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Jörg Wittwer

Discussion: Conditions, processes, and effects of private tutoring

Abstract

Private tutoring is an increasingly important topic in educational research. To advance our understanding of private tutoring, this special issue brings together empirical work on important aspects of this multifaceted phenomenon. This article begins with a discussion of conceptual, methodological, and practical differences between the four studies in this special issue (Brehm & Silova, 2014; Guill & Bos, 2014; Ireson & Rushforth, 2014; Lambert & Spinath, 2014). Then, a summary of the most important findings obtained in the four studies sheds light on three different facets of private tutoring, namely on conditions, processes, and effects. The conclusion addresses some directions for future research on private tutoring, including the conceptual clarification of the construct of private tutoring, the examination of factors that make private tutoring effective, and the comparison of private tutoring with other forms of instructional support.

Keywords

Conditions; Effects; Learning; Private tutoring; Processes

Diskussion: Bedingungen, Prozesse und Effekte von Nachhilfe

Zusammenfassung

Nachhilfe ist ein zunehmend wichtiges Thema in der pädagogischen Forschung. Das vorliegende Themenheft stellt empirische Arbeiten vor, die sich mit verschiedenen Aspekten von Nachhilfe befassen und dadurch zu einem besseren Verständnis über dieses facettenreiche Phänomen beitragen. Dieser Artikel beginnt mit einer Diskussion von konzeptuellen, methodologischen und praktischen Unterschieden zwischen den vier Studien des Themenhefts (Brehm & Silova, 2014; Guill & Bos, 2014; Ireson & Rushforth, 2014; Lambert & Spinath, 2014). Dann folgt eine Zusammenfassung der wichtigsten Ergebnisse der vier Studien. Hierzu

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werden drei unterschiedliche Facetten der Nachhilfe, nämlich Bedingungen, Prozesse und Effekte, beleuchtet. Schließlich werden einige Richtungen für zukünftige Forschung dargestellt, die sich auf die konzeptuelle Klärung des Konstrukts der Nachhilfe, auf die Untersuchung von Faktoren, die Nachhilfe wirksam machen, und auf den Vergleich von Nachhilfe mit anderen Formen instruktionaler Unterstützung beziehen.

Schlagworte

Bedingungen; Effekte; Lernen; Nachhilfe; Prozesse

1. Introduction

Private tutoring is an increasingly important area of research in education. Although not much empirical work has been done on private tutoring overall, a growing number of publications have focused on this research topic in recent years. For example, when searching for literature in the field of private tutoring by selecting the term *private tutoring* as topic, the *ISI Web of Knowledge* database identifies only 20 publications in the years from 2006 to 2009. However, in the years from 2010 to 2013, the number of publications has already increased to 47. Some of the core questions that revolve around the phenomenon of private tutoring concern the demands for private tutoring (e.g., Song, Park, & Sang, 2013), the learning processes that occur in private tutoring (e.g., Wittwer, 2008), and the effectiveness of private tutoring (e.g., Mischo & Haag, 2002). Despite the growing body of literature in the field of private tutoring, there are a plethora of questions that remain unanswered. To make a step towards advancing our understanding of private tutoring, the current special issue brings together empirical work on important aspects of this multifaceted phenomenon.

The synthesis of the research presented in this special issue reveals some interesting differences between the four studies (Brehm & Silova, 2014; Guill & Bos, 2014; Ireson & Rushforth, 2014; Lambert & Spinath, 2014). These differences concern (1) the research design used, (2) the methods of data collection, (3) the country in which private tutoring was examined, (4) the domain of learning in private tutoring, (5) the age of the students being tutored, and (6) the social form of private tutoring. In the following, I will address these differences in more detail.

1.1 Research design

The studies presented in this special issue used different types of research designs to examine private tutoring. These range from experiments that were conducted to derive causal conclusions, for example, about the effects of private tutoring on academic achievement (e.g., Lambert & Spinath, 2014) to large-scale assessments that provide population-based insights, for example, in how student characteristics such

as intelligence differ as a function of receiving private tutoring (e.g., Guill & Bos, 2014). By using such an array of research designs, this special issue pays attention to the different types of scientific knowledge, such as descriptive knowledge (e.g., about the relationship between achievement anxiety and uptake of private tutoring) and explanatory knowledge (e.g., about the influence of private tutoring on academic achievement), that are needed in order to deepen our understanding of private tutoring.

1.2 Methods of data collection

The studies in this special issue employed different methods of data collection to investigate private tutoring. For example, Brehm and Silova (2014) used, among others, document analysis, classroom observations, and interviews. In addition, Ireson and Rushforth (2014) employed questionnaires. Furthermore, Lambert and Spinath (2014) as well as Guill and Bos (2014) administered achievement tests to the students. The use of multiple methods, together with the combination of quantitative and qualitative data, clearly help to capture a more complete picture of the many facets of private tutoring.

1.3 Private tutoring in different countries

The studies presented in this special issue examined private tutoring in different countries, such as England (Ireson & Rushforth, 2014), Cambodia (Brehm & Silova, 2014), and Germany (Guill & Bos, 2014; Lambert & Spinath, 2014). Thus, the research in this special issue not only provides valuable information about the specifics of private tutoring in the educational system of each country, but also hints at similarities and differences in private tutoring across countries. This undoubtedly contributes to our understanding of private tutoring as a worldwide phenomenon (see, e.g., Song et al., 2013).

1.4 Different domains of learning in private tutoring

Students usually receive private tutoring in different domains of learning. In this special issue, Guill and Bos (2014) examined tutoring in mathematics. Similarly, Lambert and Spinath (2014) were interested in private tutoring for students with mathematical learning disabilities. Brehm and Silova (2014) studied private tutoring in such domains as mathematics, reading, and writing. Finally, Ireson and Rushforth (2014) investigated private tutoring independently of the domain of learning. It can be assumed that the domain of learning influences the way in which private tutoring is provided (see, e.g., Chi, Siler, & Jeong, 2004). Thus, the

special issue yields interesting information about similarities and differences in private tutoring as a function of the domain of learning.

1.5 Different age groups in private tutoring

The research in this special issue looked at students of different age groups. Guill and Bos (2014) examined private tutoring for students of Grade 7 and Grade 8. In Lambert and Spinath's study (2014), primary school children with a mean age between 8 and 9 years received private tutoring. Brehm and Silova (2014) investigated private tutoring for students at the end of primary school (i.e., Grade 6) and at the end of secondary school (i.e., Grade 9). Ireson and Rushforth (2014) collected data from students of Grade 6, Grade 11, and Grade 13. Investigating different age groups in private tutoring is important because such an examination indicates, for example, as to how the uptake of private tutoring changes with the age of the students and how private tutoring is differently provided depending on the age of the students.

1.6 Different social forms of private tutoring

Private tutoring can take place in various settings, depending on how many tutors are available for a tutoring session and how many students are present. For example, a private tutor may tutor only one student (i.e., one-to-one private tutoring), a private tutor may tutor several students (i.e., one-to-many private tutoring), or several private tutors may simultaneously tutor several students (i.e., many-to-many private tutoring). It makes intuitive sense to assume that such differences affect the way in which private tutoring is provided. For example, Brehm and Silova (2014) observed that teachers engaged in private tutoring for many students. Likewise, in the study conducted by Lambert and Spinath (2014), private tutoring was established in tutoring institutions. In such institutions, there are often several tutors who provide private tutoring in small groups. In addition, Ireson and Rushforth (2014) examined private tutoring in which a private tutor interacted with a student individually.

2. Investigating different facets of private tutoring

Apart from conceptual, methodological and practical differences that were outlined in the previous section, the studies presented in this special issue (Brehm & Silova, 2014; Guill & Bos, 2014; Ireson & Rushforth, 2014; Lambert & Spinath, 2014) focused on different facets of the phenomenon of private tutoring. These facets are related to (1) the conditions, (2) the processes, and (3) the effects of private tutoring. Whereas Ireson and Rushforth (2014) primarily addressed the *conditions* of

private tutoring, the *processes* that occurred in private tutoring were the main object of the research presented by Brehm and Silova (2014). Lambert and Spinath (2014) as well as Guill and Bos (2014) were predominantly interested in the *effects* of private tutoring. In the following, I use the three facets as a basis to summarize and discuss the most important results of the four studies.

2.1 Conditions of private tutoring

In their study, Ireson and Rushforth (2014) investigated the conditions of receiving private tutoring. More specifically, the researchers examined the role of parents for a student's uptake of private tutoring. The results of the study showed that students with private tutors had slightly higher levels of academic achievement than students without private tutors. In addition, parents regarded private tutoring as a means to advance a student's understanding of a subject matter, to increase self-confidence, and to improve academic achievement. Furthermore, the educational level of parents influenced the extent to which their children took private tutoring. In other words, children of parents with a higher educational level more frequently received private tutoring than children of parents with a lower educational level. Similarly, Brehm and Silova (2014) examined in their study why students received private tutoring. In line with Ireson and Rushforth (2014), the researchers found that an important goal associated with taking private tutoring was to improve academic achievement. In addition, the results showed that students used private tutoring as a means to increase the time devoted to studying the content taught in regular classroom teaching. Likewise, Guill and Bos (2014) addressed differences between students as a function of whether or not they received private tutoring. The researchers found that students who took private tutoring had lower mathematical achievement, lower intelligence, lower interest in mathematics, a lower self-concept in mathematics, and higher achievement anxiety than students who did not take private tutoring.

Overall, the findings obtained in the three studies (Brehm & Silova, 2014; Guill & Bos, 2014; Ireson & Rushforth, 2014) are consistent with prior research in showing that one of the major motives for taking private tutoring is to achieve better educational outcomes (e.g., Song et al., 2013). However, it seems that private tutoring observed in the study by Guill and Bos (2014) was mainly used as a means to improve the academic achievement of rather low performing students. Hence, in these cases, private tutoring primarily served remedial purposes. This was also true for the study conducted by Lambert and Spinath (2014) because private tutoring was provided for students to surmount their learning disabilities. In contrast, Ireson and Rushforth (2014) found that students with private tutors had a higher level of academic achievement than students without private tutors. In addition, children of parents with a higher educational level more often took private tutoring than children of parents with a lower educational level. These results suggest that private tutoring in these cases was used as an enrichment strategy (e.g., Park et

al., 2013) to increase the current level of academic achievement. In the study conducted by Brehm and Silova (2014), private tutoring seemed to be important for all students because it primarily covered the normal school curriculum. Hence, the three studies (Brehm & Silova, 2014; Guill & Bos, 2014; Ireson & Rushforth, 2014) reveal different motivations for taking private tutoring. Whether these differences can be explained by the specifics of each study (e.g., learning domain, age of students) or are related to the educational system of each country (Brehm & Silova, 2014: Cambodia; Guill & Bos, 2014: Germany; Ireson & Rushforth, 2014: England) might be addressed in future studies that could examine cross-national comparisons of private tutoring.

2.2 Processes in private tutoring

In addition to the conditions of receiving private tutoring, Brehm and Silova (2014) also studied the processes that occurred in private tutoring. The results showed that the instructional methods and the learning material used in private tutoring were similar to those used in regular classroom teaching. At the same time, however, private tutoring put more emphasis on solving problems and practicing. In addition, due to having smaller groups in private tutoring, students received more individualized instruction and actively engaged in learning. Similarly, Lambert and Spinath (2014) portrayed in their study the activities in which students engaged during tutoring (although empirical results about the tutoring processes were not reported). According to the researchers, children who received private tutoring mainly did homework, repeated the contents of the curriculum, and engaged in practicing. In their empirical investigation of private tutoring, Guill and Bos (2014) did not examine processes. Interestingly, however, the researchers theoretically elaborated upon the processes that might take place in private tutoring. For example, it was conjectured that tutors would assess the students' individual understanding and close gaps in their prior knowledge. In addition, tutors were assumed to provide students with learning strategies and give them feedback about their learning progress.

Taken together, the empirical findings and theoretical considerations paint a different picture of the processes that occur in private tutoring. In Cambodia (Brehm & Silova, 2014), private tutoring focused on covering the same topics as the school curriculum. Therefore, the processes that occurred in private tutoring were similar to those that occur in normal classroom teaching. In contrast, private tutoring in the study conducted by Lambert and Spinath (2014) was provided to specifically address a student's learning disabilities. Thus, the focus was not on covering the normal school curriculum. However, the three studies (Brehm & Silova, 2014; Guill & Bos, 2014; Lambert & Spinath, 2014) have more or less in common that practicing was always at the heart of private tutoring. It is plausible to assume that practicing is an important activity in private tutoring because it serves the function of improving or, at least, maintaining a student's current level

of academic achievement. In addition, due to having smaller groups, it appears that students in private tutoring observed in all four studies (Brehm & Silova, 2014; Guill & Bos, 2014; Ireson & Rushforth, 2014; Lambert & Spinath, 2014) received more individualized instruction than, for example, in regular classroom teaching. Typically, the individualization is a distinctive feature that makes (private) tutoring particularly effective (Wittwer, 2008).

2.3 Effects of private tutoring

An important effect of receiving private tutoring is to attain a higher level of academic achievement. Whether private tutoring is in fact effective in this regard was examined in all four studies of this special issue (Brehm & Silova, 2014; Guill & Bos, 2014; Ireson & Rushforth, 2014; Lambert & Spinath, 2014). Brehm and Silova (2014) observed that the frequency of private tutoring was related to the level of academic achievement. More concretely, students who more often attended private tutoring outperformed students who attended private tutoring less often. However, the researchers admitted that, due to the design of their study, it is not possible to draw strong conclusions with regard to the direction of causality in the relationship between private tutoring and academic achievement. Hence, instead of an effect of private tutoring on academic achievement, it is also plausible to assume that students who were better educated (e.g., because of a higher social status) simply received private tutoring more frequently. As already mentioned, Ireson and Rushforth (2014) found that students who received private tutoring had a slightly higher level of academic achievement than students who did not receive private tutoring. However, again, due to the cross-sectional nature of the study, the direction of causality in this relationship is not fully clear. Whether private tutoring would benefit academic achievement at all was examined by Guill and Bos (2014) in much detail. After statistically controlling for important factors that have been documented to influence academic achievement (e.g., prior academic achievement, intelligence), the researchers found that receiving private tutoring failed to improve marks or performance on a test. Even so, both parents and students assumed private tutoring to have beneficial effects. In contrast to the results obtained by Guill and Bos (2014), Lambert and Spinath (2014) observed in their experiment that private tutoring increased academic achievement. That is, students acquired substantial learning gains from pretest to posttest. Although private tutoring improved academic achievement, a training program specifically aimed at addressing a student's mathematical learning disabilities was found to be even more effective than private tutoring.

Altogether, the four studies of this special issue (Brehm & Silova, 2014; Guill & Bos, 2014; Ireson & Rushforth, 2014; Lambert & Spinath, 2014) provide contradictory evidence for the effectiveness of private tutoring, which is in line with the inconclusive results of previous research (see, e.g., Guill & Bos, 2014). Due to the cross-sectional research design used in the studies by Brehm and Silova (2014) as

well as by Ireson and Rushforth (2014), one needs to be cautious in interpreting the cause-and-effect relationship between private tutoring and academic achievement. In contrast, the studies conducted by Guill and Bos (2014) and by Lambert and Spinath (2014) used a longitudinal or experimental research design. Therefore, it is possible to unambiguously attribute the observed effects on academic achievement, or the lack thereof, to the fact that students received private tutoring. Even though Lambert and Spinath (2014) found benefits of private tutoring for academic achievement, the sample of their study was rather small. Therefore, it is not fully clear as to what extent the obtained findings are representative of students with mathematical learning disabilities in general. However, it is plausible to assume that private tutoring in this study was effective because all students received a similar type of private tutoring and the length of time in receiving private tutoring was rather large. Guill and Bos (2014) conducted a large-scale assessment study. Hence, the obtained findings are representative of Grade 7 and Grade 8 students in Hamburg (Germany). Nevertheless, the researchers mainly focused on whether or not students received private tutoring. Thus, it is not clear, for example, how frequently students took private tutoring and in which ways private tutoring was provided to the students. Such aspects are, however, important to examine the possible benefits of private tutoring in more detail. For example, analogous to the findings obtained by Guill and Bos (2014), Senkbeil and Wittwer (2013) showed in their analysis of large-scale assessment data that the frequency with which a computer was used at home was not related to academic achievement. However, the way in which a computer was used at home was associated with academic achievement. Thus, in order to uncover possible effects on academic achievement, empirical investigations of private tutoring need to examine not only whether or not private tutoring is provided to students but also the way in which private tutoring is provided.

3. Directions for future research

The research presented in this special issue advances our understanding of private tutoring. Still, there are many questions that remain unanswered. In particular, future research in the field of private tutoring is encouraged to examine in more detail (1) the characteristics of private tutoring, (2) the factors that make private tutoring effective, and (3) the instructional alternatives to private tutoring.

3.1 What is private tutoring?

Although the research presented in this special issue examined private tutoring, the concrete nature of private tutoring largely varied from study to study. For example, Brehm and Silova (2014) revealed that private tutoring was “simply a continuation of government school classes” (p. 107). Guill and Bos (2014) informed

us that private “tutoring ... is given by more advanced secondary and university students, teachers, or private tutoring institutes” (p. 46). In the study conducted by Lambert and Spinath (2014), students were provided with private tutoring in which they “were mainly doing homework, prepared for exams or repeated the current curriculum or both” (p. 81).

To better understand the exact nature of private tutoring, research on tutoring (not private tutoring!) might be particularly instructive. Similar to private tutoring, tutoring can be defined as “people ... helping and supporting the learning of others in an interactive, purposeful and systematic way” (Topping, 2000, p. 3). However, in contrast to private tutoring, which is often provided in addition to regular classroom teaching, tutoring can be purposefully implemented in classroom teaching. For example, in peer tutoring, students within a class can participate in the roles of tutors and tutees (e.g., Roscoe & Chi, 2007).

Empirical research and theoretical approaches in the field of tutoring suggest that tutoring can be characterized along several dimensions. For example, Topping (1996) proposes, among others, the following dimensions: (1) content (e.g., declarative knowledge, skills), (2) contact constellation (e.g., one tutor, several tutors), (3) student characteristics (e.g., gifted students, at-risk students), (4) tutor characteristics (e.g., amount of content knowledge, age), and (5) objectives (e.g., academic achievement, self-concept gain). Depending on these dimensions, the type of tutoring might be different.

Hence, future research in the field of private tutoring might use typologies such as those proposed by Topping (1996) to indicate which type of private tutoring will be examined. In addition, these typologies might not only be useful to characterize the type of private tutoring being investigated, but also to systematically study the factors that potentially influence the conditions, processes, and effects of private tutoring. For example, research suggests that such factors as the content of tutoring or the characteristics of tutors make a difference in tutoring. For illustrative purposes, I will address these two dimensions in more detail.

3.1.1 Content of tutoring

Usually, the aim of tutoring in procedural domains such as mathematics or physics is to acquire skills. For example, in the study by Lambert and Spinath (2014), private tutoring was provided to increase a student’s mathematical skills in arithmetic. In these cases, the tutor and the student can interact with each other in order to jointly solve problems (e.g., VanLehn, 2011). The solution of such problems often consists of carrying out step-like algorithms. Therefore, it is fairly easy for tutors to assess where students are in their problem solving (see, e.g., Katz, Allbritton, & Connelly, 2003). Thus, when tutors diagnose, for example, a misunderstanding, they can immediately provide feedback or scaffold a student (e.g., VanLehn, 2011). Activities undertaken by tutors, such as assessing a student’s problem-solving steps and providing instructional support, are often modeled by intelligent tutoring sys-

tems (du Boulay & Luckin, 2001). An example of such an intelligent tutoring system is the Cognitive Tutor, which has proven to be very successful in improving a student's academic achievement (see, e.g., Schwonke et al., 2009).

Tutoring in conceptual domains, however, might be quite different from tutoring in procedural domains. Whereas problem solving is at the heart of procedural domains, learning in conceptual domains such as in biology primarily requires the understanding of concepts. Very often, however, students have misconceptions. Therefore, it is necessary for tutors to diagnose and correct a student's misconceptions. Research suggests that tutors have more difficulty with assessing a student's misunderstandings in conceptual domains than in procedural domains (e.g., Chi et al., 2004). In addition, it is very likely that students learn less from a tutor's feedback in conceptual domains than in procedural domains (e.g., Chi et al., 2001). Hence, which activities tutors engage in and the quality with which tutors engage in such activities might largely vary as a function of the content that is addressed in tutoring. Therefore, future research that examines private tutoring could pay more attention to the role of the content being tutored for the processes and effects of private tutoring. For example, as examined by Brehm and Silova (2014), it might make a huge difference whether private tutoring is provided in mathematics or in reading.

3.1.2 Characteristics of tutors

Another factor that might influence the way private tutoring is provided is a tutor's expertise. In teacher research, it is widely acknowledged that a teacher's professional knowledge is intimately associated with the quality of instruction. For example, Baumert et al. (2010) showed that a higher amount of pedagogical content knowledge of teachers (e.g., knowing how to explain a difficult topic to the students) improved their students' academic achievement. Analogously, it can be assumed that the professional knowledge of tutors influences not only how tutoring is provided but also how effective tutoring is (see also Graesser, D'Mello, & Cade, 2011). For example, Herppich, Wittwer, Nückles, and Renkl (2013) found that tutors with teaching experience more accurately assessed a student's individual understanding than tutors without teaching experience. In addition, Herppich (2013) showed that tutors with teaching experience more often asked questions to elicit misunderstandings from the students and more often engaged in scaffolding than tutors without teaching experience. Thus, the activities that occur in tutoring might greatly vary as a function of a tutor's expertise.

A tutor's expertise might also make a difference in the effectiveness of tutoring. Even though Graesser et al. (2011) stated in their review that the "question is still unsettled on the impact of tutoring expertise on learning gains" (p. 411), there is initial evidence that more experienced tutors support a student's learning more than do less experienced tutors. For example, Herppich (2013) observed that students tutored by tutors with teaching experience acquired more knowledge

about concepts than did students tutored by tutors without teaching experience. Therefore, to explain in more detail the processes and effects of private tutoring, future studies are encouraged to investigate private tutoring as a function of a private tutor's expertise.

3.2 What makes private tutoring effective?

The study conducted by Guill and Bos (2014) showed that private tutoring was not effective in improving a student's academic achievement, whereas the other studies (Brehm & Silova, 2014; Ireson & Rushforth, 2014; Lambert & Spinath, 2014) were more optimistic in this regard. However, to conclude from the finding obtained by Guill and Bos (2014) that private tutoring is per se ineffective would be rather misleading. Instead, it might make more sense to raise the question as to which factors make private tutoring effective. This is similar to the issue as to whether classroom teaching affects academic achievement at all. It is unlikely that anyone would consider classroom teaching to be completely ineffective. Hence, beyond those all-or-nothing questions, it is important to examine the processes that occur in instructional settings such as classroom teaching or private tutoring and, in addition, to study the extent to which these processes support academic achievement.

In the context of tutoring, Chi et al. (2001) proposed a theoretical framework to better understand the factors that potentially contribute to the effectiveness of tutoring. According to this theoretical framework, three perspectives can be differentiated. First, the tutor-centered pedagogical perspective assumes that it is the tutor's skills that make tutoring effective. Second, in line with the student-centered constructive perspective, it is conjectured that tutoring provides students with the opportunity to actively engage in learning. Third, the interactive coordination perspective claims that it is the joint effort of the tutor and the student that is responsible for the effectiveness of tutoring. In their study, Chi et al. (2001) provided empirical evidence for all three perspectives. For example, explanations that were given by tutors supported learning (= tutor-centered perspective). In addition, students asked a rather high number of questions during tutoring and the reflections that they made improved learning (= student-centered perspective). Also, when students responded to a tutor's scaffolding, this increased learning (= interactive perspective). In a more recent study, Chi, Roy, and Hausmann (2008) confirmed these results and showed that knowledge-construction activities, regardless of whether they were undertaken by a student alone (= student-centered perspective) or in collaboration with a tutor (= interactive perspective), were particularly important for a student's learning.

The theoretical framework proposed by Chi et al. (2001) could also be used as a basis to systematically examine the factors that are responsible for the effectiveness of private tutoring (see Wittwer, 2008). The research presented in this special issue already identified activities in the tutoring process that could be subsumed under the three perspectives. For example, Guill and Bos (2014) hypothesized that tu-

tors assess a student's understanding (= tutor-centered perspective). Brehm and Silova (2014) reported that students actively engaged in learning (= student-centered perspective). In the study by Lambert and Spinath (2014), practicing occurred in private tutoring which might have been established collaboratively (= interactive perspective).

To examine which activities of the three perspectives in fact contribute to the effectiveness of private tutoring and which of the three perspectives is most important in explaining the effectiveness of private tutoring, future research is encouraged not only to describe the processes that occur in private tutoring (e.g., doing homework), but also to relate these processes to the outcomes of private tutoring (i.e., academic achievement). In addition, such analyses could also take into account moderating variables such as those described in Topping's (1996) typology (e.g., expertise of tutors, student characteristics). For example, providing explanations as an activity undertaken by a tutor could be proven to generally support academic achievement. At the same time, however, more experienced tutors might provide explanations that are of higher quality than those given by less experienced tutors. Thus, in this case, a tutor's expertise would serve as a moderating variable for the effectiveness of giving explanations.

3.3 Instructional alternatives to private tutoring

Even when we assume that private tutoring benefits academic achievement, one might still ask the question as to whether there are other forms of instructional support that are (even) more effective than private tutoring. In this regard, Lambert and Spinath (2014) found, as already mentioned, that a training program was more successful than private tutoring. That the training program was more effective than private tutoring is, however, not necessarily surprising (and was expected by Lambert and Spinath, 2014). This is because whereas the training program was specifically designed to address a student's learning disabilities, private tutoring was not targeted at those learning disabilities. The finding obtained by Lambert and Spinath (2014) is in line with the theoretical considerations by Renkl and Atkinson (2007), who argue that merely being active during learning is not sufficient to improve knowledge and skills. Rather, it is important to engage in focused processing, which means that learning must be related not only to the contents but also to the central concepts and principles of a domain. In addition, the finding obtained by Lambert and Spinath (2014) is consistent with research on tutoring showing that the complexity of the learning material influences whether tutoring is more effective than other forms of instructional support. For example, VanLehn et al. (2007) observed that, when the complexity of the learning material was in line with a student's learning prerequisites, reading alone as a form of instructional support was at least as effective as tutoring. However, when the complexity of the learning material exceeded a student's learning prerequisites, tutoring appeared to be more effective. An explanation for this finding is that the

interaction with the tutor helped the students to break down the complexity of the learning material and, thus, to engage in relevant learning activities.

We can learn from this research that a comparison of private tutoring with other forms of instructional support needs to take into account the specific learning activities that are elicited by an instructional method. Thus, asking which forms of instructional support are per se more effective than private tutoring is not necessarily fruitful. Instead, it seems to be more appropriate to examine whether a specific form of instructional support engages students in those learning activities that are relevant to the targeted educational outcomes (see also the theory of constructive alignment proposed by Biggs, 2003). If this condition is met, then such a form of instructional support is very likely to be effective.

To sum up, it seems that private tutoring is particularly effective (1) when learning activities occur that are sensitive to the educational outcomes, (2) when the material to be learned is not too complex, and (3) when an instructor uses the opportunity to interact with the students to help them to engage in relevant learning activities. However, when there are forms of instructional support that also meet these conditions but are more cost-effective, then it makes sense to select these forms of instructional support instead of private tutoring. This might be particularly true for individual forms of learning where students do not need help from another person (and, thus, condition 3 need not be fulfilled).

4. Conclusion

Private tutoring is an interesting research field that addresses questions that are both of theoretical and practical relevance. To advance our understanding of private tutoring even further, research – like the research presented in this special issue – is needed that examines in more detail the conditions, the processes, and the effects of private tutoring. In doing so, it would be good to systematically relate these different facets of private tutoring to each other. This would reveal not only how processes in private tutoring are specifically shaped depending on the conditions under which private tutoring is utilized, but also which effects such processes would bring about in private tutoring. For example, it is plausible to assume that depending on a student's current level of academic achievement (= conditions), private tutors engage in different activities during private tutoring (= processes), which results in different outcomes (= effects). To further clarify the different facets of private tutoring, research might also benefit from viewing private tutoring from multiple perspectives, including disciplines such as educational psychology and education economics.

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