

Nervousness and Performance Characteristics as Predictors of Peer Behavior Towards Socially Anxious Adolescents

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Abstract Social anxiety in adolescents has frequently been linked to negative outcomes from social interactions. The present study investigated whether socially anxious adolescents are treated negatively by their classmates and which characteristics of socially anxious adolescents could explain negative social responses. Classroom observations of class behavior were made during oral presentations of 94 students (60% females) in the ages of 13–18 years. Speakers' social performance, speech quality, and nervousness during the presentation were also rated. Findings showed that the social performance of socially anxious students was a predictor of class behavior, whereas their overt nervousness was not. Surprisingly, the quality of their speech was negatively related to class behavior. Implications of these findings for the treatment of socially anxious adolescents are discussed.

Keywords Adolescence · Classroom observations · Peer relations · Social anxiety

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Introduction

Social Phobia or Social Anxiety Disorder is defined as “a marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that he or she will act in a way that will be humiliating or embarrassing” (APA 2000). The anxiety can be so strong that the individual tries to avoid the feared social situations. For example, the individual may avoid socializing with friends or even going to work or school. The prevalence of social anxiety disorder ranges between 0.45 and 15.6% in adult general populations (Furmark 2002) and between 0.9 and 13.1% in children and adolescents (Gren-Landell et al. 2009). According to epidemiological studies, a greater proportion of females than males meet criteria for social phobia. Clinical studies show an opposite gender difference with a higher prevalence in males than females (Compton et al. 2000; Rapee and Spence 2004). Despite these inconsistent gender findings, it is clear that social anxiety interferes with the lives of many individuals, males and females, young and old.

Fears for social situations are quite common among adolescents (Essau et al. 1999; Wittchen et al. 1999). During the adolescent period youngsters become more self-conscious and are expected to engage in a variety of social activities. Because of these new developments, it is normal for adolescents to sometimes feel concerned about what other people think of them (Westenberg et al. 2004). For some individuals, however, social situations cause excessive fears, leading to intense distress (Velting and Albano 2001). These socially anxious adolescents are often disliked by same age peers (Verduin and Kendall 2008) resulting in a vicious cycle of social anxiety and peer rejection.

Social Anxiety and Peer Relations

Social anxiety in childhood and adolescence has consistently been linked to lower peer acceptance and difficulties with close friendships (e.g., Greco and Morris 2005; Vernberg et al. 1992). In a study by La Greca and Lopez (1998), high socially anxious adolescents reported that they felt less accepted and supported by their classmates. Findings from other studies using sociometric nominations indicate a clear association between social anxiety and being less preferred or actively disliked by peers (Greco and Morris 2005; Inderbitzen et al. 1997). Consistent with this finding, a study by La Greca and Harrison (2005) showed that relational victimization was substantially and significantly related to social anxiety in adolescents, even when other negative relationship and friendship variables were taken into account. Furthermore, studies about peer behavior during oral presentations in the classroom confirm that teachers, classmates, and the socially anxious students themselves perceive that socially anxious students are negatively treated (Blöte et al. 2007; Blöte and Westenberg 2007). Findings like these suggest that socially anxious youth have good reasons to be nervous of social evaluative situations.

The aim of the present study was to evaluate factors that play a role in the negative treatment socially anxious adolescents receive from peers. Knowledge about the behavioral characteristics that cause negative peer responses may have important implications for clinical interventions. More generally, teachers and other individuals who work with adolescents should also be aware of the link between certain behavior and negative outcomes from peer interaction.

Social Anxiety and Social Performance

An important question that has only partly been answered in the literature is why socially anxious youth receive this adverse treatment from their peers. Research on social skills deficits in children and adolescents presents some evidence that socially anxious children tend to perform less well in social situations. As most studies used rather global ratings of social behavior the conclusions are not very specific. Greco and Morris (2005) found that social anxiety in children was negatively related to teacher-rated social effectiveness. Furthermore, the children's social skills contributed to the link between social anxiety and low levels of peer acceptance. In addition, there are at least three observational studies that documented social skill and performance deficits among children and young adolescents with social phobia (Alfano et al. 2006; Beidel et al. 1999; Spence et al. 1999). Spence and colleagues (1999) found that compared to non-anxious children, children with social phobia were rated by themselves and their parents as

less socially competent, less socially skilled and less assertive in their responses to peers. During a peer interaction task, objective observers confirmed that socially phobic children exhibited more social skills deficits. This finding was also reported by Beidel et al. (1999). Furthermore, naturalistic observation in a school setting showed that socially phobic children interacted less with their classmates, initiated fewer interactions and received fewer positive outcomes from their interactions with peers at school (Spence et al.). A laboratory study by Alfano et al. (2006) further confirmed that socially anxious youth are less effective as far as their social interactions with peers are concerned. In short, there is empirical evidence that socially anxious youth have problems in behaving in a socially adequate way.

There are, however, also studies suggesting that children who are high in social anxiety do not necessarily lack social skills (Cartwright-Hatton et al. 2005, 2003). Cartwright-Hatton et al. (2003) found that although the high socially anxious children in their study reported poorer social skills following a speech task, observer ratings indicated no difference in social skills—either on a micro-behavior or a global performance level—from those low in social anxiety. The objective observers did, however, report more nervousness in children with higher levels of social anxiety. Cartwright-Hatton et al. (2005) aimed to replicate and extend these results with a conversation-interaction task. Findings indicated that independent observers did not rate the social skills of high socially anxious children as poorer than those of low socially anxious children. In this study, the independent observers could not distinguish socially anxious children from their low anxious peers in terms of how nervous they looked either. The findings reported here illustrate that the results are inconclusive, although the evidence for poor social skills in the socially anxious is relatively strong.

Although socially anxious individuals seem particularly concerned with how anxious they feel and the extent to which this is visible to other people (Cartwright-Hatton et al. 2005; Rapee and Heimberg 1997; Stein et al. 1996), few studies have examined the extent to which overt signs of anxiety lead to negative social responses. A study by Papsdorf and Alden (1998) using adults indicated that after an initial meeting in a laboratory social rejection was related to anxiety symptoms of the participants, but this relationship was only modest. Probably, reactions from others are more influenced by deficits in social behavior than by visible signs of anxiety (Alden and Taylor 2004; Blöte et al. 2007). In conclusion, the role of social skills and overt nervousness in explaining negative behavior towards socially anxious youth is still unclear, even though this information may be important for working with youth experiencing social anxiety.

Hypotheses

This study aimed to evaluate the relative importance of socially anxious adolescents' social skills, (such as talking in a clear voice and making eye contact with the audience), overt nervousness (e.g., stuttering and blushing), and quality of performance (e.g., giving a well structured speech that is easy to understand) in the social outcomes socially anxious adolescents receive from interactions with classmates during oral presentations. First, however, we examined whether, in the eyes of the students themselves, their teacher, and an independent observer, socially anxious students were indeed treated more negatively by their classmates during oral presentations. Only if the link between social anxiety and negative peer treatment (Blöte et al. 2007) was replicated, would it seem sensible to proceed with the main research question. Therefore, the first hypothesis tested was that socially anxious students are treated more negatively by classmates than middle and low socially anxious students.

The second and main hypothesis stated that negative class behavior is statistically predicted by the speakers' social skills, overt nervousness, and quality of their speech. Based on two recent studies (Alden and Taylor 2004; Blöte et al. 2007), we expected that the social skills of students during their presentation would be a better predictor of class behavior than the presence of anxiety-related behavior in this situation. Regarding the influence of speech quality on audience behavior, we are not aware of any studies that have looked into this aspect. It seems plausible, however, that a good speech will capture the interest of classmates and will therefore have positive effects on their behavior towards the speaker.

Furthermore, we included gender as a variable in all analyses. The reason for this is that girls commonly have higher levels of self-reported social anxiety than boys (e.g., La Greca and Lopez 1998; Storch et al. 2004). This higher social anxiety level could influence the results on class behavior.

Method

Participants

First, 160 eight- through tenth-grade students were recruited from two secondary schools in The Netherlands. A total number of 7 classes were involved. The students followed pre-college and pre-university education, in relatively high level schools. They were mainly from Caucasian middle-class families. We did not collect exact data from the students on ethnic and social-economic variables because it was established (from the school administration) that the

schools had mainly Caucasian middle-class populations. Second, because of time restrictions only 94 students were observed during their presentations in class. The social anxiety level of this group as measured with the SAS-A (La Greca and Lopez 1998) reflected the distribution of social anxiety scores as found in the whole group. Participation was voluntary but none of the students refused to participate. The age of the students (56 girls and 38 boys) ranged from 13 to 18 years with 95% of the students being 16 years old or younger ($M = 14.63$, $SD = 1.07$).

Measures

Trait Social Anxiety

Trait social anxiety of the students was measured with the Social Anxiety Scale for Adolescents (SAS-A; La Greca and Lopez 1998). The SAS-A is a 22-item self-report questionnaire designed to measure adolescents' subjective experience of social anxiety. It contains 18 items related to anxiety in social situations with peers ("I worry about what others think of me") and four filler items. Respondents indicate the degree to which these items are true for them on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*all the time*). The SAS-A has demonstrated good reliability and validity (e.g., Storch et al. 2004). The internal consistency of the SAS-A in the present study was good with $\alpha = .92$.

Social Skills

Speakers' social skills during the speech were measured using the Performance Questionnaire (PQ; Cartwright-Hatton et al. 2003, 2005). The original PQ is a nine-item rating scale. Three items pertain to micro-behaviors displayed during the speech task (e.g. How loud and clear was the speaker's voice?), three items to the overall impression made by the child (e.g. How friendly did the speaker look?), and three items to how nervous the child looked during the task (see below). Items are scored on a four-point scale ranging from 1 "very much/often" to 4 "not", as appropriate to the question. For the present study, the PQ was translated and some minor modifications were made. Furthermore, we added one item that we considered an important social skill in the context of oral presentations ("Did the speaker actively involve the audience in his or her presentation?"). In total, the present version (referred to as PQ-S) contains seven items relating to social performance on either a micro or a more global behavior level. This 7-item version had an α of .83. The PQ-S total scores were coded such that higher scores represent better social skills.

Overt Nervousness

For measuring overt nervousness we used the nervousness scale of the PQ adding one item to the three items of the original list (“Did the speaker have blotches in his/her face or neck?”). An example of an item of the original scale is “How nervous did the speaker look?” The present 4-item version of the nervousness scale of the Performance Questionnaire (PQ-N) had an α of .71. PQ-N total scores were coded such that higher scores represent higher degrees of nervousness.

Self-reported Nervousness

In order to measure the speakers’ self-reported nervousness during their presentation a Visual Analogue Scale (VAS) was used. The VAS consisted of a horizontal line of 100 mm with at one end “*not nervous at all*” and at the other end “*very nervous*”. The students indicated on this line how anxious they had been by placing a mark in the appropriate place. The VAS has been used in previous research to assess how anxious children were just before a public speaking task (Cartwright-Hatton et al. 2003). In the present study, students were asked immediately after their presentation how nervous they had been during their presentation.

Speech Quality

The quality of the speeches was evaluated with the Speech Content Evaluation Scale (SCES), a scale developed specifically for this study. The scale’s 12 items are based on educational studies about how teachers evaluate oral presentations of students (Hooegeven and Bonset 1998). Examples of items are: “Presents the topic in a way that the other students can understand”, “Presents his/her own point of view”, “The structure of the presentation is systematic and shows a logical line of thought”. The items are scored on a 5-point Likert scale ranging from 1 “*not at all*” to 5 “*completely*”. The internal consistency of the scale was $\alpha = .87$.

Class Behavior

Class behavior during the speeches of the target students was measured using the Class Behavior List (CBL) developed by Blöte et al. (2007). There are two versions of this list, one for speakers and one for independent observers and teachers. The CBL contains 9 items (e.g., the class is quiet while the student is speaking; the class makes silly jokes about the speaker; the class is not interested in what the speaker is saying) that are rated on a 7-point Likert scale, according to how much the item “is true”

(1 = *true*, 7 = *not true*). For the total score, items were recoded such that higher scores indicate more negative class behavior. Two items concerning class behavior during discussion following the speech were removed because in many cases no discussions took place. The internal consistency of the 7-item list completed by the speakers, independent observers, and teachers in this study was $\alpha = .75$, $\alpha = .74$, and $\alpha = .57$, respectively. The alpha of the teachers’ ratings was rather low. A possible reason for this is that the teachers were seated in the back of the classroom giving them a good view of the speaker but not of the class.

Procedure

In the first part of the study, the SAS-A and six other instruments (about peer relations and friendship which were not reported upon in the present study) were administered in seven classes of the two schools. The administration took place during one classroom period lasting 50 min. One of the experimenters supervised the administration of the assessment battery and answered questions. A teacher was also present during the assessment.

According to the regulations of the Psychology Ethics Committee of the University, informed consent was obtained from the principals and teachers of the schools and assent from the students themselves. The students received instructions informing them that they would be taking part in a study about how high-school students experience oral presentations. They were told that participation was voluntary.

In the second part of the study, during a period of approximately 3 months after the first assessment, oral presentations were observed in the classrooms. The presentations took place during Dutch language lessons and were part of the regular curriculum. The teacher, the students who gave the presentations, and an independent observer all rated class behavior. The independent observer (one of two undergraduate students, one for each school) also observed the speakers. In a short period just before the presentations took place these independent observers spent some time in the classrooms so that the students could get used to their presence. They told the students that they were studying oral presentations in secondary schools and therefore would be present during the presentations of that class.

The independent observer and the teacher (four teachers were involved) completed the CBL during the presentations. The independent observer also completed the PQ-N, PQ-S, and SCES. The observations were blind as far as the social anxiety level (SAS-A score) of the student was concerned. Immediately after finishing their presentations, the students were asked to indicate on the VAS how

nervous they had been during their presentation. In addition, they completed the CBL.

The teacher was seated at the back of the classroom, facing the speaker. The independent observer sat in front and to the side of the class in a way that she was able to see both the speaker and the class. Most students stood in front of the class during their presentation. Some of the younger students were allowed to sit behind the teacher's desk while speaking.

Students were free to choose their own topic and the topics covered by students were diverse. The presentations had different lengths but did not take longer than 25 min.

Results

Preliminary Analyses

All variables were evaluated for gender effects using *t*-tests. Significant gender differences were found for the SAS-A with girls reporting higher social anxiety than boys; and the CBL (rated by the independent observer) with class behavior towards boys being more negative than towards girls (see Table 1). Higher self-reported social anxiety in girls is commonly found (e.g., La Greca and Lopez 1998; Storch et al. 2004). In addition, the correlation between the SAS-A and age was computed. These correlations, $r = .07$ and $r = .01$, for girls and boys respectively, were not significant. Age was therefore not included in the following analyses.

Correlations between the different anxiety and performance variables in the study are presented in Table 2. Social anxiety, a trait variable, was positively related to self-reported state anxiety during the presentation and to nervous behaviors as rated by the independent observer. In

Table 1 Means and standard deviations for the different variables; *t*-values for gender differences

	Girls		Boys		Total		<i>t</i> (92)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
SAS-A	41.89	10.88	33.41	9.43	38.49	11.09	3.92*
VAS	56.35	27.27	50.79	31.03	54.05	28.85	0.91
PQ-N	8.27	2.89	8.03	2.64	8.18	2.78	0.40
PQ-S	17.98	2.94	17.57	3.35	17.82	3.10	0.61
SCES	43.47	9.30	40.56	9.34	42.34	9.37	1.45
CBL	17.42	5.53	20.57	7.38	18.64	6.62	-2.25*

* $p < .01$

SAS-A Social Anxiety Scale for Adolescents, VAS Visual Analogue Scale-anxiety during the presentation, PQ-N Performance Questionnaire-Nervousness behaviors scale, PQ-S Performance Questionnaire-Social performance scale, SCES Speech Content Evaluation Scale, CBL Class Behavior List rated by independent observer

Table 2 Inter-correlations between the different student variables in the study

	SAS-A	VAS	PQ-N	PQ-S	SCES
SAS-A	–				
VAS	.45**	–			
PQ-N	.25**	.35**	–		
PQ-S	-.19*	-.40**	-.20*	–	
SCES	-.09	-.26**	.05	.61**	–

* $p < .05$ (1-tailed), ** $p < .01$ (1-tailed)

SAS-A Social Anxiety Scale for Adolescents, VAS Visual Analogue Scale-anxiety during the presentation, PQ-N Performance Questionnaire-Nervousness behaviors scale, PQ-S Performance Questionnaire-Social performance scale, SCES Speech Content Evaluation Scale

addition, the independent observer's rating of nervous behaviors during the speech was related to the students' self reported state anxiety. Thus, all anxiety measures were interrelated. Furthermore, these three measures were negatively related to social performance; students with higher anxiety had poorer social performance. Social performance and speech quality were also positively related. Finally, students with relatively high self-reported anxiety during the presentation not only had a poorer social performance but also gave a speech of lower quality.

Negative Treatment of Socially Anxious Students

Class behavior ratings were first tested for differences among the four teachers and between the two raters. As no significant main or interaction effects were found, teacher and rater effects were not included in the following analyses. In order to determine whether socially anxious students—in the eyes of themselves, their teacher, and the independent observer—were indeed negatively treated by their classmates (first research question), a MANOVA with repeated measures was conducted with rater (student, teacher, independent observer) as the within variable and social anxiety group (low, average, high) and gender as between variables. Students with SAS-A scores above $M + 1$ SD were selected for the high social anxiety group ($n = 15$), students who scored below $M - 1$ SD were classified as low socially anxious ($n = 18$), and the remainder of the students was classified as average socially anxious ($n = 61$). The cut-off score for high anxious participants was above the recommended criterion of 50 for clinical levels of social anxiety, and the highest SAS-A score in the low socially anxious group was below the recommended score of 37 (La Greca 1998). The mean SAS-A score for the high anxious group was 57.29 ($SD = 4.21$) and for the low anxious 24.0 ($SD = 2.60$). Teacher ratings were available for respectively 14, 57, and 17 students.

Table 3 Estimated marginal means (standard errors) of class behavior towards high, average and low socially anxious students

	High socially anxious students	Average socially anxious students	Low socially anxious students	Total
Student	24.18 ^a (2.08)	18.70 (0.88)	14.79 (1.64)	19.22 (0.93)
Teacher	19.65 (1.90)	16.61 (0.80)	14.80 (1.47)	17.02 (0.85)
Independent observer	21.20 (2.14)	19.14 (0.90)	17.42 (1.67)	19.25 (0.95)
Total	21.68 (1.58)	18.15 (0.67)	15.67 (1.23)	

^a Higher scores indicate more negative behavior

The MANOVA revealed a significant main effect of social anxiety group, $F(2, 82) = 4.54$, $p = .014$, $\eta^2 = .10$, indicating that, when rating sources were combined, a difference in class behavior was observed towards groups with different levels of social anxiety. Post-hoc analyses indicated that class behavior was significantly more negative during the oral presentations of high socially anxious students than during the oral presentations of low and average (ps of .004 and .043, respectively) socially anxious students (see Table 3). Differences in class behavior towards average and low socially anxious students did not reach significance. The effect of rater was also significant, $F(2, 81) = 3.70$, $p = .029$, $\eta^2 = .08$. Paired comparisons showed that the teacher's ratings significantly ($ps < .05$) differed from the ratings of the student and the independent observer. Table 3 indicates that the teacher rated class behavior towards students more positively than the independent observer and the students.

We did not find a significant main effect of gender $F(1,82) = 2.91$, or any significant interaction effects. Of particular interest is that the interaction between rater and social anxiety group was not significant. This shows that the level of social anxiety did not have a different effect according to who was doing the rating. We can be confident, therefore, that the class did treat high socially anxious students more negatively in this study, not only in the perception of the students themselves but also as observed by the teacher and independent observer.

Prediction of Class Behavior

The second question of this study asked which aspects of socially anxious speakers' behavior could account for the negative class responses. We hypothesized that social skills, overt nervousness, and quality of the speech all would predict class behavior. We also expected that nervousness would have a relatively small effect on the behavior of the class. This was evaluated in a group of moderately to high socially anxious speakers ($n = 44$) with SAS-A scores above the median. The reason for including moderately socially anxious students in this group is that the number of students in the high socially anxious group (as used in the above mentioned MANOVA) was too small to produce

reliable results in a regression analysis with five predictors. The independent observer's ratings of class behavior were used.

Two multiple regression analyses were conducted. In both analyses, gender was entered in the first step as a control variable. One analysis then entered the performance variables PQ-S and SCES in the second step, and the anxiety variables VAS and PQ-N in the third step, to ascertain whether anxiety predicted class behavior over and above performance. In the second analysis, the performance measures were entered after the anxiety measures to determine whether performance predicted class behavior over and above anxiety.

Gender, in the first step, did not significantly predict class behavior, $R^2 = .04$, $F(1, 42) = 1.53$. In the second step, the performance measures significantly improved the prediction, R^2 change = .23, $F(2, 40) = 6.36$, $p < .01$, whereas the anxiety measures, added in the third step, did not, R^2 change = .07, $F(2, 38) = 2.00$. In the second analysis, the anxiety measures did not have a significant contribution in the second step, R^2 change = .11, $F(2, 40) = 2.45$, whereas the performance measures still predicted class behavior over and above anxiety in the third step, R^2 change = .20, $F(2, 38) = 5.65$, $p < .01$. This suggests that in moderately to high socially anxious adolescents social performance is a better predictor of negative class behavior than nervousness.

Table 4 presents indices that indicate the relative strength of predictors after entering all five of them in the regression formula. Taking all other predictors into account, class behavior was more negative towards boys than towards girls, and towards speakers with poor than with good social skills. Quite unexpectedly, the partial correlation between class behavior and speech quality was *positive*, indicating that with gender, social skills, and nervousness being equal, a relatively good speech was met with relatively negative class behavior. Social performance acted as a suppressor variable for the effect of speech quality on class behavior (after partialing out this one variable from the correlation between speech quality and class behavior, the correlation changed from $r = .01$ to $r = .22$). Furthermore, class behavior was negatively related to self-reported state anxiety suggesting that students who reported that they felt nervous during the speech were treated relatively positively.

Table 4 Bivariate and partial correlations of the predictor variables with class behavior in the higher socially anxious group

	Correlation between each predictor and class behavior	Correlation between each predictor and class behavior controlling for all other predictors
Gender	.19	.28*
PQ-S	-.42**	-.48**
SCES	.01	.27*
VAS	-.10	-.30*
PQ-N	.23	.18

* $p < .05$ (1-tailed), ** $p < .01$ (1-tailed)

PQ-S Performance Questionnaire-Social performance scale, *SCES* Speech Content Evaluation Scale, *VAS* Visual Analogue Scale-anxiety during the presentation, *PQ-N* Performance Questionnaire-Nervousness behaviors scale

In contrast, the effect of overt signs of nervousness was not significant.

For a comparison, similar regression analyses were conducted for the lower socially anxious group with SAS-A scores \leq the median. In this group, gender predicted class behavior, $R^2 = .12$, $F(2, 39) = 3.68$, $p < .05$; and, performance significantly improved the prediction in a second step, R^2 change = .14, $F(2, 39) = 3.68$, $p < .05$, but not over and above anxiety in a third step, R^2 change = .10, $F(2, 37) = 2.61$. Anxiety itself did not contribute significantly in either a second or a third step, R^2 change = .10, $F(2, 39) = 2.35$, and R^2 change = .05, $F(2, 37) = 1.39$, respectively. Taking all other predictors into account the only variables that were significantly related to negative class behavior in the lower socially anxious group were gender, partial $r = .29$, and social skill, partial $r = -.34$.

Discussion

The purpose of the present study was to identify factors contributing to the link between social anxiety and negative peer behavior. First, the study confirmed that socially anxious students were treated relatively negatively by their classmates during oral presentations. The second research question then asked which aspects of the socially anxious students' performance could explain their classmates' behavior during the presentations. In higher socially anxious students, negative class behavior was linked to boys, to poor social performance, low self-reported state anxiety, and a qualitatively good speech, whereas in lower socially anxious students, only gender and social performance predicted class behavior. These key findings will be discussed in more detail below.

It is important to note that high levels of social anxiety were indeed related to negative class behavior like making

fun of the speaker, not showing interest, and being noisy. This was true for class behavior as perceived by the students themselves, the teacher and an independent observer. These data therefore support the findings of previous research (Blöte et al. 2007; Blöte and Westenberg 2007; Spence et al. 1999) and strengthen the notion that socially anxious youth actually receive negative feedback from peers. This negative class behavior was at least partly explained by the social skills the students displayed during their presentations. Performance characteristics like speaking in an unclear voice, making poor eye contact, not smiling, and not making contact with the class were generally related to negative behavior by classmates. This finding supports the suggestion of other researchers (e.g., Greco and Morris 2005; Spence et al. 1999) that social skill deficits play a role in explaining negative peer outcomes.

The higher the social anxiety of students the higher their self-reported levels of nervousness during the speech, and this nervousness was to a certain extent noticed by others. The belief held by socially anxious students that their anxiety is visible to others seems therefore not unfounded, confirming the findings of previous studies on adolescents and young adults (Beidel et al. 1999; Inderbitzen-Nolan et al. 2007; Papsdorf and Alden 1998). However, the findings on the relation between state anxiety and class behavior are somewhat confusing because students' self-reported nervousness during their speech predicted the responses of the class in a reverse way. The higher state anxious students were not treated more negatively but more positively. In contrast, nervousness as rated by the independent observer was not related to class behavior. This last result is in line with a study by Blöte et al. (2007) that also used classroom observations during oral presentations. It seems difficult to explain that self-reported state anxiety predicts class behavior whereas the visible signs of this anxiety, like blushing, and stumbling over one's words do not. Possibly, the students who are aware of their own feelings of anxiety and do not deny that they have these feelings when asked about it, are more open in their communication with others and psychologically healthier persons. With other performance characteristics being equal, classmates then respond more positively to these more communicative students.

Speech quality and social performance were related, that is to say that students who performed better as far as their social behavior was concerned also gave a better speech. Surprisingly, with the effect of social skill level removed from the prediction a good quality speech was then related to negative class behavior. On first sight, this finding seems rather difficult to explain. How could a good quality speech receive relatively negative reactions from classmates? In relation to this question it is of interest that the independent observers had noticed that classmates generally responded more positively to jokes and personal remarks than to well

structured and thorough speeches. Possibly, the adolescents liked being entertained more than being “enlightened.” However, the present study was just a first attempt to study the role of speech quality on the behavior of the audience. More research is needed to better understand the relationship between speech characteristics and audience responses in adolescents.

It should be noted that the research design of the study was correlational and therefore does not allow for causal inferences. As a consequence, alternative explanations for the present results have to be taken into account. We cannot rule out that social performance, nervousness, and even speech quality were influenced by the behavior of the class. Therefore, effects must be interpreted in the context of the social interaction taking place between class and speaker during the presentation, and by the ongoing social relations between the students of the class in general. The finding that the predictors of class behavior in the higher anxious group were partly different from those in the lower anxious group suggests that interaction patterns during the presentations indeed are influenced by the speaker’s social anxiety.

One additional result is worth mentioning here. Overall, teachers rated class behavior towards speakers as more positive than the speakers themselves and the independent observers did. Prior studies have also reported this relatively “rosy picture” that teachers sketch (Babad 1990; Blöte and Westenberg 2007). Teachers will feel that they are at least partly responsible for the behavior of students in their classroom. This may influence their responses to these kinds of questions.

In the present study, the social behavior of students and the behavior of their classmates were observed in a naturalistic setting. As a result, the study has high ecological validity; we can assume that our findings show how classes and individual students behave in their everyday school life. However, it should be noted that the situation in which we made observations also has some disadvantages. In the structured situation of oral presentations, the behavior of classmates was probably more constrained than in most other school situations. During oral presentations, the class is more or less expected to be quiet, to listen and show interest. In addition, a stranger, the independent observer, attended the presentations. The nature of this special situation can possibly explain why the effects of anxiety and performance on class behavior were rather modest. We would expect to see larger effects in less structured peer interactions with no stranger present.

Another point that needs mentioning is that, although nearly all socially anxious individuals have speech anxiety, there are many speech anxious persons who are not socially anxious (Blöte et al. 2009). In the present study, this may have had consequences for the results of the average and

low socially anxious group, because speech anxiety was not used as an exclusion criterion for these groups. Some of the students in these groups may have been as anxious during the speech as their high socially anxious counterparts. However, because we were specifically interested in the behavioral characteristics of socially anxious students, the anxiety of speech anxious students in the average and low socially anxious groups is not considered a problem.

With regard to the study’s contribution to theoretical discussions, the results suggest that cognitive models postulating that social anxiety is maintained by internal factors do not tell the whole story. In addition to internal factors like attention to internal states and negative cognitions (Clark and Wells 1995), and the allocation of attentional resources to social threats (Rapee and Heimberg 1997), the actual behavior of peers should be taken into account. The effect of being negatively treated and being rejected by peers (Verduin and Kendall 2008) should not be underestimated. Socially anxious children who lack social skills and are rejected by peers will likely react with further avoidance of social situations. This in turn will decrease their opportunity to improve their social skills resulting in a vicious cycle of social anxiety, poor social skills and peer rejection.

Several limitations of this study deserve mention. First, for practical reasons it was not possible to have more than one independent observer present in the classroom. By using more raters, information about the inter-rater agreement could have been collected. Moreover, speaker and class behavior could have been independently measured. Second, only higher level high schools were selected for the study as oral presentations are generally not part of the curriculum in lower level high schools like vocational schools. Consequently, the results of this study cannot be generalized to a broader group of adolescents. Third, the groups of participants were rather small. In particular, there is a possibility that the results of the multiple regression analyses do not generalize beyond the sample in the present study. However, the main results were in line with those of a previous study (Blöte et al. 2007) and this suggests that they do have generalizability. Nevertheless, future classroom studies should preferably use larger groups of socially anxious speakers. Although classroom studies generally are more difficult to conduct due to practical and organizational matters, they are still much needed for ecologically sound peer relation studies.

In conclusion, the results of the present study highlight the importance of students’ social behavior, rather than their overt nervousness, in explaining negative reactions from peers. These findings may have some important implications for the treatment of socially anxious adolescents. Socially anxious individuals often attach particular importance to how nervous they feel and infer from their

feelings of nervousness how nervous they might appear to others. The preoccupation of socially anxious people with their nervousness can lead to a deterioration of their social behavior (Rapee and Heimberg 1997). Our findings suggest that the focus of socially anxious individuals should be directed away from hiding their nervousness from others, towards accepting it and working on their social skills, as both of these factors seem important in receiving positive social responses. Therapists, teachers, as well as other individuals who work with adolescents should be aware of the role nervousness and social skill deficits play in the interaction between socially anxious youth and their peers.

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