



SCHOOL DISRUPTION SCALE INFERRED BY TEACHERS (SDSIT): CONSTRUCTION AND VALIDATION

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ABSTRACT

This study presents both the construction procedures and the results obtained with a students' *School Disruption Scale*. The students' school disruption was inferred by teachers. After selection, elaboration and pilot study of 16 items, the final form scale (EDEI) was applied. Teachers classified the students — 7, 8 and 9 levels (N=578). Results obtained with that instrument were analyzed, and measures of reliability, construct and concurrent discrimination were estimated. One general factor was barely identified through varimax -rotation factor analysis. That factor accounted for 97.3 per cent of the total variance. Reliability coefficients (*Alpha*) ranged between 0.79 and 0.88 for different groups (SEL, residential zone, sex, age and school year). Concurrent validity coefficients were satisfactory. Results showed that the unidimensional scale has good qualities, and are in accordance with the psychometric theory of psychological evaluation.

Keywords: disruptive behaviour, violence in the school, assessment.

INTRODUCTION

The lack of instruments that can be administered to teachers to allow them to express themselves on school disruption, of their students, has led to the construction of a new evaluation instrument. *School disruption* concept has been largely discussed (Bean, 2006; Estrela & Ferreira, 2002; Veiga, 1991, 1996, 2007, 2008; Woolfolk, 2011) and, although largely mentioned in specific literature, is still regarded as something new in our country. The frequent use, in scientific literature, of the expression *disruptive behaviour* has justified the preference for its equivalent in Portuguese and led to the acceptance of the *school disruption* concept as the transgression of school rules, disturbing learning conditions, teaching environment, or relationships in school.

In spite of literature on school disruptive behaviours being large and scattered, whether it refers to its theoretical explanation or to models of intervention — investigators have focused their attention in strategies of evaluation inferential, through observation of the behaviour in general, observation conducted by the teachers themselves (Atkins, Pelham, & Lycht, 1989; Bean, 2006; Estrela &



Ferreira, 2002; Veiga, 1996, 2007, 2008), or by specially trained observers (Atkins, Pelham, & Lycht, 1989; Bean, 2006; Gotzens, 2002; Woolfolk, 2011). Another traditional method of evaluate those behaviours has been to consult schools official registries (Amado, 2001; Bean, 2006; Veiga, 2007, 2008). Lately, some investigators have tried to develop evaluation instruments for behaviours and social competencies of students in school (Arsenault & Loranger, 1986; Comer *et al.*, 1987; Loranger & Arsenault, 1989; Woolfolk, 2011).

Although some instruments related to the school climate in general or classroom environment already exist, which have some items on school disruption, there are no scales formed to evaluate school disruptive behaviours. Most of the existent instruments are less related to the school disruption concept than to students' social relationship competencies, or to problems of socio-affective adaptation or behaviour "deficiencies", useful to psychological diagnosis. Other instruments refer only to students of primary schools or only to teachers or students from middle and high school. Or, if on one hand, many of the items specific to evaluate children behaviours are inadequate to adolescents, on the other, questionnaires designed for teachers have frequently items that raise difficulties of understanding if they are administered to students. Another important aspect is that, in spite of some instruments presenting psychometric qualities, they do not assume school disruption multidimensionality, as it is suggested by existent bibliography (Gotzens, 2002; Veiga, 1991, 2008). Now, we are going to describe the different stages we had to consider to develop a scale for young people's disruptive behavior inferred by teachers.

METHOD

We are going to present the careful item collection and elaboration, the pilot study and the description of the population and sample involved in the process of elaborating the *School Disruption Scale Inferred by Teachers (SDSIT)*.

Item collection and elaboration

Due to the concerns and problems school disruption may cause, whether to teachers whether to student's learning process, whether to the relationship with school staff in general, we faced, at first, an enormous diversity of disruptive behaviours and, accordingly, of items to represent them. In the field of theoretical models, several authors suggested a relation for such items (Gotzens, 2002; Mendler & Curvin, 1989; Wolfgang & Glikman, 1986). In the item construction task to include in an evaluation instrument for school disruption, it was also important the revision that was made of the instruments (Veiga, 1991, 1996, 2008) that have been elaborated aiming an evaluation of students social behavior in school (Arsenault & Loranger, 1986; Comer *et al.*, 1987; Loranger *et al.*, 1989; Woolfolk, 2011).

In a study of teachers' perceptions of disruptive behaviours in schools (Lawrence *et al.*, 1984, 1986) a study that covered several European countries (France, West Germany, Denmark, Switzerland and the United Kingdom) — a clear, precise and operational concept on this kind of behaviours is presented, as well as an uprising of their incidence as perceived by teachers. This study is updated and comprehensive, besides having all the advantages mentioned above, and these were good enough reasons to consult it about the items to use in the evaluation instrument to be created. Such decision had the advantage of allowing the collection of many expert opinions (N = 130 educators) that, besides being in direct connection with the subject and all kinds of disruptive behaviours, represent the perception of what is going on, in this field, in five European countries with contextual characteristics somewhat similar to Portugal.

Within this study of research and data collection, it was necessary to decide whether we should take an enormous amount of disruptive behaviours, or else to choose a smaller number of items that, framed within the evaluation objectives of the hypothetical construct "school disruption", could



form a “table of specifications”, that is, a scheme of what we intended to evaluate (Guilford & Fruchter, 1981; Woolfolk, 2011). We had, then, two alternatives: to include in our scale an enormous amount of disruptive behaviours (such as: throw papers into the air, to write on desks, to hide the teacher’s material, to cheat in examinations, to slam doors, to spit on the floor, etc.), or to select just the items that, based on the disruption concept presented, represented and covered a large amount of disruptive behaviours, hard to specify concretely.

The reasons presented above and the eventual inconvenience connected with a large amount of items (they can be answered in the same way for the most part of the subjects or they can lead to a certain stereotype in individual answers) lead us to select a small number of items, representing the three hypothetical dimensions specific of school disruption (suggested in the reviewed literature), that is: distraction-transgression; partners aggression; teachers and other symbols of school authority aggression (Veiga, 1991, 1996, 2008). To cover a whole group of disruptive behaviours hard to define, we included a larger item, “I leave my seat, make noises or cause other problems, disturbing the class”. After checking — through a pilot study, as we will see — that the chosen reactive agents had good item characteristics (Almeida & Freire, 2007; Guilford & Fruchter, 1981; Harman, 1980), they became part of the instrument that, since it was designed to evaluate the level of disruptive behaviour teachers connect with students, was called “School disruption Scale Inferred” by teachers (SDSIT).

Pilot study

After having submitted a first scale version, with 20 items, to evaluation and discussion before a five teachers’ group from secondary schools and two school psychologists, we made minor adjustments, improving some item formulation. In the initial item discussion, we followed the “spoken reflection” method (Almeida & Freire, 2007; Guilford & Frucher, 1981), aiming to detect possible ambiguities and item inaccuracy, and if they gave or not, the appearance of evaluate students disruptive behaviour, in the sense of an *apparent validity* of scale.

We made a 2nd version from this analysis, which had 17 items. The following items were erased: “I act as a clown in the teacher’s back”; “I write on desks”; “I cheat in examinations”. The other items were placed randomly, except the “I obey to teacher’s orders” and “I always get to school on time” items, that, being elaborated inversely, had respectively the 3rd and 12th place, to break the tendency to the stereotyped kind of answer (Almeida & Freire, 2007; Guilford & Frucher, 1981). After item numbering, the scale instructions and answer sheet were elaborated. As for answer graduation, we have chosen a *Lickert* scale, relating the frequency of behaviours: entirely disagree (1), quite disagree (2), disagree more than agree (3), agree more than disagree (4), quite agree (5), entirely agree (6). The items 3 and 12 are inverse items, so the punctuation should be reconverted. The highest scores correspond to higher levels of disruptive behaviour. Students (n= 120) that teachers classified using this version were chosen randomly to study the discriminatory item power and the scale consistency coefficient. This situation was also used to collect teachers’ reactions to answer instructions and the degree of item adequacy. The item “I throw papers to my schoolmates” was withdrawn as it had not much discriminative power. The collected data lead to the acceptance of this 3rd version of the scale, which had 16 items.

Subjects

The *population* covered adolescent students, from both sex, from secondary public and daily schools, from Lisbon and Viseu. The *sample* was made from the amount of students classified in all the items (N = 578). The sample constitution was based on the grouping probabilistic method. The answer sheets with blank items were eliminated, and the teachers justified this procedure with two reasons: some, because they were replacing other teachers, and they had only recently started teaching in that school, and that prevented them from knowing usual behaviours of their students;



others thought it difficult to answer to one or two items, such as: “Steals material from the school”, “Assaults teachers”, and “Comes to school drunk or drugged”.

RESULTS

The data in SDSIT was computed and subject to statistical analysis procedures with the SPSS software. The statistical analysis of the results was preceded by the inversion of numeric value of the negative items. Since the item discriminatory power analysis (Veiga, 1991, 1996) was very long, we chose not to include it here. We are going to present the results, as far as accuracy and validity are concerned.

Result accuracy and item analysis

We present the statistical data on the Scale (Table 1). Within the total sample (N = 578) and for all the 16 items, the scale presents the average of 22.88 and the standard deviation of 7.54. In the accuracy study, the internal consistency of the items was determined (*alpha* index), through *Reliability* procedure of SPSS. Item correlation with the global scale grade is significant ($p < .01$, at least), and the discrimination item indexes are, in general, moderate (the smallest are found in items 5, 7 and 10).

Table 1 - Statistical elements of items and SDSIT when an item is eliminate (N = 578).

Item	M.	Vari.	Corr. item- total	<i>Alpha</i>	Item	M.	Vari.	Corr. item- total	<i>Alpha</i>
1	21.78	53.98	.42	.84	9	20.74	43.16	.72	.82
2	21.63	51.07	.56	.83	10	21.85	56.40	.11	.85
3	21.65	51.17	.55	.83	11	21.79	53.60	.46	.84
4	20.47	43.97	.59	.83	12	21.35	49.71	.45	.84
5	21.90	54.01	.11	.85	13	20.80	45.79	.53	.83
6	21.75	53.05	.41	.84	14	20.15	42.97	.66	.82
7	21.86	56.49	.11	.85	15	21.31	47.13	.60	.83
8	21.38	46.84	.64	.82	16	21.66	53.70	.36	.84

Although those three items presented a low discriminatory index, a weak correlation with global grade and their elimination increased a little the index of consistency within the scale, we considered important to keep them, as we were interested in analyzing the relationship between SDSIT results and the ones obtained in another scale elaborated by the author – Disruptive Behavior Scale Professed by Students (DBS-PS) (Veiga 1991, 2008) — so, it seemed logical that both scales should have the same items. In Table 2, we can see *alpha* coefficients to the general sample and several groups connected with the total punctuation within the scale (factorial analysis has only revealed a general factor). As you can see, *alpha* coefficients are, for all groups, high (equal or superior to 0.79).

Table 2 - Internal consistency coefficients (*alpha* indexes) of SDSIT results, to different groups.

Sample (N = 578)	7th grade (N = 221)	Low SEL (N = 455)	Inland (N = 286)	Coast (N = 292)
.84	.88	.82	.84	.86
12-14 yr. (N = 332)	8th grade (N = 234)	Middle SEL (N = 336)		
.85	.82	.88		
15-19 yr. (N = 246)	9th grade (N = 123)	High SEL (N = 94)	Male (N = 284)	Female (N = 294)
.85	.80	.79	.86	.80



Internal validity

The internal validity analysis was performed using a main componential analysis with *varimax rotation*, and we found only one general factor (the solution was not rotated), which presents 97.3% of total variance percentage and a “*eigenvalue*” of 15.57. In what interpretation of the scale as a whole is concerned, its contents is connected with behaviours that disturb school good environment, specially learning conditions within the classroom, and it covers not only the transgressions connected with distraction, but also students aggressivity to partners and teachers. The greatest the result is, the highest the disruption is.

External validity

The external validity was analyzed through some differential studies. Using as reference some studies that found significant and positive co-relations between school success and student socio-scholar behaviours, inferred by teachers (Almeida & Freire, 2007; Arsenault, Loranger, & Milot, 1988; Veiga, 1996, 2007), we had two different criteria for external validity: the number of school failures in previous school years and the average mark got in the end of the previous term, in the following subjects: Mathematics, Portuguese, History and Science (8th and 9th grades); and Mathematics, Portuguese, History and Arts (7th grade). The reason for the choice of these subjects had to do with considering them closer related to students’ results, and furthermore, this criteria is largely used in investigation (Almeida & Freire, 2007; Arsenault, Loranger, & Milot, 1988; Veiga, 1996, 2007, 2008). At this stage the *hypothesis* of an existing correlation between SDSIT results and school marks was observed.

In what failures were concerned, there were three groups of students (A — no failures; B — one failure; C — two or more failures) and we made an univariate variance analyses of results in SDSIT factors. Trying to detect the existence or non-existence of differences in school disruption between subjects with different failure numbers, an univariate variance analyses was conducted, using the *One-way* procedure. Considering that the number of failures is bigger in higher grades, we decided to consider each school year separately (Almeida & Freire, 2007; Veiga, 1996, 2008). The base *hypothesis* was the existence of statistically significant differences in disruptive behaviour between subjects with no failures, with one failure and with two or more failures, having this last group the highest disruption levels. The choice of the mentioned “external criteria” (school results and number of failures) was due to two additional reasons. On one hand, they are largely used criteria in the validity study of this kind of instruments (Veiga, 1996, 2008), and, on the other, we had a shortage of similar evaluation scales considered statistically valid. Therefore, and considering the sample, we are going to present the variance analysis results according to the failures rate, the average results and the standard deviation (Table 3).

Table 3 - SDSIT results average and standard-deviation by school grade and number of failures.

	7th grade			8th grade			9th grade		
	N	M	SD	N	M	SD	N	M	SD
A	96	22.34	6.27	122	22.12	6.02	62	20.46	3.83
B	81	26.55	8.94	68	24.14	7.66	30	24.03	6.40
C	38	26.44	10.29	31	27.12	7.96	26	24.57	8.09
A/B	T = -3.56***			T = -1.95*			T = -2.82**		
A/C	T = -2.29**			T = -3.63***			T = -3.09**		
B/C	T = 0.06 ns			T = -2.00*			T = -0.36 ns		

* p<.05; ** p<.01; *** p<.001; ns = non-significant



In every school grade, we found statistically significant differences in school disruption between subjects with a different number of failures. We should remark, however, that from all subjects forming the sample (578), 24 did not state the number of school failures. In an analysis performed afterwards on those differences, the contrasts revealed the existence of statistically significant differences (Table 3) between students with no failures (A) and students with two or more failures (A<C), and between students with no failures and those who have failed once (A>B). Between the averages of group B (1 failure) and C (2 or more failures), only the 8th grade presented a significant difference ($p<.05$) what may represent a reflection of the smaller number of subjects compared. Within the several analyzed situations, students with more failures presented, as was expected, average higher disruption results than students with less failure.

We analyzed Pearson co-relation coefficients between SDSIT punctuation and school grades. Although the significant level vary from grade to grade (probably due to the non uniformity of the students number), all co-relations are negative and statistically significant, and this agrees with the conclusions of other similar studies (Arsenault, Loranger & Milot, 1988; Veiga, 2007, 2008).

Besides the criteria described above for the external validity study for SDSIT, we chose to adopt a third one. More exactly, the results of SDSIT were compared to the ones of DBS-PS (Veiga, 1991, 1996, 2008) — due to the lack of studies on the relation between these two kind of results on disruption (inferred and professed), mainly regarding age, gender, socio-cultural level, residential zone and school grade. Although some studies did not find statistically significant co-relations between the classifications that teachers make of their students behaviours and the classifications that students make of their own behaviours, we decided to test the hypothesis of the existence of a positive a statistically significant co-relation between the results from the disruption professed by students and the ones from the disruption inferred by teachers, for all groups (age, school grade, socio-cultural level, residential area or gender).

Therefore, in Table 4, we present the co-relation coefficients obtained, as well as their statistically significance level, considering separately each of the variables described above. Although, in some cases, we have high coefficients, in general, they are low or moderate.

Sociodemographic variables (used as control) cause some variance in co-relation indexes, but they do not annul the association between the disruption inferred by teachers and the results on disruption professed by students. There are statistically significant positive co-relation coefficients between both variables regardless of age, gender, school grade, residential area or socio-economic level (SEL). The coefficients were higher in distraction-transgression (DT) and in total disruption (BDTO), in all groups ($p<.001$). In partners aggression (SA) there is a slightly higher level in the relationship of both kinds of disruption (inferred and professed) than in authority aggression (AA).

Table 4 - Co-relation coefficients between results in inferred disruption and professed disruption (DT, SA, AA and BDTO) to several groups.

	Grade			SEL		
	7th	8th	9th	low	middle	high
N =	221	234	123	301	230	47
DT	.20**	.38***	.46***	.35***	.44***	.47***
SA	.19**	.20**	.31***	.19***	.25**	.36*
AA	.14*	.21**	.30***	.12*	.21***	.61***
BDTO	.31***	.35***	.40***	.30***	.40***	.50***

* $p<.05$; ** $p<.01$; *** $p<.001$; ns = no significant

Furthermore, the results show a progressive increase on co-relation indexes between the two variables taken, while school grade grows higher. We also found major associations when we com-



pared high socio-economic level (SEL) with middle or low socio-cultural level. The explanation to the differences found in co-relation indexes, may be connected with the fact that teachers have a better knowledge of higher grade students, what seems to support the hypothesis of the origin and structure of teacher-student expectations suggested by some authors (Veiga, 2008; Woolfolk, 2011). The higher co-relation indexes seem within the high socio-cultural level. This fact may mean there is some specificity that allows these students to become known or “noted” by their teachers.

In sum, the obtained results allow to conclude that — although sociodemographic variables cause some differences in the relation between the inferred and the professed disruption, the correlations found keep high levels of statistical significance and, in most groups considered, the higher the disruption inferred by teachers, the higher the disruption professed by students.

CONCLUSIONS

The previous analysis allows the acceptance of the SDSIT scale as unidimensional instrument, reliable and valid, psychometric qualities that allow its use in general educational research, especially on students school disruption inferred by teachers.

The consonance that this instrument sustains with psychological theories of explanation and intervention on disruptive behaviours (Veiga, 2007, 2008), and, on the other hand, the fact that we tried to pay attention to teachers views on those behaviours — may be a contribution to the practical use of SDSIT viewing the promotion of students right behaviour, namely through a higher attention towards the variables that may lead these subjects to school disruption. The existence of evaluation instruments on school disruptive behaviours may represent a useful way to the achievement of a better knowledge of students by their teachers and by other education technicians.

In external validity study, the results point to other studies that have found significant and positive correlations between school profit and socio-school behaviors inferred by teachers (Arsenault, Loranger & Milot, 1988; Loranger *et al.*, 1989; Woolfolk, 2011). Instead factorial analyses has only revealed a general factor, the distribution of the items for three dimensions — similar form to observed with the Disruptive Behavior Scale Professed by Students (Veiga, 2008) - could, however, be used and, therefore, on the basis of the semantic distribution of the item for the following factors: distraction-transgression (4, 8, 9, 12, 13, 14); schoolmates aggression (1, 2, 3, 15, 16) and school authority aggression (5, 6, 7, 10, 11). At last, we would appreciate the interest in new studies using this scale, as means of finding the school disruption construct multidimensionality, as it was done with the Disruptive Behavior Scale Professed by Students.

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Annex

School Disruption Scale Inferred by Teachers (SDSIT)

Please answer the following questions, regarding your students' behaviour in school. Follow this criteria:

- Entirely disagree _____ 1
- Quite disagree _____ 2
- Disagree more than agree _____ 3
- Agree more than disagree _____ 4
- Quite agree _____ 5
- Entirely agree _____ 6

Please make an X in every item beneath the number that translates the best your opinion of the student to evaluate.

Student's name:

	1	2	3	4	5	6
01. He / She intentionally destroys or breaks school material	-	-	-	-	-	-
02. He / She physically attacks the schoolmates	-	-	-	-	-	-
03. He / She obeys the teachers *	-	-	-	-	-	-
04. He / She speaks without permission, disturbing the class	-	-	-	-	-	-
05. He / She physically attacks the teachers	-	-	-	-	-	-
06. He / She swears in the classroom	-	-	-	-	-	-
07. He / She comes to school under the influence of alcohol or drugs	-	-	-	-	-	-
08. He / She leaves the place, yells and causes other disturbances in the classroom	-	-	-	-	-	-
09. He / She forgets to bring material to the classroom	-	-	-	-	-	-
10. He / She steals material in school	-	-	-	-	-	-
11. He / She verbally attacks the teachers	-	-	-	-	-	-
12. He / She arrives punctually in school *	-	-	-	-	-	-
13. He / She misses classes	-	-	-	-	-	-
14. He / She don't pays attention in the classroom.	-	-	-	-	-	-
15. He / She verbally attacks the schoolmates	-	-	-	-	-	-
16. He / She threatens people at school.	-	-	-	-	-	-

* These are inverse items (the punctuation has to be inverted).