The Relation between Academic Competence and Social Competence along Time: A Study with 3rd and 4th Grades

Lurdes Veríssimo , Marina Serra de Lemos, João Lopes and Luís Paulo Rodrigues

Abstract

The association between social competence and academic achievement has been broadly supported. This paper is guided by the theoretical model of social competence of Vaughn and Hogan (1990) and tries to explore the relation between social competence and academic competence along schooling. The results presented are from a longitudinal study with four data collection moments. Participants were 240 students from primary school (3rd and 4th grades). The main goal is to understand the reciprocal relations between academic competence and social competence along these two school years. We are particularly interested in tracing the achievement trajectories of low, average and high achievers, and its effects on social competence. Data was analyzed using HLM6.0. In general, the results confirm the correlation between social competence and academic competence and establish that academic competence is a good predictor of social competence. Moreover, the social competence trajectories of average and high achievers seem to be stable along time, however, the low achievers' social competence significantly increases along time.

Keywords: Social competence, academic achievement, elementary school

Introduction

A significant body of evidence suggests the existence of a positive relation between students' social competence and their academic performance, including achievement, school adjustment, and motivation for schoolwork (e.g. Patrick, 1997). In particular, several studies have supported the relation between social competence and academic achievement (e.g. Gresham and Elliott, 1990; Haager and Vaughn, 1995; Vaughn and Hogan, 1994; Vaughn, Zaragoza, Hogan and Walker, 1993; Wentzel, 2005).

Social competence is decisive for children's development and can influence children's social, emotional and academic success. According to Vaughn and Hogan (1990), *social competence* includes four components: 1) effective use of social skills (e.g. identification of social clues); 2) absence of maladaptive behaviors; 3) appropriate socio-cognitive functioning according to age (e. g. adequate self-perceptions of social competence); and, 4) positive social relations with others and social acceptance from others.

This empirical study focused on only two social dimensions – effective use of social skills and absence of maladaptive behaviours – of the theoretical model of social competence defined by Vaughn and Hogan (1990).

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We are particularly interested in understanding the relation between *low achievement* and social competence. Different mechanisms might explain this relation (e.g. Haager and Vaughn, 1995; Vaughn and Hogan, 1994): 1) the social competence deficit is responsible for *low achievement* (e.g. absence of social skills like *asking for help* or *dealing with frustration*, essential for the academic progress), 2) the low academic achievement influences in an indirect way the social competence producing difficulties in social learning (e.g. low levels of self-esteem reduces the exposition to class mates, crucial do some learning strategies), 3) both social and academic competences share the same cause and root, probably related with cognitive or emotional processes and have reciprocal influences, 4) social and academic competence probably don't have a direct relation, and possibly, there are other variables that mediate the relation between social and academic results.

Independently from the causes, several studies showed that comparing with students without learning difficulties, low *academic achievers*: 1) had a more problematic social position within the class (e.g. Kavale and Forness, 1996), 2) showed more behavioral problems (e.g. Baum, Duffelmeyer and Geelan, 1988; Haager and Vaughn, 1995; Maughaun, 1995), 3) were more rejected by peers (e.g. Bender, 2004), and 4) showed poorer social interactions. This must be viewed as a real problem considering that, for example, Kavale and Forness's meta-analysis (1996) provided support for this problem by demonstrating social skills deficits in 75% of the children with *learning disabilities*.

Problem Statement

The present study attempts to contribute to the understanding of the relations between academic achievement and social competence. It focuses particularly on low achieving students and on the implications of low achievement to social competence at school. Therefore, this study had three main goals: 1) to analyze the evolution of academic competence along 3rd and 4th grades of *low, average,* and *high academic achieving s*tudents, 2) to analyze the evolution *low, average,* and *high academic achieving* of students' social competence along 3rd and 4th grades, 3) to analyze the role of previous level of academic competence in determining the trajectory of social competence along 3rd and 4th grades.

Methodology

Sample

Data were collected from 240 students (105 girls and 135 boys) from 18 Portuguese elementary schools. The majority of the students (90%) were 8 or 9 years old at T_1.

Procedure

This is a longitudinal study conducted over two school years - 3rd and 4th grades. There were four data collection periods beginning of 3rd grade (T_1), end of 3rd

grade (T_2), beginning of 4th grade (T_3), and end of 4th grade (T_4). Research design is indicates in Figure 1.

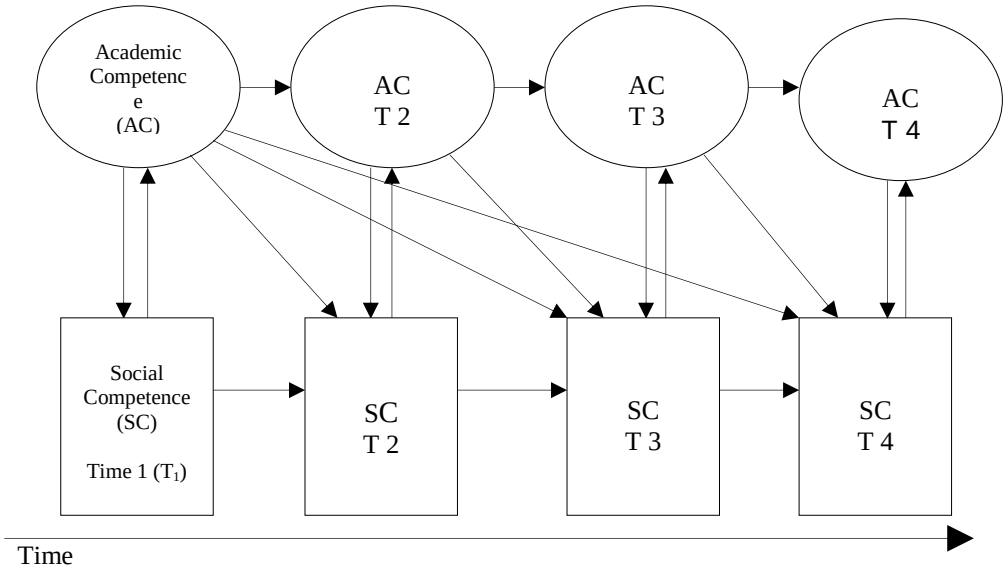

Figure 1. Research design

Instruments

Academic competence (AC)

AC was assessed by the *Academic Competence* sub-scale of the Portuguese version (Lemos and Meneses, 2002) of *Social Skills Rating System* – SSRS (Gresham and Elliott, 1990) - teachers' form. This scale includes reading and mathematics performance and general cognitive functioning. Items are rated on a five-point Likert scale that corresponds to 1 = lowest to 5 = highest level of achievement. The internal consistency of this sub-scale was $\alpha = .96$.

Social competence (SC)

SC was assessed using the Portuguese version (Lemos and Meneses, 2002) of *Social Skills Rating System* – SSRS (Gresham and Elliott, 1990) - teachers' form. Assuming that the social competence includes the presence of social skills and the absence of maladaptive behaviors (Vaughn and Hogan 1990), we used the two main sub-scales the instrument: *Social Skills* (SS) Sub-scale (example of *Social Skills Sub-scale* item: *Make friends easily*) *and Behavior Problems (BP)* Sub-scale (example of *Behavior Problems Sub-scale* item: *Get angry easily*).

The internal consistency of these two sub-scale was respectively α= .93 and α= .91. The SSRS uses a frequency ratings reflecting "how often" a social behavior occurs (*0 = never; 1 = sometimes; 2 = many times*).

Results and Discussion

Relation between Academic Competence and Social Competence

The results section begins with a preliminary overview of the relation between the main variables. As expected, the correlation between academic competence (AC) and social skills (SS) was significant and positive, and the correlation between academic competence (AC) and Behaviour Problems (BP) was significant and negative. Moreover, the relation between AC and SS is stronger than the correlation between AC and BP. Besides, this general pattern of strong relations is consistent along time (see Table 1)**:**

Table 1. Correlations between academic competence (AC) and social competence (SC): social skills (SS)/behavior problems (BP) at data collection moments ($T1_{,}$ $T_{2,}$ T_3, T_4)_.

	SC T_1		**SC T_2**		**SC T_3**		**SC T_4**	
	SS T_1	**BP T_1**	**SS T_2**	**BP T_2**	**SS T_3**	**BP T_3**	**SS T_4**	**BP T_4**
AC T_1	.59**	-.44**	.58**	.-42**	.53**	-.44**	.38**	-.37**
AC T_2			.52**	-.31**	.52**	-.44**	.44**	-.39**
AC T_3					.64**	-.53**	.53**	-.48**
AC T_4							.60**	-.46**

**P<0.01

These findings are consistent with the studies presented in the literature in the field. To further the study of the relation between AC and SC, and to explore the influence of academic competence on social competence, we conducted a regression analysis using AC as the predictor variables and SS as the outcome variable. Confirming the hypothesis suggested by correlational analyses, AC at T_1 significantly and positively predicted SS at T_2 (r^2=.34, p<.00), AC at T_2 significantly and positively predicted SS at T_3 (r^2=.27, p < .00), and AC at T_3 significantly and positively predicted SS at T_4 (r^2=.28, p < .00).

Concerning BP, the regression analysis showed that AC at T_1 significantly and positively predicted BP at T_2 (r^2=.18, p <.00), AC at T_2 significantly and positively predicted BP at T_3 (r^2=.19, p <.00), and AC at T_3 significantly and positively predicted BP at T_4 (r^2=.23, p < .00).

In sum, preliminary analyses of the data revealed *strong relations* between *Academic Achievement*, *Social Skills* and *Behavior Problems*, and highlighted academic competence as a strong predictor of subsequent social competence.

The evolution of academic competence of low, average, and high academic achievers

This study particularly focused on understanding the impact of academic competence on social competence, along time and depending on academic achievement level. Thus, we began by defining three different groups based on the percentiles of academic competence, corresponding to *low, average and high academic achievers*.

The overall results from descriptive analysis (see Table 2) suggest that academic competence had different trajectories along time depending on the baseline of each group (*low, average and high academic achievers*).

Table 2. Means and standard deviations for academic competence for *low, average and high academic achievers* over time

	T_1		**T_2**		**T_3**		**T_4**	
	M	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**
High achievers	4.11	.36	4.08	.58	3.87	.47	3.90	.41
Average achievers	3.08	.16	3.20	.39	3.11	.45	3.16	.46
Low achievers	2.09	.63	2.10	.69	2.44	.59	2.64	.59

Furthermore, academic competence of the three groups seems to converge along time (Figure 2)**.**

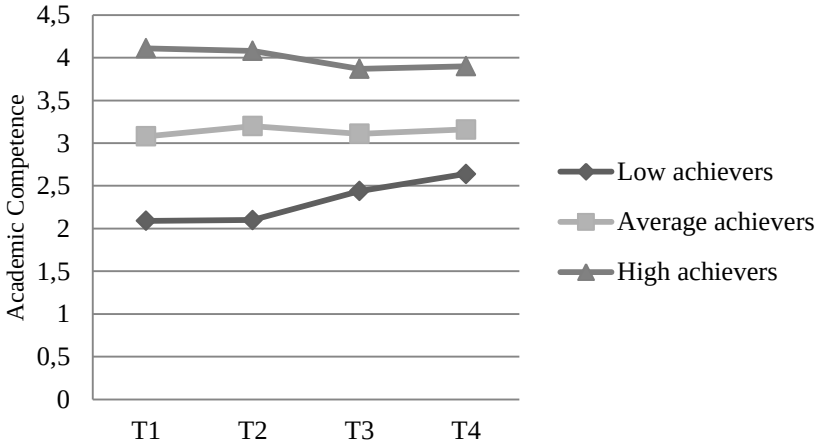

Figure 2. Means for Academic competence for low, average and high academic achievers over time

The evolution of social competence in low, average, and high academic achieving students

Respecting to social competence, the descriptive analysis suggest that social skills and behaviors problems also develop in different ways in *low*, *average* and *high academic achievers*. The *social skills* of *average and high achievers* seem to be stable along time (Table 3)**.**

Table 3. Means and standard deviations for social skills for low, average and high academic achievers over time

	T_1		**T_2**		**T_3**		**T_4**	
	M	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**
High achievers	1.70	.23	1.71	.23	1.74	.22	1.73	.26
Average achievers	1.44	.30	1.39	.28	1.34	.30	1.42	.31
Low achievers	1.25	.33	1.25	.37	1.31	.33	1.40	.34

However, low achievers are observed to improve their social skills along time. Figure 3 shows the changes in social skills for low, average and high achievers.

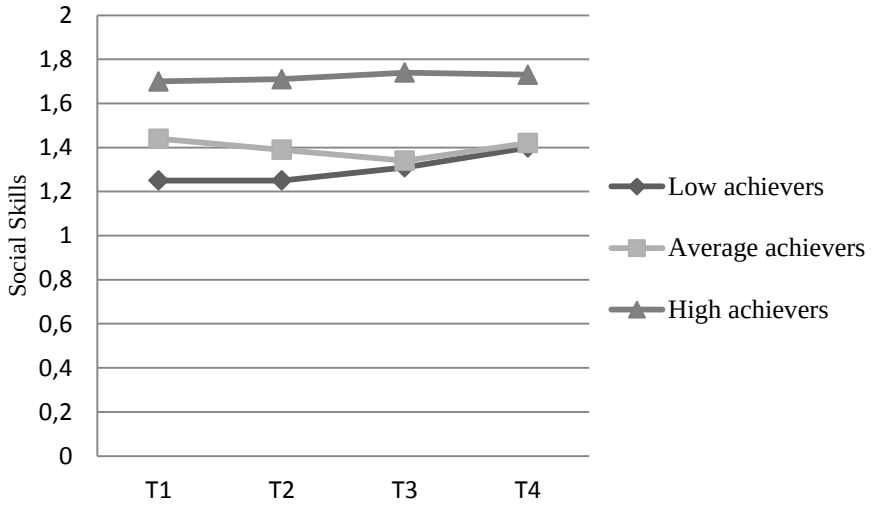

Figure 3. Means for social Skills for *low, average and high academic achievers* over time

Regarding, behavior problems, in a general way, all students were observed to decrease their behavior problems along time (Table 4)**.**

Table 4. Means and standard deviations for behavior problems for low, average and high academic achievers over time

	T_1		T_2		T_3		T_4	
	M	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**
High achievers	.35	.28	.31	.29	.30	.27	.27	.27
Average achievers	.55	.38	.52	.31	.61	.36	.51	.30
Low achievers	.73	.36	.67	.38	.66	.34	.60	.34

However, the behavior problems of low achievers seem to decrease more their behavior problems (Figure 4).

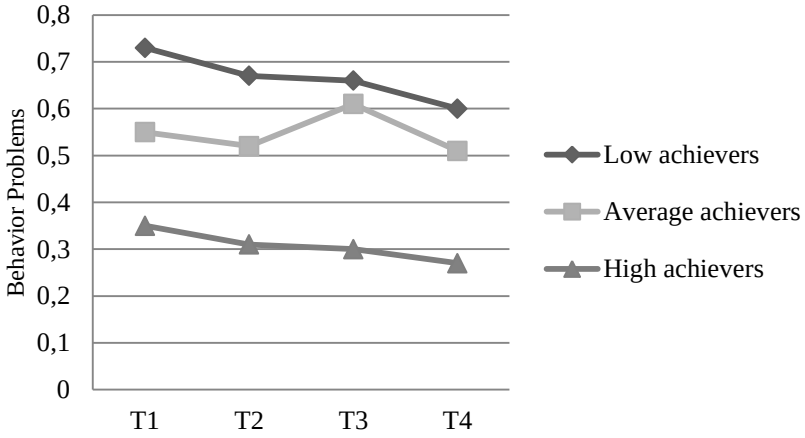

Figure 4. Means for behavior problems for low, average and high academic achievers over time

The Role of Previous Level of Academic Competence in Determining the Trajectory of Social Competence

Further analysis was carried out to sustain and to deepen these previous results. The main analyses were performed using HLM 6.0 (Raudenbush, Bryk, Cheong and Congdon, 2004). Hierarchical linear modeling (HLM) was used to analyze student growth in academic competence and in social competence over time. Using hierarchical linear modeling had distinct advantages over other statistical procedures due to direct modeling of growth and flexible data requirements (Bryk and Raudenbush, 1992). This is a method that enables the analysis of longitudinal data, appropriate to explore how people change over time and whether the individual paths of change depend on certain variables, showing how individual students' trajectories contribute to a group's pattern and whether differences exist within and across group patterns. Two estimates are important to interpret: initial status of the behaviors (i.e., the intercept of the student's trajectory) and the growth rate, or the slope of the trajectory over time.

The trajectories of three different groups were defined by percentiles of academic competence in $T_{1:}$ *low, average and high achievers.* HLM confirmed that students' individual trajectories of academic competence are significantly different(Table 5). All the effects were significant and showed that *average and high academic achievers* seem to be stable in academic competence along time. However, the *low achievers* improve their academic competence along time.

Table 5. HLM Unconditional model: Dependent variable Academic competence (AC)

Fixed effect	**Coefficient**	**Standard error**	**T ratio**	**df**	**P value**
Intercept for AC	3.023732	0.067064	45.087	237	0.000
Time slope	0.052863				
Random effect	**Standard Deviation**	**Variance Component**	**df**	**Chi-square**	**P value**
Intercept for AC	0.97881	0.95808	215	2862.41314	0.000
Level -1	0.18156	0.03297	215	577.99663	0.000
Tau = .02 Sigma squared =.08 Deviance = 1166.2					

HLM also confirmed that, considering the all sample, *social skills* significantly increase along time, and contrary, the *behaviour problems* significantly decrease along time. To analyze the impact of previous level of academic competence in the trajectory of social competence along time, we tested the evolution of *social skills* and *behavior problems* in the four moments predicted by academic competence in $Time_1$ (*fixed predictor*). Results revealed a good fit of the model proposed by HLM to *social skills* and *behavior problems*: the academic competence in the first moment can predict and explain the trajectories in *social skills* and *behavior problems* (Table 6 and 7)**.**

Table 6. HLM Unconditional model: Dependent variable Social skills

Fixed effect	**Coefficient**	**Standard error**	**T ratio**	**df**	**P value**
Intercept for SS	1.398159	0.023103	60.518	237	0.000
Time slope	0.020509	0.006140	3.340	744	0.001
AC Slope	0.128310	0.021151	6.066	744	0.000
Random effect	**Standard Deviation**	**Variance Component**	**df**	**Chi-square**	**P value**
Intercept for BP	0.30521	0.09315	237	2550.045	0.000
Level -1	0.17282	0.02987		32	
Tau = .0.09315 Sigma squared =.029 Deviance = 48.817598					

Table 7. HLM Unconditional model: Dependent variable Behavior problems

Fixed effect	**Coefficient**	**Standard Error**	**T ratio**	**df**	**P value**
Intercept for SS	0.550621	0.026362	20.887	168	0.000
Time slope	-0.028131	0.006771	-4.154	592	0.000
AC Slope	-0.007902	0.023454	-3.369	592	0.001
Random effect	**Standard Deviation**	**Variance Component**	**df**	**Chi-square**	**P value**
Intercept for BP	0.30345	0.09208	168	1897.711	0.000
Level -1	0.17923	0.03212		46	
Tau = .0.09208					
Sigma squared =.032					
Deviance = 39.957291					

Limitations and Conclusions

The present study has some limitations. First of all, the group definition from the percentiles of academic competence can bring serious constraints concerning to the boundaries of each group. In future investigations, it could be interesting to assume clusters of more extreme groups in academic competence. Social competence assessment also brings some troubles. We only use teachers' perception of the students' social skills. The teacher's perspective was considered especially important, because it will influence their responses to students. However it could be interesting in further investigations, to use also student's perceptions (e.g. *sociometric* measures). Further investigations, must also explore the dimensions of each social competence sub-scales (for example, *behavior problems sub-scale* has three dimensions: internalized problems, externalized problems and hyperactivity). We also suggest that future studies can assume the academic competence not as a *fixed predictor*, but as a predictor that changes along time. It must be interesting to analyze if there are gender differences. Finally, the results can be biased by *development* and *school effects*. The participants are from elementary school and the fourth data collection data corresponds to the transition to other school. This situation, can, by itself, motivate and improve the academic competence and social competence.

Despite these limitations, we believe the present study can provide some contributions to educational and scientific fields. First of all, relating with scientific contributions, there are few studies concerning the relations between school competence and social competence with younger students (elementary school) and with longitudinal data. So, this study can be a step forward. Regarding to educational contributions, the results reinforce the relations between social competence and academic competence, broadly presented in the literature. Moreover, the results confirm the impact of academic competence on the social competence: the baseline of academic competence can determine the evolution of the social competence. This is particularly true for low academic achievers. These findings bring serious implications for educational settings:

it is really important to improve academic competence in students, not only because of *learning* reasons, but also, because of *social* adjustment. If the academic competence can determine the trajectories of social competence, we have here the proof that the academic success have impact in others dimensions than the academic one, and we have also a good reason to invest in academic success of our children.

Concluding, this study reinforces the importance to foster academic achievement not only because of academic and learning reasons, but also, because of its implications in other important domains (such as social competence) of children development along the school years.

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Akademik Yeterlik ve Sosyal Yeterliğin Zamansal İlişkisi: 3. ve 4. Sınıflarla bir Çalışma

Özet

Sosyal ve akademik yeterlik arasındaki ilişki geniş çapta desteklenmektedir. Bu makale Vaughn ve Hogan'ın (1990) sosyal yeterlik kuramsal modelini esas alarak okullaşma sürecinde sosyal ve akademik yeterlik arasındaki ilişkiyi incelemektedir. Sunulan sonuçlar dört veri toplama anı içeren boylamsal bir araştırmadan elde edilmiştir. Araştırmaya ilköğretim okulunun 3. ve 4. sınıflarına devam eden 240 öğrenci katılmıştır. Temel amaç bu yıllar süresince akademik ve sosyal yeterlik arasındaki etkileşimli ilişkiyi anlamaktır. Özellikle düşük, orta ve yüksek başarı gösteren öğrencilerin başarı eğrilerini takip ederek bunun sosyal yeterlik üzerindeki etkisi ile ilgilendik. Veriler HLM 6.0. kullanılarak analiz edildi. Genel olarak sonuçlar akademik yeterlik ve sosyal yeterlik arasındaki ilişkiyi destekler niteliktedir ve akademik başarının sosyal başarının iyi bir göstergesi olduğuna işaret etmektedir. Sonuçlar ayrıca orta ve yüksek başarı gösteren öğrencilerin sosyal yeterlik düzeylerinin zaman içinde oldukça sabit kaldığı, ancak düşük başarıdaki öğrencilerin sosyal yeterlik düzeylerinin zaman içinde anlamlı düzeyde yükseldiğini göstermektedir.

Anahtar kelimeler: Sosyal yeterlik, akademik başarı, ilköğretim okulu