

A Prosocial Scale for the Preschool Behaviour Questionnaire: Concurrent and Predictive Correlates

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The Preschool Behaviour Questionnaire has been used widely to assess children's aggressive, anxious, and hyperactive behaviour. Items from the Prosocial Behaviour Questionnaire were added to create a prosocial scale. The resulting questionnaire was administered to teachers of three large samples of kindergarten children and shown to have three stable, orthogonal components disruptive (13 items); anxious (6 items); and prosocial (10 items). Mother and peer assessments of children were used to investigate concurrent and predictive validity. Concurrent data showed that the disruptive component was highly correlated with peer assessments and moderately correlated with mother assessments; the prosocial component was moderately correlated with peer assessments but marginally correlated with mother assessments, whereas the anxious component was marginally correlated with peer assessments and moderately correlated with mother assessments. From a predictive perspective it was shown that highly disruptive boys in kindergarten who were prosocial, were assessed by mothers and teachers at age 9 to be better adjusted than highly disruptive boys in kindergarten who were non-prosocial.

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INTRODUCTION

A number of rating instruments have been proposed in the past two decades to assess preschoolers' behaviour (e.g. Achenbach, Edelbrock, & Howell, 1987a, Crowther, Bond, & Rolf, 1981; Kohn & Rosman, 1972; McGuire & Richman, 1986). One of the most frequently used is Behar and Stringfield's (1974) Preschool Behaviour Questionnaire (B-PBQ). This questionnaire was constructed by adapting Rutter's (1967) Children's Behaviour Questionnaire (CBQ) for completion by teachers. The CBQ had been created to assess 10-year-old children in Great Britain and it has since been used in numerous studies involving different cultures (Duyme, 1981; McGee, Williams, & Silva, 1985a; Venables et al., 1981; Zimmerman-Tansella, Minghetti, Tacconi, & Tansella, 1978). The B-PBQ and CBQ were designed to measure inappropriate behaviours of children and to identify maladjusted children. The latter questionnaire yields an antisocial and a neurotic score whilst the former questionnaire consists of three scales: "hostile-aggressive"; "anxious-fearful"; and "hyperactive-distractible". Whether these questionnaires can be used to assess hyperactivity as a distinct dimension has been largely debated (Fowler & Park, 1979; Hinshaw, 1987; Hoge, Meginbir, Khan, & Weatherall, 1985; McGee, et al., 1985b; Moller & Rubin, 1988; Schachar, Rutter, & Smith, 1981; Tremblay, Demarais-Gervais, Charlebois, & Gagnon, 1987; Venables et al., 1981).

The purpose of most teacher-version behaviour rating scales is to assess children's inappropriate behaviours (Boyle & Jones, 1985). The Preschool Behaviour Questionnaire and the Children Behaviour Questionnaire typify these instruments: They are both an index of current maladjustment (Behar & Stringfield, 1974; Gouze, 1987; Hoge et al., 1985; Rubin & Clark, 1983; Rutter, 1967) and the are both relatively good predictors of future maladjusted behaviour (Rubin, Moller, & Emptage, 1986; Rutter, Tizard, & Withmore, 1970). In recent years, suggestions that positive as well as negative behaviours should be included in epidemiological and predictive studies have been proposed (e.g. Achenbach & McConaughy, 1987; Boyle & Jones, 1985). Apparently, disruptive behaviours account for only a small percentage of all behaviours, even in highly disturbed children (Patterson, 1982). Also, the relationship between negative and positive behaviour is complex (Radke-Yarrow, Zahn-Waxler, & Chapman, 1983; Rubin et al., 1987; Weir & Duveen, 1981), and positive behaviours add to the variance explained by negative behaviours in predictive studies (Achenbach & Edelbrock, 1983; Eron & Huesmann, 1984). From a practical point of view, teachers and mothers may prefer completing questionnaires which focus attention on both positive and negative behaviours.

In a series of longitudinal studies pertaining to children's disorders, the Preschool Behaviour Questionnaire has been modified to include an evaluation of prosocial behaviour. This paper presents: (1) the factor structure of the instrument; (2) correlates from peer and mother assessments; and (3) predictive power for home and school disorders at one and three year intervals.

METHOD

Subjects and Procedure

Four samples of French-Canadian kindergarten children were assessed by their teachers at the end of the school year (mean age = 6.3 years, s.d. = 0.48). The first sample (A) was created by assessing every French-Canadian boy in kindergarten classes of schools in low socio-economic areas of a large metropolitan city (Montréal) for a longitudinal study of disruptive boys. Evaluations were completed by 85% of the teachers yielding ratings for 1161 boys. The second sample (B) was created by taking a random sample of all kindergarten children enrolled in the same public school system as the preceding sample, but during the following year. In this case, evaluations were completed by teachers for 68.4% of the children (629 girls and 680 boys). The third sample (C) was generated from a medium-sized city, Québec (population: $\pm 500,000$), where all the kindergarten children from 10 different schools in three different public school boards (203 girls and 261 boys) were assessed by their teachers. The fourth sample (D) was derived from a small-sized city, Val d'Or (population: $\pm 30,000$), where all the kindergarten children (162 girls and 215 boys) from all the schools ($n = 6$) in that city were assessed by their teachers.

Instruments

The Preschool Social Behaviour Questionnaire. The rating questionnaire given to teachers was constructed by merging two different questionnaires, the Behar and Stringfield (1974) preschool Behavior Questionnaire (B-PBQ, 28 items) and the Weir, Stevenson, and Graham (1980) Prosocial Behavior Questionnaire (W-PBQ, 20 items; see also Weir & Duveen, 1981). To differentiate this new questionnaire from the B-PBQ and the W-PBQ we have named it the Preschool Social Behaviour Questionnaire (PSBQ). The W-PBQ was chosen to assess prosocial behaviour for two reasons: first, the W-PBQ measures individual differences in behaviour "resulting from socialisation experiences" and secondly, the item formula-

tion format is identical to the B-PBQ. Although the W-PBQ was originally designed for elementary schoolchildren, it was assumed that, as with the Rutter scale, items would be valid at preschool age level. A French version of the questionnaire was used. The French version was translated back to English to check for possible changes in meaning. The following are examples of English and French versions of the items: fights with other children (*se bat avec les autres enfants*); is worried, worries about many things (*inquiet, plusieurs choses l'inquiètent*); comforts a child who is crying or upset (*console un enfant qui pleure ou qui est bouleversé*). Copies of the questionnaire can be obtained from the first author.

Assessment by Peers. Children from sample D were rated by their peers in a group procedure which produces three positive and three negative nominations as a play partner, one likeability scale (smiling, sad, and neutral faces) and four behaviour descriptors (fights most, disturbs most in class, shares toys most, scolded most by teacher; see Vitaro, Tremblay, Gagnon, Piché, & Royer, 1988; Vitaro, Gagnon, & Tremblay, 1990).

RESULTS

Factor Analysis with 48 Items

A principal component analysis with iterations and varimax rotations (PA2 with SPSS) was performed on the first sample (A). Because earlier studies (Fowler & Park, 1979; Moller & Rubin, 1988; Tremblay et al., 1987) had shown that the two component solution was a good approximation to simple structure for the 28 items of the B-PBQ it was expected that a three component solution would be a good approximation of the simple structure when the 20 prosocial items were aggregated. It can be observed from Table 1 that the first two components (disruptive and anxious) are identical to those obtained by Fowler and Park (1979) and Tremblay et al. (1987), whereas the third component is clearly a regrouping of the 20 prosocial items from the W-PBQ. Together, the three components explain 44.4% of the variance. To better represent the context of the first component, the more general term "disruptive" is used instead of the more specific terms "hostile-aggressive" used by Behar and Stringfield (1974) or "aggressive-hyperactive" used by Fowler and Park (1979) and Tremblay et al. (1987). The term "anxious" is used for the second component instead of "anxious-fearful" (Behar & Stringfield, 1974) or "anxious-withdrawn" (Fowler & Park, 1979; Tremblay et al., 1987).

TABLE 1
Principal Component Structure of the PSBQ on Sample A (116 males) compared to
Fowler and Park's (F.P.) (352 Males) and Tremblay et al. (T) (361 Males) Samples

Items	Disruptive			Anxious			Pro-social
	A	T	F.P.	A	T	F.P.	A
1. Restless	0.70	0.70	0.78				
2. Squirmy	0.67	0.69	0.74		0.31		
3. Destroys	0.67	0.72	0.83				
4. Fights	0.82	0.83	0.83				
5. Not liked	0.53	0.63	0.69				
6. Irritable	0.67	0.73	0.63				
7. Disobedient	0.80	0.76	0.79				
8. Tells lies	0.63	0.60	0.65				
9. Bullies	0.78	0.84	0.83				
10. Doesn't share	0.59	0.66	0.63				
11. Blames others	0.71	0.73	0.82				
12. Inconsiderate	0.62	0.79	0.83				
13. Kicks, bites, hits	0.78	0.79	0.83				
14. Worried				0.66	0.64	0.75	
15. Solitary				0.48	0.49	0.61	
16. Distressed				0.49	0.51	0.56	
17. Fearful				0.69	0.74	0.76	
18. Cries				0.41	0.49	0.60	
19. Stares into space				0.55	0.55	0.52	
20. Stops quarrels							0.62
21. Shares pencils	-0.32						0.47
22. Invites bystander							0.65
23. Helps hurt child							0.74
24. Apologises spontaneously							0.57
25. Shares sweets							0.59
26. Considerate of teacher							0.57
27. Stops talking	-0.54						0.23
28. Helps pick up objects							0.62
29. Praises others work							0.76
30. Shows sympathy							0.69
31. Helps task difficulty							0.73
32. Helps sick child							0.77
33. Works in small group	-0.35			-0.36			0.42
34. comforts upset child							0.79
35. Does regular tasks				-0.30			0.56
36. Gets to work rapidly	-0.33			-0.37			0.34
37. Applauds others							0.56
38. Helps clear up mess							0.71
39. Fair in games	-0.40						0.44
40. Twitches				0.40			
41. Bites fingers			0.31			0.44	
42. Poor concentration	0.41	0.43	0.64	0.44	0.53		
43. Fussy						0.34	
44. Soils self						0.36	
45. Stutter						0.40	
46. Speech difficulty							
47. Inattentive	0.36	0.35	0.64	0.55	0.58	0.30	
48. Gives up	0.39	0.39	0.41	0.53	0.50	0.55	
% variance	25.4	32.3	31.1	6.8	10.8	13.7	12.2

Note: Loadings less than 0.3 are omitted.

Factor Analyses with 38 Items

To obtain the briefest questionnaire possible it was decided to retain only 10 of the 20 items from the W-PBQ. The choice was made by selecting the 10 items (Table 2) which had the highest loading on the prosocial component from the analysis described above; they had a mean weight of 0.71 (minimum 0.62, maximum 0.79). All items refer to interactions with peers; five relate to helping behaviour, the others refer to stopping quarrels, inviting bystanders to join in, praising less able children, showing sympathy for mistakes, comforting upset children. The 10 items which were discarded had a mean weight of 0.47 (minimum 0.23, maximum 0.59). Four of these latter items refer to child-adult interactions or obeying adult directives (items 7, 8, 16, 17), two refer to sharing with peers, and the other four items refer to apologising, being fair in games, working in small peer groups, and praising positive behaviour. The 10 items which had the highest loading and which were retained appear to reflect more clearly

TABLE 2
Items from the W-PBQ kept and rejected for the PSBQ

<i>Items Kept</i>	<i>Items Rejected</i>
1. If there is a quarrel or dispute will try to stop it (0.62)*	2. Offers to share rubbers or pencil being used in a task (0.47)
3. Will invite bystanders to join in a game (0.65)	5. Apologises spontaneously after a misdemeanour (0.57)
4. Will try to help someone who has been hurt (0.74)	6. Shares out sweets or extra food (0.59)
9. Spontaneously helps to pick up objects which another child has dropped (e.g. pencils, books, etc.) (0.62)	7. Is considerate of the teacher's feelings (0.57)
10. Takes the opportunity to praise the work of less able children (0.76)	8. Stops talking quickly when asked to (0.23)
11. Shows sympathy to someone who has made a mistake (0.69)	14. Can work easily in a small peer group (0.42)
12. Offers to help other children who are having difficulty with a task in the classroom (0.73)	16. Is efficient in carrying out regular tasks such as helping with school milk (0.55)
13. Helps other children who are feeling sick (0.77)	17. Settles down to work quickly (0.34)
15. Comforts a child who is crying or upset (0.79)	18. Will clap or smile if someone else does something well in a class (0.56)
19. Volunteers to help clear up a mess someone else has made (0.71)	20. Tries to be fair in games (0.44)

*Weight of the item on the prosocial component in the principal component analysis of sample A.

“altruistic” behaviours with peers than the 10 which had the lowest loadings and which were subsequently rejected.

With this revised 38 item version of the PSBQ, samples B, C, and D were investigated. It should be noted that sample A contained only boys from low socio-economic areas in a large metropolitan city, whereas the other three samples were from the general population including boys and girls of different size cities.

Results from the principal component analyses of boys' data from the three cities are presented in Table 3. The first 13 items are those which had been identified in earlier studies to form a stable disruptive behaviour component. For each sample, all items have a loading greater than 0.48 on the disruptive component; in only one case an item has a loading greater than 0.30 on a different component. The next six items are those which had been identified to form a stable anxiety component. In the three samples, none of these six items has a loading greater than 0.30 on the other two components. The next 10 items are those which were retained from the Prosocial Behaviour Questionnaire. It can be observed that for the three samples all items have a loading greater than 0.30 on the prosocial component only. The next nine items are those which had been included in the original Behar and Stringfield (1974) questionnaire, but did not have a stable loading on a given component across samples. For example, “Has poor concentration”, “Inattentive”, and “Gives up” tended to load on the disruptive behaviour component as well as the anxious behaviour component across samples. The aggregated variance explained by the three components was between 44% and 47.4%. The disruptive behaviour component explained more than 20% of the variance, the anxious behaviour component explained approximately 9% of the variance. Finally, the prosocial component explained between 11% and 13.5% of the variance.

Table 4 presents the results for girls; they were quite similar to those obtained for boys. The only substantial differences are those for the Val d'Or sample where the first two items of the disruptive behaviour component loaded on the anxious behaviour component and the “works alone” item did not have a loading greater than 0.30 on the anxious behaviour component and was negatively related to the prosocial component. It should be noted that these “unstable” results are observed in the smallest sample ($n = 162$).

Correlations between Components

Correlations between the three components for boys and girls of samples B, C, and D are presented in Table 5. Note that, in the Val d'Or and Québec samples, correlations are based on z scores computed for each sex

TABLE 3
Boys' Results of Principal Component Analyses (Varimax Rotated) for Teacher Ratings

Items	Montréal (n = 680)			Québec (n = 255)			Val d'Or (n = 218)		
	Dis	Anx	Pro	Dis	Anx	Pro	Dis	Anx	Pro
1. Restless	0.73			0.69			0.74		
2. Squirmy	0.69			0.64			0.68		
3. Destroys	0.72			0.71			0.65		
4. Fights	0.79			0.79			0.74		
5. Not liked	0.48			0.54	0.37		0.65		
6. Irritable	0.70			0.65			0.66		
7. Disobedient	0.79			0.71			0.78		
8. Tells lies	0.68			0.48			0.73		
9. Bullies	0.81			0.77			0.83		
10. Doesn't share	0.68			0.61			0.71		
11. Blames others	0.72			0.71			0.81		
12. Inconsiderate	0.71			0.72			0.73		
13. Kicks, bites, hits	0.76			0.66			0.79		
14. Worried		0.73			0.71			0.68	
15. Solitary		0.51			0.57			0.46	
16. Distressed		0.56			0.55			0.52	
17. Fearful		0.73			0.65			0.74	
18. Cries		0.50			0.39			0.43	
19. Stares into space		0.57			0.55			0.57	
20. Stops quarrels			0.62			0.66			0.48
21. Invites bystander			0.64			0.72			0.60
22. Helps hurt child			0.77			0.72			0.73
23. Helps pick up objects			0.68			0.64			0.58
24. Praises others' work			0.70			0.73			0.66
25. Shows sympathy			0.71			0.63			0.55
26. Helps task difficulty			0.71			0.68			0.65
27. Helps sick child			0.74			0.62			0.57
28. Comforts upset child			0.76			0.75			0.68
29. Helps clear up mess			0.65			0.73			0.57
30. Twitches		0.37			0.38				
31. Bites fingers									
32. Poor concentration	0.47	0.46		0.37	0.39		0.37	0.47	
33. Fussy									
34. Soils self									
35. Stutter									
36. Speech difficulty									
37. Inattentive	0.37	0.53			0.49		0.32	0.60	
38. Gives up	0.44	0.50		0.31	0.55			0.53	
% variance	25.6	9.0	12.8	21.6	8.9	13.5	24.0	9.5	11.1

Note: Loadings less than 0.3 are omitted.

TABLE 4
Girls' Results of Principal Component Analyses (Varimax Rotated) for Teacher Ratings

Items	Montréal (n = 629)			Québec (n = 206)			Val d'Or (n = 159)		
	Dis	Anx	Pro	Dis	Anx	Pro	Dis	Anx	Pro
1. Restless	0.68			0.67			0.37	0.32	
2. Squirmy	0.62			0.62				0.38	
3. Destroys	0.67			0.68			0.68		
4. Fights	0.77			0.60			0.63		
5. Not liked	0.47			0.54			0.59		
6. Irritable	0.67			0.65			0.68		
7. Disobedient	0.77			0.78			0.56		
8. Tells lies	0.67			0.63			0.49		
9. Bullies	0.73			0.62			0.82		
10. Doesn't share	0.54			0.64			0.55		
11. Blames others	0.78			0.54			0.69		
12. Inconsiderate	0.57			0.59			0.73		
13. Kicks, bites, hits	0.73			0.75			0.84		
14. Worried		0.64			0.64			0.72	
15. Solitary		0.43			0.40				-0.36
16. Distressed		0.52			0.48			0.60	
17. Fearful		0.70			0.66			0.70	
18. Cries		0.41			0.43			0.56	
19. Stares into space		0.59			0.62			0.66	
20. Stops quarrels			0.67			0.53			0.47
21. Invites bystander			0.73			0.63			0.72
22. Helps hurt child			0.78			0.76			0.79
23. Helps pick up objects			0.66	-0.31		0.46			0.64
24. Praises others' work			0.74			0.66			0.70
25. Shows sympathy			0.72			0.66			0.66
26. Helps task difficulty			0.73			0.68	-0.30		0.75
27. Helps sick child			0.79			0.73			0.65
28. Comforts upset child			0.79			0.75			0.76
29. Helps clear up mess			0.68			0.52			0.63
30. Twitches		0.31		0.34					
31. Bites fingers		0.36							
32. Poor concentration	0.34	0.54			0.54			0.66	
33. Fussy									0.33
34. Soils self									
35. Stutter									
36. Speech difficulty								0.32	
37. Inattentive		0.60		0.38	0.59			0.69	
38. Gives up	0.36	0.49		0.51	0.49			0.55	
% variance	22.5	8.4	14.2	22.7	7.4	12.0	19.8	8.7	15.1

Note: Loadings less than 0.3 are omitted.

TABLE 5
Correlations between the 3 Components of the PSBQ in 3 Different Urban Areas

	<i>Disruptive</i>		<i>Prosocial</i>	
	<i>Boys^a</i>	<i>Girls^b</i>	<i>Boys</i>	<i>Girls</i>
<i>Prosocial</i>				
Montréal ^c	-0.24***	-0.16**		
Québec ^d	-0.20***	-0.34***		
Val d'Or ^d	-0.31***	-0.13*		
<i>Anxious</i>				
Montréal ^c	0.17**	0.21***	-0.21**	-0.22**
Québec ^d	-0.08	0.22***	-0.29***	-0.39***
Val d'Or ^d	-0.06	0.11	-0.27***	-0.57***

^aNumber of boys for Montréal, Québec, and Val d'Or are 680, 261, and 215, respectively.

^bNumber of girls for Montréal, Québec, and Val d'Or are 629, 203, and 162, respectively.

^cBased on raw scores.

^dBased on z scores computed for each gender in each classroom.

* $P < 0.05$; ** $P < 0.008$; *** $P < 0.001$.

within classroom. This could not be done for the Montréal sample because only a few children in each class were assessed. It can be observed that the three components were relatively independent for both sexes in each city. The disruptive behaviour component for boys and girls was negatively correlated with the prosocial component, but no correlation was higher than -0.34 (mean r for boys = -0.25 ; mean r for girls = -0.21). The disruptive behaviour component was generally positively correlated to the anxious behaviour component; in this case, no correlation was higher than 0.22 (mean r for boys = 0.10 ; mean r for girls = 0.18). The correlations between anxiety and prosocial behaviour were negative for girls (mean r = -0.39) and for boys (mean r = -0.26). These rather high negative correlations, especially for girls, seem to corroborate findings reported by other investigators showing that prosocial behaviour is positively correlated with assertiveness (Radke-Yarrow, Zahn-Waxler, & Chapman, 1983). We would expect that anxiety would be negatively correlated to assertiveness.

Concurrent Validity of the PSBQ

Associations with Peer Assessments. The behaviour of children in school can be observed by teachers and peers. Although peers and teachers may have a different perception of a given child, one expects that a teacher and peer assessments of children's behaviour will show some association.

For the Val d'Or sample (162 girls, 215 boys), sociometric data was obtained from peers in a group procedure. The number of children in each classroom ranged from 16 to 20. Results presented in Table 6 show that teacher assessments (*z* scores) of boys on the disruptive behaviour component were highly correlated with peers' negative nominations ($r = 0.58$, $P < 0.001$), peers' attribution of smiling ($r = -0.44$, $P < 0.001$) and sad face ($r = 0.51$, $P < 0.001$), as well as with three behaviour descriptions: fights ($r = 0.62$, $P < 0.001$); disturbs ($r = 0.56$, $P < 0.001$); and scolded by teacher ($r = 0.70$, $P < 0.001$). For girls, the correlations were all in the same direction but were higher than boys for positive nomination ($r = -0.26$, $P < 0.001$) and lends toys ($r = -0.28$, $P < 0.001$), whereas they were lower than boys for negative nominations ($r = 0.41$, $P < 0.001$), disturbs ($r = 0.35$, $P < 0.001$), and teacher scolds ($r = 0.31$, $P < 0.001$) (see Tremblay, LeBlanc, & Schwartzman, 1988, for similar findings).

Similar results were obtained when the prosocial component assessed by teachers was correlated with peer assessments, although the correlations were lower. For boys, the highest correlations were with negative nominations ($r = -0.35$, $P < 0.001$), smiling face ($r = 0.34$, $P < 0.001$), and sad face ($r = -0.32$, $P < 0.001$). For girls, the highest correlations were obtained for positive nominations ($r = 0.31$, $P < 0.001$), for smiling face ($r = 0.37$, $P < 0.001$), and for sad face ($r = -0.34$, $P < 0.001$).

TABLE 6
Correlations between the 3 PSBQ Components and Peer Assessments for the Val d'Or Sample Boys ($n = 215$) and girls ($n = 162$)

	<i>Teachers' Assessments^a</i>					
	<i>Disruptive</i>		<i>Prosocial</i>		<i>Anxious</i>	
	<i>Boys</i>	<i>Girls</i>	<i>Boys</i>	<i>Girls</i>	<i>Boys</i>	<i>Girls</i>
Positive nominations	-0.18	-0.26***	0.20**	0.31***	-0.18	-0.26***
Negative nominations	0.58***	0.41***	-0.35***	-0.25***	0.04	0.18
Smiling face	-0.44***	-0.45***	0.34***	0.37***	-0.11	-0.20
Sad face	0.51***	0.55***	-0.32***	-0.34***	0.05	0.22**
Neutral face	-0.02	-0.04	-0.18	-0.29***	0.14	0.13
Lends toys	-0.01	-0.28***	0.07	0.26***	-0.00	-0.19
Fights	0.62***	0.23 ^b	-0.21***	0.21 ^b	-0.14	0.13 ^b
Disturbs	0.56***	0.35***	-0.26***	-0.01	0.03	0.17
Teacher scolds	0.70***	0.31 ^b ***	-0.20***	-0.03 ^b	-0.16	0.20 ^b

^a*z* Scores computed for each gender within each classroom. Only correlations with a $P \leq 0.002$ were considered significant to correct for the number of correlations.

^b $n = 112$.

** $P \leq 0.01$; *** $P \leq 0.001$.

Associations between teacher ratings on the anxiety component and peer assessments showed no significant correlation for boys. For girls, there was one significant correlation. Teacher-rated anxiety correlated negatively with positive peer nominations ($r = -0.26, P < 0.001$).

Associations with Maternal Assessments. Although mothers observe the behaviour of their children in a different setting than teachers, most investigators of children's behaviour expect some association between teacher and mother ratings of behaviour. Table 7 presents the correlations between teacher and mother assessments on the three components of the PSBQ. To decide on a significant P value for these correlations, the Bonferroni (Miller, 1981) approach was used. Only significant correlations with a $P < 0.005$ were considered significant. Results were similar for samples B, C, and D but only the data from the Val d'Or sample (sample D) is presented here for the sake of brevity. The highest correlations were obtained for the disruptive behaviour component. The correlation between teacher and parent assessment of disruptive behaviour was higher for boys ($r = 0.46, P < 0.001$) than for girls ($r = -0.31, P < 0.001$). The correlations for the prosocial component showed the same trend but were considerably lower ($r = 0.21, P < 0.001$ for boys; $r = 0.14, n.s.$ for girls). Finally, correlations between teacher and parent assessment for the anxiety component was lower for boys ($r = 0.21, P < 0.001$) than for girls ($r = 0.31, P < 0.001$).

TABLE 7
Correlations between the 3 PSBQ Components and Mother Assessments for the Val d'Or Sample^a

<i>Mothers' Assessment</i>	<i>Teachers' Assessments^a</i>					
	<i>Disruptive</i>		<i>Prosocial</i>		<i>Anxious</i>	
	<i>Boys</i>	<i>Girls</i>	<i>Boys</i>	<i>Girls</i>	<i>Boys</i>	<i>Girls</i>
<i>Behaviour</i>						
Disruptive	0.46***	0.31***	-0.24***	-0.21**	0.02	0.15
Prosocial	-0.08	-0.15	0.21***	0.14	-0.11	-0.10
Anxious	-0.06	0.07	-0.01	-0.30***	0.21***	0.31***

^a Due to some missing data, number of boys vary from 196 to 204 and number of girls vary from 151 to 155.

^b Scores computed for each gender within each classroom. Only correlations with a $P \leq 0.005$ were considered correct for the number of correlations.

** $P \leq 0.01$; *** $P \leq 0.001$.

Predictive Validity of the PSBQ

Correlations from Age 6 to 7 and Age 6 to 9. Children from sample D were assessed by teachers, peers, and mothers one year after the kindergarten assessments. Standard scores (z) computed within each classroom were used to compute correlations. For the disruptive ratings by teachers in kindergarten, correlations were found to be relatively high with time 2 teacher ratings (boys, $r = 0.57$, $n = 190$; girls, $r = 0.59$, $n = 142$), time 2 mother ratings (boys $r = 0.37$, $n = 175$; girls, $r = 0.34$, $n = 141$), and time 2 peer negative nominations (boys, $r = 0.35$, $n = 192$; girls, $r = 0.39$, $n = 144$). For prosocial ratings by teachers in kindergarten, correlations were also found to be relatively high with time 2 teacher rating (boys, $r = 0.44$, $n = 190$; girls, $r = 0.40$, $n = 148$), lower with time 2 peer likeability (smiling face) ratings (boys, $r = 0.28$, $n = 192$; girls $r = 0.29$, $n = 144$), and significant but marginal with mother time 2 ratings of disruptive behaviour (boys, $r = 0.17$, $n = 175$; girls, $r = 0.23$, $n = 141$). Finally, for anxiety ratings by teachers in kindergarten, correlations were relatively high with time 2 teacher ratings (boys, $r = 0.42$, $n = 190$; girls, $r = 0.39$, $n = 143$) and marginal with time 2 mother ratings (boys, $r = 0.20$, $n = 176$; girls, $r = 0.20$, $n = 141$).

A random subsample of 61 boys from sample A was also assessed by their teachers with the PSBQ three years after the original kindergarten assessments. Raw score correlations within each component from ages 6 to 9 showed that the disruptive behaviour component was significantly associated ($r = 0.52$, $P = 0.001$). The prosocial and the anxiety components were not associated between times 1 and 2.

Differences in Outcome for Disruptive prosocial and Disruptive Non-prosocial Boys. Sample A boys who scored above the 70th percentile on the disruptive behaviour component are currently the object of a longitudinal study (Tremblay et al., 1991). To verify the extent to which the prosocial component can contribute to the prediction of future social adjustment for disruptive kindergarten boys, two groups of disruptive boys were created by using the 30th and the 70th percentile of the whole sample as cut-off points on the prosocial component. Disruptive boys above the 70th percentile (prosocial group) were matched with disruptive boys below the 30th percentile (non-prosocial group). This was accomplished by ensuring that the matched boys in each group had no more than three point differences on the disruptive component. Seventy disruptive boys, for whom there were assessments from teachers and mothers at age 9, were successfully matched, creating two groups of 35 subjects, a disruptive-prosocial group and a disruptive-non-prosocial group. Table 8 demon-

TABLE 8
Differences in Teacher and Mother Ratings at Age 9 between 35 Pairs of Disruptive Kindergarten Boys rated Prosocial and Non-prosocial

	<i>Prosocial</i>		<i>Non-prosocial</i>		<i>t</i>	<i>F^a</i>
	<i>M</i>	<i>s.d.</i>	<i>M</i>	<i>s.d.</i>		
<i>Age 6: Teacher ratings</i>						
Prosocial	11.60	(1.96)	1.60	(1.40)	24.59***	–
Disruptive	13.43	(3.54)	13.66	(3.83)	0.26	–
Anxious	3.46	(2.32)	3.57	(2.90)	0.18	–
<i>Age 9: Mother ratings</i>						
Prosocial	10.94	(3.47)	8.89	(4.00)		4.49*
Disruptive	11.34	(4.24)	14.71	(4.81)		11.18**
Anxious	4.63	(1.88)	5.51	(2.17)		2.4
<i>Age 9: Teacher ratings</i>						
Prosocial	7.03	(4.94)	5.11	(4.72)		2.5
Disruptive	11.80	(5.77)	11.80	(7.42)		0.23
Anxious	3.17	(2.14)	4.91	(2.42)		6.04**

^aOne-way ANCOVA with the appropriate kindergarten teacher rating (prosocial, disruptive, anxious) as covariates.

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

states that at age 6 (end of kindergarten) the two groups of 35 boys were significantly different from each other on the teacher-rated prosocial component ($M_1 = 11.60$, $M_2 = 1.60$, $P < 0.001$) and not significantly different on the teacher-rated disruptive component ($M_1 = 13.43$, $M_2 = 13.66$) nor on the anxiety component ($M_1 = 3.46$, $M_2 = 3.57$).

Three years later, when the boys were aged 9, ratings were obtained on the PSBQ items from teachers and mothers. An analysis of covariance (ANCOVA), with disruptive and anxious behaviour in kindergarten as covariates, was used to further ensure that the two groups were equivalent on these dimensions when they were in kindergarten. Results showed that the kindergarten disruptive-prosocial boys were rated as better adjusted at age 9, than the kindergarten disruptive-non-prosocial boys (see Table 8). Mothers' ratings of their 9-year-olds on the PSBQ items showed that the prosocial group was perceived as being more prosocial ($M_1 = 10.94$, $M_2 = 8.89$, $P < 0.02$) and exhibiting fewer disruptive behaviours ($M_1 = 11.34$, $M_2 = 14.71$, $P < 0.001$). There were no significant differences for anxiety ($M_1 = 4.63$, $M_2 = 5.51$, n.s.). Teacher assessments at age 9 indicated that the kindergarten prosocial boys were perceived as being less anxious ($M_1 = 3.17$, $M_2 = 4.91$, $P < 0.004$). There were no significant differences for the prosocial scale ($M_1 = 7.03$, $M_2 = 5.11$), and the disruptive scale ($M_1 = 11.80$, $M_2 = 11.80$).

DISCUSSION

The aim of this paper was to demonstrate the usefulness of adding a prosocial scale to the Preschool Behaviour Questionnaire. It was first shown that two of the items from the Prosocial Behaviour Questionnaire (Weir et al., 1980) formed a distinct orthogonal component when added to the Preschool Behaviour Questionnaire. These 10 prosocial items form a parsimonious scale compared to the original 20 items of the W-PBQ, and they describe a coherent set of behaviours related to helping peers (5 items) and showing concern for them (show sympathy, praise, comfort, invite bystander, stop a quarrel). Results from factor analyses indicated that a three component solution (disruptive behaviours, anxiety, prosociality) was a good approximation of simple structure when kindergarten girls as well as boys, from different urban environments, were assessed.

The validity of these three components was tested with concurrent and predictive data. Concurrent data showed that teacher ratings on the disruptive component were highly correlated with peer assessments, whereas ratings on the anxious component were only marginally correlated, a finding similar to Moller and Rubin's (1988) with first and second grade children. Concurrent correlations between teacher ratings of prosocial behaviour and peer assessments were moderately high for both boys and girls. Correlations between teacher ratings and mother ratings were similar to those found in other studies with different instruments (Achenbach, McConoughy, & Howell, 1987). The highest correlations were observed with the disruptive component for boys and with both the disruptive and anxious component for girls. The correlations were identical for the prosocial and anxious component in the male sample, whereas in the female sample correlation for the prosocial component was lowest.

Predictive data showed that the teacher-rated disruptive component was quite stable when teacher ratings were taken one and three years after the original kindergarten assessments. For anxious behaviour the correlations were relatively high for the one year interval but were non-significant at the three year interval. Although the sample was much smaller for the three year interval and standardised scores for classrooms could not be used, it should be recalled that others have shown that the rating of internalised behaviours for young children is much less stable than externalised behaviours (Fischer, Rolf, Hasazi, & Cummings, 1984; Moskowitz, Schwartzman, & Ledingham, 1985). Teacher-rated prosocial behaviour was also stable only for the one year interval, but this did not preclude predictive validity. It was shown that the use of teacher-rated prosocial behaviour in kindergarten increased prediction of future social adjustment; boys who were rated highly disruptive in kindergarten but who were rated high on prosocial behaviour were found to have less behaviour problems

three years later. We have also reported (Vitaro, et al., 1990) that low prosocial ratings in kindergarten for boys (sample D) was the best predictor of stable peer rejection from kindergarten to Grade 1.

These results indicate that the prosocial scale can improve the prediction of future social adjustment of high-risk children. Eron and Huesmann (1984) obtained similar results by following-up boys and girls from age 8 to 30. Lack of a prosocial orientation in conduct-disordered children appears to lead to more social isolation and makes it less likely that social skills will be learned (see French & Waas, 1985). This would justify social skills training focusing on prosocial behaviour for disruptive and rejected children (Bierman, Miller, & Stabb, 1987; Ladd & Asher, 1985).

Data from the study augment accumulating evidence that disruptive behaviour in young children is related to future anxious-withdrawn behaviour (Dodge, 1983; Moller & Rubin, 1988); however, prosocial behaviour assessments should be added to discriminate the stable rejected and disruptive children who will become anxious and withdrawn. The value of looking at patterns of behaviours to describe individual functioning, rather than pairwise correlations, has been emphasised by Magnusson (1988) as well as Hinde and Dennis (1986). In this context the PSBQ may prove to be a useful instrument in categorising children on three basic behavioural dimensions which seem to underlay the complexity of social behaviour (Masters, 1979; Tremblay, 1991): disruptive (agonistic); anxious (withdrawal); and prosocial (affiliative).

Concurrent and predictive data from this study indicate that the disruptive, anxious and prosocial scales of the Preschool Social Behaviour Questionnaire can be used to identify kindergarten children who have social adjustment problems in kindergarten and who are at risk for maintaining or increasing these problems during primary school. It appears that the addition of a prosocial component does enhance the discriminating and predictive power of the PBQ. There are teacher rating scales which have larger sets of items to obtain more differentiated narrow band scales (Barkley, 1988). These scales need to be used when investigators and clinicians want to differentiate categories of children within the broad band externalising and internalising dimensions. However, compared to other behaviour rating scales the PSBQ has the advantage, from the teacher and parent perspective, of being relatively brief (38 items) and focusing attention on both positive and negative behaviours. In longitudinal studies, the Children Behaviour Questionnaire (Rutter, 1967) can be used when the children are older, especially if a prosocial scale is added. One would expect that results similar to those found in the present study would be obtained if the Children Behaviour Questionnaire and the Prosocial Behaviour Questionnaire were merged.

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