroom, one must be somehow "disturbed". It happens that a great number of disruptive behaviors follow the main goal of avoiding academic tasks and are perpetrated by students with no mental health problems but who feel that their competence is far behind that of the classroom flow (Gickling, & Armstrong, 1978; Lopes, 1991; Seidman, 2005; Taylor, Hasselbring, & Williams, 2001).

If avoidance and disruption are typical behaviors of students with academic deficits, so are tactics of faulty involvement (Lemos, 1993). Students may pretend they are involved in classroom tasks by asking teachers to set too easy or too difficult tasks for them. In any of these cases the main goal is to protect self-esteem by reducing perceived incompetence (Ariel & Covington, 2005; Lemos, 1996). It happens that students' goals often conflict with teachers' goals: for the latter the main goal may be teaching contents, but for the students with academic deficits the ultimate goal to frustrate that goal (Boekaerts,

De Koning, & Vedder, 2006).

Several authors suggest that task difficulty is a significant variable for classroom disruption because students tend to maintain misbehaving if they perceive that misbehavior is a way of avoiding classroom work (e.g. Center, Deitz, & Kaufman, 1982; Witt et al., 2004). That is, while misbehaviors are considered inappropriate by teachers they may be fully functional to achieve students' particular goals.

We should further note that variables (that we did not approach in our study), like classroom management (e.g. Doyle, 1986; Evertson, Emmer, & Worsham, 2000), or the quality of curriculum and instruction (e. g. Malone, & Rickett, 1998; Tyler-Wood, Cereijo, & Pemberton, 2004), are also highly relevant to understand misbehavior and academic deficits. McGuiness (1997) for instance, states that for a significant number of people poor reading is "...caused directly by bad methods..." (p. 281) and questions the popular idea that deficits in attention (a common misbehavior) cause reading failure, arguing that research "...has shown the opposite: Learning failure causes an inability to attend" (p. 164). Also, research on classroom management has shown that effective teachers have less classroom disruption and their students get better grades (Brophy, 1995; Kounin, 1977; 1983; Doyle, 1986). However our purpose was to study the association of academic deficits and behavior problems, not to study etiological variables.

Summing up the literature on academic deficits and misbehavior, we can say that (a) it is scarce when compared with the vast literature on academic problems or the literature on EBD, (b) it is relatively recent, (c) studies usually incorporate samples of disordered subjects not of normal subjects that misbehave, (d) the relationship is reciprocal, (e) perceived task difficulty makes behavior disruption more likely, and perhaps because of that (f) academic underachievers misbehave significantly more than normal or than high achievers.

Having these points in mind we were interested in exploring how behaviors evolved during a school year in a 7th graders group. Generally we expected, according to (d), (e) and (f) above, that by the end of school year the number of misbehaviors would increase, particularly among underachievers were. Although misbehaviors and academic deficits are reciprocal we elected the latter has the predictor variable. This is why we also expected that beginning academic achievement would predict behaviors and achievement in the end of the year.

Exploring how achievement and behavior evolve along a school year may give us significant insights into behavioral patterns of different groups of students and help us design better educational strategies.

Method

Participants

Participants were all the students ($n = 116$; 58 male, $\bar{x}CA = 12.43$; 52 female, $\bar{x}CA = 12.25$) of a 7th grade public school in the inner city of Porto, Portugal. This is a socio-economically mixed school with students of high and low social classes. It may be considered a medium-upper school. Geographically the school is well located and nearby neighborhoods are the richest in town. However, not far away, there are also some poor neighborhoods. Some of the most problematic students in school come from these crowded quarters, with large families living in small spaces and with more difficult living conditions.

Procedure

Data were collected by teachers using two different instruments: a revised form (27-item) of Connors's Behavior Rating Scale (Teacher Form) (Queirós, 2006) and Academic Achievement Tests. For every class the revised form of the Connors's Behavior Rating Scale was completed by the so-called "Directora de Turma" (Class Head Teacher). In Portugal, from 5th grade on, every class has a Class Head Teacher. This teacher must teach one of the several courses of that particular class (e.g. Math, English, History, etc.) and has to deal with all kinds of problems met by students, teachers or parents. Therefore the Class Head Teacher has significant knowledge about students, about their relations with other teachers, and even about their home environment. Consequently, they have a good sample of students' behaviors along the school year. Questionnaires were administered at the end of first trimester and at the end of school year.

Portuguese Language, Mathematics, and English Language Performance tests were constructed by 3 teachers and administered by those teachers in their classes. The tests were administered 6 times during the study period: 2 applications between September and December (2005), other 2 between January and March (2006) and 2 between April and June (2006). Therefore, students completed 12 applications tests. Special education students were excluded from these applications because most of them can't read.

Apparatus

Adapted form of Connors's Behavior Rating Scale (Teacher Form)

This scale was translated and adapted by Queirós (2007) and checked by an expert in Portuguese Language before application. Two main factors, *Externalized Problems* (17 items) and *Internalized*

Problems (10 items), were extracted by a factor analysis of the 27 items of this version of the questionnaire, explaining 62% of the total variance. A Cronbach Alpha of .94 was found for the whole scale, .94 for Externalized Problems and .89 for Internalized Problems.

School Performance tests.

Three classroom teachers were asked to develop school achievement tests in Portuguese Language, Mathematics, and Foreign Language (English) according to the 7th grade curriculum and a format close to their standard classroom tests. These are criterion-referenced and curriculum-based tests as in Portugal there are no norm-referenced tests with reliable psychometric properties for these grade levels. Portuguese Language, Mathematics and English language were chosen because they are the core disciplines in the 7th grade curriculum.

Mean scores for the tests were computed for each student, and after that a mean of the 3 means was also computed so that each student just had one final result in school performance. Following cut-off scores usually adopted in Portuguese high-schools we considered a result below 35% as *very poor performance*, a result between 36 and 50% as *poor*, a result between 51 and 70% as *average* and a result above 70% as *high performance*.¹

We used these school-based tests and these cut-off scores acknowledging the arguments of other researchers on this subject. Luthar, Cicchetti and Becker (2000), for instance, in a study about resilience, classified students' adaptation as "positive" if they "score in the top 16% of the distribution within that particular inner-city sample and not in the top 10% of any national norms". This means that students "were judged in terms of the school-based behaviors of other children ... rather than against any absolute standards" (p. 574).

Results

Frequency of behaviors

Figure 1 shows how behaviors varied from beginning to the end of school year. There is a dramatic 77% increase in the number of individual symptoms mentioned by teachers ($t(110) = 7.022, p = .000$). There are also significant intra-groups and inter-groups differences from the beginning to the end of school year: both boys ($M1 = 26.24$; $M2 = 33.20$) ($t(110) = 7.022, p = .034$) and girls ($M1 = 18.50$; $M2 = 24.81$) ($t(110) = 7.022, p = .034$) behavior got worse by the end of school year; and boys misbehaved significantly more than girls both in the beginning ($M1_{boys} = 26.24$; $M1_{girls} = 18.50$) ($t(110) = 2.883, p = .005$) and in

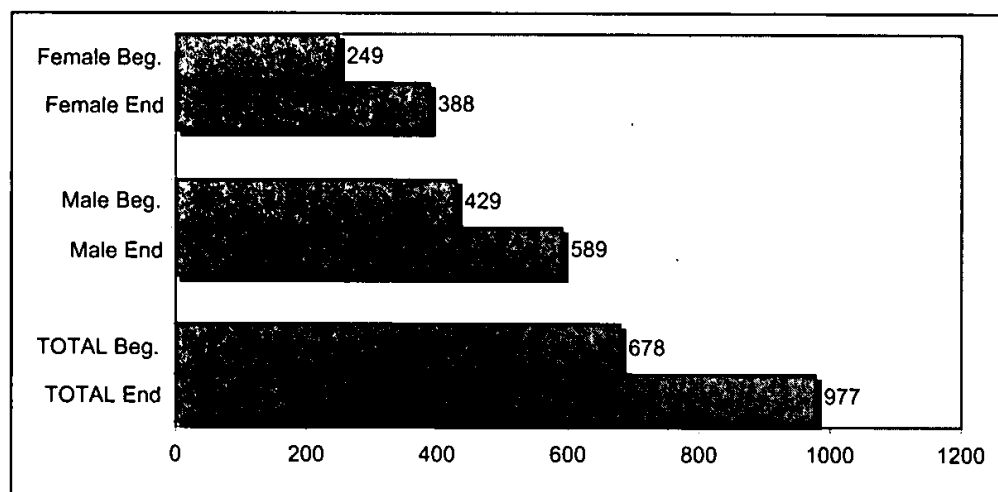


Figure 1. Number of individual symptoms in the beginning and in the end of school year

the end ($M_{2boys} = 33.69$; $M_{2girls} = 24.81$) ($t(110) = 2.700$, $p = .008$).

Most common misbehaviors

The five most common misbehaviors in the beginning of the year are mild forms of misbehavior (Table 1) and in the end of school year the most common misbehaviors still are the same, with the exception of "daydreaming" that is substituted by "unable to finish what he/she started". From these five misbehaviors only one - "restlessness" - is externalized. Noteworthy attention, concentration and learning receive more citations than externalized behaviors. Eventually, referring inattention and poor concentration is another way of saying that students are not doing what they are supposed to do and that they are doing what they are not supposed to do, i.e. misbehaving (see Table 1).

Also noteworthy is the fact that by the end of first trimester teachers consider that 53% (58 out of 110) of students have attention and concentration problems and 40% have learning problems and by the end of school year these numbers move up to 73% and 51% respectively. This means that by the end of the year almost three-fourths are of students are often off task and half of them are perceived by teachers as having learning problems.

Results by gender show that the major qualitative differences about the 5 most common misbehaviors are that (1) "restless" and "acts like a child/immature" are signaled only for boys both in the beginning and in the end of school year and that (2) girls are signaled only by internalized problems.

As expected, there are strong correlations between the most common behavior problems (see Table 2). However there is no correlation

Table 1
Most common and most unusual misbehaviors

Symptom Ranking	
Beginning of School Year	End of School Year
1. Problems with concentration and sustained attention (58 references)	1. Problems with concentration and sustained attention (80 references; +38%)
2. Learning problems (44 references)	2. Assertiveness problems (57 references; +43%)
3. Assertiveness problems (40 references)	3. Unable to finish what he/she started (59 references; +53%)
4. Restlessness (40 references)	4. Learning Problems (56 references; +27%)
5. Acts like a child; immature (37 references)	5. Restlessness (51 references; +28%)
...	...
26. Makes odd noises (7 references)	26. Does not cooperate with peers (14 references; + 80%).
26. Blames others for own mistakes (7 references)	27. Makes odd noises (13 references; +86%)

Table 2
Intercorrelations between the 5 five most common behavior problems

	1	2	3	4	5
1. Restlessness	--	.49(**)	.032	.45(**)	.21(**)
2. Inattention		--	.48(**)	.67(**)	.70(**)
3. Assertiveness Problems			--	.42(**)	.54(**)
4. Unable to finish work				--	.72(**)
5. Learning problems					--

** Correlation is significant at the 0.01 level (2-tailed).

between restlessness and assertiveness problems. Noteworthy is the fact that the weakest correlation – although significant – of learning problems is with restless.

School performance tests and misbehavior

One of the major goals of this study was to examine whether different kinds of learners behave differently in classroom. As we have seen there are correlations well above chance between learning problems and behavior problems (see Table 2) suggesting a significant association. However correlations say nothing about directionality. It certainly is not easy to make clear or definite statements about this "chicken and egg" conundrum (Scott et al., 2001, p. 309). The mutual nature of the problems should make us cautious about the nature of the relations itself or about causality. We tried to explore this subject in our study by constituting 4 groups of students from results in school performance tests (very poor performers; poor performers; average performers; high performers) and cross-tabulated with results in the behavior rating scale (using also 4 groups of students: no problems; few problems; some problems; lots of problems)

Several points are noteworthy on the results: First, there are much more students referred for internalized problems than for externalized problems (see Tables 1, 3 and 4). Only 19% of very poor performers, for instance, showed externalized problems in the first trimester against 52% who exhibited internalized problems.

Second, 57% of very poor performers showed no externalized problems in the beginning but only 4.5% showed no problems in the end of the study period. Also, in the beginning, 19% of these students exhibited many externalized problems compared to 68% at the end of school year. This suggests that behaviors significantly worsened along study year.

Third, compared with other groups, high performers showed a modest number of both externalized and internalized problems. Nevertheless the fact that an impressive 22.5% of these students exhibited significant levels of externalized problems by the end of study year, may be related to classroom management problems. This hypothesis is reinforced by the fact that at the same time, 68% of very poor learners, 28% of poor learners and 22.5% of average learners also showed a lot of problems.

Fourth, ANOVA showed a significant main effect for behavior problems by academic achievement group both for externalized and internalized problems, $F(3, 110) = 14.187$ and 20.257 respectively, $p < .001$. ANOVA also shows that very poor performers exhibit significantly more behavior problems than any other group. They also exhibit significantly more internalized problems than average and high

Table 3
School performance and externalized behaviour problems

Externalized problems	Academic Performance							
	Very poor ≤ 34 n = 13		Poor 35 – 50 n = 38		Average 51 – 70 n = 37		High 70 => n = 22	
	Beg.	End	Beg.	End	Beg.	End	Beg.	End
	%	%	%	%	%	%	%	%
No problems (0-3)	57.1	4.5	71.4	8.3	74.2	32.3	86.4	32.3
Few problems (4-7)	14.3	18.2	14.3	33.3	12.9	25.8	4.6	25.8
Some problems (8-11)	9.5	9.1	2.9	30.6	6.5	19.4	9.1	19.4
Lots of problems (12 or more)	19.0	68.2	11.4	27.8	6.5	22.5	0.00	22.5

Table 4
School performance and internalized behaviour problems

Internalized problems	Academic Performance							
	Very poor ≤ 34 n = 13		Poor 35 – 50 n = 38		Average 51 – 70 n = 37		High 70 => n = 22	
	Beg.	End	Beg.	End	Beg.	End	Beg.	End
	%	%	%	%	%	%	%	%
No problems (0-3)	4.8	0	17.1	0	51.6	20	81.8	50
Few problems (4-7)	33.3	0	28.6	16.7	25.8	23.3	13.6	31.8
Some problems (8-11)	9.5	14.3	40	30.6	16.1	30	0	9.1
Lots of problems (12 or more)	52.4	85.7	14.3	52.8	6.5	26.7	4.5	9.1

Note. In these school-tests 50% is the threshold for fail/pass and a result above 70% is considered a good result. In Portuguese this corresponds to a classification of "não satisfaz" and "bom", respectively

performers but not significantly more than poor performers.

Fifth, we used an odds ratio statistic to test whether the probability of exhibiting behavior problems is the same for good and poor performers. To do so, we took very poor performers and poor performers as just one group and average performers and high performers as another group. We did that because 50% is the threshold for pass/fail in Portuguese educational system. This means that if no other considerations interfere with teacher's judgment our *very poor* performers and *poor* performers' subjects would fail going to 8th grade.

We found (for the end of school year) an odds ratio of 4.024 for academic achievement group/externalized problems suggesting that it's 4 times more likely for poor learners to show some kind of externalized problems (e.g. restlessness). We also found a 12.548 odds ratio for academic achievement group/internalized problems suggesting that it is much more likely for a poor learner to show some form of internalized problem (e.g. inattention, daydreaming) than his or her peers.

Discussion

The fields of learning problems and emotional and behavior disorders have been separate for years. Researchers in one field usually have scarce contacts with researchers in the other, and those who argued for the need to look carefully at both problems were somehow isolated (e.g., Hinshaw, 1992a, 1992b; Kauffman, 1997)

In recent years there has been a growing interest in the complex relations of learning and behavior problems and a growing number of studies on the subject are being published every year (e.g., Kavale & Forness, 1998; Lopes, 2005; Tyrer, McGrother, Thorp, Donaldson, Bhaumik, Watson, & Hollin, 2006).

Our one-year study was designed to understand how students' behavior with different academic abilities evolve from near the beginning to the end of the school year, testing the hypothesis that, as time goes by, poor school performance makes disruptive behaviors more likely.

In this study, time itself is an important variable. Results show that students' behavior gets significantly worse from beginning to the end of school year independently of results in school performance tests, although this is much more clear from poor performers. It seems that time erodes on-task behavior and students spend more and more time on behaviors that conflict with school lessons.

Studies of motivation have shown that motivation tends to decline from one grade to the next especially for underachievers (Lemos, 1993; Linnenbrink, & Pintrich, 2002). Our results found that same pat-

tern in one year (7th grade) in which lack of motivation related to self-perceived difficulties with curriculum becomes clear. Nonetheless we must stress that behavior of the poorest learners in our sample was already significantly worse than behavior of other groups in the beginning and that it became still worse by the end of school year. We can speculate that as 7th graders these students have a substantial history of failures and so tend to misbehave early in school year. It is also likely that during the school year they experience further alienation from curriculum that predisposes them to disruption.

Still noteworthy in our results is: (a) the significant number of reported behavior problems by the end of school year (b) the significant increase in behavior problems during the school year (c) the relevance of internalized problems like attention and daydreaming that surprisingly surpass externalized problems like restlessness (a common complaint by teachers).

The number of problems may say as much about students as about teachers or the school itself. Interestingly Portugal is now an immigrant country with people from 120 different countries studying in our schools (ACIME, 2007). Media repeatedly report that parents and students from Eastern countries (e.g. Ukraine, Romania, and from China) are astonished by the time teachers spend trying to get students quiet and seated (e.g. "Público", 28/1/07). Variables accounting for so large a number of misbehaviors certainly stem from a number of sources: (a) cultural factors that value assertiveness and individuals over groups (Biggs, 1998), (b) ambiguous behavior rules that do not preview consequences for misbehaviors (Lopes, 2001; Lopes et al., 2006), (c) teachers lack of training in classroom management skills (Doyle, 1986; Evertson, Emmer, & Worsham, 2000; Lopes, 2001; Marzano, 2003) and (d) slow pace of lessons and poor teaching (Crato, 2006).

Also noteworthy is the increase in misbehaviors during the school year, perhaps reflecting students' perceived incompetence to deal with curriculum that usually becomes worse as students get older. School achievement is a widely recognized protective factor, while school failure may be a risk factor in development of behavior problems (Holman, 1993; Maxwell, 1993; Reynolds & Bezruczko, 1993). Negative correlations have consistently been found between age and school achievement (e.g., Guthrie, Baker, & Dreher, 2000; Hauck, & Fich, 1993) but positive correlations have been found between truancy, behavior problems, and aggression (e.g. Kern & Clemens, 2007; Lehr, Clapper, & Thurlow, 2005). In a sense it is not school itself that represents a protective or a risk factor but success or failure in school-related tasks.

Finally, the relevance that teachers confer to internalized prob-

lems like inattention and daydream is an interesting and rather surprising finding. We expected that the commonly held view that externalized behaviors, namely aggressiveness, violence, and/or bullying, are common in schools, would impact teachers' perceptions. For our subjects, however, violence or aggressiveness were perceived as problems but inattention and daydreaming were pervasive and constituted major teacher concern. Because inattention and daydreaming are more directly related to learning than to aggression (aggression often has a family etiology that may be worsened by underachievement but is not a direct consequence of it), we may estimate that in our sample learning is a critical variable affecting classroom behavior. Therefore, as Gickling and Armstrong (1978) point out, it can be "futile" trying to manage behavior when students are academically frustrated.

Note

- 1 In these school-tests 50% is the threshold for fail/pass and a result above 70% is considered a good result. In Portuguese this corresponds to a classification of "não satisfaz" and "bom", respectively

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