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Expansion and effectiveness of private tutoring

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Private paid tutoring is one of the most common approaches of remedial instruction to improve school performance of poorly performing pupils. The expansion of private tutoring was affirmed in a study with 904 pupils in Luxembourg. 23% of the participants reported that they receive tutoring at present, mainly in the subject matter of Mathematics. Theoretical considerations suggest the effectiveness of private tutoring in promoting school performance by an improvement in cognitive and motivational variables and a higher amount of time spent on task. However, appropriate evaluation studies are lacking. In an empirical study the effectiveness of tutoring is evaluated in a pre-post-control-group-design. One group (N=122) received private tutoring over a period of nine months and was compared to a non-tutoring control group (N=122). These results indicate that receiving tutoring leads to a larger improvement in school performance and motivational variables. Directions for further research and practical implications are discussed.

Introduction

"Tutoring is a method of teaching in which a student (or a small group of students) receives personalized and individualized instruction" (Medway, 1995, p. 271). Irrespective of the tutor, which "may be a paid private instructor, a volunteer, a school aide, a parent, a guardian, another student, or a computer or other teaching machine" (Medway, 1995, p. 271), the main characteristic of tutoring is that it "supplements traditional classroom instruction (...) for those students who require remedial help and those who have difficulty learning by conventional methods" (Medway, 1995, p. 271). This concept of tutoring covers different forms of remedial instruction including more or less regulary and more or less frequent tutoring held by teachers, students, parents, older students or private insitutions. This variety of tutoring forms makes it nearly impossible to make any precise statements about expansion, efficacy and processes of tutoring in general. In order to empirically investigate the effectiveness of tutoring, a uniform concept must be applied. In the following article we

concentrate on all forms of *paid* private tutoring as those forms of remedial instruction which take place *outside of the school and outside of the family*. This form of tutoring, at least in Germany, is mainly held in private lessons or – within private tutoring institutions – in small groups. These small groups may be more or less homogenous in age. The main goal of paid tutoring among tutoring institutions is an improvement on performance-level, e.g. by controlling homework, systematically preparing for tests or filling gaps of knowledge (Haag, 2001).

Though different approaches to improve learning behavior and school performance exist (see Klauer & Lauth, 1997), paid tutoring may be considered one of the most common forms of remedial instruction to improve school performance. The great importance of paid tutoring, at least in Germany, may also be demonstrated by the fact that about 15 Million Euros are spent on tutoring each week by the pupils' parents. The expansion of private tutoring within Germany is not a new phenomenon (Weegen, 1986) and could be demonstrated in several studies (see Table 1).

Table 1

Overview of German studies regarding the expansion of tutoring

Author (publication year)	Participants	Expansion
Adam (1960)	pupils, *n*=750	22% (at present[a]) 22% (ever)
Eigler & Krumm (1972)	parents, *n*=850	10% (at present)
Krüger (1977)	parents, *n*=2612	22% (at present)
Sinus (1984)	pupils, *n*=2456	15% (at present)
Langemeyer-Krohn & Krohn (1987)	pupils, *n*=1143	30% (at present) 24% (ever)
Behr (1990)	pupils, *n*=362	11% (at present) 35% (ever)
Hurrelmann & Klocke (1995)	pupils, *n*=5893	18% (at present)
Abele & Liebau (1998)	parents, *n*=1574	16% (at present) 21% (ever)
Kramer & Werner (1998)	parents, *n*=26450	16% (ever)

Note. [a] at the time of the study.

As Table 1 shows, the percentage of pupils receiving paid tutoring in Germany varies from 10% with regard to pupils still receiving private tutoring at the time of beeing questioned in the correspoding study (at present) up to 35% of pupils who ever received private tutoring (ever). But strictly speaking the percentages in the third row are not comparable as different kinds of schools have been taken into account in these studies.

The expansion of private paid tutoring not only holds for the German school system, but also for other countries, for example Japan (60% of pupils receiving tutoring in mathematics, Köller & Schümer, 1998) or Egypt (about 50% of pupils receiving tutoring, Haag & Kessel, 1998). In order to demonstrate that the expansion of tutoring is not limited to countries with a half-day school system (as in Germany) and need not be due to the fact that parents may consider paid tutoring a form of supervision in the afternoon, we carried out a study in a country with an all-day school system. In Luxembourg pupils of four different secondary schools (*N*=907, 450 male, 447 female, mean age=14.6, *SD*=1.86) participated in the study. Participants were given a questionnaire with questions concerning the extent of tutoring, the person holding tutoring lessons (tutors) and about the self-evaluation of tutoring. About 52% (501 out of 910) stated that they have experienced private tutoring in the past. About 23% (224 out of 901) of the pupils reported having private tutoring at present. Most of the pupils

receiving tutoring at the time stated that they have tutoring 60 minutes a week (36% of the pupils) with an average duration of tutoring of 75 minutes a week (*SD*=50.89). Regarding the *subject matters of tutoring,* it seems that most pupils receive tutoring in Mathematics (61%), followed by foreign languages. *Tutors* are predominantly pupils of higer grades (22%), tutoring teachers (20%) and teachers of the specific subject matters employed at schools (22%). The *perceived effects of tutoring* are positive: Whereas 54% of the pupils affirmed positive effects of tutoring, only 4% stated that private lessons are of no help at all.

These results may suffice to demonstrate that paid tutoring is a widespread phenomenon. The interpretation of this expansion, however, may differ according to the viewer's perspective. From the teachers' perspective, the broad expansion may indicate excessive demand of pupils due to false school track selection (within the German three-track school system) or learner deficits. In contrast to teachers' perspectives, parents and pupils often attribute the need for paid tutoring to lacking instructional quality, loss of school lessons (e.g. by illness of teachers) or frequent changes of teachers (Haag, 2001). Apart from these various interpretations, the acceptance of wide-spread private tutoring would mean admitting the defectiveness of the public educational system (Behr, 1990, p. 86).

Regardless of the conclusions drawn from the broad expansion of tutoring and the positive self-evaluation of tutoring, little is known about the "objective" effectiveness of paid tutoring and its possible effective mechanisms (Haag, 2001). If paid tutoring is not only a common but an effective intervention, it should focus on one or more of those components, which are important determinants of scholastic performance. As determinants of school performance cognitive and motivational factors, ecological variables (e.g. parental support) and instructional quality and quantity may be differentiated (Helmke & Schrader, 2001). Whereas paid tutoring can not affect parental support and instructional quality, an improvement in cognitive and motivational variables is possible.

With regard to *cognitive factors*, the impact of intelligence, previous knowledge and appropriate use of information-processing strategies on school performance have been demonstrated (Helmke & Schrader, 2001, pp. 82). It seems obvious that paid tutoring does not improve intelligence but may directly improve the knowledge base for further learning. The performance-oriented approach of paid tutoring may be effective in assuring learning conditions e.g. by filling gaps of knowledge. If knowledge gaps on a lower knowledge-level exist, the conditions to acquire higher levels of knowledge may not be fulfilled (Gagné & Paradise, 1961). Furthermore previous knowledge can be considered one major factor in promoting the use of appropriate information-processing-, organizational and control-strategies (Baron, 1985). Therefore an indirect effect of paid tutoring on strategy use seems to be likely. It should be noticed that the promoting effect of previous knowledge on strategy use not only holds true for average-gifted learners but for pupils with temporaly and specific learning difficulties as well (Borkowski & Kurtz, 1987; Klauer & Lauth, 1997), who often take paid tutoring lessons.

As the major target group of paid tutoring are bad performing pupils, *motivational* deficits of those pupils are likely as an effect of frequent failure in performance-related situations (Snow, Corno, & Jackson, 1996). These motivational deficits may lead to low self-concept of ability, low feeling of control and learning motivation (Klauer & Lauth, 1997). Motivational deficits again make the employment of appropriate learning strategies less likely (Torgesen, 1982) and seem to be strongly related to test anxiety (Pekrun, 1992; Pekrun & Hofmann, 1999; Elliot & McGregor, 1999). A direct improvement in motivational variables by paid tutoring could be due to the fact that tutoring groups (as in private tutoring institutions) are homogenous with respect to (low) school performance. Being in a homogenous low-performance group may enhance favorable comparison processes ("big-fish-little-pond-effect"; Marsh, 1987). According to Marsh it is better for the academic self-concept to be a "big fish in a little pond" (here: average gifted student in low reference group) than to be a small fish in a big pond (average gifted student in an average or high gifted reference group). In addition, tutoring within small groups enables the tutoring teacher to apply individual reference norm orientation, which allows the recognition of individual improvement and achievement. The positive motivational effects of individual reference norm

orientation have been proven in a number of studies (Mischo & Rheinberg, 1995; Rheinberg, 1980; Rheinberg, 1998).

Moreover a positive effect of paid tutoring on school performance can be assumed as paid tutoring increases the instructional quantity and thereby leads to a higher amount of actual learning time and "time on task". This consideration was given support by Cooper, Lindsay, Nye and Greathouse (1998), who were able to show that the correlation between time spent for homework and school performance increases as school grades increase. If actual learning time is differentiated from time spent for homework (Harnischfeger & Wiley, 1977), then the correlation between actual learning time at home and school performance (marks) is about .31 (Cooper et al., 1998).

In summary the effectiveness of paid tutoring as a form of remedial instruction seems likely because of the fulfillment of learning conditions by knowledge acquirement, positive motivational effects of learning in homogenous groups and last but not least the higher time on task. Despite the plausibility of these considerations and the positive self-evaluation of paid tutoring, evaluation studies of private tutoring are rare. Present results are primarily from cross-sectional designs with an assessment either during or after the treatment (tutoring). In most of the evaluation studies, the pupils were asked about an improvement of their marks or about their self-evaluation of tutoring. Predominate results are an improvement in motivation and learning engagement (Cohen, Kulik, & Kulik, 1982). In a study by Krüger (1977), only 6% of the statements were negative regarding tutoring. According to other authors, 15% of the statements evaluated tutoring negatively (Langemeyer-Krohn & Krohn, 1987). On the average, an improvement of about one mark (within the 6 mark German system) was reported. As control groups and a pre-post-design are lacking in these studies, these results should be interpreted with caution. According to Abele and Liebau (1998, p. 49), the effectiveness of tutoring has not yet been proven. As the effectiveness of tutoring is obviously of great practical importance yet remains controversial, an evaluation study was designed in order to investigate the effectiveness in a pre-post control-group-design.

Study

As a general hypothesis it can be assumed that private tutoring improves cognitive achievement (school performance) and motivational variables:

Hypothesis 1) Participants of tutoring improve in their school performance compared to non-participants.

Hypothesis 2) Participants of tutoring show increases in self-concept of ability, action control and learning motivation and decreaes in test anxiety.

Method

Participants

244 pupils attending German schools of classes five to eleven: 122 pupils receiving tutoring (treatment) and 122 pupils (controls) not receiving tutoring.

Procedure

According to our concentration on paid private tutoring, pupils participating in the study came from five private tutoring institutions in Bavaria, which have registered offices throughout Germany. Moreover, tutoring teachers in the present study were engaged 90 minutes a day, four days a week, in teaching small groups of four pupils homogenous with respect to age and subject matters. The tutors were student-teachers or unemployed teachers. As experience

shows, the number of enrolled pupils for tutoring increases within the first weeks of the term. Hence, the assessment of the base line data started one month after term had started (between October and November 1998).

The 122 non-tutoring pupils were recruited by asking the tutoring-pupils to find a schoolmate with approximately the same combination of subject matter and performance in the subjects most relevant for tutoring according to Abele and Liebau (1998): the subject matters of Mathematics, Latin, English and French. Pupils of the control- and treatment-condition were considered to be equal, if they showed the same marks in at least one of the four subject matters and differed in the other subject matters by not more than one grade (German school system applies six grades from 1=very good to 6=insufficient). Parents of participants were asked for permission to participate. The second assessment took place at the end of the term in the month of July 1999. Mean time of tutoring was about nine months with a drop-out rate below 5%.

Measures

Dependent measures

At least from the perspective of parents, teachers and students, school marks can be considered as the main criterion of tutoring's effectiveness. Taken as indicators of cognitive achievement and performance, marks may be problematic (Helmke, 1992). To construct achievement tests in each subject matter, however, would have been beyond the capabilities of the present study. Hence, the marks of the first (October) and the last (June/July) exam were assessed in the subject matters of Mathematics, Latin, English, and French. With respect to Mathematics and English, marks could be collected from (almost) all of the participants, with respect to Latin and French, only 63 (Latin) and 54 (French) marks could be assessed (partly from the same pupils).

Besides school marks, test anxiety, self-concept of ability, action control and learning motivation were assessed, as these constructs may be considered relevant predictors of school performance (Helmke, 1992). Test anxiety was assessed by applying five items of a corresponding subscale (Angstfragebogen für Schüler, Wieczerkowski, Nickel, Janowski, Fittkau, & Rauer, 1974, for instance the item "Before exams I am nervous"). In order to assess self-concept of ability, the third subscale of an inventory regarding studying behavior ("Arbeitsverhaltens-Inventar AVI") was administered (Thiel, Keller, & Binder, 1979; six items. e.g.: "When I have to pass an exam, I'm sure to pass the exam with success". Action control was assessed by the subscale "action control for homework" (seven items) from an inventory of self-concept and self-confidence (Fend, Helmke, & Richter, 1984; e.g. "Regarding homework, I quite often don't know how to proceed"). Measures of learning motivation make up the fourth subscale "learning motivation" of the AVI (e.g. "When one gets an excellent mark and one can be proud, it is worth a lot"). Each subscale contains a four-point Likert scale ("not true – sometimes true – often true – always true"). Reliabilities (Cronbach's α) lie within .65 and .88.

Results

Mean scores and standard deviations of school marks of the pre-test and post-test are reported in Table 2. Smaller values of school marks in the post-test than in the pre-test represent an improvement of school marks.

According to the rationale underlying the recruitment of the control group (matched pairs), marks in the pre-test should not differ significantly between the two groups. In order to test equality of school marks in the pre-test, single t-tests were performed for each subject matter because of unequal cell frequencies (different number of pupils in the different subject matters). None of the t-tests were significant.

Table 2

Pre-test and post-test marks of the tutoring and non-tutoring-condition – means with [SD] and (number of pupils)

	School Marks[a]							
	M		E		L		F	
Condition	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
Tutoring	4.48	3.51	4.25	3.48	4.84	3.66	4.35	3.63
	[.84]	[.73]	[.94]	[.81]	[.81]	[.82]	[.85]	[.78]
	(122)	(122)	(114)	(114)	(63)	(63)	(54)	(54)
Non-tutoring	4.42	4.32	4.22	4.05	4.83	4.63	4.28	4.05
	[.83]	[.82]	[.93]	[.87]	[.79]	[.79]	[.81]	[.76]
	(122)	(122)	(114)	(144)	(63)	(63)	(54)	(54)

Note. M=Mathematics, E=English, L=Latin, F=French; [a] School marks ranging from 1 ("very good") to 6 ("insufficient").

The percentage of pupils in the tutoring vs. non-tutoring-condition showing negative (improvement) or positive gain scores (degradation) for each subject matter is given in Figures 1 to 4.

Figure 1

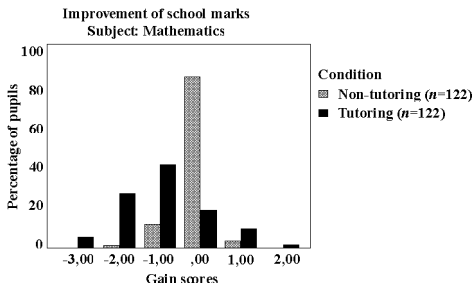


Figure 2

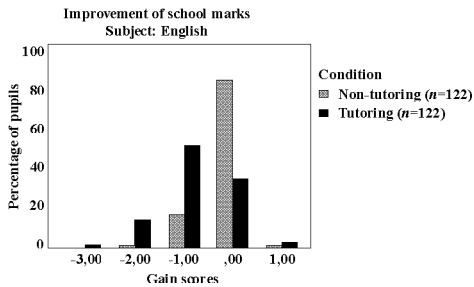


Figure 3

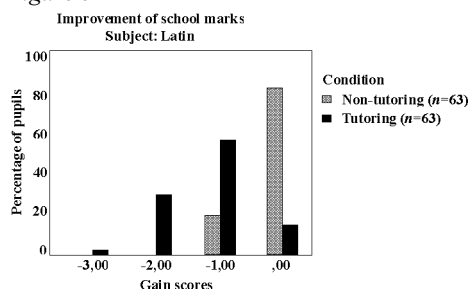
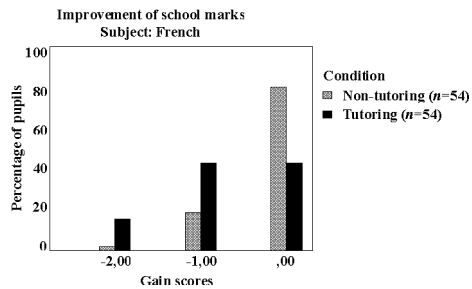


Figure 4



Figures. Percentage of pupils showing gains or losses (improvement) of school marks

Note. Negative gain scores represent improvement.

The effectiveness of tutoring vs. non-tutoring was tested by t-tests using gain-scores (Zimmerman & Williams, 1998). The results of the t-tests are summarized in Table 3.

With respect to all subject matters, the improvement in school marks of the pupils with tutoring is greater than those of the pupils without tutoring. Hence, hypothesis 1 could be accepted.

Table 3

T-tests for improvement of school marks (gain scores)

Subject	df	t	d[b]
Mathematics	(1,158[a])	-8.65***	-1.12
English	(1,178[a])	-7.45***	-.71
Latin	(1,99[a])	-9.87***	-1.22
French	(1,91[a])	-4.33***	-.63

Note. *** $p<.001$; [a] Corrected denomiator-df because of unequal variances; [b] Corrected effect size was calculated according to Klauer (1994, p. 21): $d_{corr} = d_{post\text{-}test} - d_{pre\text{-}test}$.

The values of the motivational variables in both the pre-test and post-test are presented in Table 4. To assure equality of the two conditions in the motivational prestest-scores, a MANOVA was performed, yielding a non-significant result ($F(4,239)=.4$, $p<.798$). Therefore it can be assumed that the pupils of the tutoring-condition do not differ from those of the control-condition with respect to motivational variables in the pre-test scores. Overall differences in motivational change were examined by a MANOVA of the gain scores. The MANOVA yielded a significant overall effect (Wilk's $\Lambda=.61$, $F(4,239)=38.88$, $p<.001$, $\eta^2=.39$). In order to find out which motivational variables contribute to the multivariate effect, univariate analyses of variance were performed (as these analyses are one df-group comparisons, they yield the same results as t-tests). Table 5 shows the results of the univariate analyses.

Table 4

Pre-test and post-test scores of motivational variables of the tutoring vs. Non-tutoring-condition – means with [SD]

	Motivational variables							
	Pre-test				Post-test			
Condition	TA[a]	SA	AC	LM	TA[a]	SA	AC	LM
Tutoring	1.81	2.07	2.13	2.58	2.78	2.62	2.18	3.21
(n=122)	[.59]	[.68]	[.75]	[.68]	[.95]	[.69]	[.64]	[.59]
Non-tutoring	1.76	2.14	2.15	2.52	1.93	2.23	2.28	2.65
(n=122)	[.59]	[.66]	[.77]	[.67]	[.62]	[.68]	[.54]	[.62]

Note. TA=test anxiety, SA=self-concept of ability, AC=action control, LM=learning motivation; [a] High scores indicate low anxiety.

Table 5

Univariate analyses of variance for improvement of motivational variables (gain scores)

		F [η^2]			
Source	df	TA	SA	AC	LM
Condition (tutoring vs. non-tutoring)	1	62.28*** [.21]	28.85*** [.11]	.41 [.00]	76.33*** [.24]
error	242	(.63)	(.44)	(.88)	(.21)

Note. Values in parentheses represent mean square errors. TA=test anxiety, SA=self-concept of ability, AC=action control, LM=learning motivation; *** $p<.001$.

With the exception of the variable of action control, all differences were significant and conformal to the hypothesis concerning the direction (see mean scores in Table 4). The multivariate group difference is primarily due to a clear improvement of learning motivation and text anxiety in the tutoring-condition. Therefore hypothesis 2 (greater improvement of the tutoring-condition regarding motivational variables) could be predominantly accepted as well.

Discussion

Due to the available data both hypotheses could be confirmed. Pupils receiving paid tutoring as remedial instruction showed an improvement in school marks significantly higher than pupils without tutoring. In addition, pupils with tutoring showed a clear improvement in motivational variables. Regarding action control however, no differences could be observed. How could this finding be explained? One reason could be that receiving tutoring four days a week for 90 minutes each does not require self-regulating strategies and hence, does not improve action control. The question, whether the improvement in school marks represents the consequence or rather the cause of the improvement of motivational variables, cannot be answered in the context of this investigation. However, this question might in itself be too simply posed, since emotional development and school achievement not only mutually affect each other, but also affect themselves individually within the learning process (Helmke, 1992; Pekrun, 1991; p. 167). Moreover, the detailed processes of tutoring and their causal impact on motivational variables and the learner's use of cognitive and metacognitive strategies could not be investigated in the present study. Further research should include behavioral data of tutoring lessons (e.g. about the application of individual reference norm orientation, the actual time spent on task and the quality of instruction) and sequential data of the learner's motivation and (meta)cognitive strategies.

Whereas the broad expansion of paid tutoring may indicate the lacking effectiveness of the normal school system on a cognitive level, the improvement of motivational variables by paid tutoring may also indicate deficits of the normal school system concerning the pupils' learning motivation. From a practical perspective the question about improvements of the normal school system is raised. This question is as old as the school system itself, and yet present data suggest that learning in ability homogeneous groups, time on task and individual reference norm orientation are potential factors affecting students' motivation.

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Des enseignements particuliers sont un des méthodes principaux pour améliorer les rendus scolaires. L'augmentation des enseignements particuliers était confirmé par une étude qui était mené avec 904 élèves luxembourgeois. Au moment de l'étude 23% des participants ont rapporté qu'il recevraient des enseignements particuliers, principalement en mathématiques. En raison de réflexions théoriques on peut attendre que l'efficacité des enseignements particuliers se manifeste dans une amélioration des facteurs cognitives et motivationnel et en plus est le résultat d'une augmentation de temps consacré au procès d'apprendre. Mais il manque d'études d'évaluation appropriés. Dans une étude empirique on contrôlait l'efficacité des enseignements particuliers avec un avant-après-control-group design. Un group qui profitait des enseignements particuliers depuis neuf mois était comparé avec un group sans enseignements particuliers. Les résultats montraient que l'amélioration des rendus scolaires était plus grand parmi le group qui suivait les enseignements particuliers que parmi les élèves qui n'en profitaient pas. L'article comprend aussi des directions pour d'autres recherches continuantes et une discussion concernant des implications pratiques.

Key words: Motivation, Private tutoring, School performance.

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Current theme of research:

Motivation; Homework; Private tutoring; Argumentation.

Most relevant publications in the field of Psychology of Education:

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Mischo, C., & Rheinberg, F. (1995). Erziehungsziele von Lehrern und individuelle Bezugsnormen der Leistungsbewertung [Educational goals and teacher's preference of individual reference-norms in evaluating academic achievement. *Zeitschrift für Pädagogische Psychologie/German Journal of Educational Psychology, 9*, 139-151.

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Homework; Transfer; Private tutoring; Group work.

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