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**Kontakt / Contact:**

peDOCS  
DIPF | Leibniz-Institut für Bildungsforschung und Bildungsinformation  
Informationszentrum (IZ) Bildung  
E-Mail: [pedocs@dipf.de](mailto:pedocs@dipf.de)  
Internet: [www.pedocs.de](http://www.pedocs.de)

# The Effect of Utilization of Extended Education Offerings and of Their Quality on Reading Achievement at Open-Attendance All-Day Schools

*Benjamin von Allmen, Marianne Schüpbach, Lukas Frei, Wim Nieuwenboom*

**Abstract:** This paper investigates the effect of primary school students' utilization of extended education offerings and of the quality of extended education on reading achievement in the German-speaking part of Switzerland. All-day schools are being set up. Among other reasons, as a means to level the increasing scholastic demands in the primary schools. In this context, it is expected that students' utilization of extended education will have a positive impact on their reading achievement. The authors analyzed data on 1,002 students from the longitudinal 'EduCare-TaSe: All-Day School and School Success?' study. Extended education offerings did not have a general effect on reading achievement. There was also no compensatory effect regarding the language spoken at home or socioeconomic status. However, the quality of extended education offerings had a positive effect on reading achievement in students with long-term utilization of extended education offerings.

**Key words:** all-day school, reading achievement, compensatory effects

For a variety of reasons, education is viewed as one of Switzerland's most important investments, as discussed, for example, in a strategy paper by the Swiss Academies of Arts and Sciences (Zimmerli, Malaguerra, & Künzli, 2009). Accordingly, the expectations placed on students are high. In the last decades, several education measures have been put in place so that current and future scholastic requirements can be met. The introduction of all-day schools at the primary level can be seen as one such measure (Schüpbach, 2010).

The results of the PISA studies in recent years revealed undesired effects of family background in the Swiss education system: at the end of compulsory schooling, students with a migration background and also students with low socioeconomic status had lower achievement in reading than students with no migration background and with high socioeconomic status (Konsortium PISA.ch, 2013). Similar effects of family background have been found as early as at the primary level. In the German-speaking part of Switzerland, Moser and Bayer (2010) found that in the early primary grades, students with German as a second language and students with low socioeconomic status had lower reading achievement than other students. An expectation is that all-day schools can have compensatory effects regarding these undesired effects of family background: utilization of extended education offerings by students with German as a second language or with low socioeconomic status is supposed to make up for a lack of family resources promoting learning (Schwei-

zerischer Verband für schulische Tagesbetreuung, 2016). In addition, it is assumed that the educationally and temporally extended framework also has a direct impact on the student's achievement (Aeberli & Binder, 2005).

In the following, “all-day schools” [Tageschulen] in Switzerland—similar to *Ganztagschulen* in Germany—refers to schools that in addition to traditional hours of classroom instruction provide all-day extended education and care offerings (including lunch) several days per week (Schweizerische Konferenz der kantonalen Erziehungsdirektoren [EDK], 2015). In the United States, extended education is mostly clearly separated in structure and/or content from school instruction in school time or out-of-school time. In contrast, in Switzerland all-day schools with institutional ties of extended education are being established and further developed. There are compulsory-attendance and open-attendance all-day schools. At compulsory-attendance all-day schools, the extended education offerings are mandatory, except for what are called “early drop-off hours”; at open-attendance all-day schools, the children may attend optional modular extended education offerings voluntarily. In the German-speaking part of Switzerland, the majority of extended education offerings are open-attendance (Schüpbach, Frei, & Nieuwenboom, 2018). According to a recent analysis by Schüpbach, Rohrbach-Nussbaum, and Grütter (2018), open-attendance extended education offerings typically comprise “guided activities” and “free play activities.” Guided activities led by extended education staff in a specified time window are usually homework help, library visits, reading aloud, planning and rehearsing music or drama shows, or sports games and competitions. In addition, staff and students have lunch together. Free play means a time period when students choose freely among various activities; typical activities are reading, playing board games, listening to music CDs, building with blocks and Legos, or playing movement games (Schüpbach et al., 2018).

This paper aims to investigate the effects of primary students' utilization of extended education offerings and of the quality of extended education offerings on their reading achievement and to examine whether utilization of extended education offerings has compensatory effects.

## Review of the Literature: Extended Education and the Development of Reading Achievement

An often-used model for theorizing about the effect of extended education offerings on reading achievement is Stecher, Radisch, Fischer, and Klieme's (2007) model of the educational quality of an extended education offering. Based on school characteristics, individual and family background, and other characteristics of the external context, process characteristics and utilization of an extended education offering are considered as determining factors for educational and scholastic effects. From the model it can be derived that, first, an extended education offering can have a general effect on reading achievement, meaning that all students can benefit scholastically by participating. Second, the model shows that the effect of utilization of extended education can be dependent, among other things, on family background. Consequently, with regard to family background effects, there may be a possible compensatory effect of extended education on reading achievement. And third, the

model predicts that for effects, the process characteristics of an extended education offering are important, and therefore, the role of the quality of an extended education offering must be considered. For the three areas just mentioned, some theoretical considerations and recent research findings are presented in the following.

## General Effect of Utilization of Extended Education Offerings

A theoretical basis for a general effect of extended education on reading achievement is Hopf's (2005) time-on-task hypothesis. Based on the hypothesis, it can be assumed that utilization of extended education offering has a positive effect on reading achievement, because students attending extended education spend more time in the school environment. As compared to being cared for outside of school, students utilizing extended education are confronted more often with reading aloud, reading books, listening to spoken instructions, and the like, and in this way are better supported in their reading achievement.

In Switzerland, the effect of all-day schools on reading achievement was examined in the framework of the EduCare study (Schüpbach, 2010), which was funded by the Swiss National Science Foundation (SNSF). In the EduCare study, students at open-attendance (voluntary) and compulsory-attendance all-day schools in the German-speaking part of Switzerland were compared with students at schools with only regular core times of classroom instruction regarding reading achievement, among other things. The analyses revealed better development of reading achievement only in students with intensive utilization of extended education as compared to students attending regular hours of classroom instruction only (Schüpbach, 2012). Further research findings are available for Germany, where with the expansion of all-day schools in recent years developments have been similar to those in Switzerland. There has been little research on the effect of attending an all-day school on reading achievement at the primary level. One study comes from the longitudinal study *Ganztagsorganisation im Grundschulbereich* (GO) [All-day organization in primary education]; it examined the reading achievement of students with and with no utilization of extended education offerings. It looked at the effect of long-term utilization of extended education, meaning regular utilization of extended education during the investigation period. The results showed that when controlling for cognitive ability and previous knowledge, long-term utilization of extended education had no effect on the development of students' reading achievement (Bellin & Tamke, 2010). Studies were also conducted in Germany that compared schools with and with no extended education offerings; these studies did not consider individual students' utilization of extended education, however. A secondary analysis of data from the *Internationale Grundschul-Leseuntersuchung* (IGLU) (international designation: Progress in International Reading Literacy Study PIRLS) showed that students in Grade 4 at all-day schools did not have better reading achievement than students at schools with no extended education offerings (Radisch, Klieme, & Bos, 2006). Similar results were found by the *Ganztagschule und Integration von Migranten* [all-day schools and integration of immigrants] study regarding reading speed in students at all-day schools and half-day schools; students at all-day schools did not show better development of reading speed than students at half-day schools (Reinders et al., 2011). Fischer, Sauerwein, Theis and Wolgast (2016) examined a StEG partial sample of 2105 fifth-grade students from all-day schools that provide reading promotion offerings on a voluntary basis. During the first half

of the school year, there were no differences in reading between students participating in the reading promotion and students who did not participate in the reading promotion offerings (Fischer et al., 2016).

### Compensatory Effect of Utilization of Extended Education

The expectation that all-day schools will have compensatory effects is often associated with the goal of equal opportunities, meaning that in the education system, all students should have fair and just chances of succeeding in school (Becker, 2016). The fact that in Switzerland and Germany, students with German as a second language as well as students with low socioeconomic status had lower reading achievement can be explained using theoretical approaches by Bourdieu (1982). In line with the approaches, students with German as a second language and with low socioeconomic status have fewer resources that promote learning at their disposal, and this has an unfavorable effect on scholastic development. For example, students with German as a second language understand teachers' instructions less accurately, and students with low socioeconomic status benefit little scholastically from the family home. In this way, a lack of family resources promoting learning leads in the long term to the prevailing undesired effects of family background in the education system. Attending an extended education offering can compensate for such lacking family resources, in that in extended education, students with German as a second language and low socioeconomic status have longer hours of contact with the German language and can receive systematic support with homework.

The compensatory effect of extended education regarding reading achievement was studied in Switzerland in the framework of the EduCare study funded by the SNSF. Schüpbach (2012) examined whether students with low family resources (based on an index of the family's economic and learning-promoting resources) benefited from utilization of extended education in their reading achievement. However, no compensatory effects of utilization of extended education at all-day schools were found in development of reading achievement compared to no utilization at schools with core times of regular classroom instruction only. The GO study in Germany also looked at compensatory effects of all-day schools. It examined whether students with German as a second language especially benefited from the extended education offerings. The results revealed no such compensatory effects of extended education regarding their development of reading achievement (Bellin & Tamke, 2010).

### The Importance of the Quality of Extended Education Offerings

As the presentation above showed, there are certainly theoretical assumptions concerning a positive effect of all-day schools on reading achievement. However, they have not been proven empirically. This one of the reasons why the quality of extended education can be explored as an important decisive factor. For it is theoretically plausible that in extended education reading achievement is promoted effectively only if the offering is of a certain quality. Stecher et al.'s (2007) model of educational quality mentioned above also assumes that the quality of extended education can play a moderating role. The model postulated the structure, support of students, and activation of and challenging possible areas of quality of an extended education offering that beyond utilization have an effect on reading achievement, for example.

There are no previous empirical findings available on the significance of the quality of extended education for reading achievement in German-speaking regions. Regarding development of achievement in mathematics, in a partial sample from the EduCare study it was found that students' utilization of higher quality extended education offerings was beneficial for mathematics achievement (Schüpbach, 2014). Findings on the importance of the quality of extended education are available mostly for the United States. A meta-analysis revealed that a focus of after-school programs on promoting disadvantaged primary school students, called at-risk students, had a positive effect on reading achievement (Lauer et al., 2006). Another meta-analysis found that after-school programs proved to be effective when extended education offerings had specific goals and were designed to support those goals (Durlak, Weissberg, & Pachan, 2010).

## Hypotheses

Empirical findings up to now have revealed no positive effects of students' utilization of extended education offerings on their reading achievement. However, the different studies are not always comparable, as they focus on different time periods and operationalize utilization in different ways. For example, they looked at students with intensive use of extended education offerings (EduCare study) or students with long-term utilization (GO study), or students at all-day schools (other studies). As the various studies have used very different methodological approaches, there is no uniform state of research to speak of. Moreover, in many places in Switzerland there have been important developments in the area of all-day schools, which means that the studies mentioned above may not be up to date. For these reasons, we formulated the following three hypotheses based mainly on the theoretical background:

Hypothesis 1: Utilization of extended education offerings has a positive effect on students' reading achievement, independently of socioeconomic status and German as a second language.

Hypothesis 2: Utilization of extended education offerings has a compensatory effect on reading achievement in students with low socioeconomic status and students with German as a second language.

Hypothesis 3: The higher the quality of extended education offerings, the more positive the effect of utilization of extended education offerings on the development of reading achievement.

## Methods

### Study Design and Sample

The data were from the study "EduCare-TaSe: All-Day School and School Success?" funded by the SNSF; this was a follow-up to the EduCare study mentioned above. EduCare-TaSe is a longitudinal study examining reading achievement, among other things, in prima-

ry school students in Grades 1 and 2. All students attended open-attendance all-day schools in Switzerland, which means that some students voluntarily utilized extended education offerings in addition to regular hours of classroom instruction. When recruiting the sample, we aimed for a complete survey, whereby for reasons of research economy, at least two parallel Grade 1 classes were required. Of the total of 251 open-attendance all-day schools asked to participate in the study, 53 schools in 13 cantons in the German-speaking part of Switzerland with a total of 120 classes and 1,990 students agreed. Due to student absences at the data collection time points, missing information from parents, and some teachers' reservations about testing, for the present analyses data was available from 50 all-day schools in 13 cantons in the German-speaking part of Switzerland with 103 classes and 1,002 students. Data collection took place between 2014 and 2015: reading achievement was assessed at the end of Grade 1, in the middle of Grade 2, and at the end of Grade 2. It should be noted that missing values for reading were estimated using full information maximum likelihood (FIML), provided that data was available for at least one measurement time point. Table 1 reports descriptive statistics for the sample.

*Table 1: Descriptive Statistics*

	<b>N</b>	<b>Min</b>	<b>Max</b>	<b>M</b>	<b>Sd</b>
Students					
Reading achievement at T1	919	36.74	101.61	51.53 <sup>a</sup>	9.43
Reading achievement at T2	985	38.55	117.32	64.97 <sup>a</sup>	12.75
Reading achievement at T3	973	37.56	117.58	73.57 <sup>a</sup>	14.72
Utilization of extended education offerings (1 = long-term utilization)	1002	0.00	1.00	.22 <sup>b</sup>	–
Language (1 = German as a second language)	1002	0.00	1.00	.21 <sup>b</sup>	–
Socioeconomic status	1002	14.64	88.70	58.55 <sup>a</sup>	20.98
Basic cognitive abilities	1002	25.00	80.00	53.36 <sup>a</sup>	8.78
Sex (1 = female)	1002	0.00	1.00	.52 <sup>b</sup>	–
School					
Quality of extended education	50	1.25	4.75	2.93 <sup>a</sup>	0.76

*Note.* <sup>a</sup> Arithmetic mean; <sup>b</sup> Percentage with coding 1

Scaling: reading achievement (T-values, standardized based on the T1-values); basic cognitive abilities (T-values, standardized based on the norming group); sex (0 = male; 1 = female); language (0 = German as a first language; 1 = German as a second language); utilization of extended education offerings (0 = no long-term utilization; 1 = long-term utilization); quality of extended education (scale from 0 to 6).

## Dependent Variable

Reading achievement was measured at all three measurement time points by the standardized *Leseverständnistest für Erst- bis Sechstklässler* [Reading comprehension test for first and second graders] (ELFE; Lenhard & Schneider, 2006). The ELFE assesses reading comprehension with items on word comprehension (e.g., decoding), sentence comprehension (e.g., reading sentence for meaning), and text comprehension (e.g., whole passage reading). Following the manual, a mean value was calculated. At all three measurement time points, internal consistency was good ( $\alpha = .81 - .84$ ). The text was administered to the school class by trained assistants.

## Predictors

Students' *utilization of extended education offerings* in Grade 1 and Grade 2 was reported by the directors of extended education in the schools. Long-term utilization was reported for 22% of the students: they utilized extended education offerings in both Grade 1 and Grade 2. These students with long-term utilization were compared to the rest of the students, who either did not utilize extended education (70%) or utilized an extended education offering for at most 1 school year (8%; 0 = maximum 1 school year of utilization; 1 = long-term utilization). This dichotomization of students with and with no long-term utilization of extended education offerings was done analogously to research studies on all-day schools in Germany (e.g., Kuhn & Fischer, 2011).

*Language* was determined based on students' reports on whether they regularly spoke German (or Swiss German) in the home; 21% of the students spoke no German (or Swiss German) in the home and were labeled as students with German as a second language (coding: 0 = German as a first language; 1 = German as a second language).

*Socioeconomic status* was operationalized by means of the International Socio-Economic Index of Occupational Status (ISEI; Ganzeboom, 2010). Based on a parent questionnaire, we located the parents' occupations in the International Standard Classification of Occupations (ISCO-08) and determined the ISEI values. For each student we used the highest ISEI value of the parents (HISEI); higher values indicate higher socioeconomic status ( $M = 58.55$ ;  $SD = 20.98$ ).

Students' *basic cognitive abilities* were assessed using the revised version of the *Grundintelligenztest* [Basic intelligence test] (CFT 1-R; Weiss & Osterland, 2013). The CFT was administered to the school class once, in the middle of Grade 2, by trained assistants ( $M = 53.36$ ;  $SD = 8.78$ ).

Students' sex was determined based on class lists and a written survey of the students (52% girls; 48% boys) (coding: 0 = male, 1 = female). Basic cognitive abilities and sex were included in the analyses as control variables.

At the school level, the quality of extended education was assessed at the end of Grade 1 by trained members of the research team, who conducted a 4-hour standardized observation of the extended education offerings. For the rating, they used the Hort- und Ganztagsangebote-Skala (HUGS; Tietze, Roßbach, Stendel, & Wellner, 2007). HUGS captures 50 quality characteristics, of which eight pertain to different activity areas in extended education (such as language and reading activities and role play/drama activities, among others). In many previous studies, the quality of the activities proved to be a central factor. The eight characteristics on HUGS are similar to the quality areas postulated by Stecher et al. (2007). Each quality characteristic records the variety of available materials and the extended education staff's educational use of the materials in the particular activity area. For each quality characteristic, the possible rating values range from 0 to 6 (insufficient quality to excellent quality). The eight quality characteristics for the different activity areas were put together as a "quality of extended education" scale; the internal consistency of the scale was acceptable ( $\alpha = .67$ ).



## Statistical Analyses

Statistical analyses were computed using IBM SPSS Statistics 23 and Mplus Version 7.3 (Muthén & Muthén, 1998-2012). Multilevel latent growth curve models were used. Latent growth curve modeling was based on the three available measurement time points, which provided information on the level of development at the first measurement time point at the end of Grade 1 (intercept) and on the development across the three measurement time points up to the end of Grade 2 (slope). With multilevel modeling, the initial development level and that development of reading achievement can be kept separate. To adequately take the clustered structure of the data into account, the growth curves were also combined with multilevel models. With the multilevel modeling, the following levels were differentiated: the level of students (level 1), classes (level 2), and schools (level 3), whereby predictors were used only at the student level and school level.

Model 1 tested the effect of utilization of extended education offerings on reading achievement (hypothesis 1), whereby as a control, basic cognitive abilities, sex, language, and socioeconomic status were included as further predictors. In model 1, the predictors language and socioeconomic status also provided information on their relevance as family background effects on reading achievement. Based on that, model 2 tested the compensatory effect (hypothesis 2), by additionally including the interactions between utilization of extended education offerings and language and between utilization of extended education offerings and socioeconomic status at the student level. Model 3 tested the effect of the quality of extended education offerings on student reading achievement by including quality of extended education at the school level as a further predictor. Model 4 then modeled the interaction between quality of extended education at the school level and utilization of extended education offerings at the student level (cross-level interaction) as a further predictor, in order to examine the interaction of quality of extended education and utilization (hypothesis 3). All predictors were centered at the grand mean—with the exception of the dichotomous variables—and were z-standardized. To assess model fit, CFI, TLI and RMSEA were considered. Since these measures of goodness of fit are not available for cross-level interactions, log-likelihood and AIC are reported, whereby lower values indicate better model fit (Byrne, 2012). One-tailed tests were run with an alpha level of 5%.

## Results

Students' average reading achievement increased from the first measurement time point at the end of Grade 1 to the third measurement time point at the end of Grade 2 by about 22 T-value points. The results are reported in the following (see also Table 2).

**Table 2: Multilevel Growth Curve Models to Predict Reading Achievement**

Predictors	Model 1		Model 2		Model 3		Model 4	
	Intercept	Slope	Intercept	Slope	Intercept	Slope	Intercept	Slope
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
<i>Level 1: student</i>								
Basic cognitive abilities	2.81*** (.28)	1.45*** (.23)	2.87*** (.28)	1.45*** (.23)	2.88*** (.27)	1.45*** (.23)	2.88*** (.27)	1.44*** (.23)
Sex (1 = female)	-0.53 (.55)	0.88* (.38)	-0.57 (.54)	0.87* (.38)	-0.56 (.54)	0.86* (.37)	-0.55 (.55)	0.85* (.38)
Language (1 = German as a second language)	-2.11** (.67)	-1.16** (.48)	-2.17** (.63)	-1.18** (.48)	-2.20** (.64)	-1.16** (.48)	-2.19** (.82)	-1.16** (.48)
Socioeconomic status	1.27*** (.28)	0.56** (.20)	1.29*** (.27)	0.57** (.20)	1.27*** (.27)	0.57** (.20)	1.27*** (.31)	0.57** (.20)
Utilization (1 = long-term utilization)	0.89* (.61)	0.08 (.35)	0.79* (.60)	0.06 (.36)	0.81* (.59)	0.05 (.36)	1.29 (4.59)	-3.41* (2.04)
Utilization*Language			-3.63* (1.63)	-0.42 (.86)	-3.66* (1.63)	-0.41 (.86)	-3.67* (2.70)	-0.32 (.84)
Utilization*Socioeconomic status			0.19 (0.60)	0.15 (.36)	0.20 (0.59)	0.14 (.36)	0.20 (0.91)	0.16 (.37)
Covariance (intercept/ slope)	17.16 (1.60)		17.13*** (1.61)		17.14*** (1.60)		17.16*** (1.878)	
R <sup>2</sup>	.15	.14	.15	.14	.15	.14	NA	NA
<i>Level 2: class (no predictors)</i>								
R <sup>2</sup>	.00	.00	.00	.00	.00	.00	NA	NA
<i>Level 3: school</i>								
Quality of extended education					-0.79 (0.66)	0.43 (0.39)	-0.78 (0.71)	0.44 (0.41)
Cross-level (level 3 → level 1): Quality of extended education*Utilization							-0.12 (1.07)	0.88* (0.51)
Covariance (intercept/slope)					0.07 (1.19)		0.17 (1.24)	
R <sup>2</sup>	.00	.00	.00	.00	NA	NA	NA	NA
<b>Model fit</b>								
Log-likelihood	-9726.45		-9724.03		-9722.52		-9721.71	
AIC	19500.91		19504.06		19505.04		19515.42	
CFI/TLI	.99/.99		1.00/.99		1.00/.99		NA	
RMSEA	0.36		.03		.03		NA	

Note. N = 1,002 students; 103 classes; 50 all-day schools; unstandardized B coefficients (SE);

+ p ≤ .10, \* p ≤ .05, \*\* p ≤ .01, \*\*\* p ≤ .001; NA = not available.

Scaling: reading achievement (T-values, standardized based on the T1-values); basic cognitive abilities (T-values, standardized based on the norming group); sex (0 = male; 1 = female); language (0 = German as a first language; 1 = German as a second language); utilization of extended education offerings (0 = no long-term utilization; 1 = long-term utilization); quality of extended education (scale from 0 to 6).

## Results on General Effect of Utilization of Extended Education Offerings

To examine the general effect of students' utilization of extended education offerings on their reading achievement, Model 1 included utilization of extended education offerings and the predictors basic cognitive abilities, sex, language, and socioeconomic status. There was a weak association between long-term utilization and reading achievement at the first measurement time point (intercept:  $\beta = 0.89$ ,  $p \leq .10$ ), meaning that students with long-term utilization of extended education offerings tended to have better reading achievement at the start of the investigation period than students with no long-term utilization. However, long-term utilization of extended education offerings had no significant effect on the development of reading achievement over the investigation period from the end of Grade 1 to the end of Grade 2.

## Results on Compensatory Effects of Utilization of Extended Education Offerings

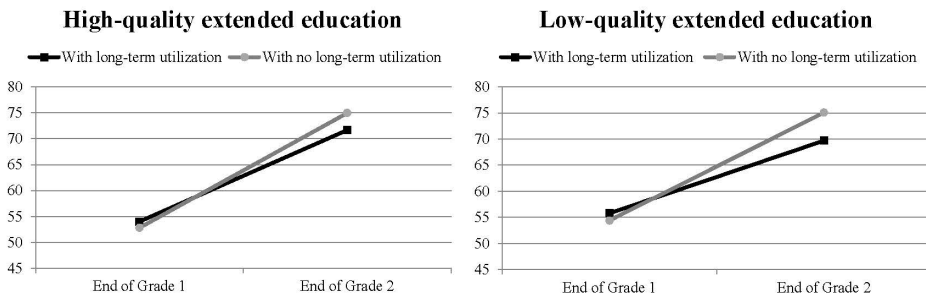
Further, model 1 revealed family background effects of language and socioeconomic status both at the end of Grade 1 and regarding the development of reading achievement over time. Students with German as a second language had a significantly lower starting level of reading achievement (intercept:  $\beta = -2.11$ ,  $p \leq .01$ ) and showed less favorable development of reading achievement during Grade 2 (slope:  $\beta = -1.16$ ,  $p \leq .05$ ) than students with German as a first language. There was also a significant positive association between socioeconomic status and reading achievement at the first measurement time point and the development of reading achievement across the three measurement time points (intercept:  $\beta = 1.27$ ,  $p \leq .001$ ; Slope:  $\beta = 0.56$ ,  $p \leq .01$ ). This means that students with lower socioeconomic status had a lower starting level of reading achievement and that their reading development showed less favorable development during Grade 2 than students with high socioeconomic status. To test whether utilization of extended education offerings can compensate for these family background effects, the interaction *utilization of extended education offerings x language* and the interaction *utilization of extended education offerings x socioeconomic status* were included in model 2. Neither the interaction of long-term utilization with language nor the interaction of long-term utilization with socioeconomic status had a significant effect on the development of reading achievement.

## Importance of the Quality of Extended Education

In the next step, model 3 included quality of extended education as a predictor at the school level. The results showed that the quality of extended education had no significant effect on the development of reading achievement at the school level. Finally, model 4 included the interaction *quality of extended education (school level) x utilization of extended education offerings (student level)* as a predictor. This cross-level interaction revealed no significant effect on the development of reading achievement (slope:  $\beta = 0.88$ ,  $p \leq .05$ ). With higher quality of extended education, long-term utilization of an extended education offering had a significantly more positive effect on the development of reading achievement. Further, model 4 revealed a change in the effect of utilization at the student level as compared to the

previous models. When taking into account the cross-level interaction *quality of extended education x utilization of extended education offerings*, long-term utilization had a significant negative effect on the development of reading achievement (slope:  $\beta = -3.41$ ,  $p \leq .05$ ). Figure 1 illustrates the finding on the interaction *quality of extended education x utilization of extended education offerings*; it shows the course of the development of reading achievement with utilization, controlling for all other predictors, separately for high and low quality of extended education: the left-hand side shows students at all-day schools with high-quality extended education (1 standard deviation above the mean), and the right-hand side shows students at all-day schools with low-quality extended education (1 standard deviation below the mean). The general negative effect of utilization from model 4 is discernible, as both groups of students with long-term utilization had about the same starting level of reading achievement as those with no long-term utilization but had lower reading achievement at the end with both high- and low-quality extended education. In Figure 1, the significant interaction *quality of extended education x utilization of extended education offerings* is apparent mainly in the greater difference in improvement in reading achievement at schools with low-quality extended education: here, students with long-term utilization had significantly less improvement in reading achievement than students with no long-term utilization. At schools with high-quality extended education, students with long-term utilization also showed less favorable development in their reading achievement than students with no long-term utilization, but the development gap was much less pronounced than at schools with low-quality extended education. The negative effect of utilization of extended education offerings appeared to be especially traceable to schools with low-quality extended education.

*Figure 1.* Development of reading achievement of students with long-term utilization of extended education offerings, shown separately for all-day schools with high and low quality of extended education (1 SD above or below *M*).



## Discussion

In this paper we examined the effect of primary school students' utilization of extended education offerings on their reading achievement. We investigated the general effect of utilization of extended education for all students, the compensatory effect for students with

German as a second language and with low socioeconomic status, and the relevance of quality of extended education for the effect of utilization on reading achievement. As the analyses show, long-term utilization had no significant effect on the development of reading achievement, and hypothesis 1 had to be rejected. This finding is largely in line with previous studies in German-speaking countries that found no general effects of long-term utilization (Bellin & Tamke, 2010; Radisch et al., 2006; Reinders et al., 2011). Although Schüpbach (2012) found positive effects of intensive utilization on reading achievement, that study had a different methodological structure, in that, for example, the investigation period was longer and students at open-attendance and compulsory-attendance all-day schools were compared to students with only regular school hours of classroom instruction. It remains open, however, whether utilization of extended education offerings has the effect on reading achievement only once a certain utilization intensity is reached and if the length of time that extended education is utilized exceeds the two school years examined here (Schüpbach, 2012).

Further, the results show no compensatory effects of long-term utilization of extended education offerings on reading achievement regarding students' language or socioeconomic status. This means that utilization of extended education offerings does not make up for family background effects. Hypothesis 2 must therefore be rejected as well. This finding accords with previous studies in the German-speaking part of Switzerland and in Germany that found no compensatory effects regarding reading achievement (Bellin & Tamke, 2010; Schüpbach, 2012).

Further analyses examined the relevance of the quality of extended education and revealed that the effect of quality of extended education on students' reading achievement was greater with increasing quality of extended education. This confirms insofar hypothesis 3. It must be noted, however, that when taking into account the cross-level interaction between quality of extended education and utilization of extended education offerings, there is a general negative effect of utilization on reading achievement, which can indicate a suppression effect. A reason for this could be selection effects due to background characteristics not considered here, such as achievement motivation. Students with long-term utilization of extended education offerings show less favorable development of reading achievement over time than students with no long-term utilization, whereby this difference in the development is less pronounced at schools where the quality of the extended education is high than at schools where the quality is low. This can be interpreted as a decrease of the effect of lower achievement by a good quality offering. The effect of utilization of extended education offerings in dependency on the quality of extended education on reading achievement has not been studied previously. However, the negative finding in this study does not accord with Schüpbach (2014), who found positive effects of quality of extended education regarding achievement in mathematics. One reason for this could be that the quality, especially in the area of language/reading activities was generally very low. However, this study and Schüpbach (2014) differ with regard to the population investigated and the length of the longitudinal period.

These findings are subject to some limitations: (1) the investigation period was confined to one school year, and thus no longer term or delayed effects could be studied; (2) the analyses were based on a sample that shows some selection effects. The selection is due

to the voluntary decision to participate in the study by the schools and teachers and due to missing data over the duration of the study. Generalizing statements must therefore be viewed with a great deal of caution; (3) utilization of extended education offerings was operationalized exclusively as constant utilization of any extended education offerings. Precisely which offering among others a student utilized or the number of hours (intensity) of utilization could not be assessed due to the prevailing general conditions at the all-day schools. Previously, Schüpbach (2012) had found in the German-speaking part of Switzerland that the intensity of utilization of extended education has a significant effect; (4) there is no information on students' free time activities outside of the all-day school. It is not possible to assess whether students with no long-term utilization of extended education offerings were engaging in learning-promoting activities in their free time; (5) the quality of extended education was rated based on a half-day observation conducted by one person using a standardized observation instrument. The validity and reliability of the assessment would be higher if there had been several observation time points and several observers.

Despite the sobering findings, this and also other studies provide various theoretical approaches and arguments indicating that the utilization of extended education offerings should have a positive effect on reading achievement. One of these approaches postulates that an extended education offering can be seen as a resource that promotes learning. For this reason, utilization of extended education offerings would have a positive effect on reading achievement generally and also in a compensatory way—specifically for students with few learning-promoting resources in the home (Bourdieu, 1982; Hopf, 2005). Whether and to what extent an extended education offering actually provides learning-promoting resources is at least called into question by the present findings. Findings in the United States show that after-school programs are effective educationally when the programs provide activities that are designed to support educational goals (Durlak et al., 2010). Also, in the United States, extended education programs are often offered for only at-risk children (Lauer et al., 2006). Carried over to all-day schools in Switzerland, this would mean that an extended education offering would have to be designed more specifically for effectiveness concerning reading achievement in order to have general or compensatory effects. What aspects of quality would be important for this will be investigated in further studies.

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