IJREE

International Journal for Research on Extended Education, Volume 7/2019

Content

DEVELOPMENTS in the Field of Extended Education

Editor's Preface

Greetings! The research network on extended education keeps growing both quantitatively and qualitatively. In August, some of the editors had a meeting in Tokyo where the WERA 2019 conference was held. A productive discussion was made on the future development of IJREE. Due to the unceasing support of the editors, we have seen increasing submissions which show the growing interest in the journal among researchers. I believe that IJREE plays an important role as the world's best academic platform which presents the findings of the cutting-edge research in the field of extended education.

In the 1/2019 issue, we have six *General Contributions*. Benjamin von Allmen and his colleagues investigated the effects of primary school students' participation in extended education on reading achievement in the German-speaking part of Switzerland. Analyzing data from the database of the longitudinal EduCare-TaSe: All-day school and school success, they found that extended education participation did not show a general effect on reading achievement but had a positive effect on reading achievement of students with the long-term utilization of extended education offerings. Birgitta Lundbäck and Linda Fälth conducted a systematic literature review about how educare activities are provided across nations. According to the results, the Nordic model combines care and curricular activities before and after compulsory hours, while afterschool educare activities are offered separately from the supplementary activities in other countries. Larry Suter analyzed data from the 2015 Program of International Student Assessment (PISA) to examine the relationship between additional study time and the levels of PISA achievement. According to his study, while more time given to a school subject within the formal school time has a positive relationship with achievement in that subject, more time spent on out of school time activities shows a negative association with average achievement between and within countries. However, he found that students may benefit from additional study time by having increased feeling of efficacy in a school subject. Emanuela Chiapparini et al. conducted qualitative research to examine how all-day school implementation impacts the social work setting at the schools. They found that all-day school implementation influenced greatly the social work setting of the school in terms of time structure, space, and the staff manage-

ment. Based on the findings they suggest that social workers add value to all-day school programs but that their commitment is not well recognized by school members and the community. They insist that the importance of social work needs to be better understood by the all-day school community. Michelle Jutzi and Rebecca Woodland, analyzing data from 44 afterschool programs and 266 afterschool program staff members in Switzerland, developed the Collaboration Quality Index (CQI) to measure the aspects of professional collaboration in the afterschool program setting. As they suggested, it may be helpful to policy makers and practitioners who would like to make evidence-based decisions for improvement of afterschool programs. Finally, Sang Hoon Bae and his colleagues explored the global pattern of extended education and its impact on learning outcomes of afterschool science programs. They found considerable national differences in access to afterschool science programs. They also found a negative relationship between additional study time for science and PISA 2015 science performance at the national level. They discussed why this unexpected result was revealed and provided the plausible explanation. This study is significant in terms of extending the scope of extended education research to the international level.

In this issue, there are two short reports in the section of *Development in Extended Education*. Chang Sung Jang provides information about Oklahoma Partnership for Expanded Learning (OPEL), which was launched in 2015 in order to promote collaboration among stakeholders throughout the state of Oklahoma. Jennifer Cartmel also provides information about School Age Care Services, which are the fastest growing child care area in Australia.

We thank all authors for submitting their invaluable manuscripts. We are also very thankful to all reviewers for their productive reviews. We are looking forward to great works from the extended education research community.

Sang Hoon Bae

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 *Ganztags-schulen* 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 *Ganztagsschule 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

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

Note. [a] Arithmetic mean; [b] 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 B (SE)	Slope B (SE)	Intercept B (SE)	Slope B (SE)	Intercept B (SE)	Slope B (SE)	Intercept B (SE)	Slope B (SE)
Level 1: student								
Basic cognitive abilities	2.81***	1.45***	2.87***	1.45***	2.88***	1.45***	2.88***	1.44***
	(.28)	(.23)	(.28)	(.23)	(.27)	(.23)	(.27)	(.23)
Sex (1 = female)	-0.53	0.88*	-0.57	0.87*	-056	0.86*	-0.55	0.85*
	(.55)	(.38)	(.54)	(.38)	(.54)	(.37)	(.55)	(.38)
Language (1 = German as a second language)	-2.11**	-1.16**	-2.17**	-1.18**	-2.20**	-1.16**	-2.19**	-1.16**
	(.67)	(.48)	(.63)	(.48)	(.64)	(.48)	(.82)	(.48)
Socioeconomic status	1.27***	0.56**	1.29***	0.57**	1.27***	0.57**	1.27***	0.57**
	(.28)	(.20)	(.27)	(.20)	(.27)	(.20)	(.31)	(.20)
Utilization (1 = long-term utilization	0.89*	0.08	0.79*	0.06	0.81*	0.05	1.29	-3.41*
	(.61)	(.35)	(.60)	(.36)	(.59)	(.36)	(4.59)	(2.04)
Utilization*Language			-3.63*	-0.42	-3.66*	-0.41	-3.67*	-0.32
			(1.63)	(.86)	(1.63)	(.86)	(2.70)	(.84)
Utilization*Socioeconomic status			0.19	0.15	0.20	0.14	0.20	0.16
			(0.60)	(.36)	(0.59)	(.36)	(0.91)	(.37)
Covariance (intercept/ slope)	17.16 (1.60)		17.13*** (1.61)		17.14*** (1.60)		17.16*** (1.878)	
R²	.15	.14	.15	.14	.15	.14	NA	NA
Level 2: class (no predictors)								
R²	.00	.00	.00	.00	.00	.00	NA	NA
Level 3: school								
Quality of extended education					-0.79	0.43	-0.78	0.44
					(0.66)	(0.39)	(0.71)	(0.41)
Cross-level (level 3 → level 1): Quality of extended education*Utilization							-0.12	0.88*
							(1.07)	(0.51)
Covariance (intercept/slope)					0.07 (1.19)		0.17 (1.24)	
R²	.00	.00	.00	.00	NA	NA	NA	NA
Model fit								
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*).
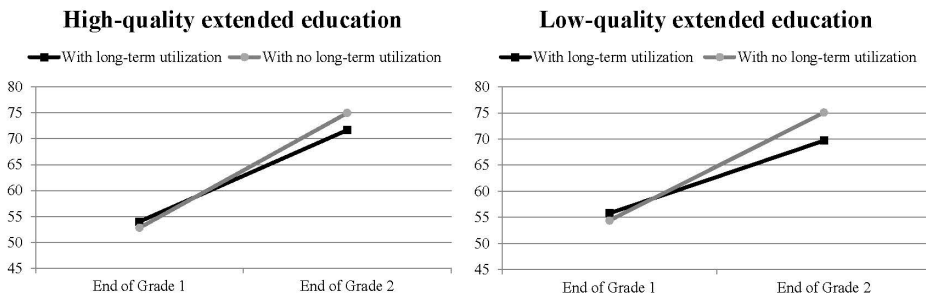
Discussion

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.

References

Aeberli, C. & Binder, H.-M. (2005). *Das Einmaleins der Tagesschule. Ein Leitfaden für Gemeinde- und Schulbehörden.* Zürich: Avenir Suisse.

Becker, R. (2016). Chancenungleichheit bei der Einschulung und in der Primarstufe: Theoretische Überlegungen und empirische Evidenzen. *Zeitschrift für Grundschulforschung, 9*(1), 7-19.

Bellin, N., & Tamke, F. (2010). Bessere Leistungen durch Teilnahme am offenen Ganztagsbetrieb? *Empirische Pädagogik, 24*(2), 93-112.

Bourdieu, P. (1982). *Die feinen Unterschiede*. Frankfurt, Germany: Suhrkamp.

Byrne, B. M. (2012). *Multivariate applications series. Structural equation modeling with Mplus: Basic concepts, applications, and programming*. New York, NY: Routledge/Taylor & Francis Group.

Durlak, J. A., Weissberg, R. P., & Pachan, M. (2010). A meta-analysis of after-school programs that seek to promote personal and social skills in children and adolescents. *American Journal of Community Psychology, 45*(3-4), 294-309.

Ganzeboom, H. B. G. (2010, May). *A new International Socio-Economic Index [ISEI] of occupational status for the international standard classification of occupation 2008 [ISCO-08] constructed with data from the ISSP 2002-2007.* Paper presented at the Annual Conference of International Social Survey Programme, Lisbon, Portugal.

Hopf, D. (2005). Zweisprachigkeit und Schulleistung bei Migrantenkindern. *Zeitschrift für Pädagogik, 51*(2), 236-251.

Konsortium PISA.ch. (2013). *Erste Ergebnisse zu PISA 2012*. Neuchâtel, Switzerland: Konsortium PISA.ch.

Kuhn, H. P., & Fischer, N. (2011). Entwicklung der Schulnoten in der Ganztagsschule: Einflüsse der Ganztagsteilnahme und der Angebotsqualität. In N. Fischer, H. G. Holtappels, E. Klieme, T. Rauschenbach, L. Stecher, & I. Züchner (Eds.), *Ganztagsschule: Entwicklung, Qualität, Wirkungen. Längsschnittliche Befunde der Studie zur Entwicklung von Ganztagsschulen (StEG)* (pp. 207-226). Weinheim, Germany: Beltz Juventa.

Lauer, P. A., Akiba, M., Wilkerson, S. B., Apthorp, H. S., Snow, D., & Martin-Glenn, M. L. (2006). Out-of-school-time programs: A meta-analysis of effects for at-risk students. *Review of Educational Research, 76*(2), 275-313.

Lenhard, W., & Schneider, W. (2006). *ELFE 1-6: Ein Leseverständnistest für Erst- bis Sechstklässler.* Göttingen, Germany: Hogrefe.

Moser, U., & Bayer, N. (2010). *Schlussbericht der summativen Evaluation 2010. Lernfortschritte vom Eintritt in die Eingangsstufe bis zum Ende der 3. Klasse der Primarschule; Erziehung und Bildung in Kindergarten und Unterstufe im Rahmen der EDK-Ost und Partnerkantone (Projekt EDK-Ost 4 bis 8).* Bern, Switzerland: Schulverlag plus.

Muthén, L., & Muthén, B. O. (1998-2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.

Radisch, F., Klieme, E., & Bos, W. (2006). Gestaltungsmerkmale und Effekte ganztägiger Angebote im Grundschulbereich. *Zeitschrift für Erziehungswissenschaft, 9*(1), 30-50.

Reinders, H., Gogolin, I., Gresser, A., Schnurr, S., Böhmer, J., & Bremm, N. (2011). Ganztagsschulbesuch und Integration von Kindern mit Migrationshintergrund im Primarbereich: Erste Näherungen an empirische Befunde einer vergleichenden Untersuchung. In L. Stecher, H.-H. Krüger & T. Rauschenbach (Eds.), *Ganztagsschule – Neue Schule? Eine Forschungsbilanz* (Zeitschrift für Erziehungswissenschaft Sonderheft, Vol. 15, pp. 163-183). Wiesbaden, Germany: VS Verlag für Sozialwissenschaften.

Schüpbach, M. (2010). *Ganztägige Bildung und Betreuung im Primarschulalter: Qualität und Wirksamkeit verschiedener Schulformen im Vergleich* (1st ed.). Wiesbaden, Germany: VS Verlag für Sozialwissenschaften.

Schüpbach, M. (2012). Sprachleistungsentwicklung in Ganztagsschulen unter Berücksichtigung der sozialen Herkunft und der frühkindlichen Bildung, Betreuung und Erziehung (FBBE). *Zeitschrift für Grundschulforschung, 2*(1), 123-145.

Schüpbach, M. (2014). Effects of extracurricular activities and their quality on primary school-age students' achievement in mathematics in Switzerland. *School Effectiveness and School Improvement, 26*(2), 279-295.

Schüpbach, M., Frei, L., & Nieuwenboom, W. (2018). *Tagesschulen: Ein Überblick*. Wiesbaden, Germany: Springer.

Schüpbach, M., Rohrbach-Nussbaum, R., & Grütter, E. (2018). Pädagogische Qualität - Geleitete und freie Aktivitäten in der Tagesschule bzw. im Tagesschulangebot. In M. Schüpbach, L. Frei, & W. Nieuwenboom (Eds.), *Tagesschulen. Ein Überblick* (pp. 145-171). Wiesbaden, Germany: Springer.

Schweizerische Konferenz der kantonalen Erziehungsdirektoren (EDK). (Eds.). (2015). *Bildungssystem Schweiz: Das Bildungswesen in einem mehrsprachigen und föderalistischen Land.* Retrieved from http://www.edk.ch/dyn/10065.php

Schweizerischer Verband für schulische Tagesbetreuung. (2016). *Tagesschulen lohnen sich.* Ennetbaden, Switzerland: Schweizerischer Verband für schulische Tagesbetreuung.

Stecher, L., Radisch, F., Fischer, N., & Klieme, E. (2007). Bildungsqualität ausserunterrichtlicher Angebote in der Ganztagsschule. *Zeitschrift für Soziologie der Erziehung und Sozialisation, 4*, 346-366.

Tietze, W., Roßbach, H. G., Stendel, M., & Wellner, B. (2007). *Hort- und Ganztagsangebote-Skala (HUGS): Feststellung und Unterstützung pädagogischer Qualität in Horten und Außerunterrichtlichen Angeboten* (Frühe Kindheit: Qualitätssicherung). Berlin, Germany: Scriptor.

Weiss, R. H., & Osterland, J. (2013). *CFT 1-R. Grundintelligenztest Skala 1.* Göttingen, Germany: Hogrefe.

Zimmerli, W. C., Malaguerra, C., & Künzli, R. (2009). *Zukunft Bildung Schweiz: Anforderungen an das schweizerische Bildungssystem 2030.* Bern, Switzerland: Akademien der Wissenschaften Schweiz.

Leisure-Time Activities Including Children with Special Needs: A Research Overview

Birgitta Lundbäck, Linda Fälth

Abstract: In Sweden and the other Scandinavian countries children are offered a curricular based combination of care and teaching before and after compulsory school hours. These leisure time centers, so-called *fritidshem*, are offered to children aged between 6 and 12 whose parents' study or work, as well as to children that require special development support. The aim of this systematic literature review was to investigate how similar activities are described in international research. The focus was on children aged 6-12 who have been assessed to need special support. The initial step in this literature survey was the reading of 108 abstracts from academic articles. The second step included 21 articles that were read in their entirety. Fourteen of them met the sampling criteria and were included in the result section. The Nordic model combines care and curricular activities before and after compulsory school hours. In other countries activities taking place after school hours are separated into activities meeting children's need of care and activities supplementing school. Another result that became clear in this research is the need of further studies to map pre- and after-school activities where children are simultaneously offered development support and care, with special focus on children in need of extra support.

Key words: after school activities, leisure time activities, leisure time center, special needs

Introduction

Children's leisure-time activities, or what children do before or after school, form the focus of this research overview. The Nordic model is unique in that it combines traditional day-care and education (Rauch, 2007). In Sweden, children's leisure activities are often organized by the municipalities in close connection with the school day. These activities are organized by leisure centers – so called "*fritidshem*". They are part of and have to abide by the Public-School Act (Swedish Education Act, 2010: 800), which specifies that children whose parents work or study have the right of access to participation in leisure activities as well as how leisure-time activities should provide for children in need of special support. The charge for participation is based on the total household income and on the number of children involved. This cost is subsidized by the state. The leisure centers also abide by the

national curriculum (The National Agency for Education, 2016), where some sections apply to all elementary school curricula, while a separate section describes the purpose, mission and goals of leisure centers. Against the background of the Nordic model, this study offers a systematic literature survey whose aim is to study how pre- or after-school activities are described in international research. The primary focus of this survey is on children between 6 and 12 who have been assessed to need special support.

Swedish primary school is compulsory from the year the child turns 6. This means that when they enroll in primary school, many children also enroll in voluntary leisure-center activities before and after school. According to the Swedish National Agency for Education survey from 2018, there are slightly more than 4,250 leisure centers in Sweden. Most of them are operated by municipalities, while some are state or privately run. Participation increases annually, amounting in 2017 to 484,400 registered attendants, which corresponds to about 85% of all children aged 6–9. About 900 children are enrolled in other pedagogical care, partly provided by people who receive children in their homes (daycare) and other independent activities. All children, regardless of whether they need support (such as having been identified as having special needs or children whose first language is not Swedish), have the right to attend both school and leisure center, according to the School Act (Swedish Education Act, 2010: 800). These leisure centers play a vital role in helping students perform up to the expected standard, which according to Yong and Ping (2008) is important as "children who fail often run the risk of giving up in school and worse, their own learning. This is particularly detrimental when it happens to students who are still in their elementary levels." (Yong & Ping, 2008, p. 521).

The leisure centers are further expected to supplement the education the children receive in preschool and elementary school. Their purpose is to support the development and learning of the children from a holistic view of education (Swedish National Agency for Education, 2014). The Swedish Education Act (2010: 800) describes how special education support is to be provided by the municipalities. This is often referred to as a compensatory assignment in education. The report further states that teachers and leisure center staff should work together to support and create a sense of security for each individual child. The mission of the leisure center is further to "endeavor to offset the differences in the students' prerequisites for acquiring the education" (Swedish National Agency for Education, 2014, p. 20). It is the responsibility of the principal to consider the children's age and different needs when planning the size, composition and staff density of leisure groups (Swedish National Agency for Education, 2014).

Two reviews of research on how to promote the achievement of learning goals for children in need of special support addressed various support measures affecting learners' goal fulfillment (Almqvist, Malmqvist, & Nilholm, 2015; Göransson & Nilholm, 2015). Almqvist et al. (2015) drew attention to collaborative learning as one successful method but noted that further research was needed in order to find other possible ways of working to achieve this goal. Göransson and Nilholm (2015) focused on children in need of additional and special education support in their learning as well as in their social situation in preschool and school (excluding the leisure center). Their findings indicated that this group of children did not differ with regard to social affiliation or of being at risk of becoming marginalized, isolated or excluded by their friends. However, some shortcomings in the research were high-

lighted by the researchers who suggested that more research was needed on children's social situation in school environments. This should be characterized by different working methods, group structures and group processes. In the present study an overview is made of previous research in the field of after school activities and children with special needs, to get a clearer picture of the research situation. Unlike Göransson and Nilholm (2015), Persson (2009) pointed out that children requiring special education support who lived in high-risk areas ran greater risks of not receiving the support they needed. According to Karlsudd (2012), the number of students enrolled in special education classes had changed over a twelve-year period. "Staff reported that children from the school for the intellectually disabled more seldom took part in the after-school activities" (Karlsudd, 2012, p. 48). In a fourth systematic review of literature (Kremer, Maynard, Polanin, Vaughn, & Sarteschi, 2015), a meta-analysis was conducted of after-school programs and their effects on children's attendance and cognitive development in school. Its conclusion was that there is no research showing the importance of after-school programs for children's cognitive development and behavioral problems.

Leisure centers in Sweden and the other Nordic countries have evolved from having primarily functioned as daycare centers for children when parents are at work to increasingly turning into an educational institution supplementing work done in school. The present study focuses on how similar activities are presented internationally.

Research Focus

In the light of the Nordic model for leisure activities, the aim of this systematic literature survey is to generate knowledge of how corresponding activities are described in international research. The primary focus was on children between 6 and 12 years old who are assessed as being in need of special support. The main questions guiding the analysis were:

- What characterizes research on leisure activities for children aged 6-12?
- How are leisure activities described in places where children in need of special education support participate?

Background

In the introduction to this text, leisure center activities were described with regard to their mission and to the children who have access to their activities. A further explanation is required to determine which children can be assessed as being in need of special support and how special needs education can be perceived and explained. What stands out about Swedish research is that it has largely focused on children in preschool or school and not on the practice of leisure center activities.

References to children in need of special support may be applied generally to children with any sort of difficulty. For various reasons, children may be in need of extra support for a longer or shorter period. In a study of teachers' view of working in special needs schools, Linikko (2009) wrote that "pupils in need of special support are described by teachers as individuals living in the now who need immediate satisfaction" (Linikko, 2009, p. 81). To be ensured access to special support, school authorities usually demand that the children should have been given a diagnosis by someone outside school. A correct diagnosis is nec-

essary to cater to their problems in the school context (Befring, 1997; Gadler, 2011; Magnússon, Göransson, & Nilholm, 2015). Gadler (2011) also wrote "what pupils are assessed as needing special support as well as what support is provided varies from one municipality or school to another" (Gadler, 2011, p. 59). Researchers claimed that a blindness for cultural transfer exists and that teachers share the responsibility for the attitude or blindness vis-à-vis children in need of special support (Lundqvist, Westling Allodi, & Siljehag, 2018; Siljehag 2007). According to Statistics Sweden (Statistics Sweden, n.d. -a), about ten percent of all comprehensive school children receive special support, but the percentage of children receiving such support has decreased by half since the 1992-1998 period, when measurements started being documented in *Student panels for longitudinal studies* [*Elevpaneler för longitudinella studier*] (Statistics Sweden, n.d. -b). The most common support was given in the form of special teaching by special needs teachers or pedagogues during certain hours every week, supervision by a special pedagogue within the existing classroom structure, teaching in different group constellations less than 50 % of the school hours, or by giving children access to an assistant or extra teacher resource in the class (Göransson & Nilholm, 2014). According to Alkahtani (2016), the teaching may also involve helping children to do their best, develop their abilities and participate to the full in society. Magnússon, Göransson and Nilholm (2018) described how the need for support cannot be exclusively looked for in individual problems confirmed by diagnoses but may be a consequence of teaching and/or school organization. Williams and Bryan (2013) described how pupils living in vulnerable areas can, after all, achieve academic success through collaboration between society, school and family.

In contrast to discussing the need of support, Vehmas (2010) questioned what needs were, and who were actually entitled to talk about needs. What made somebody perceived as being in need of support? Do not everybody have needs? Is it not educational or social norms that draw the borderline for what should be and what should not be regarded as a need? An accessible society, the right of belonging to it and a feeling of being part of the context are important aspects for both school and society.

Methods

In a systematic literature review, it is necessary to present what data is available for the subject content during research. Hence, peer-reviewed academic articles were selected for investigating the possibility of creating a synthesis of previous data within the field (Kallio, Pietilä, Johnson, & Kangasniemi, 2016). In this research, the focus was on children in need of special support in leisure activities (see Table 1).

Sampling

The SPICE (Social context, Perspective/s, Interest or Intervention, Compilation and Evaluation) tool is used in the selection of articles for this systematic literature review (see Table 1) (Ericsson-Barajas, 2013; Kallio, et al., 2016). This is a modified version of the PICO (Population/problem, Intervention/exposure, Comparison, and Outcome) tool which has become a fundamental tool in both evidence-based practice and systematic reviews as it ena-

bles researchers to define their quantitative research questions and search terms in a systematic search strategy (Booth, O'Rourke, & Ford, 2000; Schardt, Adams, Owens, Keitz, & Fontelo, 2007). However, as the PICO tool does not currently accommodate terms relating to qualitative research or specific qualitative designs, it has often been modified in practice (Methley, Campbell, Chew-Graham, McNally, & Cheraghi-Sohi, 2014).

Table 1. Sampling according to SPICE

SPICE	Inclusive criteria	Exclusive criteria
Social context	Leisure activities Children aged 6–12 Children in need of support Child perspective	Children younger than 6 or older than 12 years Leisure center statistics
Perspective	Description of leisure or similar activities for children in need of support	Teacher perspective alone Parent perspective alone Parent programs Leisure center manual
Interest	Activities taking place at least one semester and more frequently than once per week	Programs shorter than one semester Fewer meetings than once per week
Compilation	In order to obtain a holistic view of research a compilation is made of article contents	
Evaluation	The focus of the survey is on a synthesis rather than on an evaluation of the research	

Search Strategies

The key words in the peer reviewed papers from 2000-01-01 to 2018-10-01 described words for leisure time centers such as: leisure education, extended school days, after school education, after school programs and child care, as well as words for related services in special education such as: special needs students, disabilities, individual needs, gifted, individualized education programs, special education, behavior modification, educationally disadvantaged, student needs and inclusion. Since the leisure time center is a relatively new phenomenon, we delimited the literature search to the 21st century. Another delimitation in selected articles was children in lower secondary school, primary school, elementary education, Grade 1, 2, 3 and 4.

With the help of a librarian, the search words and limitations gave the following results. In the database *Eric* (an online library of education research and information), a combined search using words dealing with leisure centers and children in need of special support gave 53 hits after limiting for age, time period and language. In the database *PsykInfo* (a resource for abstracts of scholarly journal articles, book chapters, books, and dissertations in behavioral science and mental health), the combined search using the same words resulted in 27 hits, of which two articles were duplicates. In order not to overlook Swedish research, a search using the Swedish word [*fritidshem*] was made in in the database *SwePub* (a national database for scientific publication at Swedish universities). The outcome was 29 hits involving academically published articles. Adding the Swedish words for special support in *SwePub* gave one hit. However, the article was rejected as it did not correspond to the aim of this survey. After the search was concluded, 107 (53+25+29) titles and abstracts

were read by two different assessors. During this stage, 21 articles met the sampling criteria for full-text reading. Seven were discarded for one of the following reasons: a) parent perspective alone b) intervention study c) compensating for lack of school knowledge. Fourteen articles remained, comprising 11 from the USA, 1 from Australia, 1 from the United Kingdom and 1 from Norway. The articles included in this literature review are presented in Table 2.

Table 2. Articles included in the study: authors, publication year, title, country, aim and search words

Study	Authors	Title/year	Country	Aim	Search words
Quantitative studies					
No. 1	Knoche, Lisa; Peterson, Carla A; Edwarsa Carolyn Pope & Jeon, Hyun-Juo	Child care for children with and without disabilities. The provider, observers and parent perspectives (2006)	USA	A secondary analysis of data from the National Survey of America's Families was conducted to explore the use and quality of child care of a nationally representative sample of low-income school-aged children, stratified by disability status and family structure.	child care, quality and inclusive settings, children with disabilities, parent perceptions, early childhood workforce
No. 2	Hunt, Lucy & Ehrmann, Yoshida	Linking Schools of Thought to Schools of Practice (2016)	USA	There are parallel purposes to the creation of other progressive educational programs and Project Linking Learning. One of the main purposes for creating Project Linking Learning was to create a program that nurtured and created access and equity for diverse gifted learners.	differentiation, gifted education, identification, instructional strategies, underserved populations
No. 3	Tannenbaum, Sally Cahill & Brown-Welty, Sharon	Tandem Pedagogy: Embedding Service-Learning into an After-School Program (2006)	USA	The purpose of this study was to begin to explore the value of embedding service-learning into after-school programs.	service-learning, after-school programs, experiential learning
No. 4	Parish, Susan L. & Cloud, Jennifer M.	Child care for low-income school-age children: Disability and family structure effects in a national sample (2006)	USA	A secondary analysis of data from the National Survey of America's Families was conducted to explore the use and quality of child care of a nationally representative sample of low-income school-aged children, stratified by disability status and family structure.	after care, child care, children with disabilities, family structure
No. 5	Haney, Kanathy; Messiah, Sarah; Arheart, Kristopher; Hansson, Eric; Diego, Allison; Kardys, Jack; Kirwin, Kevin; Nottage, Renae; Ramirez, Shawn; Somarriba, Gabriel & Binhack, Lucy	Park-based after-school program to improve cardiovascular health and physical fitness in children with disabilities (2014)	USA	The effect of a structured after-school program housed in a large county parks system on several obesity-related health outcomes among children with disabilities was examined.	disability, children, obesity, prevention, physical activity

Study	Authors	Title/year	Country	Aim	Search words
No. 6	Finnvold, Jon Erik	School Segregation and Social Participation: The Case of Norwegian Children with Physical Disabilities (2018)	Norway	This study explores the conditions that limit social participation for children with physical disabilities, and in particular, how school segregation practices affect participation in formal and informal after-school activities. This study analyses factors that enable or constrain participation in two specific arenas: organized leisure activities, and children visiting each other in their own homes after school.	inclusive education, social participation, physical disability
Qualitative studies					
No. 7	Hamida Amirali Jinnah & Zolinda Stoneman	Parents' experience in seeking child care for school age children with disabilities - where does the system break down? (2008)	USA	The purpose of this study was to examine the process through which families of school age children with disabilities seek care and to identify the points in the process where the system fails families.	school age child care, disabilities, after school care, access to child care, childcare barriers, problems with child care
No. 8	Meade, Whitney W. & Jason O'brien	To Play or Not to Play: Equitable Access to Afterschool Programs for Students with Disabilities (2018)	USA		special education, special education law, inclusion
No. 9	Rah, Yeonja	Leadership Stretched over School and Community for Refugee Newcomers (2013)	USA	The FAST (Families and Schools Together) project might be a good tool to address the needs of these newcomer families.	distributed leadership, school integration, refugee education,
No. 10	Souto-Manning Mariana	On Children as Syncretic Natives: Disrupting and Moving beyond Normative Binaries (2013)	USA	Given the importance of fully inclusive education, this article seeks to understand the ways in which young multilingual and multicultural children take up issues of educational success and inclusion through trans- linguistic oral narratives.	multicultural education, multilingual children, diversity, young children, narrative, syncretic natives, syncretic immigrants, fully inclusive education, normative education binaries
No. 11	Tay Lee Yong & Lim Cher Ping	Engaging Academically at Risk Primary School Students in an ICT Mediated after school Program (2008)	Australia	It is proposed that the use of a three-dimensional Multi-User Virtual Environment (3-D MUVE) in an after-school program may engage academically at-risk students in learning tasks, especially given that the 3-D MUVE has several game-like elements.	after school programs, virtual classrooms, educational environment, all risk students, educationally disadvantaged, case study, influence of technology, learning activities, interviews

Study	Authors	Title/year	Country	Aim	Search words
No. 12	Shauna McGill	"Extended Schools": An Exploration of the Feelings, Beliefs and Intentions of Parents and Teachers (2011)	United Kingdom (Northern Ireland)	Its salient purpose is to investigate and examine the feelings, beliefs and attitudes of teachers and parents involved in the development of the Extended Schools project in Northern Ireland.	extended schools, research, feelings, beliefs, attitudes
No. 13	Ceglowski, Deborah Ann; Logue, Mary Ellin; Ullrich, Annette & Gilbert, Jaesook	Parents' Perceptions of Child Care for Children with Disabilities (2009)	USA	The aim of this work is to develop theoretical, not statistical generalizability; that is, how do these interviews with families help us to understand the experiences of other families who seek child care for their children with disabilities?	child care, parents qualitative research disabilities
Mixed Method					
No. 14	Good, Annalee G.; Burch, Patricia Ellen; Stewart, Mary S.; Acosta, Rudy & Henrich, Carolyn	Instruction Matters; Lesson from a Mixed-Method Evaluation of Out-of-School Time Tutoring No Child Left Behind (2014)	USA	The central purpose of this study is to understand whether and how providing students with academically focused out-of-school tutoring in reading and mathematics contributes to improvements in their academic performance, specifically in reading and mathematics.	tutoring, educational indicators, federal programs, federal legislation, after school programs

Results

A range of different themes characterized the content: social exposure, reasons for support, the relation to disability and the child's perspective, i.e. the tendency of grownups to talk about children in terms of their needs, but also a few articles making the child perspective visible by pinpointing their material and voices. Various forms of collaboration between social institutions, including collaboration with parents, recur in the articles.

Social Vulnerability

The social vulnerability of children in *low-income families* was a recurrent theme in a number of articles. In general, these children were given the opportunity to participate in such afternoon activities that were supposed to supplement school work. Four of the articles dealt with the issue of increasing the level of knowledge (McGill, 2011; Rah, 2013; Souto-Manning, 2013; Tannenbaum & Brown-Welty, 2006). In another article, the strongest emphasis was on the need for care, including social vulnerability and functional disability (Parish & Cloud, 2006). *Gifted* or highly talented children were held forth with a view to give children in exposed areas the chance of showing their talents in fields that were not usually supposed to affect the way schools assess giftedness (Hunt & Yoshida-Ehrmann, 2016).

Need for Special Support

The need for special support, for those with or without various functional disabilities, was an area described as affecting children's access to different school programs. The needs were related to different types of functional disabilities. The studies included both motoric disabilities and behavioral problems, but their main concern was intellectual disabilities or poor receptivity to teaching. The children may have had a pronounced diagnosis and been assessed as needing extra teaching based on various knowledge measurements made by the school. One child was refused access to afternoon activities because of motoric weakness (Meade & O'Brien, 2018). Children's need for care in combination with their functional disabilities recurred in four articles (Ceglowski, Logue, Ullrich, & Gilbert, 2009; Jinnah & Stoneman, 2008; Knoche, Peterson, Edwards, & Jeon, 2006; Parish & Cloud, 2006). In two articles, children in "low-income families" were described as being in need of special support, as they did not attain the school's knowledge requirements (Souto-Manning, 2013; Tannenbaum & Brown-Welty, 2006). Children who were in danger of not reaching these requirements were offered after-school activities where virtual classrooms and 3D players were used (Yong & Ping, 2008). In one of these after-school programs, children with functional disabilities and obesity were offered physical activities (Haney et al., 2014).

The Child's Perspective

The child's perspective, in the sense of grownups' efforts to familiarize themselves with the feeling of being a child, was mentioned in practically all articles. In some of them, this was done by making parents describe their child's possibility of receiving care (Jinnah & Stoneman, 2008; Knoche et al., 2006; Meade & O'Brien, 2018; Parish & Cloud, 2006) but also by investigating how children with disabilities and their participation in leisure activities were affected by whether or not they were included in school or after-school activities (Finnvold, 2018). Another way of approaching a child's perspective was to describe how a child's interest could form the basis for learning by providing special pedagogical tools that supplemented school pedagogy practice (Hunt & Yoshida-Ehrmann, 2016; Souto-Manning, 2013; Tannenbaum & Brown-Welty, 2006; Yong & Ping, 2008). One article discussed the ability to read, write and count (Good et al., 2014), while another touched upon how obese and functionally disabled children could be stimulated to physical activity and wellbeing, which in turn affected their ability to take part in various leisure activities (Haney et al., 2014). The child's perspective and voice were discussed in two articles with children as actors (Hunt & Yoshida-Ehrmann, 2016; Yong & Ping, 2008). Both articles described children who were activated by participating in after-school programs intended to benefit their learning and cognitive development at large. The program involved making children use their whole repertoire of abilities. In both articles the activities were carried out with a clear pedagogical idea that supplemented the school curriculum, an idea which could, in the researchers' view, be easily included in the school framework.

Cooperation

Cooperating and organizing various activities in society to benefit children's chances of cognitive development were discussed in six articles. Rah (2013) described how school and

leisure could be organized in cooperation between various actors, in this case school and municipal service. Tannenbaum and Brown-Welty (2006) described how a child's life world, i.e., the society surrounding the child, could be interwoven into leisure activities as a pedagogical idea. In their opinion, this would positively affect children's performance and desire for learning in school. McGill (2011) suggested that by adding afternoon activities to school hours in vulnerable areas, children's learning and wellbeing would benefit. McGill explores teachers' and parents' emotions, convictions and attitudes to develop an increasing school project in Northern Ireland. Cooperation between parents, school and society was a subject recurring in various shapes. In some cases, it was a question of obtaining qualitative care for the child during the hours the parents worked (Jinnah & Stoneman, 2008; Knoche et al., 2006). Parent cooperation was also emphasized to increase children's chances of cognitive development in school, in accordance with Parish & Cloud, 2006; Rah, 2013 which found that school and parent cooperation supported integration into society.

Leisure Activities

Organizations running leisure activities were presented through various activities involving children who took part to improve their learning or wellbeing (Good et al., 2014; Haney et al., 2014; Hunt & Yoshida-Ehrmann, 2016; Souto-Manning, 2013; Tannenbaum & Brown-Welty, 2006; Yong & Ping, 2008). It was also a matter of presenting a program that supplemented school and society to support children's development from a holistic perspective. These programs, which aimed at preparing children to become functional citizens, often included their parents (McGill, 2011; Rah, 2013). The studies described frequently involved some ethnic minority and/or affiliation with the lower classes in society. These were located in areas where children were considered to be at risk of being unable to explore their capacity for learning (McGill, 2011; Rah, 2013; Souto-Manning, 2013; Tannenbaum & Brown-Welty, 2006; Yong & Ping 2008). In her study, Souto-Manning (2013) pinpointed that teachers might not always have managed to discern children's capacities in the regular classroom situation. The researcher wrote: "because their syncretic practices were not recognized as valid and perhaps not understood by syncretic immigrant teachers, their sophisticated language and literacy practices went unnoticed – or at the very best did not align with the expected language and literacy practices" (Souto-Manning, 2013, p. 18). Another article in this survey (Rah, 2013) pointed out that cooperation between social services and school benefits children's development and continued: "The FAST program was a tool and resource that they (the staff) could utilize to help the Hmong refugee children adjust themselves to a new school life" (Rah, 2013, p. 73). Activities presented in the articles of the survey strongly emphasized children's cognitive development in combination with their interest in and desire for learning through cooperation between home and school (Tannenbaum & Brown-Welty, 2006). Another important aspect was the ability to offer alternative teaching methods (Souto-Manning, 2013; Yong & Ping, 2008).

Learning and Care

It was hard to find a combination of care and learning similar to that of the Swedish/Nordic context in the articles included in this survey. What clearly emerged is that the purpose of

the after-school work was to supplement school by offering activities to remedy children's' knowledge gaps or stimulate their cognitive development (Good et al., 2014; Hunt & Ehrmann, 2016; Meade & O'Brien, 2018; Souto-Manning, 2013; Tannenbaum & Brown-Welty, 2006; Yong & Ping, 2008). In some cases, the children had been assessed and found to have a diagnosis (Meade & O'Brien, 2018) or were considered to be especially gifted. The selection of children had then been based on using aspects like humor, motivation and attitude as criteria of intelligence rather than high performance in school examinations (Hunt & Ehrmann, 2016). It was also evident that it was teachers' assessments that formed the basis for offering children a special learning program after school (Hunt & Ehrmann, 2016). However, in Souto-Manning's (2013) article, children's abilities were not assessed by their school teachers.

It emerged from the studied articles that it was difficult to scrutinize the quality of activities whose clear mission was child care. One reason stated was the impact of teachers' knowledge manifested by education and/or experience as well as their own view of their mission (Jinnah & Stoneman, 2008; Knoche et al., 2006). It further appeared that parents' costs differed widely and that single parents found it hardest to combine work and parentage. Some children were left to take care of themselves, risking developing antisocial behavior (Parish & Cloud, 2006). There were also organizations that refused to admit children in need of support to their afternoon activities (Meade & O'Brien, 2018), pleading that the children failed the eligibility requirements, were deemed unable to function in the learning environment with its current teacher density, or that there was disagreement about where the responsibility lay.

Discussion

To a great extent, the articles included in this research discuss some form of vulnerability as a reason for taking part in an after-school program. These programs are viewed as an alternative to school teaching, and the articles included in this study show that children's performances can be increased. According to these articles, this may be due to teaching methods, to contents, and to teacher involvement in children's cognitive process. In a meta-analysis (Kremer et al., 2015) of after-school programs it was described how they are planned as a supplement to school in order to support children's' cognitive development. At the same time, the researchers point out that no clear effects of these programs can be discerned. One reason may be that providing care to children when their parents are at work is part of the mission and tradition of leisure centers. Another reason is that assessing or mapping children's' cognitive development does not form part of leisure center teachers' duties. However, a shift can be discerned from statements in the Swedish School Act and its directives that leisure centers should at a higher degree than previously teach children in accordance with the goals of the curriculum. A further unclarity may derive from a lack of consensus about how to interpret policy documents, which is a decisive factor in children's' rights to participate in teaching (Gadler, 2011). The researcher writes that an organization must have "an insight into what knowledge, skills and experience are required to implement the task as well as organizational flexibility" (ibid, p. 146). At the same time, Finnvold

(2018) adds the importance of child's participation in regular teaching to obtain meaningful leisure time together with those of the same age.

Children in need of support are in one way or another referred to in all the articles, partly due to search words related to this particular group. One interesting aspect is that the researchers of the articles selected do not focus on childrens' individual diagnoses. Their diagnoses do not seem to be what contributes to their need for special support and there are other assessments leading to children's participation in after school programs as a supplement to extra teaching. A prominent feature is the importance of childrens' life conditions for their need to take part in after school program activities. This was in agreement with Persson's (2009) description that children who grow up in vulnerable areas run a higher risk of failing to reach the goals in school. This was in contrast to the views of Göransson and Nilholm (2015), who did not make the same connection between vulnerability and the need for support. Magnússon, Göransson and Nilholm (2018) pointed out that the searchlight was usually related to individual problems, even though these might be sought for in the teaching situation. It feels essential to reflect on who or what counts as a need and what norms prevail over people's right to behave in such a way. Vehmas' (2010) philosophical thoughts about who or what can be counted as a need could form a useful contribution towards further discussions. The subject of the need for support can also be linked to issues of cooperation between home, school and society. Williams & Bryan (2011) found that children in high-risk areas benefited from a good collaboration and participation in various organizations which contributed to their academic success despite poor upbringing. Alkahtani (2016) emphasized that the child needs support in order to fully participate in society and that teachers need to know their students' individualities and experiences, which is in line with the ASPs presented in articles included in this overview. An issue that can be raised, on the basis of the Swedish leisure center model, is whether teachers understand their role in society and how important the collaboration is for the students' academic and social development. In this context, it is also important to ask questions from the student's perspective. In what way do the students describe their everyday life and how are their experiences being used? By listening to the children in preschool, preschool class, leisure center and the first years in school, their voices can contribute to the formation of their education. It can thus increase their participation and provide an opportunity for equal education (Lundqvist et al., 2018). Alkahtani (2016) emphasized that a child needs support to be able to participate wholeheartedly in society. The researcher also emphasized the necessity for teachers to know their students' characters and experiences, as evidenced in the after-school programs presented in the articles included in this survey. This raises the following questions; to what extent do Swedish/Nordic leisure centers function? Is it possible to combine care and cognitive development? What does supplementing school work mean? In our view, the research presented in this survey gives clear indications that there is a need for more research on leisure center activities that goes into greater detail to examine the effects of these organizations' teaching and their goal fulfilment.

Conclusions

Activities taking place after school hours directed towards children aged 6-12 years are in international research separated into activities meeting children's need for care and activities supplementing school, as opposed to the Nordic model which combines care and curricular activities before and after compulsory school hours. There are examples of activities supporting cognitive development based on children's interests and abilities. At the same time, criticism is levelled at regular school activities for not being flexible enough in their teaching methods. An obvious conclusion is the need of more research for mapping, scrutinizing, understanding and developing the Swedish (Nordic) leisure center model to meet the variety of children taking part in its activities as well as enable the combination of child care and the requirement to supplement school.

Limitations

Drawing parallels between the studies presented here and the Nordic leisure center model is complicated as the manifestations of these activities differ among the countries included in the survey (with the exception of Norway). Discussing child's needs for support or special needs pedagogy in leisure centers is another difficulty since more research has to be conducted in this area, as concluded by a number of experts in the field. The aim of this study has been to make a presentation of the articles included that will, as far as possible, be recognizable to their authors.

Acknowledgements

References

Almqvist, L., Malmqvist, J., & Nilholm, C. (2015). *Vilka stödinsatser främjar uppfyllelse av kunskapsmål för elever i svårigheter? – en syntes av meta-analyser.* In (pp. 1-122).

Alkahtani, M. A. (2016). Review of the Literature on Children with Special Educational Needs. *Journal of Education and Practice, 7*(35), 70-83.

Befring, E. (1997). The enrichment perspective: A special educational approach to an inclusive school. Remedial and Special Education, 18(3), 182-187. https://doi.org/10.1177/074193259701800307

Booth, A., O'Rourke, A. J., & Ford, N. J. (2000). Structuring the pre-search reference interview: A useful technique for handling clinical questions. Bulletin of the Medical Library Association, 88(3), 239-246.

Ceglowski, D., Logue, A., Ullrich, M., & Gilbert, E. (2009). Parents' Perceptions of Child Care for Children with Disabilities. *Early Childhood Education Journal, 36*(6), 497-504. https://doi.org/10.1007/s10643-009-0309-0

Eriksson Barajas, K. (2013). *Systematiska litteraturstudier i utbildningsvetenskap : vägledning vid examensarbeten och vetenskapliga artiklar*. Stockholm: Natur & Kultur.

Finnvold, J. E. (2018). School segregation and social participation: The case of Norwegian children with physical disabilities. *European Journal of Special Needs Education*, *33*(2), 187-204. https://doi.org/10.1080/08856257.2018.1424781

Gadler, U. (2011). *En skola för alla - gäller det alla? : Statliga styrdokuments betydelse i skolans verksamhet* (Linnaeus University dissertations ; 51). Växjö, Kalmar: Linnaeus University Press.

Good, A. B., Burch, P., Stewart, M. S., Acosta, R., & Heinrich, C. (2014). Instruction matters: Lessons from a mixed-method evaluation of out-of-school time tutoring under No Child Left Behind. *Teachers College Record*, *116*(3), 1-34.

Göransson, K., & Nilholm, C. (2015). *Den sociala situationen för barn och elever i svårigheter som undervisas i reguljära klasser och förskolegrupper: En systematisk forskningsöversikt.*

Göransson, K., & Nilholm, C. (2014). A continuing need for conceptual analysis into research on inclusive education: Response to commentators. *European Journal of Special Needs Education, 29*(3), 295-296. https://doi.org/10.1080/08856257.2014.934035

Haney, K., Messiah, S. E., Arheart, K. L., Hanson, E., Diego, A., Kardys, J., ... & Binhack, L. (2014). Park-based afterschool program to improve cardiovascular health and physical fitness in children with disabilities. *Disability and Health Journal, 7*(3), 335-342. https://doi.org/10.1016/j.dhjo.2014.02.006

Hunt, L., & Yoshida-Ehrmann, E. (2016). Linking schools of thought to schools of practice. *Gifted Child Today, 39*(3), 164-172. https://doi.org/10.1177/1076217516644650

Jinnah, H. A., & Stoneman, Z. (2008). Parents' experiences in seeking child care for school age children with disabilities—Where does the system break down?. *Children and Youth Services Review*, 30(8), 967-977. https://doi.org/10.1016/j.childyouth.2007.11.020

Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of advanced nursing, 72*(12), 2954-2965. https://doi.org/10.1111/jan.13031

Karlsudd, P. (2012). School-age care, an ideological contradiction. *Problems of Education in the 21st Century*, *48*, 45-51.

Knoche, L., Peterson, C. A., Edwards, C. P., & Jeon, H. J. (2006). Child care for children with and without disabilities: The provider, observer, and parent perspectives. *Early Childhood Research Quarterly*, *21*(1), 93-109. https://doi.org/10.1016/j.ecresq.2006.01.001

Kremer, K., Maynard, P., Polanin, B., Vaughn, R., & Sarteschi, J. (2015). Effects of After-School Programs with At-Risk Youth on Attendance and Externalizing Behaviors: A Systematic Review and Meta-Analysis. *Journal of Youth and Adolescence, 44*(3), 616-636. https://doi.org/10.1007/s10964-014-0226-4

Linikko, J. (2009). *"Det gäller att hitta nyckeln-" : Lärares syn på undervisning och dilemman för inkludering av elever i behov av särskilt stöd i specialskolan*. Stockholm: Specialpedagogiska institutionen, Stockholms universitet.

Lundqvist, J., Westling Allodi, M., & Siljehag, E. (2018). Values and Needs of Children With and Without Special Educational Needs in Early School Years: A Study of Young Children's Views on What Matters to Them. *Scandinavian Journal of Educational Research*, 1-17. https://doi.org/10.1080/00313831.2018.1466360

Magnússon, G., Göransson, K., & Nilholm, C. (2015). Similar situations? Special needs in different groups of independent schools. *Scandinavian Journal of Educational Research, 59*(4), 377-394. https://doi.org/10.1080/00313831.2014.904422

Magnússon, G., Göransson, K., & Nilholm, C. (2018). Varying access to professional, special educational support: a total population comparison of special educators in Swedish independent

and municipal schools. *Journal of Research in Special Educational Needs, 18*(4), 225-238. https://doi.org/10.1111/1471-3802.12407

McGill, S. (2011). 'Extended Schools': an exploration of the feelings, beliefs and intentions of parents and teachers. *Support for Learning*, *26*(1), 4-12. https://doi.org/10.1111/j.1467-9604.2010.01469.x

Meade, W., & O'brien, J. (2018). To Play or Not to Play: Equitable Access to Afterschool Programs for Students With Disabilities. *Journal of Cases in Educational Leadership, 21*(1), 43-52. https://doi.org/10.1177/1555458917722184

Methley, A. M., Campbell, S., Chew-Graham, C., McNally, R., & Cheraghi-Sohi, S. (2014). PICO, PICOS and SPIDER: a comparison study of specificity and sensitivity in three search tools for qualitative systematic reviews. *BMC health services research*, *14*(1), 579.

Parish, S. L., & Cloud, J. M. (2006). Child care for low-income school-age children: Disability and family structure effects in a national sample. *Children and Youth Services Review, 28*(8), 927-940. https://doi.org/10.1016/j.childyouth.2005.10.001

Persson, B. (2009). Finns en specialpedagogisk agenda?: Om utbildningspolitik och elever i särskilt behov av stöd. *Krut: Kritisk Utbildningstidskrift, 4*, 11-27.

Rah, Y. (2013). Leadership stretched over school and community for refugee newcomers. *Journal of Cases in Educational Leadership, 16*(3), 62-76. https://doi.org/10.1177/1555458913498479

Rauch, D. (2007). Is there really a Scandinavian social service model? A comparison of childcare and elderly care in six European countries. *Acta Sociologica, 50*(3), 249-269. https://doi.org/10.1177/0001699307080931

Schardt, C., Adams, M. B., Owens, T., Keitz, S., & Fontelo, P., (2007). Utilization of the PICO framework to improve searching PubMed for clinical questions. BMC Medical Informatics and Decision Making, 7, 16-21. doi:10.1186/1472-6947-7-16

Siljehag, E. (2007). *Igenkännande och motkraft: Förskole- och fritidspedagogikens betydelse för specialpedagogiken: En deltagarorienterad studie.* Stockholm: Institutionen för individ, omvärld och lärande, Lärarhögskolan i Stockholm.

Statistics Sweden. (n.d. -a) Remedial education participation rate unchanged. Retrieved from https://www.scb.se/en/finding-statistics/statistics-by-subject-area/education-and-research/education-of-the-population/panel-of-students-for-longitudinal-studies/pong/statistical-news/panel-of-students-for-longitudinal-studies-school-year-20172018/

Statistics Sweden. (n.d. -b) Panels of students for longitudinal studies. Retrieved from https://www.scb.se/en/finding-statistics/statistics-by-subject-area/education-and-research/education-of-the-population/panel-of-students-for-longitudinal-studies/

Souto-Manning, M. (2013). On children as syncretic natives: Disrupting and moving beyond normative binaries. *Journal of Early Childhood Literacy, 13*(3), 371-394. https://doi.org/10.1177/1468798412455035

Swedish Education Act. (2010:800). Stockholm: Swedish Code of Statutes.

Swedish National Agency for Education. (2014). *Allmänna råd för fritidshem*. Stockholm: Skolverket. Sweden.

Swedish National Agency for Education (2018). https://www.skolverket.se/download/18.6bfaca41169863e6a65d2c1/1553967923520/pdf3941.pdf

Tannenbaum, S. C., & Brown-Welty, S. (2006). Tandem pedagogy: Embedding service-learning into an after-school program. *Journal of Experiential Education, 29*(2), 111-125. https://doi.org/10.1177/105382590602900204

The National Agency for Education. (2016). *Curriculum for the compulsory school, preschool class and the recreation center 2011*, (LGR11). Stockholm: Fritzes.

Vehmas, S. (2010). Special needs: a philosophical analysis. *International Journal of Inclusive Education, 14(*1), 87-96. https://doi.org/10.1080/13603110802504143

Williams, J., & Bryan, J. (2013). Overcoming Adversity: High-Achieving African American Youth's Perspectives on Educational Resilience. *Journal of Counseling and Developmen: JCD, 91*(3), 291-300. https://doi.org/10.1002/j.1556-6676.2013.00097.x

Yong, T., & Ping, L. (2008). Engaging Academically at Risk Primary School Students in an ICT Mediated after School Program. *Australasian Journal of Educational Technology, 24*(5), 521-539. https://doi.org/10.14742/ajet.1189

Results of an Exploratory Analysis of PISA 2015 Survey of Student Participation in Outside-School-Time Programs

Larry E. Suter

Abstract: The Program for International Student Assessment (PISA) by the OECD measures student study time during formal school periods and during periods of out-of-school-time (OST). The purpose of these items is to account for differences in country to country achievement levels. However, analyses of the impact of additional study time on student achievement have produced conflicting results across countries. While more time given to a school subject within formal school is positively related to achievement in that topic, more time spent on OST is negatively related to average achievement between and within countries. The paper proposes a reconceptualization of OST and achievement by integrating theoretical frameworks of study time, student abilities, and student feelings of efficacy. The results of a descriptive and conceptual analysis of a set of new survey items in the 2015 PISA for 22 countries shows that students benefit from additional study time by having increased feelings of efficacy in a school subject (such as science) but not in measurable levels of achievement. While country to country levels OST participation rates are different, the patterns of relationships between OST participation, student achievement, and attitudes are similar.

Key words: PISA, comparative education, achievement, study time, attitudes

Introduction

The relationship between amount of study time and student learning has been a significant topic of a debate among education researchers for over 50 years (Gromada & Shewbridge, 2016; Karweit, 1984; Husén, 1972; Carroll, 1963, 1989; Farbman, 2012; Berliner, 1990). Most individuals and researchers assume that more study time would be associated with higher school performance (OECD, 2011b; Berliner, 1990). Public opinion also appears to support longer periods of study. For example, Long (2014) reports that 96% of adults in a Gallop poll thought that increased instructional time was an effective strategy for reducing the gap between high and low achievers (Long, 2014, p. 351). Thus, many educational policy bodies have urged schools and parents to increase student learning time in the United States and other countries (Benavot, 2004; Commission on Excellence, 1983; National Education Commission on Time and Learning, 1994). Nevertheless, such policies have been questioned by educational researchers (Husén, 1972; Karweit, 1984). In recent years, some countries have changed educational policies to reduce the burden of "cramming" for tests

(OECD 2017c; Bae & Jeon, 2013). Thus, the question of whether, and how, additional study time affects student performance is still an open question worthy of study and empirical analysis.

Evidence from the OECD's Program for International Student Assessment (PISA), an international comparative survey of 15-year-old students, shows that countries with longer periods of regular school time have higher achievement (OECD, 2011c, and 2017c); whereas, longer time spent in "additional study" is negatively associated with achievement or not associated at all (OECD, 2011b; 2016b, p. 209; Suter, 2016). No studies by OECD or others have provided a clear answer to the paradoxical finding about the relationship between additional study time and achievement (OECD, 2011b; 2011c; 2017c; Mori & Baker, 2010; Byun, Chung, & Baker, 2018; Bray, 2014). Often, the evidence reported in published studies directly contradicts results in other studies (Kuger, 2016; Bray, 2014; Farbman, 2012).

The thesis of this paper is that spending time in additional study is less likely to influence achievement in a school subject than it is to increase a student's level of confidence (efficacy). The reasoning of this proposition is based on educational theory of study time and learning and social-psychological theories of motivation (Carroll, 1963, 1989; Eccles et al., 1983). These theories provide a basis to hypothesize that study time outside of class (as OST or extra homework) does not lead necessarily to higher achievement levels but that ability levels interact with student self-beliefs to motivate attendance in OST which then functions to increase student feelings of efficacy in school subjects. The decision to take additional study in OST is determined by an interaction between a student's ability, their perception of their school performance, and their self-beliefs. Therefore, students of low achievement levels are more motivated to attend OST programs for a school subject if they are concerned with acquiring achievement levels equivalent to other students. Necessarily, the decision to engage in additional study is conditioned by the availability of opportunities for OST within the country.

Evidence for this hypothesis is presented from analysis of relationships of student achievement levels and perceived need for efficacy in a cross-national study of 22 countries. By comparing these relationships across countries, the level of generality for these relationships across differing educational and social conditions will be established.

Definition of Outside-School-Time

Many different terms have been used to refer to similar, but not necessarily identical, practices of student activities outside of formal school time (see review by Bray and Kobakhidze, 2014). Some of the terms include: after-school time, outside-school-time (Noam & Shaw, 2013), additional instruction (OECD, 2017b), extended learning (Fischer & Klieme, 2013), shadow education (Stevenson & Baker, 1992; Bray, 1999), private supplementary tutoring requiring payment (Bray, 1999), cram school, group learning, extracurricular activities (National Research Council, 2002), summer learning (Alexander, Entwisle, Olson, 2007). Other terms unique to a single country exist also. The term "outside-school-time" or "OST" will be used throughout the paper to refer to student self-reports of study time in any topic. Because this paper is an analysis of existing survey data, the scope of OST is confined by the set of items contained in the expanded PISA 2015 items on "additional study".

The PISA survey defines OST as student study time outside of regular school hours conducted on topics of formal school that are held in an organized setting with an individual, a group, or on-line (OECD, 2016a; Kuger, 2016). A high percentage of PISA 2015 respondents reported that their OST mathematics and science classes duplicated the content of the regular school (ranging from 77 percent in Denmark to 95 percent in Thailand) providing evidence that the PISA items significantly captured the study events that were intended by the study framework.

Selective Review of Research

Academic studies of student time use in addition to school hours have increased in the past 20 years reaching approximately 40 papers a year. The studies that are of most interest for this analysis are that that discuss theoretical definitions of study time, how social-psychological theories have been applied to OST study, and how international comparative studies have influenced informed knowledge of OST participation and effects. Many studies of OST are conducted with international comparisons or an analysis of one country's policies that would be of interest to other countries.

Study Time

The study of the relationship between OST and achievement is a subset of the general topic of hours of study time and learning and therefore these concepts should be conceptually linked. A broad and inclusive framework of learning, study, and social and psychological attitudes is necessary to improve our understanding of OST and its role with student achievement. Because PISA surveys include multiple measures of study time and regular school time, the conceptual framework must directly include reference to time itself.

A model of time-use was developed by John Carroll in 1963. He argued that student performance is a function of the initial ability status of the pupils, the curriculum objectives, and the time spent on actual learning (Carroll, 1963). He noted that not all students require the same amount of time to achieve the same level of learning. The model of time use developed by Carroll has provided a basic framework that has continued to influence the study of the relationship between study time and achievement (e.g. see Kuger, 2016). The model postulated that five basic classes of variables account for variations in school achievement: The student's aptitude or amount of time needed to learn a task; student's ability or amount of time to understand instruction; student's perseverance or willingness to spend time on tasks or instruction; the opportunity or amount of time allowed for learning; and the quality of instruction indicated by less need for instructor repetition (Carroll, 1963, p. 25). In Carroll's model, not all students are expected to achieve mastery, but all students require the necessary opportunity to learn, given their abilities and aptitude (see Berliner, 1990, for extended discussion). His conceptualization received empirical support from an analysis by Wiley and Harnischfeger who concluded that additional time should be provided for those who need it to achieve equal individual benefits of schooling (Wiley and Harnischfeger, 1974, p. 11). Thus, Carroll's model suggests that lower ability students may be more likely to acquire additional learning in settings outside of class time.

Social Psychological Theory of Motivation

Many studies, particularly in the United States, discuss whether after-school study practices affect social and psychological well-being as well as academic achievement (Noam and Shah, 2013; Noam and Triggs, 2018; Mahoney, Larson, Eccles, & Lord, 2005; NRC, 2009, 2012; Bray, 2013). Among these frameworks is one developed by social psychologists who have theorized that student behavior may be predicted by the attributes of motivation: values and expectations. One of the influential theories of motivation and achievement is the "expectancy-value" model (Eccles et al., 1983; Wigfield & Eccles, 1995, 2002). That model proposes that student expectancies and values are the most direct predictors of achievement performance and behavior choice (Wigfield, 1994; Wigfield & Cambria, 2010). The theory proposed four major components of achievement task values: attainment value, intrinsic value, utility value, and cost. Values have both broad and task-specific definitions. Broader values have to do with an individuals' sense of what is appropriate to do to achieve a desirable end states of activities. Task specific values are values defined with respect to the qualities of different tasks and how those qualities influence the individual's desire to do the task. Attainment value is defined as the importance of doing well on a given task (such as science achievement). It incorporates identity issues (such as self-efficacy) which are tasks that are important when individuals view them as central to their own sense of themselves or allows them to express or confirm important aspects of self. These constructs are influenced by a variety of psychological, social, contextual, and cultural conditions outlined in a number of papers (Eccleset al., 1983). Research studies of motivation are mostly concerned with determining how expectancies, values, and their determinants influence choice, persistence, and performance. The content of items in the PISA survey permit an extensive analysis of how this theory might improve understanding about why students in different countries did or did not attend OST.

Competing Hypotheses

Testing the claim that students are more motivated by social-psychological aspects of their perception than achievement alone to increase OST participation requires examining several rival hypotheses. Four areas of possible rival hypotheses of relationship between OST and other behaviors will be discussed here and addressed in the analysis as much as possible. These are issues of OST measurement, family status levels, quality of instruction, and causal analysis.

Errors of Measurement

The validity of the analysis of the PISA survey depends on the reliability and validity of the survey items chosen by PISA. In order to create valid cross-country measurements, the basic nature of OST must be defined in a manner that could be understood by survey respondents in the same way across cultures and by all students within a country. No survey data are available to adequately answer questions of construct validity directly, but the relationships between the existing survey items of OST and student reasons for attending, and

their attitudes and achievement do provide insight into how OST is interpreted across different countries. Bray and Kobakhidze (2014) have documented methodological measurement issues with the PISA items such as quality of translation, misidentification of activities, lack of full definition, and insufficient concern with measuring the cost of additional study to the student or family that could affect the strength of conclusions from cross-national surveys. Thus, the interpretation of nation to nation differences in reported levels of OST must be checked by comparing the similarity of relationships to known factors, such as other forms of study. The interpretation of results must consider the possibility that observed relationships between variables found to be very different in only a few countries may be a signal that the items on OST are not reliable measures of a true difference in OST behavior for those countries. The PISA results for OST in Hong Kong and Korea, for example, are explored specifically for explanations of observed differences.

Social Status

A student characteristic that is known to affect student performance is the socioeconomic status (SES) of their families. Several studies have been published that claim that higher status families may give their children advantages by sending them to OST classes (Byrun, Shofer & Kim, 2012; Byun, et al., 2018; Matsuoka, 2018; Covay & Carbonaro 2010). An analysis of PISA surveys in 2012 and 2015 finds that the relationship between family status and student participation in OST varies considerably between countries. However, previous studies with the 2012 PISA survey did not show that status level differences within English speaking countries made a significant contribution to explaining differences in OST program participation (Suter, 2016). Since social status is an important factor in most educational activities, it must be considered as a rival hypothesis to the social-psychological factors proposed here.

Country Conditions

Another form of variation in opportunity structure for OST participation occurs at the country level. Large differences in country to country participation rates were noted in PISA 2009 (OECD, 2011a). Some international studies of time use have addressed how market forces of supply and demand of OST has affected the content of the study programs (Bray & Silova, 2006; Kobakhidze, 2018) and how OST affects a country's educational development (Byun, Chung, & Baker, 2018). These country level studies offer promising avenues for future research that enable the integration of knowledge of system level opportunities models of student social-psychological motivation as proposed here. To develop a full understanding of the function of OST, a comprehensive description of each country's system of OST would be necessary.

Quality of Instruction

Another obvious factor believed to affect student learning is the quality of the instruction itself (as discussed by Carroll, for example). Carroll noted that, "time as such is not what counts, but what happens during that time". He continued to say, "time is, in a sense, a psychologically empty concept" (Carroll, 1989, p. 27; Gage & Berliner, 1978). The measure-

ment of instructional quality of OST is a complex subject that was not attempted in the set of items prepared for the 2015 PISA. Thus, differences in quality of instruction from country to country, and within countries, is a potential rival explanation for differences in effectiveness of OST participation that cannot be dismissed. The survey did include student responses about their perception of the type of instruction received in OST compared with regular school that could not be examined for this study but will be explored in the future.

Methods

The method for analysis is to examine statistical relationships between responses to the OST items in the PISA 2015 survey on student ability, attitudes, reasons for attending additional study, and hours of homework study. The analysis will be conducted of a newly designed and executed set of items from the 2015 PISA survey about which little is known of the response rates or distributions of characteristics prior to analysis (OECD, 2016c, 2017a; Kuger, 2016). The analysis in this paper presents a selection of charts and tables that describe the size and shape of distributions of student conditions associated with OST participation within and among countries. Thus, analysis method will depend more on presentation of descriptive tabulations than on multivariate models to emphasize and display distributions of each variable. Such description is a necessary step toward proposing a more complete causal model. After experience was gained with the distributions of achievement, attitudes and OST practices, a multivariate regression model will be examined to test some of the rival hypotheses outlined here.

Previous researchers of OST have attempted to analyze large scale data bases using multivariate regression models across many countries (Bae & Hong, 2016; Byun, Chung, & Baker, 2018; Liao & Huang 2018; Stevenson & Baker, 1992). Some of these analyses make assumptions about the meaning of coefficients that may be incorrect because the underlying distributions are not linear or the relationships between two distributions are not homoscedastic. Or, interpreting a response by students in an unfamiliar culture may not reflect the reality of that culture (Bray, 2014).

Throughout this paper the vocabulary of causality is occasionally used because the goal of social science research is to identify how and when one behavior affects others. But a more cautious approach to data analysis is conducted. The use of "cause" in this paper is restricted to a method of drawing inferences from evidence. It does not imply that statistical representation is necessarily capable of representing all conditions necessary to infer causality. To do so would require a complete model of human behavior with all rival explanations accounted. Explaining student practices of study time and achievement may not be possible with a single set of measured factors in a cross-sectional survey. The more modest aim of this analysis is to organize evidence of the conditions associated with OST behavior, to confirm or deny potential rival explanations and to improve the plausibility of claims about causal forces (Schneider et al., 2007, p. 140).

Operational Definition of OST

The publicly available PISA 2015 data base provides an empirical source for a meaningful study of some of the concepts of OST, additional study, homework, and extracurricular activities for national samples of 15-year-olds (Klieme & Kuger, 2016; Kuger, et al., 2016; Jude & Kuger, 2018; OECD, 2017b). The 2015 survey included an optional module (Educational Career module) that was answered by students in only 22 of the 106 participating economies that will be analyzed in this study. The survey items for OST measurement were developed for PISA 2015 after extensive planning (Kuger, 2016, p. 395; Jude and Kuger, 2018). The new survey design provides an opportunity to examine the effectiveness of the new framework for measuring student participation in OST (OECD, 2017b, p. 113).

OST was defined by the opening question that asked, "What type of additional science instruction did you participate in during this school year?". The PISA 2015 OST survey items address study time specifically related to school domain topics and omit reference to other "informal" experiences such as museum attendance, and activities during vacation from school. The PISA items were designed to identify practices such as "cram" schools and other forms of study frequently found especially in Eastern Asia.

Students reported the number of hours per week that they attended OST in nine domains: mathematics, language, foreign language, social science, music, visual arts, dance, sports and a catch-all category. The category included an option of zero hours. For analysis purposes, only students who answered 1 hour or more were counted as having attended OST last week. Because the survey allows multiple skip patterns, calculating participation rates in OST requires careful attention to the intended and unintended respondent. For example, the 10 subject domains are independent of each other; thus, the number of "eligible" students to report their OST activities is different for each subject.

Other items in the optional Educational Career module contain elaborate distinctions of OST types including questions for each domain about type of instruction (8 categories of tutoring, video instruction, and group study); reasons for attending or not (13 categories each); how the method of instruction in the program differed from regular school; and where the instruction was located in relationship to the school itself. The questions about the nature and motivation of the OST program were asked separately for the three main PISA subject domains, and responses to more than one subject area were allowed. These items produced 130 different data items on the public-use data base. The survey also included indicators of time spent on extra-curricular student activities such as sports, performing arts, visual arts and music. Many of these items were briefly examined prior to selecting a smaller set of topics for detailed analysis in this first analysis but are not summarized here. Instead, the data analysis has selected OST measures that are specifically intended to quantify student activities that may improve school performance in science, mathematics or reading. The study itself focused most attention on science learning so science achievement and OST attendance will be the most frequently discussed topic.

Findings

The overall 22 country response rates for all 10 OST domains are shown in Table 1. The table shows the ratio of students who attended for at least one-hour last week to the number of students who answered the domain item. The higher responses for mathematics, sports, science, and languages shows that these topics were understood by the students to be their most frequent OST activities. The rate shown here may be somewhat biased upward because non-respondents were excluded from the entire table. These participation rates should not be compared with other survey sources (such as previous PISA surveys) because of the nature of non-response categories to the 10 items.

Country Differences in Participation

Table 2 presents OST participation rates by country by combining 10 domains into three major categories: academic (science, mathematics, language, social science, and foreign language); arts (arts, painting, music); and sports. The population selected for the denominator of this calculation includes missing responses for individual items to provide the widest coverage of potential respondents and to maintain consistency in the base of the rate across different items. The participation rate in academic domains ranges across countries from 60 to 90 percent, except in Denmark that falls below half. Participation in the Arts programs are somewhat lower than attendance in the academic OST programs. Each country has a significant percentage of 15-year-olds participating in sports but only in Denmark and Iceland is the percentage in sports higher than OST in academic fields (sports participation is not significantly different from academic OST in Austria, Hungary, Belgium and Latvia). In general, countries that have high participation in one of the three categories of combined domains also have high participation in the other two.

Table 1. Percent Attending 1 or More Hours Past Week in 10 OST Domains:
PISA 2015 (N = 22 countries)

Mathematics	Sports	Foreign Language	Language	Science	Social Science	Music	Painting	Art	Other
54.5%	52.8%	45.8%	43.3%	41.9%	33.4%	29.1%	24.6%	22.1%	35.5%

Table 2.   Participation Rates in Academic, Art and Sports OST Domains, by Country
             (ranked by level of participation in academic domains): PISA 2015

Country	Unweighted Cases	Any of Five Academic Domains	Music, Art, or Painting	Sports
Thailand	7,882	90.3%	77.4%	76.4%
Korea	5,547	89.9%	67.4%	69.7%
China	9,813	89.6%	80.7%	81.7%
Peru	6,952	89.6%	81.6%	84.5%
Poland	4,449	89.1%	74.9%	82.1%
Greece	5,487	87.4%	63.2%	74.3%
Hong Kong	5,265	86.1%	74.5%	73.5%
Slovenia	6,174	83.4%	73.9%	78.8%
England	5,242	83.1%	63.2%	71.3%
Latvia	4,684	83.1%	75.2%	80.0%
Slovakia	6,089	82.3%	72.0%	77.6%
Lithuania	6,198	81.8%	75.2%	76.5%
Bulgaria	5,746	80.7%	69.4%	73.5%
roatia	5,658	76.1%	60.0%	66.2%
Hungary	5,417	75.1%	67.0%	75.0%
Spain	6,622	74.7%	54.5%	69.6%
Germany	5,339	70.5%	56.4%	62.6%
Italy	10,915	70.2%	53.6%	63.9%
Belgium	3,242	68.3%	51.4%	65.8%
Australia	12,445	66.4%	55.2%	66.0%
Iceland	3,289	60.8%	54.1%	65.5%
Denmark	6,629	48.5%	42.6%	57.6%

The scatterplot in Figure 1 shows that countries with high levels of participation in science OST are also the most likely to participate in mathematics OST. The Spearman rank correlations of OST participation between three school domains of mathematics, science and reading (local language) across 22 countries range between 0.89 and 0.93 supporting the conjecture that high participation in one domain is associated with participation in other domains within countries. The chart also shows that some countries have higher levels of OST participation in mathematics than in science (Korea and Hong Kong are especially more likely to be in mathematics than science as shown by their distance from the regression line). Many researchers have discussed the Asian practices of emphasis on study (Bray, & Lykins, 2012; Byun, Shofer, & Kim, 2012; Byun & Park, 2012; Komatsu & Rappley, 2018). However, the variation among these countries suggests that OST participation is less of a cultural pattern shared by geography and more a result of the unique history of development of educational institutions in each country. Explaining country to country differences in OST participation would require having more knowledge of the businesses and government policies about OST programs for each country.

Figure 1. Scatterplot of Country Participation in Science OST Compared with
        Mathematics OST
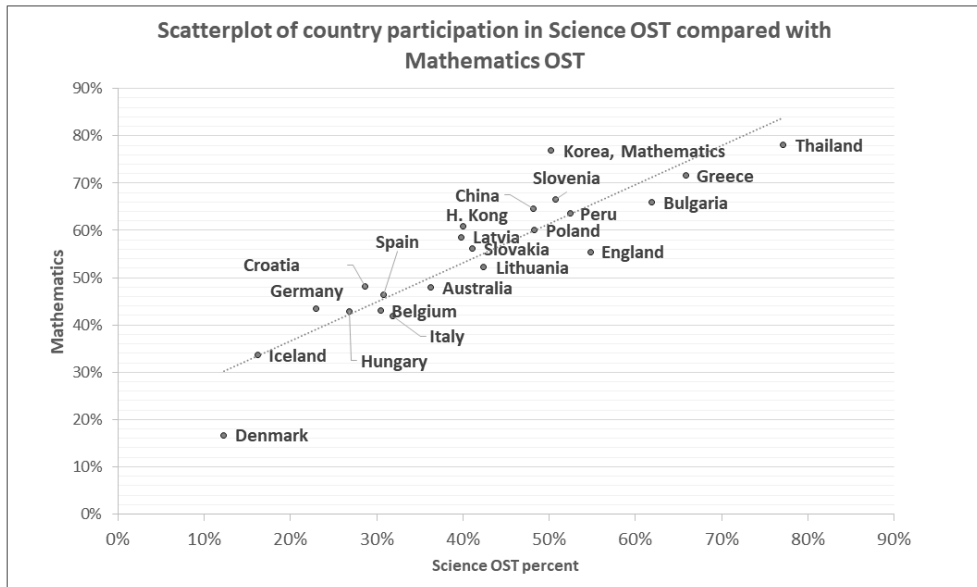
Participation in OST and Student Ability

A summary of the relationship for the aggregate of students from all 22 countries in the
2015 PISA is shown in Table 3 for OST science participation and achievement in science to
demonstrate the strong overall negative relationship between science ability and participa-
tion in OST. The correlation coefficients between student science achievement and hours
for OST within the 22 countries are low and negative (ranging from -0.02 to -0.24). Since a
regression equation assumes that the relationships are linear, the distribution of science
achievement was divided into four categories to allow additional analysis of distribution of
participation rates within different levels of achievement.

Differences in OST participation rates were computed (not shown separately) for four
ability levels by country. In 18 countries, OST participation rates increase evenly between
each ability level. However, in 6 countries (Greece, Thailand, Hong Kong, Korea, Bulgaria
and Slovenia) ability level was not a significant distinguishing factor in participation rates.
Participation rates in Greece and Thailand were over 60 percent in each ability category
while students in Hong Kong attended at about the same percentage at all levels but at a
much lower level (around 40 percent). The largest differences in participation rates occurs
between the lowest and second lowest ability levels; a smaller difference is found between
the two top levels (a few countries have decreasing rates between the top two levels). The
conclusion of this analysis is that the relationship between ability and OST participation is
curvilinear with largest changes occurring at low to medium levels of ability and smaller

changes among student above the average. The level of difference between ability categories is affected by the overall participation rate in the country. Larger differences occur among countries with low OST participation (however, the true size of within country differences is affected by a ceiling effect in high participating countries; once participation rates reach 80 percent overall, differences between achievement levels within those countries country are limited to a smaller range than in low participating countries).

Table 3.   Percent of Students in 22 Countries who Reported Attending OST Classes in Science as No-Hours or 1-Hour-or-More in the Past Week by Level of Science Achievement
(This table includes missing responses in one or more domain in the denominator.)

| Achievement Quartiles	No-Hours Last Week	1 hr.-or-More Last Week
Total	25.4%	42.0%
High ability	39.9%	31.6%
Medium high ability	29.9%	36.1%
Medium low ability	20.8%	44.4%
Low ability	11.9%	58.2%

Student Science Efficacy

Student decisions to increase study time are motivated by perceived needs for higher achievement. They are motivated as much by personal feelings of confidence in a subject matter as by actual performance. To test the significance of self-efficacy in science, the PISA scale on science self-efficacy and achievement are applied to this analysis to enable an inspection of the interaction between ability and motivation on OST participation. The PISA research program includes measurement scales of student attitudes in self-efficacy in science, enjoyment of science, and beliefs that science has instrumental values. The scale of science-efficacy is the most relevant for this analysis because it represents the student's own conception of their ability. A student's level of science-efficacy is positively correlated with their achievement level, but at a relatively low level ($r=0.18$) indicating that students do not have precise self-knowledge of their performance. The OST participation rates by science self-efficacy and science achievement levels in Figures 2a and 2b show that each has an independent influence on participation.

Figure 2a.   Percent who Attend Science OST for Self Improvement with Science
Achievement on (Achievement on X axis)
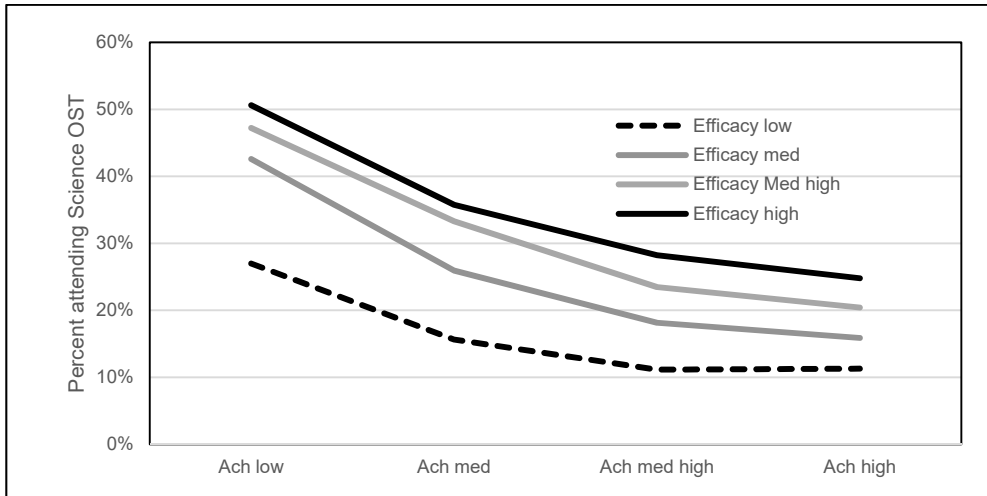
Figure 2b.   Percent who Attend Science OST for Self Improvement by Science
Achievement and Efficacy (Efficacy on X axis)
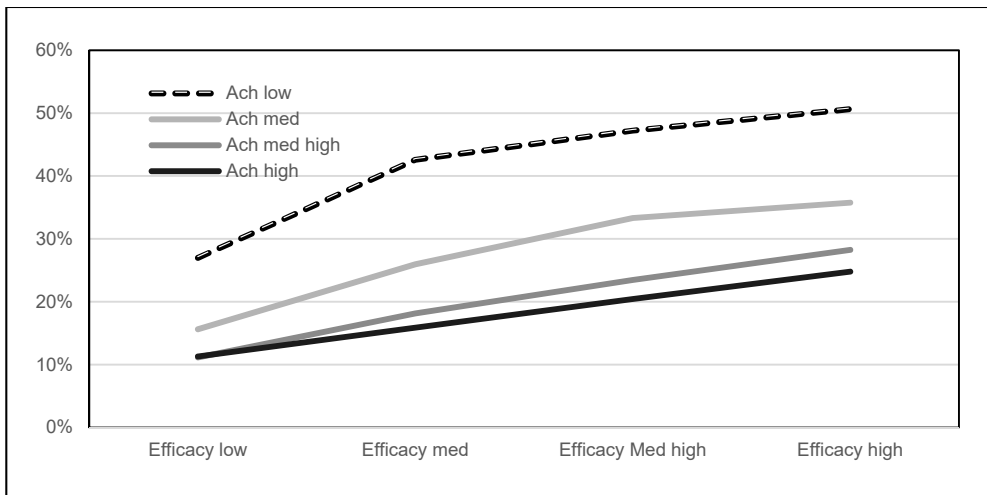
OST participation rates decline between low and high ability levels but increase between
low and high levels of science efficacy. The relationship between levels of science efficacy
and taking additional study in science is stronger at lower levels of ability than at higher
levels of ability (Figure 2a). Students with high ability and low confidence in science are
the least likely to attend science OST. Two versions of the same participation rates are pre-
sented in Figures 2a and 2b to illustrate the magnitude of differences in attitude and ability
on decisions to attend OST (the x and y axes in Figure 2b are flipped from those in Figure

2a). These results are consistent with previous studies that found low correlation coefficients between hours of OST and achievement and high coefficients with attitudes toward science in English speaking countries from PISA 2012 (Suter, 2016). To some extent, the level of science-efficacy overcomes achievement levels as influences on decisions to enter OST (best illustrated in Figure 2b which shows higher OST participation rates at higher efficacy levels within each category of ability). This finding supports the inference from Carroll's model that student's perceptions of ability, as well as their ability (measured by PISA test in science), affects decisions for further study. The main lesson from this discussion is that consideration of both ability and attitude is necessary to comprehend student decisions to enter additional study classes.

Hong Kong and Korea

The science OST participation rates in Korea and Hong Kong stand out from the other 20 countries for having small differences in participation rates by ability level. While ability may not be a strong influence on whether students attend OST or not, the student's feelings of efficacy in their science knowledge may be more important. To test whether the participation rates in these two countries are like other countries Figure 3 was created to compare the countries in participation rates for ability level and science efficacy levels. To assure that the student responses in all three country categories, the rates of science OST attendance was restricted to students who were attending OST to improve their school performance. Each line in Figure 3 presents the rate of attending science OST for one ability quadrant. Each quadrant is labeled Abil 1 for lowest ability to Abil 4 for highest. OST participation rates are computed for the 4 ability quadrants of the PISA science efficacy scale (labeled EF1 for lowest efficacy to Ef4 for highest) creating 16 points of measurement for each country.

Differences in the height and slope of the lines represent the level of participation for each level of science efficacy within an ability quadrant. The OST participation rates increase by about the same amount across the science efficacy levels. Students with the lowest level of science ability have the highest participation rates in each country set, but the participation rates within Korea and Hong Kong for the other three ability levels are similar. The rates of attendance for students of high ability levels in the remaining 20 countries (on the right side of the graph) are much lower than for low ability students and the differences by science efficacy levels within ability levels are less pronounced. Thus, the comparison of Korea and Hong Kong to the 20-counry set shows that level of student feelings for science efficacy is more effective than ability level is for altering their tendency to participate in science OST.

Figure 3. Percent of Students Attending Science OST by Science Efficacy (Ef) and Ability (Abil): for Students in Hong Kong, Korea and 20 Countries who Attended to Improve School Performance
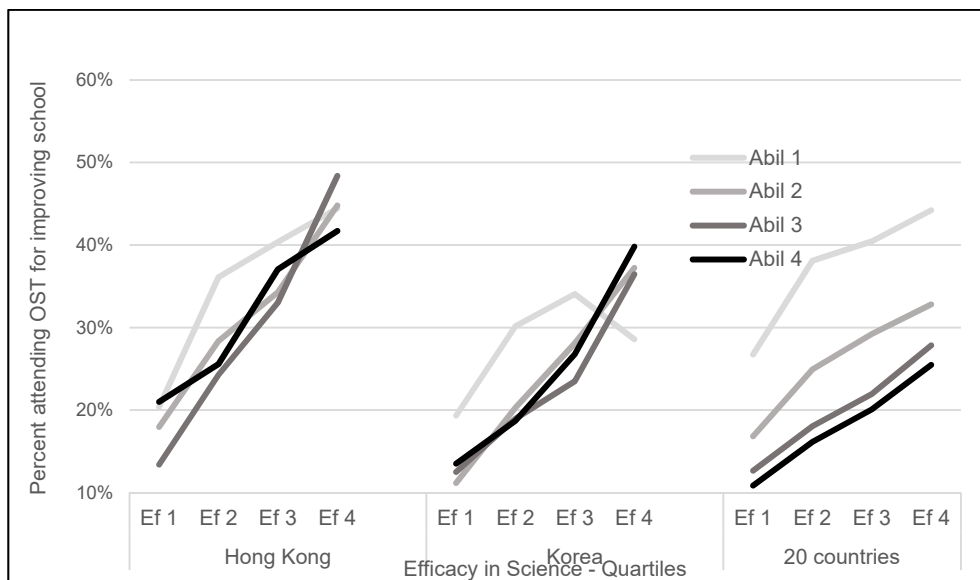
The fact that ability conditions how strongly self-efficacy affects OST participation in these two countries provides evidence that self-perceptions of ability is an influential factor in student behavior (compared with influence of teachers, family or friends) that should be considered in all studies of OST participation. It appears that low ability students expect to benefit most from their attendance in OST. Exactly why the effect of student efficacy has an especially strong influence on OST participation in these two countries requires more information about the structure of OST in all countries and a more complete model of family, social, and psychological factors not considered in this exploratory analysis. An improved model of the determinants and effects of attendance in OST programs could be created with evidence from longitudinal measures of changes in achievement and attitudes.

Family Social Status

One factor not yet discussed is the influence of family social status on student attendance in science or mathematics OST programs. Detailed analysis of these relationships is beyond the capacity of this paper to consider fully because of the complexity of measurement of status across cultures and the interactions with other student characteristics. A brief examination of PISA tabulations of participation in science and mathematics OST programs by ability and social status for Korea and Hong Kong suggests that student participation in OST within these two countries are more likely to be conditioned by family status then in other countries. However, the relationship is complex and dependent on the subject matter of the program. For example, in both countries the students of lowest ability are about

equally likely to attend science or mathematics OST within 4 status levels. But at higher levels of ability, students of higher status attend more frequently than those of lower status. In Korea nearly all students attend a program in mathematics OST regardless of ability or status. In Hong Kong, attendance in either mathematics or science OST declines at higher levels of ability; but within ability levels, higher status families are more likely to attend. Thus, cultural patterns among high status families in each country appear to affect student choices differently at different ability and domains of study. The matrix created for this brief analysis are not included in this paper because of size.

This brief exploration of the conditional effect of status on the effect of ability on student participation in two subject areas shows that future international comparative studies of OST participation should consider the multivariate interaction of OST subject area, status levels, ability levels and attitudes. This topic deserves a separate detailed analysis from the brief presentation prepared for this exploratory paper.

Students' Reported Reasons for Attending

The 2015 PISA survey includes a second method of indicating the student reasons for attending OST programs. The self-reported reasons for attending or not were summarized into 4 categories: self-reasons (whether needed to improve performance or not); or were given advice by parents, teachers, or friends). Figures 4 and 5 show the reasons given by students for attending or not attending OST classes in science or mathematics by 4 levels of ability. Whether the student felt a personal need to prepare for regular school topics was the most common reason students gave for attending or not attending science or mathematics OST (labeled "self" in Figures 4 and 5). Students of lowest ability levels were most likely to give self-related reasons for attending or not attending OST in each subject. Students considering science OST were about twice as likely to give self-related reasons for not attending as they were for mathematics within each ability level. indicating that students recognize that the study of mathematics is more important. The finding that the level of reporting self-related school-performance reasons for attending OST is higher among low performing than high performing students in both subjects is consistent with the prediction that attendance in OST is a function of student ability. Students of highest ability are most likely to report that they "do not need" additional study.

Friends, teachers, and parents play a more significant role in decisions to take additional study among lower achieving students than high achieving students. However, in mathematics, positive encouragement was most likely to come from parents than from friends or teachers. The higher levels of reporting influence from friends for students choosing not to participate in science OST, compared with not participating in mathematics OST, is an indication that social factors generally are small but are may plan a slightly higher role among high performing students. Again, evidence from these tables show that ability levels of students alters the reasoning of students for taking OST.

Figure 4. Percent of Students who Attend or do not Attend OST Classes in Science by who Influenced Decision and by Ability Level
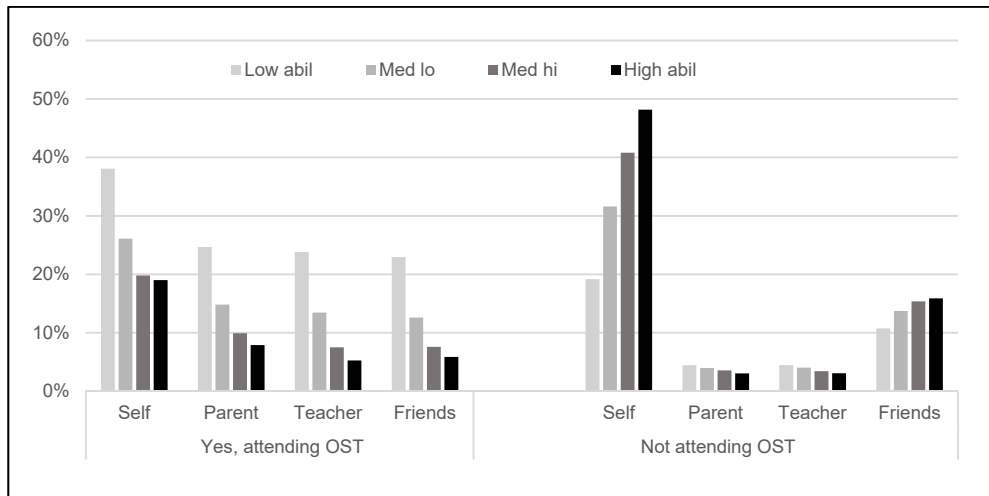
Figure 5. Percent of Students who Attend or do not Attend OST Classes in Mathematics by who Influenced Decision and by Ability Level
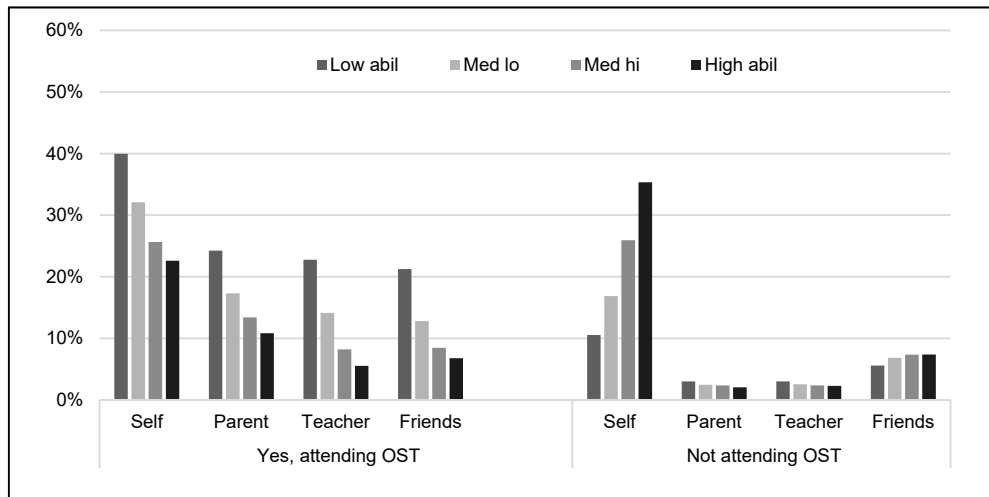
Homework and OST

To test whether study time itself is a key determinant in student achievement, a comparison of study time in homework with OST was conducted to observe whether the same student factors influence amount of time use in both types of study. If the need for achievement

among lower performing students is a significant factor in student's decisions to spend time on OST study, then student time spent on homework should reflect that relationship.

Homework time and attending OST classes both require students to schedule time outside of the regular school day; but with the difference that OST is optional while homework is assigned by teachers and is not voluntary. Unfortunately, the PISA survey does not include a measure for the number of hours of homework conducted weekly. It does include measurement of frequency of homework per day (once a day, twice a day, or not at all). This indicator is sufficient for this investigation as shown by a study of students in Germany. Trautwein has shown that hours of study are less important than the frequency of homework; therefore, the PISA indicator of homework frequency may be the most reliable indicator of the effects of homework (Trautwein, 2007). In every country, conducting homework at least once a day is ubiquitous; 60 to 96 percent of students performed daily homework at least once a day in the 21 countries that reported homework (Figure 6). The highest percentage of students performing no homework daily are Australia, Slovenia, Slovakia and Iceland. Countries with the greatest percentage of students completing homework are China, Thailand, Hong Kong, Spain, Peru and Poland (notice that these do not represent a single region). Korean students were ranked 18th out of 21 and reported the highest proportion conducting their homework only once a day and were among the lowest 3 countries conducting homework twice a day. There is a tendency for the lowest and highest performing countries to be most likely to report conducting homework twice a day (a curvilinear relationship between achievement and homework frequency).

The relationship between ability and frequency of homework forms a pattern somewhat similar to the participation in OST. Countries that rank high or low in achievement have the highest percentage of students reporting homework while countries with average achievement have no particular pattern of homework relationship to achievement. Within each country, students of lower ability are more likely to study their homework twice a day than are students of high ability because students of lower ability students appear to take additional sessions to complete their homework; whereas students of high ability are more likely to finish homework in one sitting.

The frequency of conducting homework is not associated with level of attendance at OST in science across the 21 participating countries (one country did not report all information). Spearman rank order correlations between frequency of homework to percentage taking OST within 5 ability groupings ranged from -0.12 to a positive 0.20 within 5 ability levels; not statistically significant at the $p<.05$ level. Thus, it cannot be concluded that study time in assigned homework is extended to other forms of study (OST) across countries. These forms of study are independent of each other. The only relationship between ability and study time that is consistent across most countries (with exceptions in Thailand and China) is that low ability students are more likely than high ability students to participate in OST and to conduct homework more frequently than are high ability students

Figure 6. Percent Conducting Homework Each Day for 21 Countries
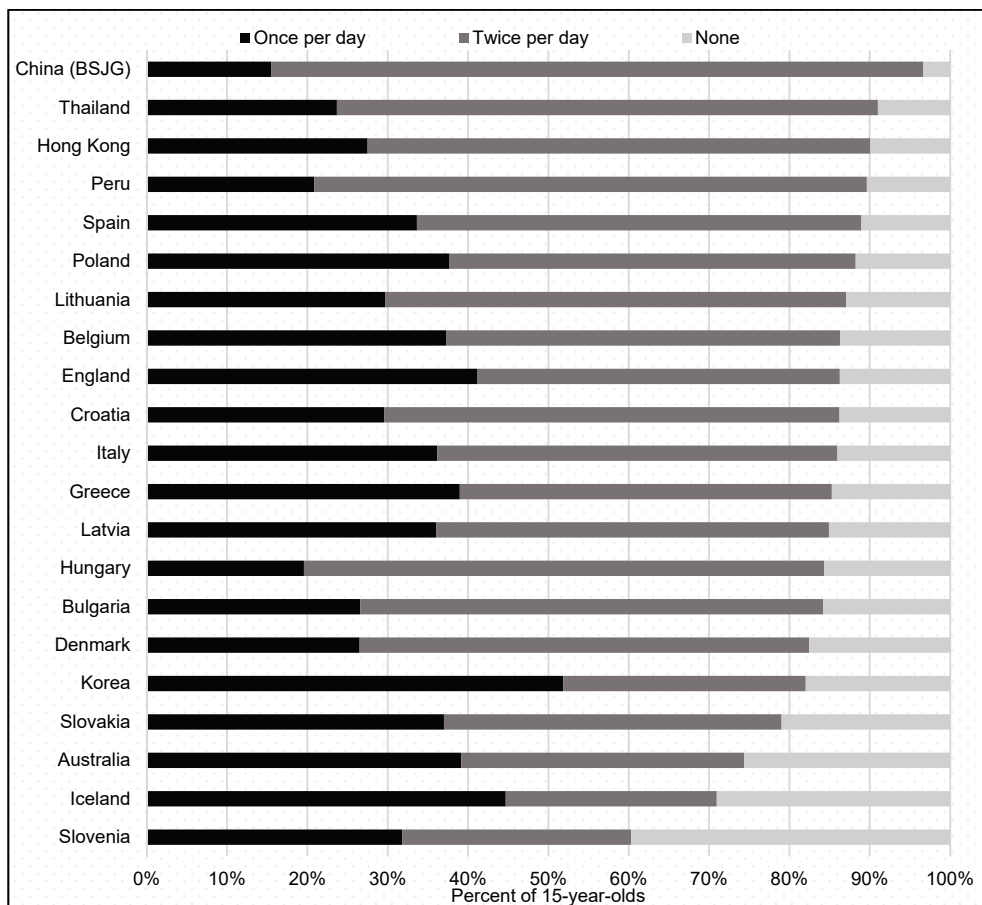
If study time is effective for the students, their level of feelings of efficacy in a school subject should be higher for those who study most. Figure 7 displays the average level of science efficacy by level of science ability in relation to their amount of homework and attendance at OST programs. As expected, students with highest test scores have higher levels of science-efficacy and low performing students have lower efficacy. Attending OST classes and conducting additional homework somewhat elevate the student's self-confidence as the efficacy averages are slightly higher. Students who frequently do homework have higher science efficacy within the same ability category. Students who attend an OST science class also have higher levels of science efficacy than those who have not attended, even within the same ability level. Low ability students have especially low confidence in their science ability particularly if they did not conduct their homework or were not in an OST program.

This analysis shows that time conducting study of school subjects outside of the classroom, either as homework or in an OST class, is similarly related to ability and efficacy.

Both forms of study activities are likely to increase self-efficacy in science of students with low ability. The relationships shown in this analysis could be explained by two opposing conjectures: 1) higher amounts of study time (with homework or OST) increase student confidence, or 2) students with low self-efficacy perform greater amounts of study time independent of actual performance. While no test of a causal claim can be derived from the cross-sectional PISA survey on either the effect of study on self-efficacy or on achievement, this analysis has provided evidence and a process to eliminate other competing claims.

Multivariate Analysis

One further test of these relationships was conducted by computing a multi-variate regression analysis of several factors at once within each country: student's family background, hours of OST, ability level in science, and two measures of attitudes (self-efficacy in science and level of instrumental value in science). Although the relationships may not be perfectly represented by a linear model, as shown in previous analysis, identifying the ideal equation in a multivariate set of dimensions is a time-consuming effort of trial and error. The finding from the linear model is that students of high science-efficacy overcome low ability and low social status by attending OST frequently in nearly every country. Self-efficacy in a school subject is higher for students who perform extra homework or attend OST programs that are designed to prepare for schoolwork. The analysis supports earlier conclusions that efficacy appears to be a more significant factor influencing attendance at OST than is ability. The logic of the efficacy scale suggests, but cannot prove, that efficacy may be a product of addition study either of homework or in OST classes, rather than a causal force. But the true reason for the strong relationship between attitudes and ability and choices for study will have to wait for additional information about how students change their attitudes or behavior over a period of time. The clear message from the PISA surveys is that student attitudes toward science are very significantly associated with additional study experiences, either as a determinant or as a result of their participation in after-school study.

Figure 7. Average Science Efficacy Scale by Ability, Homework Frequency, and
Attendance at Science
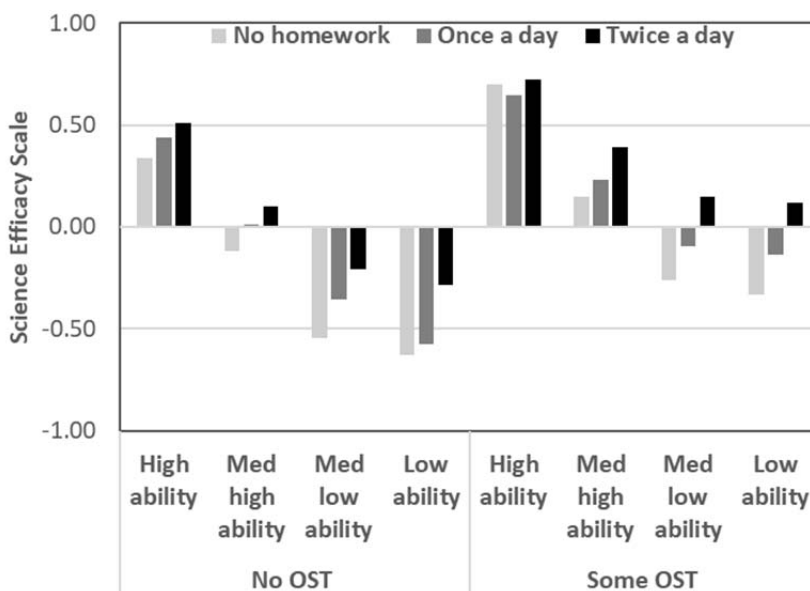
Discussion and Conclusion

The goal of this paper is to explore a new set of measures of 15-year-old participation in outside-school-time programs to identify the source of a negative relationship between student achievement (or ability) and OST participation. This study relied on the self-reports of 15-year-old students in 22 national level surveys conducted in 2015. The publicly available PISA 2015 survey permitted a thorough analysis of students who attended OST programs or not. The extensive survey information also permitted an analysis of survey results student reported reasons for attending OST, attitudes such as science efficacy, family status levels, science and mathematics ability, homework study, and country differences. This paper examined the statistical relationships between responses to the OST items in combination with multiple student characteristics to identify any potential relationships without making assumptions of linearity. Because non-participants were an important aspect of the analysis, some characteristics of OST participation, such as hours of participation, could not be considered in the same models.

Although the PISA surveys attempted to account for international differences in achievement with measures of additional study time, the survey items have failed to provide new answers about how the highest achieving countries achieved the level they have (Bray, 2014). The expectation that study time is an explanatory variable is understandable and has been supported by many independent conjectures (see a review by Komatsu & Rappleye, 2017). However, the results from repeated OECD surveys have not provided empirical evidence for a causal connection. Student reports of level of feeling of efficacy in

a subject matter were discovered to be strong indicators of how attitudes interact with ability to determine levels of attendance in OST courses. This logic reverses the anticipated causal direction of additional study to achievement frequently assumed and suggests that low achievement is a motivator for attending OST when low ability is associated with feelings of high self-efficacy.

This analysis of the 2015 PISA special items illustrates how complex the forms of additional study are around the world. Simple one-variable analyses do not capture the interactions among social and psychological norms and values. The influence on student choices that mattered the most was whether the student studied for self-improvement. Thus, future international comparative studies of after-school time should continue to ask students who attend or not attend OST to provide reasons for their choices. The relationship of OST participation to self-motivation and desire to attend additional instruction fits with the expectancy-value theory of motivation that a student's choice to take an OST class depends on interactions among of their self-developed goals, the value of the task at hand (utility, costs, and interest), and expectations for success (Wigfield & Cambria, 2010). This analysis has shown that these social-psychological conditions are influenced partially by student's ability. While the full model of expectancy value was not applied to this analysis of OST, the empirical evidence available is consistent with the theory.

Cross-national surveys of student behavior have introduced forms of evidence that appear to go against general beliefs and expectations of the influence of study time. Future surveys of study time should address all possible outcomes of OST such as student well-being and the measurements should identify specific actions might reasonably be expected to influence cognitive processing (Mahoney, Larson, Eccles, & Lord, 2005; Noam & Triggs, 2018; Covay & Carbonaro 2010). The analysis of cross-national differences in student achievement and patterns of attendance in OST has been limited by the insufficient information about the differences in OST programs of each country. More qualitative studies of the forms of additional instruction in various countries could provide a rich source of improved hypotheses about the function and structure of individual country student study practices. A global data base of student organized time for all participating countries is needed to conduct a truly deep analysis of international differences.

Author's Note:

References

Alexander K., Entwisle D. R., Olson L. S. (2007). Lasting consequences of the summer learning gap. *American Sociological Review*, 72, 167-180.

Bae, S. H., & Hong, J. I. (2016). Expanding the Horizon of Research in Extended Education: Perspective , Fields , and Methods. *International Journal for Research on Extended Education*, 4(2), 129-136.

Bae, S.H. and Jeon, S.B. (2013). Research on Afterschool Programs in Korea: Trends and Outcomes. *IJREE* Vol. 1, Issue 1/2013, pp. 53-69

Benavot A. (2004). *A global study of intended instructional time and official school curricula, 1980-2000*. Geneva: UNESCO. Google Scholar

Berliner D. (1990). *What's all the fuss about instructional time? In The nature of time in schools: Theoretical concepts, practitioner perceptions*. New York: Teachers College Press.

Bray, M. (1999). *The Shadow Education System: Private Tutoring and Its Implications for Planners*. Paris: UNESCO International Institute for Educational Planning.

Bray, M. (2013). Shadow Education: Comparative Perspectives on the Expansion and Implications of Private Supplementary Tutoring. *Procedia – Social and Behavioral Sciences*, 77, 412-420. http://doi.org/10.1016/j.sbspro.2013.03.096

Bray, M. (2014). The impact of shadow education on student academic achievement: Why the research is inconclusive and what can be done about it. *Asia Pacific Education Review*, 15(3), 381-389.

Bray, M., & Kobakhidze, M. N. (2014). Measurement issues in research on shadow education: Challenges and pitfalls encountered in TIMSS and PISA. *Comparative Education Review*, 58(4), 590-620.

Bray, M., & Silova, I. (2006). *The private tutoring phenomenon: International patterns and perspectives. Education in a hidden marketplace: Monitoring of private tutoring*, 27-40.

Bray, M., and C. Lykins. (2012). *Shadow Education: Private Supplementary Tutoring and Its Implications for Policy Makers in Asia*. Manila: Asian Development Bank.

Byun, S. Y.,& Park, H. (2012). The academic success of East Asian American youth: the role of shadow education. *Sociology of Education*, 85(1), 40-60.

Byun, S. Shofer, E., Kim, K. (2012). Revisiting the Role of Cultural Capital in East Asian Educational Systems: The Case of South Korea. *Sociology of Education*, 85 (3), 219-239.

Byun, S., Chung, J. H., & Baker, D. P. (2018). "Global Patterns of the Use of Shadow Education: Student, Family, and National Influences". *Research in the Sociology of Education*, Oct 2018; 71-105.

Carroll J. B. (1963). A model of school learning. *Teachers College Record*, 64, 723-733.

Carroll, J.B. (1989), "The Carroll model: A 25-year retrospective and prospective view", *Educational Researcher*, Vol. 18/1, pp. 26-31, www.jstor.org/stable/1176007.

Commission on Excellence (1983). *A nation at Risk*. U.S. Department of Education.

Covay, E. and Carbonaro. W. (2010). After the Bell: Participation in Extracurricular Activities, Classroom Behavior, and Academic Achievement. *Sociology of Education*, Vol. 83, No. 1, pp. 20-45

Eccles, J. S. And Wigfield, A. (1995). In The Mind Of The Actor: The Structure Of Adolescents' Achievement Task Values And Expectancy-Related Beliefs. *Personality And Social Psychology Bulletin*, 21, 215-225.

Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, 53, 109-132. doi:10.1146/ annurev.psych.53.100901.135153

Eccles, J. S., Adler, T. F., Futterman, R., Goff, S. B., Kaczala, C. M., Meece, J. L., & Midgley, C. (1983). Expectancies, values, and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motivation* (pp. 75-146). San Francisco, CA: W. H. Freeman.

Farbman, D. (2012). *The Case for Improving and Expanding Time in School: A Review of Key Research and Practice*. National Center on Time & Learning.

Fischer, N. and E. Klieme (2013), "Quality and effectiveness of German all-day schools: Results of the study on the development of all-day schools", in Ecarius, W. J. et al. (Eds.), *Extended Education – an International Perspective*, Verlag Barbara Budrich, Leverkusen.

Gage, N. L., & Berliner, D. C. (1988). *Educational psychology*. Boston: Houghton Mifflin.

Gromada, A. and C. Shewbridge (2016), "Student learning time: A literature Review", *OECD Education Working Papers*, No. 127, OECD Publishing, Paris, http://dx.doi.org/10.1787/5jm409kqqkjh-en.

Husén, T. (1972), "Does more time in school make a difference?", *Education Digest*, 38, pp. 11-14.

Jude, N., & Kuger, S. (2018). *Questionnaire Development and Design for International Large-Scale Assessments (ILSAs): Current Practice, Challenges, and Recommendations*.

Karweit, N. (1984). *Time-on-Task Reconsidered: Synthesis of Research on Time and Learning. Educational Leadership*.

Klieme, E., & Kuger, S. (2016). PISA 2015 context questionnaires framework. In OECD (Ed.), *PISA 2015 assessment and analytical framework: Science, reading, mathematic and financial literacy* (pp. 101-127). Paris: OECD Publishing. doi:10.1787/9789264255425-7-en.

Kobakhidze, N. (2018). Teachers as Tutors: Shadow Education Market Dynamics in Georgia, *CERC Studies in Comparative Education* 34, Springer International Publishing. https://doi.org/10.1007/978-3-319-95915-3

Komatsu, H., & Rappleye, J. (2017). A PISA Paradox? An Alternative Theory of Learning as a Possible Solution for Variations in PISA Scores. *Comparative Education Review*, 61(2), 269-297. http://doi.org/10.1086/690809

Kuger, Susanne; Klieme, Eckhard; Jude, Niina; Kaplan, D. (Eds). (2016). *Assessing Contexts of Learning: An International Perspective*. Cham, Switzerland: Springer.

Liao, X., & Huang, X. (2018). *Who Is More Likely to Participate in Private Tutoring and Does It Work?: Evidence from PISA (2015)*, 1(3), 69-95. http://doi.org/10.30926/ecnuroe

Long, Daniel (2014). Cross-National Educational Inequalities and Opportunities to Learn: Conflicting Views of Instructional Time. *Educational Policy*. Vol 28, Issue 3,

Mahoney, J.L., Larson, R.W., Eccles, J.S., & Lord, H. (2005). *Organized activities as developmental contexts for children and adolescents*. Mahwah, NJ: Lawrence Erlbaum Associates.

Matsuoka, R. (2014). School Socioeconomic Compositional Effect on Shadow Education Participation: Evidence from Japan. *British Journal of Sociology of Education*. Volume 36, 2.

Mori, I. and Baker, D. (2010). The origin of universal shadow education: what the supplemental education phenomenon tells us about the postmodern institution of education. *Asia Pacific Educ. Rev*. 11:36.

National Education Commission on Time and Learning. (1994). *Prisoners of Time*. U.S. Government Printing Office, Washington DC.

National Research Council (NRC) and Institute of Medicine. (2002). Community Programs to Promote Youth Development. Committee on Community-Level Programs for Youth. Jacquelynne Eccles and Jennifer A. Gootman, (Eds). *Board on Children, Youth, and Families, Division of Behavioral and Social Sciences and Education*. Washington, DC: National Academy Press.

National Research Council (NRC). (2009). *Learning Science in Informal Environments: People, Places, and Pursuits*. Committee on Learning Science in Informal Environments. Bell, P., Lewenstein, B., Shouse, A.W. and Feder, M.A. (Eds.). Washington, DC: The National Academies Press.

National Research Council (NRC). (2012). *Workshop on Informal Science*. http://sites.nationalacademies.org/DBASSE/BOSE/DBASSE_080109.

Noam, G. & Triggs, B. (2018). *The Clover Model: A Developmental Process Theory of Social-Emotional Development*. PEAR Institute. McLean Hospital, Harvard.

Noam, G. G,. & Shah, A.M., (2013). *Afterschool, Informal Science, and the Assessment Predicament: A Game-Changing Strategy*. A paper inspired by the 2012 Summit on Assessment of Informal and After-School Science Learning organized by the National Research Council and the Program in Education, Afterschool and Resiliency (PEAR). Harvard University

OECD (2011a). *Quality Time for Students: Learning In and Out of School, PISA*, OECD Publishing, Paris, http://dx.doi.org/10.1787/ 9789264087057-en.

OECD. (2011b). *Does Investing in After-School Classes Pay Off? PISA*. In Focus no. 3. Paris. www.pisa.oecd.org

OECD. (2011c). How Much Time do students spend in the Classroom? In *Education at a Glance*. Organization for Economic Cooperation and Development, Paris.

OECD (2016a), PISA 2015 Results (Volume I): *Excellence and Equity in Education*, OECD Publishing, Paris, http://dx.doi. org/10.1787/9789264266490-en.

OECD (2016b), PISA 2015 Results (Volume II): *Policies and Practices for Successful Schools*, OECD Publishing, Paris, http://dx.doi. org/10.1787/9789264267510-en.

OECD. (2016c)., PISA 2015 *Assessment and Analytical Framework: Science, Reading, Mathematic and Financial Literacy*, PISA. OECD Publishing, Paris.
http://dx.doi.org/10.1787/9789264255425-en

OECD (2017a), PISA 2015 Results (Volume III): *Students' Well-Being*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264273856-en.

OECD (2017b), PISA 2015 *Assessment and Analytical Framework: Science, Reading, Mathematic, Financial Literacy and Collaborative Problem Solving*, revised edition, PISA, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264281820-en

OECD. (2017c). *Do students spend enough time learning?* PISA in Focus, No. 73, OECD Publishing, Paris, https://doi.org/10.1787/744d881a-en.

Schneider, B., Carnoy, M., Kilpatrick, J., Schmidt, W., & Shavelson, R. (2007). *Estimating causal effects using experimental and observational designs*. Washington, DC: American Educational Research Association.

Stevenson, D. L., and D. P. Baker. (1992). Shadow Education and Allocation in Formal Schooling: Transition to University in Japan. *American Journal of Sociology* 97 (6): 1639-57.

Suter. L. E. (2016). Outside school time: an examination of science achievement and non-cognitive characteristics of 15-year-olds in several countries, *International Journal of Science Education*, 38:4, 663-687, DOI: 10.1080/09500693.2016.1147661

Trautwein, U. (2007). The homework-achievement relation reconsidered: Differentiating homework frequency, and homework effort. *Learning and Instruction,* vol. 17, pp 372-388.

Wigfield. A. (1994). Expectancy-value theory of achievement motivation: A developmental perspective. *Educational Psychology Review*, 6, 49-78. doi:10.1007/BF02209024

Wigfield & Cambria, J., A. (2010). Students' achievement values, goal orientations, interest: Definitions, development, relations to achievement outcomes. *Developmental Review*, 30(1), 1-35. https://doi.org/10.1016/j.dr.2009.12.001

Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of motivation. *Contemporary Educational Psychology*, 25, 68-81.

Wiley, D.E. & Harnischfeger, A. (1974). Explosion of a Myth: Quantity of Schooling and Exposure to Instruction, Major Educational Vehicles. *Educational Researcher*. Volume: 3 issue: 4, page(s): 7-12.

All-Day Schools and Social Work: A Swiss Case Study

Emanuela Chiapparini, Andrea Scholian, Patricia Schuler,
Christa Kappler

Abstract: All-day schools are becoming more widespread in Switzerland. They enable pupils to participate in lunchtime and extracurricular activities organized and supervised mostly by social workers. Qualitative data were collected for a project on newly implemented area-wide all-day schools in Zurich, Switzerland's largest city. The research was funded by the Swiss National Science Foundation (SNSF). Findings indicate that the resulting structural, pedagogical, spatial, and staff changes significantly impact the social work setting. The importance and potential of social work needs to be better communicated to the all-day school community.

Key words: all-day schools, leisure time, extracurricular activities, social work, evidence-informed research

Introduction: Social Work at All-Day Schools

Over the past 10 years, the federal states of Switzerland have been restructuring their education systems in order to offer country-wide all-day schooling. Such programs are becoming more widespread in Switzerland, especially in the cities of Basel, Geneva, Bern, and Zurich (Chiapparini, Schuler, & Kappler, 2016). This development is expanding the social work setting compared to mainstream schooling: All-day schools enable pupils to participate in before-school, lunchtime, and after-school extracurricular activities and programs[1] (Swiss Conference of Cantonal Ministers of Education [EDK], 2015). This new system tasks social workers Social workers working at all-day schools in Switzerland are mostly involved in the care setting before and after lessons and at lunchtime. They have different educational backgrounds, e.g., a bachelor's degree, a completed childcare apprenticeship, or no specialized education (Chiapparini, Selami, Schuler, & Kappler, 2018).[2] with providing pupils with support and access to social and cultural resources beyond the classroom.

---

[1] All-day schools in Zurich offer "extracurricular activities" and "after school programs" (Vandell, Larson, Mahoney, & Watts, 2015).

[2] Social workers working at all-day schools in Switzerland are mostly involved in the care setting before and after lessons and at lunchtime. They have different educational backgrounds, e.g., a bachelor's degree, a completed childcare apprenticeship, or no specialized education (Chiapparini et al., 2018b).

Consequently, extended school days and additional responsibilities are enhancing the role of social workers at all-day schools (Thole & Höblich, 2014).

In 2016, the city of Zurich became the first Swiss municipality to introduce area-wide all-day programs at all regular schools. These programs differ from those implemented in other cities in Canton Zurich or in other Swiss cantons. Pupils are expected to remain at school for a number of lunchtimes per week (e.g., three lunchtimes at elementary school). Although parents are allowed to opt out of the lunch program, this seldom happens (Feller & Dietrich, 2018).

Emerging all-day schooling and social work at such schools were studied in an SNSF research project on pedagogical responsibilities ("Aushandlungsprozesse der pädagogischen Zuständigkeiten an Tagesschulen im Spannungsfeld öffentlicher Erziehung; AusTEr") (Chiapparini et al., 2016). The data from this qualitative, large-scale research are particularly well suited to addressing the main question raised here: How does implementing all-day schooling impact social work at such schools (see next section)?

First, we review the relevant evidence-informed research. Second, we discuss the data collection method used in the SNSF project and our approach to analyzing that data here. Third, we look at the changes resulting from implementing all-day school programs and consider their impacts on social work settings from various perspectives (pupils, parents, teachers, and social workers). Finally, we discuss the implications of our findings and offer recommendations for future research.

Literature Review: Impact on School Performance and Personal Development at All-Day Schools

To date, little research has been conducted on implementing all-day schooling in Switzerland (Weinbach, Coelen, Dollinger, Munsch, & Rohrmann, 2017) or how its impact social work at such schools (Chiapparini et al., 2018b).

Most studies on social work at all-day schools have tried to determine the effectiveness of all-day schooling and to help pupils perform better academically and socially. Schüpbach, Mous, Wustmann, and Bolz (2007) investigated the extent to which participation in all-day schooling influences pupils' performance (in mathematics and German) and their social behavior. The authors investigated social work at different types of all-day-schools. They found that while most social workers offered free-play programs, and ensured that homework was completed without well-targeted assistance, they seldom offered extracurricular programs.

Research results have been contradictory. Whereas an initial survey of Grades 1, 2, and 3 observed minor effects on mathematics (Schüpbach, 2014), a follow-up survey indicated no significant impact (von Allmen, Schüpbach, Frei, & Nieuwenboom, 2018). A study on the development of all-day schools (StEG) in Germany found no evidence that participation in all-day programs improves pupils' academic performance (Fischer et al., 2011; Fischer, Kuhn, & Tillack, 2016). However, regular participation in high-quality extracurricular activities at all-day schools (both primary and secondary) resulted in better social behavior (Fischer et al., 2016). Similar findings were confirmed by Linberg, Struck, and Bäumer

(2018), who explained how all-day schools in Germany enable other forms of learning. A similar study (Fischer et al., 2016) indicated that voluntary participation in an extracurricular reading program (at secondary school) had a greater impact on reading performance. These results suggest that implementing all-day schooling is widely expected to impact school social work and to enhance performance (Seckiger & van Santen, 2009).

Learning can take different forms at all-day schools (e.g., Linberg et al., 2018), not only in the classroom but also during extracurricular activities. Evidence comes from studying the duties and responsibilities of social workers at such schools: organizing and supervising leisure activities and open spaces, offering voluntary participation, managing diversity and conflicts, and promoting pupil well-being (e.g., Chiapparini, Stohler, & Bussmann, 2018c). One major benefit of all-day schools is that spending more time at school improves different types of learning and thus enhances not only pupils' academic performance but also the school's performance (Schuler, Kappler, & Chiapparini, 2019). Other benefits include more opportunities for pupils to pursue personal interests, to develop their identity and personality, and to strengthen their relationships with peers and adult role models (Scherr, 2008). Nevertheless, barely any relevant research findings are available to date (Sauerwein, Thieme, & Chiapparini, 2019). Recent research in the cities of Basel and Zurich point to the importance of open spaces for pupils and of developing leisure activities and programs at all-day schools designed to enhance pupil well-being (Chiapparini, 2019). There is, however, a clear lack of systematic analysis of the impact of all-day programs on social work at such schools. In Switzerland, this is due to two factors: first, the differing models of all-day schools (Chiapparini et al., 2016) and second, the difficulty of clearly categorizing the benefits of participating in all-day school leisure activities (Scherr, 2008).

Andresen (2016) notes that existing research on the implementation of all-day schools in Germany has focused on teaching or school subjects, as confirmed by the above literature review. She argues that it is important to define extracurricular activities at all-day schools and to incorporate the views of those concerned in program development. This also applies to implementation in Switzerland. The present study aims to contribute to the scant research on this subject and thus to help improve implementation.

We raise two main questions: How do the changes resulting from implementing all-day schooling impact the corresponding social work setting? How do the key stakeholders (pupils, parents, teachers, and social workers) perceive the changes to the social work setting in terms of their own needs?

We believe that studying these perspectives illumines the ambiguous and unintended consequences of implementing all-day schooling on the structural, pedagogical, staff, and spatial levels (Chiapparini et al., 2018b). Answering the above questions is important for further implementation and for understanding the social work setting at all-day schools, which should not be shaped too strongly by pedagogical tenets (Coelen, 2007; Andresen, 2016).

Method

This study is part of a larger research project on pedagogical responsibilities (AusTEr) at all-day schools. Data collection and analysis are based on grounded theory (Glaser &

Strauss, 1967; Strauss & Corbin, 1991). This approach allows differentiating and thus considering the perspectives of key actors. According to symbolic interactionism, people do not act "because they behave functionally to structural conditions, but because they give meaning to the conditions and thus create the conditions themselves" (Abels, 2010, p. 46). Thus, meanings are "social products" whose use "takes place by the actor in an interpretation process" (Abels, 2010, pp. 46-47). As a result, the different ways in which individuals ascribe meaning to objects, events, and experiences become the starting point of research in general.

Methodologically, an individual's view is reconstructed through the subjective theories with which he or she explains the world (Flick, 2007). This qualitative, evidence-informed approach was adopted here to capture the involved social workers' thoughts, opinions, feelings, and experiences. These provide insight into how implementing all-day school programs affects the work of social worker, which in turn impacts pupils and program success. Researching these questions is much needed, not least because so far no "theory of all-day education" (Coelen & Stecher, 2014) exists and because the existing research is weak (see section 2).

Our cross-case research on pedagogical responsibilities (AusTEr) analyzed four newly launched all-day school programs in the city of Zurich and compared these at two points in time: summer 2016 (shortly before launch) and autumn 2017.[3] Data was collected from 104 interviews (Schütze, 1983) and group discussions (Bohnsack, Loos, Schäffer, Städtler, & Wild, 1995) with 108 people who had experienced program implementation. From these data, we used grounded theory (Glaser & Strauss, 1967; Strauss & Corbin, 1991) to analyze interviews and group discussions with 32 pupils, 16 parents, and 18 teachers from lower, middle, and upper all-day schools and with 15 social workers. Stakeholder descriptions and narratives about everyday school life and events, which were kept as open as possible, were analyzed in three steps: 1) open codes (e.g. being together with friends); 2) axial codes (e.g., constancy of peers over three lunches); 3) synthetic codes (e.g., positive meaning of the same peers for forming friendships). While open coding was carried out by one researcher at a time, axial coding and selective coding were performed by a group of researchers to ensure that all relevant categories were included and irrelevant ones excluded. Data were processed systematically using the MAXqda software program. Qualitative analysis of the transcribed interactions enabled identifying similar views among the various stakeholders. Ambiguous results were identified and discussed.

Empirical Findings

We present our empirical findings in terms of our two research questions: how do the changes resulting from implementing all-day schooling impact the corresponding social work setting? How do the key stakeholders (pupils, parents, teachers, and social workers) perceive the changes to the social work setting?

The main changes were structural. At the investigated elementary school, three lunch days and a subsequent extracurricular program were compulsory (i.e., the cancellation option was

---

3   In 2016, five all-day schools were introduced in the city of Zurich, of which four contrasting all-day schools (in terms of size and social context) were selected for the AusTEr research project (cf. Chiapparini et al., 2016).

barely used). This explains the increase in the number of lunchtime participants. On Mondays and Fridays, over 90% of all pupils stayed at school for lunch (Feller & Dietrich, 2018).[4]

On the pedagogical level, pupils had access to leisure activities after afternoon classes and during lunchtime, even if this was reduced from 120 to 80 minutes. Further, no more homework assignments were set at this school. Instead, voluntary assistance was provided to deepen classroom subjects during extracurricular activities. However, program change means that more extracurricular activities were (or are still being) developed. In 2018, only a few schools expanded their provision to after-class activities. Participation was low, particularly after the second year of all-day schooling.

All-day schooling also means less physical space per pupil (Schumacher, Müller, & Johann, 2018), while on the staff level, fewer qualified social workers are available per pupil than in the old program (Chiapparini et al., 2018b).

Our findings indicate that implementing all-day programs fundamentally changed both settings (schooling and social work), particularly with regard to lunchtime and after-class activities.

Against the background of these changes, we observed that *pupils* attending all-day schools generally appreciate spending more time (moreover, on a regular basis) with the same friends at lunch. They also identify more with their school and generally like the new system. Interestingly, the interviewed pupils did not mention the social workers, although these are responsible for running and supervising leisure and extracurricular activities, and thus provide the socio-educational framework necessary for self-directed learning and for building peer relationships. Further, the pupils enjoy unsupervised free play indoors, outdoors, and in open spaces. These spaces, however, are limited. For example, in a school with 200 pupils only two small closed rooms are occasionally available for for peer interaction.

The interviewed *parents* rarely mention extracurricular (after-class) activities or programs, nor the quality of the free play or self-organized activities offered at lunchtime. As one mother remarked, they are more interested in good organization and well-supervised free play, as well as lunchtime and extracurricular activities. Some parents do not consider learning and receiving support from social workers (during leisure time or extracurricular activities) important. Unlike academic performance, which is considered very important. While parents are keen to follow their child's learning progress, the absence of homework has made this difficult.

Overall, *teachers* make no direct demands on social workers, nor do they claim to cooperate with them. However, some teachers mentioned that they actively cooperate with social workers at lunchtime or during supervised free play or extracurricular (i.e., after-class) activities. Teachers tend to consider social work to be educational. It is also seen to involve imparting social rules and etiquette, which also happens in class. In contrast, the interviewed *social workers* associate their work less with education and regulation than with personal development. This is particularly noticeable in the upper grades.

The interviewed social workers identified three main opportunities of implementing all-day school programs for their work setting, which involves coping with more pupils in a

---

4   In addition, lunchtime meals cost six Swiss francs, which generally is less than before, as the previous price depended on parents' or guardians' income and ranged from 4.50 to 33 Swiss francs (*Schul- und Sportdepartement*, 2017).

narrower (lunchtime) timeframe, moreover with less staff (proportional to the number of pupils at regular schools):

(1) To promote pupils' *personal development,* social workers encourage them to make decisions, become more independent, and assume responsibilities. Unlike teachers, social workers do not focus on teaching pupils manners, but on developing their personality and interests. They offer pupils a wide variety of extracurricular activities (e.g., football, reading in the library, playing board games, and free play in the gym). They provide supervision and, if necessary, help pupils identify their needs and make decisions.

Social workers have learned to adjust to the increased number of pupils in their charge. Before the introduction of all-day schools, pupils had fewer extracurricular activities to choose from and less freedom how to spend their lunchtime. The interviewed social workers take into account pupils' need for freedom, self-organization, and self-determination. In addition, the newly opened cafeterias at all-day schools allow pupils to decide when and how long they eat lunch. The social workers pointed out that the new freedoms and flexibility also involve limits and restrictions. Moreover, some pupils struggle to handle their new freedom of choice and to organize themselves during lunchtime and thus require more support.

Finally, all-day schools enable pupils to take responsibility, which is crucial to ensuring equity in education and personal development. For example, a social worker may encourage a pupil with a speech impediment to play with a group while supporting it to include that pupil. This helps pupils assume responsibility.

(2) Social workers help pupils to appropriately address the social issues (e.g., conflict or exclusion) often arising from increased pupil numbers at all-day schools. Further, the social workers reported that identifying all pupils' needs has become more challenging. This is true especially with quiet pupils or those who blend in with the crowd, thus making it harder to provide those in need with individualized support.

(3) Social workers can more constructively support age-specific peer dynamics. Especially social workers at secondary schools indicated that lunchtime peer group activities can be conducted purposefully to promote friendships and responsible behavior among pupils and to enable age-specific learning. They therefore perceive lunchtime as a positive educational setting, one that also enables social workers to interact pedagogically with pupils. Although responsibility for harmonizing controlled learning processes and self-directed peer group dynamics lies with school social workers, little is known about how to accomplish this objective.

Conclusion

Among other goals, expanding all-day schools in Switzerland aims to interlink classes and extracurricular activities. The social work setting has increased as a result. However, research on all-day schooling in Switzerland is limited and has so far focused on academic achievement rather than personal development (Andresen, 2016; Sauerwein et al., 2019). Further, existing evidence-based quantitative research on all-day schooling barely supports the correlation between participation in all-day programs, academic performance, and social behavior (Fischer, Radisch & Schüpbach, 2014; Ecarius, 2013).

Against this background, this study applied a qualitative, evidence-informed approach to explore how implementing all-day schooling impacts the social work setting. By way of example, it studied the introduction of such programs in the city of Zurich since 2016.

In response to our research questions, we found:

1) All-day programs impact the corresponding social work setting in a differentiated way and on four levels. On the structural level, shorter lunchtimes are a crucial period in that fewer social workers are tasked with supervising more children. At the same time, implementing all-day schooling grants all children access to more extracurricular activities. Extracurricular activities during lunchtime are especially popular, but those after-class are gaining ground. On the spatial level, while program implementation increases the number of pupils over lunch, it decreases the number of available places, especially for free play. On the staff level, the number of social workers hired at all-day schools was relatively low relative to the number of pupils. Therefore, their potential professionalism cannot be fully exhausted, as exploring our second question suggested:

How do the key all-day school stakeholders (pupils, parents, teachers, and social workers) perceive the changes to the social work setting in terms of their own needs?

All-day school programs are viewed positively by pupils, as they can spend more time with their peers on a more regular basis (during lunchtime and extracurricular activities). These effects highlight that such programs extend learning (e.g., Linberg et al., 2018). In order to provide pupils with diverse forms of learning and opportunities aimed at developing their personalities and friendships, all-day schools could offer a greater variety of supervised and guided extracurricular activities as well as undirected free-play time (Scherr, 2008).

While all-day schooling should aim to connect the class to extracurricular activities, most teachers do not show much interest in the social work setting. This is probably due to two factors: varying perceptions of the role and responsibilities of teachers and social workers (Chiapparini, Selmani, Kappler, & Schuler, 2018a) and the available time.

Parents have very few demands or expectations about the extracurricular activities supervised by social workers. However, data analysis revealed that such activities are important for pupils and therefore should be organized efficiently. More research should be conducted on how social workers can ensure extracurricular activities and how social education outcomes are met.

Social workers see many opportunities for supporting pupils at all-day schools: helping them develop their personality and explore their interests through extracurricular activities; using their expertise to help pupils deal with personal and school-related issues (e.g., conflicts or social exclusion); and encouraging pupils to develop friendships and promote positive peer group effects, especially during lunchtime and extracurricular activities.

Awareness of the importance of the social work setting at all-day schools needs to be enhanced among teachers, pupils, and parents. In addition, appropriate structural, pedagogical, spatial, and staff conditions are required to support the potentials of this setting. Social workers clearly add value to all-day school programs, yet this is not recognized by many members of the school and the wider community. Awareness and appreciation of the role of social workers at all-day schools is central to establishing strong links between the curriculum and extracurricular activities (Stadtrat von Zürich, 2017b).

References

Abels, H. (2010). *Interaktion, Identität, Präsentation: Kleine Einführung in interpretative Theorien der Soziologie* (5th ed.). Wiesbaden, Germany: VS Verlag für Sozialwissenschaften.

Andresen, S. (2016). Lern- und Bildungsgelegenheiten in der Ganztagsschule. *Zeitschrift für Pädagogik*, 62(6), 830-833.

Bohnsack, R., Loos, P., Schäffer, B., Städtler, K., & Wild, B. (1995). *Die Suche nach Gemeinsamkeit und die Gewalt der Gruppe: Hooligans, Musikgruppen und andere Jugendcliquen.* Opladen, Germany: Leske + Budrich.

Chiapparini, E. (2019). Erweiterte Lernzeiten und ambivalente Förderung des Wohlbefindens der Kinder an Tagesschulen in Basel-Stadt. In S. Maschke, G. Schulz-Gade, & L. Stecher (Eds.), *Lernzeit-Hausaufgaben. Jahrbuch Ganztagsschule 2019* (pp. 200-210). Schwalbach am Taunus: Debus Pädagogik Verlag.

Chiapparini, E., Schuler, P., & Kappler, C. (2016). Pädagogische Zuständigkeiten in Tagesschulen. *Diskurs Kindheits- und Jugendforschung,* 11(3), 355-361. doi:10.21256/zhaw-1194.

Chiapparini, E., Kappler, C., & Schuler, P. (2018a). Ambivalenzen eines erweiterten Bildungsbegriffs an Tagesschulen. Befunde aus einer qualitativen Untersuchung mit Lehrkräften und sozialpädagogischen Fachkräften an Tagesschulen in Zürich. *Discourse. Journal of Childhood and Adolescence Research,* 13(3), 321-335.

Chiapparini, E., Selmani, K., Kappler C., & Schuler, P. (2018b). „Die wissen gar nicht, was wir alles machen". Befunde zu multiprofessioneller Kooperation im Zuge der Einführung von Tagesschulen in der Stadt Zürich. In E. Chiapparini, R. Stohler, & E. Bussmann (Eds.), *Soziale Arbeit im Kontext Schule. Aktuelle Entwicklungen in Praxis und Forschung in der Schweiz* (pp. 48-60). Opladen: Budrich. doi: 10.21256/zhaw-3721

Chiapparini, E., Stohler, R., & Bussmann, E. (2018c). Einleitung: Soziale Arbeit im Kontext Schule. In E. Chiapparini, R. Stohler, & E. Bussmann (Eds.), *Soziale Arbeit im Kontext Schule. Aktuelle Entwicklungen in Praxis und Forschung in der Schweiz* (pp. 3-14). Opladen: Verlag Barbara Budrich. doi: 10.21256/zhaw-3711

Coelen, T. (2007). Dimensionen empirischer Ganztagsschulforschung aus sozialpädagogischer Sicht. In F. Bettmer, S. Maykus, & F. Prüß (Eds.), *Ganztagsschule als Forschungsfeld* (pp. 43-72). Wiesbaden, Germany: VS Verlag für Sozialwissenschaften.

Coelen, T., & Stecher, L. (2014). *Grundlagentexte Pädagogik. Die Ganztagsschule: Eine Einführung.* Weinheim, Germany: Beltz Juventa.

Ecarius, J. (2013). *Extended education – an international perspective: Proceedings of the International Conference on Extracurricular and Out-of-School Time Educational Research.* Opladen, Germany: Budrich.

Feller, R. & Dietrich, F. (2018). *Evaluation der Pilotphase I des Projekts Tagesschule 2025. Schlussbericht zuhanden der Schulpflege der Stadt Zürich,* Luzern: Interface Politikstudien, Forschung, Beratung. Retrieved from:
https://www.stadt-zuerich.ch/content/dam/stzh/ssd/Deutsch/Volksschule/dokumente/stadtzuercher_volksschule/tagesschule/tagesschulen2025_schlussbericht_pilotphase1.pdf.

Fischer, N., Holtappels, H.-G., Klieme, E., Rauschenbach, T., Stecher, L., & Züchner, I. (2011). Ganztagsschule: *Entwicklung, Qualität, Wirkungen. Längsschnittliche Befunde der Studie zur Entwicklung von Ganztagsschulen (StEG)*. Weinheim: Juventa.

Fischer, N., Kuhn, H. P., & Tillack, C. (2016). *Was sind gute Schulen?: Vol 4. Theorie, Praxis und Forschung zur Qualität von Ganztagsschulen.* Immenhausen, Germany: Prolog-Verlags.

Fischer, N., Radisch, F., & Schüpbach, M. (2014). International perspectives on extracurricular activities: - teacher stress! *Journal for Educational Research Online, 6*(3), 5-9.

Flick, U. (2007). *Qualitative Sozialforschung: Eine Einführung* (Rev. ed.). *Rowohlts Enzyklopädie.* Reinbek bei Hamburg, Germany: Rowohlt Taschenbuch Verlag.

Glaser, B. G. & Straus, A. L. (1967). The Discovery of Grounded Theory. Strategies for Qualitative Research. New Brunswick, NJ: Aldine transaction.

Linberg, T.; Struck, O.; Bäumer, T. (2018). Vorzug Ganztagsschule? Zusammenhänge mit der Vorzug Ganztagsschule? Wiesbaden, Germany: Springer Fachmedien. Retrieved from https://doi.org/10.1007/s11618-018-0830-2

Sauerwein, M., Thieme, N., & Chiapparini, E. (2019). *Wie steht es mit der Ganztagsschule? Ein Forschungsreview mit sozialpädagogischer Kommentierung.* Manuscript submitted for publication.

Scherr, A. (2008). Subjekt- und Identitätsbildung. In T. Coelen & H.-U. Otto (Eds.), *Grundbegriffe Ganztagsbildung. Das Handbuch* (pp. 137-145). Wiesbaden, Germany: VS Verlag für Sozialwissenschaften.

Schuler, P., Kappler, C., & Chiapparini, E. (2019). No More Homework? Negotiations of Parental Engagement in All-Day Schools. International Journal about Parents in Education, 11(1), 46-54.

Schul- und Sportdepartement. (2017). *Tarifübersicht.* Retrieved from: https://www.stadt-zuerich.ch/content/dam/stzh/ssd/Deutsch/Volksschule/dokumente/betreuung/tarifuebersicht_neue_verordnung.pdf

Schumacher, C., Müller, H., & Johann, N. (2018). *Schulraum neu nutzen: Wie lassen sich Tagesschulen in bestehenden* Schulanlagen etablieren. Muttenz: University of Applied Sciences and Arts Northwestern Switzerland.

Schüpbach, M. (2014). Effects of extracurricular activities and their quality on primary school-age students' achievement in mathematics in Switzerland. *School Effectiveness and School Improvement, 26*(2), 279-295.

Schüpbach, M.; Mous, H.; Wustmann, C.; Bolz, M. (2007). EduCare – Qualität und Wirksamkeit familialer und ausserfamilialer Bildung und Betreuung von Primarschulkindern. In: K. Möller (Eds.), *Qualität von Grundschulunterricht. Entwickeln, erfassen und bewerten* (pp. 289-296). Wiesbaden, Germany: VS Verlag für Sozialwissenschaften.

Schütze, F. (1983). Biographieforschung und narratives Interview. *Neue Praxis, 13*(3), 283-293.

Stadtrat von Zürich (2017b). *Ausweitung des Projekts Tagesschule 2025. Medienmitteilungen,* Retrieved from https://www.stadt-zuerich.ch/ssd/de/index/departement_schul_sport/medien/medienmitteilungen/2017/170509b.html.

Strauss, A. L., & Corbin, J. M. (1991). *Basics of qualitative research: Grounded theory procedures and techniques* (3. ed.). Newbury Park, CA: Sage.

Swiss Conference of Cantonal Ministers of Education [EDK]. (2015). *Tagesschulen. Definition Tagesschule.* Retrieved from http://www.edk.ch/dyn/15964.php

Thole, W., & Höblich, D. (Eds.) (2014). „*Freizeit" und „Kultur" als Bildungsorte – Kompetenzerwerb über non-formale und informelle Praxen von Kindern und Jugendlichen: Bildung ist mehr als Schule.* Wiesbaden, Germany: Springer Fachmedien.

von Allmen, B., Schüpbach, M., Frei, L., & Nieuwenboom, W. (2018). Tagesschulangebote und Schulleistungsentwicklung. In M. Schüpbach, L. Frei, & W. Nieuwenboom (Eds.), *Tagesschulen. Ein Überblick* (pp. 229-245). Wiesbaden, Germany: Springer VS.

Weinbach, H., Coelen, T., Dollinger, B., Munsch, C., & Rohrmann, A. (2017). *Folgen sozialer Hilfen: Theoretische und empirische Zugänge*. Weinheim, Germany: Beltz Juventa.

Vandell, D. L., Larson, R. W., Mahoney, J. L., & Watts, T. W. (2015). Children's Organized Activities. In R. M. Lerner (Ed.), *Handbook of Child Psychology and Developmental Science* (pp. 1-40). Hoboken, NJ, USA: John Wiley & Sons, Inc.

The After-School Program Collaboration Quality Index (CQI): Results of a Validation Study

Michelle Jutzi, Rebecca H. Woodland

Abstract: There has been a surge in the demand for the establishment of high-quality after-school programs (ASP) predicated on professional collaboration between in-school and after-school educators (OECD, 2014). In this validation study, we outline the psychometric properties of the Collaboration Quality Index (CQI) comprised of four predominant scales, using data collected from 44 Swiss ASPs and 266 ASP staff members. Internal and external validity findings, as well as bivariate correlations, indicated that the CQI is able to measure specific aspects of professional collaboration that are not accounted for with traditional and stand-alone measurement scales. ASP policy-makers and practitioners are encouraged to utilize the CQI to assess ASPs and use the results to make evidenced-based decisions for improvement.

Keywords: after-school programs, collaboration quality, validity

Introduction

The practice of professional collaboration in educational settings has been the focus of numerous empirical studies, and positive correlations between quality of teacher collaboration, instructional quality, and student learning have been reported (Darling-Hammond, La Pointe, Meyerson, Orr & Cohen, 2007; Lomos, Hofman & Bosker, 2011; Woodland, 2016). However, little has been done to empirically consider educator collaboration in the context of After School Programs (ASP). In this paper, we outline the emergence of ASPs and the fundamental role professional collaboration has within them from a cross-cultural perspective: We elaborate this in the cultural contexts of USA and Switzerland. We then ask the question, whether collaboration is a multidimensional construct which might be better understood by using an index with distinct scales, which independently measure different aspects of collaboration.

According to the Organisation for Office of Economic Cooperation and Development (OECD), after-school programming has become a critical element of school reform efforts worldwide (OECD, 2014). Over the past ten years, there has been an extensive development of ASPs in Switzerland, especially in Cantons with extended urban regions, such as the Canton of Bern (Schüpbach, 2014). In general, ASPs take place before and after regular school hours and offer additional learning opportunities, homework assistance and activities

related to music, art, sports or free play. The activities are often integrated in the school and offered on the school grounds. Nevertheless, the ASP is—according to the government of the Canton of Bern (Ministry of Education Bern [MoE Bern], 2009)—organized as an independent institution inside the school system. Since 2010, every community in the Canton of Berne in Switzerland has to provide ASPs if 10 or more parents request it (ibid.). Due to this external political pressure of the public demand for after-school care, the number of hours of after-school care has increased by 67% between the years 2010 and 2016 in the Canton of Bern (Kull, 2016). Moreover, recent policy-level discussions in the German-speaking countries have called for an increase in the minimum number of ASP hours in which children should participate (Hascher, Idel, Reh, Thole & Tillmann, 2015). ASPs are increasingly becoming an important location for more informal education and care of school-age students during after-school hours in Switzerland (Jutzi, Schüpbach, Frei, Nieuwenboom & von Allmen, 2016; Schüpbach, 2014).

Overall participation in ASPs in the United States has increased by almost 60% over the past decade. Today, 10.2 million children (~18% of all school-age children) participate in an ASP, two million of whom started attending in the last five years (Afterschool Alliance, 2016). The majority of ASPs in the United States are funded in part through the federal 21st Century Community Learning Center program (21st CCLC) (U. S. Department of Education, 2015). Federal investment in afterschool programs has remained relatively stable over the past years—growing a little under two percent, from $1.13 billion in 2009 to $1.15 billion in 2014. Although the establishment of ASPs is widely desired, insufficient federal funds exist to support their creation; $4 billion in local grant requests have been denied via the 21st CCLC program over the past decade (O'Donnell & Ford, 2013). In communities across the United States, 11.3 million children are without supervision between the hours of 3 and 6 p.m.; 1 in 5 children still do not have someone to care for them after school. While participation in afterschool programs has increased, the unmet demand for ASPs continues to rise. In 2014, approximately 19.4 million children (41%) not currently in an ASP would be enrolled in a program if one were available to them, according to their parents. In comparison, in 2009, parents of 18.5 million children (38%) said they would enroll their child in an ASP if one were available, up from parents of 15.3 million children (30%) in 2004.

Professional Collaboration in ASPs

In Switzerland and the United States, ASPs are delivered by personnel, usually an After School Director (ASD) and some number of ASP staff members, who serve the same children, toward the same ends, and in the same building as their school-based colleagues – principals and teachers (Jutzi, Schüpbach, & Thomann, 2013). Public schools and ASPs in the US and Switzerland share the same audience and pursue similar goals of supporting and providing favorable conditions for student learning and development (Jutzi et al. 2016). ASPs are designed as supporting institutions for schools, with built-in structures around homework help, handling students with behavioral difficulties, and heterogeneous classes (MoE Bern, 2009; Sheldon, Aberton, Hopkins, Baldwin, & Grossmann, 2010; Vandell, 2014). ASPs are becoming an integrated part of public education in the US and Switzerland; both countries have faced an exponential growth in the number of ASPs in recent years.

Figure 1: Possible Locations of Professional Exchange Between ASP Staff and School
Based Personnel
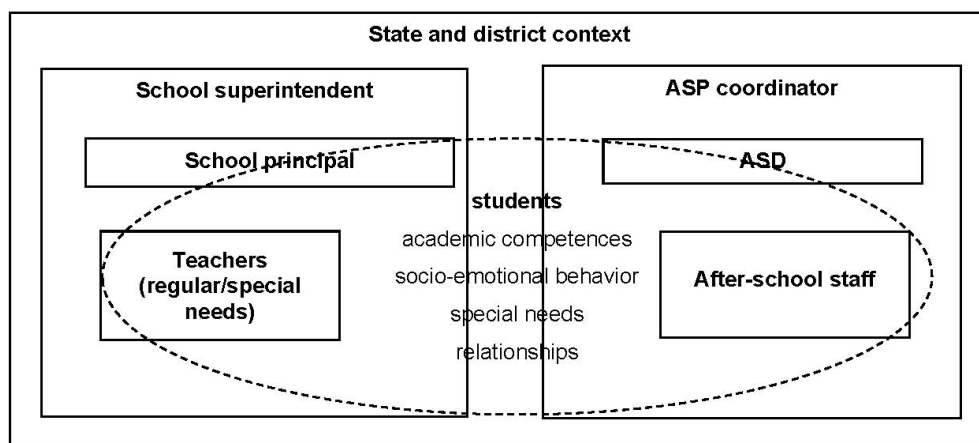
As depicted in figure 1, opportunity for collaboration between school-personnel and ASP personnel can exist on different levels: between the superintendent and the ASP coordinator (if existent), the school principal and the after school director (ASD) as well as between classroom teachers and ASP staff members (Kamski, 2011; Little & Harris, 2003; Noam, 2003). School and ASP personnel collaboration in support of student acquisition of academic competences and pro-social and emotional behaviour, and peer-adult relationships (Huang & Deitel, 2011; Mahoney, Lord & Carryl, 2005). School and ASPs personnel are urged to "join forces" and "integrate the best of teaching and engage youth in active learning" (Gannett, 2012, p. 7) and "to ensure that everyone is working together in a consistent and coordinated way to assist children and youth in reaching their potential" (Massachusetts Afterschool Community [MAC], 2007, p. 31).

Quality of professional collaboration between ASP personnel and school personnel mediates ASP program quality and the likelihood that the ASP will have a positive influence on student-level outcomes (Kamski, 2011; Noam, 2003; Tillmann & Rollett, 2011). By participating in systematic and continuous exchange with their school-based education colleagues, ASP staff and directors can be supported in designing enriching activities, supportive homework assistance and positive social interactions (Rollett & Holtappels, 2009; Holtappels, Lossen, Spillebeen & Tillmann, 2011). Several German scholars in particular argue that professional exchange between ASP and school personnel not only leads to enhanced professionalism of ASP staff, but can also be beneficial for school development (Beher et al., 2007). Mutual enrichment, noticeable relief from work stress and enhancement of competency may be observed when engaging in systematic exchange with ASP staff (Böttcher, Maykus, Altermann, & Liesegang, 2011; Dizinger, Fussnagel & Böhm-Kasper, 2011).

Nevertheless, studies also show that desire for collaboration is much higher for ASP staff than it is for school teachers (Arnold, 2009; Beher et al., 2007; Fischer & Klieme, 2013) and classroom teachers often pragmatically state that they just do not have time to collaborate (Coelen, 2008; Pfeifer, Bergmann & Holtappels 2008; Speck, Olk & Stimpel,

2011). Niehoff, Lettau, Fussangel and Radisch (2014) further discuss that even though exchange happens in practice, teachers report that collaboration with after-school staff does not directly affect their practice. Although ASP directors and staff desire to develop a common culture of collaboration with their counterparts in the school, such professional collaboration is seldom realized in Swiss ASPs (Jutzi et al., 2016).

Overall, scholars agree that professional collaboration is contributing factor to the quality and quantity (number) of ASPs and suggests that future research should focus more on using multidimensional scales to understand and differentiate between assessing aspects of collaborative practices (Hascher et al., 2015; Holtappels et al., 2011). In keeping with this, we argue that federal and state governments as well as independent organizations are in demand to prepare and amplify an overall vision and purpose for ASPs. To establish and sustain ASP program effectiveness, professional collaboration between ASP and school personnel needs to be a focus of scrutiny and systematic improvement. Hence, there is a need to develop a valid instrument to measure and assess quality of professional collaboration in ASPs.

Design and Research Questions

Increasing reliance upon and the establishment of ASPs predicated on professional collaboration to address the needs of children and families necessitates attention to its measurement, evaluation and improvement. Aspects of ASP professional collaboration have been measured using various scales in Switzerland and Germany, but to our knowledge no single comprehensive measurement tool exists, nor has this topic been systematically investigated in other countries, including the United States. In this study we developed and tested the validity of the CQI, an instrument comprised of four scales that are currently used separately to measure: 1) the intensity (IC) and 2) topics (TC) of collaboration, 3) teacher satisfaction with the collaboration (SC) and the 4) process of collaboration (PC).

Research Questions

(1) What is the theoretical and empirical evidence supporting the validity and internal consistency of the four scales?
   a. Do the four scales of the CQI represent valid and unidimensional factors?
   b. Do the participants show variation or consistency in their rating behavior and which implications can be drawn from their answers about collaborative practice?
   c. Are the sub-scales reliable and do the items have high discriminatory power?
(2) What are the findings and implications of the external validation of the scales?
   a. To what extent are the scales and subscales correlated with one another?
   b. What are the practical implications of the association between scales reflecting different aspects of collaboration and what is the benefit of combining them into a common construct of collaboration quality?

Methods

The procedure of the validation study follows the Standards for Educational and Psychological Testing (AERA, APA, NCME, 2014) by presenting theoretical and empirical evidence for the interpretation of data collected from 266 ASP staff. Evidence was based on test content as well as the theoretical basis of the survey items, and on response processes of the participants using explorative factor analysis. Consistency of the scales was examined through reliability analysis and correlative analyses were conducted to account for external validity.

Data Collection

The CQI, comprised of the four proposed sub-scales, was administered in 44 after-school programs in Switzerland in the canton of Berne. Two hundred and sixty-six ASP staff completed the quantitative questionnaire. The sample of ASPs differed considerably in size. The smallest ASP had a team of three people, whereas the biggest ASP team consists of 40 persons. Correspondingly, the number of students enrolled in the ASPs ranged from 38 to 435 students per week. 61% of the staff participating in the study were older than 40 (cumulative percentage of category frequency), had an average of five years of experience working in ASPs and about twice as many years of experience working in the school context. On average, the staff reported working in the ASP about three days a week, a 28% volume of work on average 50% of ASP staff indicated having a background in teacher education, whereas ~30% indicated no educational background working with children (see table 1).

Table. 1: Descriptive Statistics of the ASP Staff Educational Background

	Frequency	Valid percent
Qualified tertiary education	19	9.2%
Teacher education	102	49.3%
Qualified vocational training	29	14.0%
Not qualified	57	27.5%

Note. N=207 ASP staff

Data Analysis

To answer the first research question, we investigated the unidimensionality of the scales by computing an exploratory factor analysis (EFA) (Baltes-Götz, 2013; Field, 2009). In this study, we were interested in the latent factor that explains the correlation between the individual items, therefore we used the Principal Factor Analysis (PFA) and orthogonal factor rotation (VARIMAX). We could not previously assume that the items and factors are systematically correlated with each other, because they stem from different scales and account for the various aspects of collaboration (Rost, 2013). Furthermore, if we could not confirm unidimensionality, we further investigated the structures of the empirically found subscale.

To prove the internal consistency of the scales, the commonly reported psychometric properties, such as reliability and measures of central tendency of the scales are presented

(see appendix tables 1-4, see table 3 for details). Further, the reliability analysis indicates whether the theoretically proposed and empirically tested factorial structure can be replicated in the context of ASPs. We calculated the cronbach`s alpha of each of the scales as measures of the internal consistency and intercorrelation of the items. Furthermore, we looked at the discriminatory power of the items for each scale. The reliability coefficient ranges between 0 (no consistency) and 1 (full consistency). The cronbach`s alpha of the scales should reach at least be between $.60 \leq \alpha < .70$ to be at least barely sufficient for further analysis (see table 2).

Table. 2: Cut-Off Criteria for Reliability Analysis

Reliability Coefficient (Cronbach`s α)		Discriminatory Power (rit)	
α < .50	Impractical	rit < .3	Not sufficient
.50≤ α<.60	In need of revision	.3≤ rit<.4	Barely sufficient
.60≤ α<.70	Barely sufficient	.4≤ rit<.5	Mediocre
.70≤ α<.80	Statisfying	rit≥.5	High
.80≤ α<.90	High		
.α≥90	Very high		

Note. The Criteria refer to the works of Döring & Bortz, 2011

The external validity analysis is used to investigate, whether the rating structure of the participants on the different collaboration scales is systematically correlated. The predicate "external" refers to a comparison between rather than within the scales as represented in the previous analyses. Therefore, we computed bivariate correlations to explore if the four scales of the CQI correlate highly enough to be combined into one instrument. According to (Döring & Bortz, 2011) the Pearson correlation coefficient should at least range between $.2 \leq \text{rit} < .5$ to represent small or $.5 \leq \text{rit} < .7$ (see table 2) to represent mediocre correlations between the scales. Smaller correlations would indicate that the scales measure constructs which are too different from each other and measure different concepts. Correlations higher than .7 are only expected between factors of multidimensional scales. Assuming that each scale measures a distinct aspect of collaboration quality and therefore represent the same latent construct, correlations between the scales should be significant.

Results

Intensity of Collaboration (IC)

The scale *intensity of collaboration (IC)* is based on a widely used format in German teacher collaboration research (Maag Merki et al. 2007; Schüpbach 2014-2016). It describes on which occasions and with which actors the after-school professionals collaborate. The scale is differentiated into two subscales which refer to indicators distinguishing between the collaboration inside the ASP (IC_ASP*)* and between the ASP staff and school teachers (IC_SCHOOL).

The reliability coefficient of the intensity of collaboration within the ASP (IC_ASP) is only just sufficient with a Cronbach`s α of .68 and based on a sample of 213 participants (see table 3). The correlations between the items are just above .3 which refers to a small correlation. The item-to-scale correlation is above .3 for all items which suggests that all items have enough discriminatory power. The descriptive analysis on item level shows that the low reliability of the scale might be due to the fact that the items differ considerably concerning their mean and standard deviations. Especially the "informal conversations inside the ASP team" seem to be an opportunity for intensive collaboration, yet the *SD* of 1.10 suggests that the participants differ considerably in their rating of this indicator (see Appendix table 1.). When calculating the sum scores, the scale balances the individual differences and the displays a relatively high mean and rather low standard deviation (*N*=213; *min.*=1; *max.*=5.5; *M*=3.46; *SD*=.70) (see table 3). Therefore, the results concerning the reliability of the IC_ASP scale suggest that one has to use caution when using this scale because of the barely sufficient internal consistency.

On the other hand, the intensity of collaboration with the school (IC_SCHOOL) shows a high reliability with a Cronbach's α of .87. All items have a high discriminatory power above .6 and therefore contribute to the properties of the scale (see Appendix table. 1). The participants report that they collaborate considerably less in informal settings with the school teachers than with the ASP staff on similar occasions (*N*=178; *M*=3.28; *SD*=.85). Only about twice a year, ASP staff use formal settings for collaboration with the teachers such as administrative meetings (*N*= 95; *M*=2.35; *SD*=.99).

Topics of Collaboration (TC)

The scale *topics of collaboration (TC)* has been developed for a previous study in Swiss ASPs and has also been used in a slightly different form in research in German ASPs (Holtappels et al., 2011). Therefore, the *topics of collaboration (TC)* scale measures, whether the collaboration between the ASP and the school is focused on student learning and support. Between ASPs and teachers, collaboration has to be focused on more broad topics which both groups share, like the focus on learning goals (TC_AC) such as mathematics and reasoning, language competence or on other aspects of socio-emotional learning or discipline (TC_SC).

The Cronbach's alpha for the two *topics of collaboration (TC)* scales is high and suggests a satisfying or high intercorrelation between the items of the scales (Cronbach's alpha TC_AC=.77; cronbach's alpha TC_SC=.82) (see table 3). The mean of the individual items is for all items between "rather disagree" (2) and "rather agree" (3), which indicates that some exchange is happening with school teachers concerning certain topics which are grouped in two dimensions of supporting students' academic achievement (TC_AC) or socio-emotional behavior (TC_SC) (see Appendix table 2).

Both scales have good psychometric properties with all item-scale correlation above *r*=.3 and medium item-item-correlations. This indicates that the TC_AC and TC_SC are two separate scales which measure two different concepts and might be used for further analyses.

Satisfaction with Collaboration (SC)

Satisfaction with collaboration (SC) refers to indicators, which reflect how the participants rate the collaboration which is already established between the school and the ASP. Indicators are for example whether they experience the collaboration as rewarding, whether it is successful in their opinion or if the collaboration happens deliberately and explicitly (see Appendix Table 3). The items stem from different previous studies on teacher collaboration (Roos & Wandeler, 2012) and have already been adapted to ASPs (Schüpbach 2014-2016).

The SC scale has reliability of Cronbach's alpha =.84 and the correlations between the items and scale are high (r=.62) (see Table 3). Therefore, all items have a high discriminatory power, which indicates that none of the items should be excluded. The mean of the scale is relatively high (*N*=190; *min.*=1; *max.*=4; *M*=3.06; *SD*=.61) with a rather low standard deviation, which points out that there is not much variance in the answers of the participants (see Table 3).

Furthermore, the descriptive statistics on item level (see appendix Table 3) show that the participants on average agree that previous and present collaboration with the school is satisfactory. Standard deviations range between *SD*=.72 and *SD*=.87 and reflect consensus on the satisfaction with collaboration between the individual participants.

Process of Collaboration (PC)

For *process of collaboration (PC),* participants rated ten items regarding the quality of their collaborative process, i.e. the quality and attributes of shared dialogue, decision-making, action taking, and reflection, on a 6-point likert-scale (Woodland, 2016). They were asked to rate the extent to which each of the statements applied to the established collaboration between school and ASP personnel (see Appendix table 4).

The descriptive statistics of the single items of the two factors PC_GO (goal orientation) and PC_ACT (action orientation) show that especially for the focus on student learning (PC_1), the sharing of information about the decisions in the ASP (PC_5), the knowledge about the guidelines in the school (PC_6) and the coordination of the collaboration (PC_8), the means are relatively high (see Appendix table 4). On the other hand, other aspects such as discussing individual support strategies (PC_2), participation of the school staff in the development of activities (PC_4) as well as exchanging information on student achievement (PC_9) or student's participation in the ASP (PC_10) was mainly rated as "does rather not apply" (see appendix table 3). Therefore, the two scales give us the information about whether the ASPs are more oriented towards a common goal or towards common actions with the school staff.

PC_GO and PC_ACT have very similar consistency structures: a satisfying Cronbach's alpha of .73 or .75 respectively (see table 3). The correlations between the items and between the item and the scale above r=.3. Nevertheless, there exist considerable covariances between PC_9 and PC_10 which might be due to the similar wording patterns. Furthermore, the scale could be slightly improved by deleting PC_4.

Table 3 presents an overview of all the scales and subscales we investigated in this study. The EFA and reliability analyses suggest that the scales might all be used for further studies. Some intercorrelations and side-loadings exist for some subscale items, yet from a

theoretic point of view, it is comprehensible that the items correlate, since individual ratings on self-assessment scales are rarely uncorrelated within individuals. This assumption will be further investigated in the next chapter.

Table. 3:　Psychometric Properties of the Mayor Study Variables

		N^a	M	SD	α	Range Potential	Range Actual	Skew
IC	IC_ASP	213	3.46	.70	.68	1-6	1-5.5	-.48
	IC_SCHOOL	67	2.64	.98	.87	1-6	1-4.2	-.28
TC	TC_AC	229	2.73	.75	.77	1-4	1-4	-.29
	TC_SC	226	2.52	.81	.82	1-4	1-4	-.11
SC		190	3.06	.61	.84	1-4	1-4	-.45
PC	PC_GO	213	3.91	.95	.73	1-6	1.25-6	-.33
	PC_ACT	206	4.39	.80	.75	1-6	1.67-6	-.45

Note. ªThe sample size varies due to the chosen procedure of analysis and handling missing data (pairwise deletion) to reflect the sample appropriately.

Testing ASP CQI External Construct Validity

In the following bivariate correlation matrix, we analyzed whether the different scales of collaboration quality are correlated. The bivariate Pearson`s correlation coefficients are shown in table 4.

Table. 4:　Summary of Intercorrelations, Means, and Standard Deviations for Scores on the IC, TC, SC and PC Subscales

	1	2	3	4	5	6	7	M	SD
IC_ASP	1							3.46	.70
IC_SCHOOL	.25*	1						2.64	.98
TC_SC	.12	.22	1					2.73	.75
TC_AC	.19**	.16	.64**	1				2.52	0.81
SC	.02	.37**	.43**	.39**	1			3.06	.61
PC_GO	.09	.05	.37**	.37**	.43**	1		3.91	0.95
PC_ACT	.08	.04	.39**	.32**	.44**	.59**	1	4.39	0.80

Notes: Intercorrelations for the scales of the ASP staff are presented below the diagonal. Means and standard deviations are presented in the vertical columns. For all scales, higher scores are indicative of a positive association between the variables. Sample size varies with the scale due to missingness.
*p ≤ .05; **p ≤ .01 **; p ≤ .001***. Pearson Correlation is significant on 0,05 level (two-tailed). IC_ASP = Intensity of Collaboration in the ASP; IC_SCHOOL=intensity of collaboration with the School; TC_SC=topics of collaboration concerned about socio-emotional factors; TC_AC=Topics of collaboration concerning academic aspects; SC=satisfaction with collaboration; PC_GO=goal-orientation of the collaboration process; PC_AC=action-orientation of the collaboration process.

For each subscale, first, the bivariate correlation coefficients with the associated subscale of the same scale are discussed. Second, we account for correlations between not theoretically associated scales.

The highest correlation is calculated for the association between the two subscales of the topics of collaboration (TC_SC and TC_AC $r=.64^{**}$). The correlations with the other subscales are small but significant and range between $r=.19^{**}$ and $r=.43^{**}$ for the correlation with the topics of collaboration (TC) and between $r=.37^{**}$ and $r=.44^{**}$ for the satisfaction with previous collaborative activities (SC). The second highest subscale correlation is between the dimensions of the process of collaboration (PC_GO and PC_ACT $r=.59^{**}$). This correlation is mediocre with a p-value which is significant on the .01 level (see table 4). Furthermore, when looking at the correlations of the different subscales with the other collaboration scales (SC) and subscales (TC_AC; TC_SC), there seems to be only a slight difference. This suggests that PC subscales similarly account for the process of collaboration and share some of the variance.

Yet, the measures concerning the intensity of collaboration (IC) seem to refer to a different concept of collaboration than the dimensions and scales representing the process of collaboration the subscales only correlate with each other ($r=.25^{*}$) but not significantly with most other subscales. The only significant correlation of the intensity collaboration within the ASP team (IC_ASP) is with the scale reflecting academic topics in the collaboration with the school (TC_AC; $r=.19^{**}$). This indicates that the more the staff report collaboration inside the ASP, the higher they rate items on the academic focus of collaborative topics. The intensity of collaboration within ASP also correlates with the rating of intensity of collaboration with the school (IC_SCHOOL). This means that if the ASP staff report higher ratings of collaboration inside the ASP team, they exchange information with teachers more often. Therefore, the small but significant correlation coefficient suggests that those two types of collaborative activities might influence one another ($r=.25^{*}$). Furthermore, the correlations also suggest that the higher the satisfaction with previous and present collaborative practices is rated, the more intensive the collaboration with the school is perceived ($r=.37^{**}$). This correlation indicates that people who have had positive experiences with collaboration with the school also rate their actual practice higher. The direction of the effect as well as assessment-based influences cannot be drawn from these correlative results.

These results indicate that the newly developed CQI measures four different scales referring to collaborative practice, whereas three of them are two-dimensional and can be further divided into subscales. The average correlation coefficients between the subscales and therefore the relevant percentage of explained variance points out, that the scales share similar aspects and show a parallel rating structure in the sample.

Discussion

Overall the results of the validation study confirm our research question that collaboration is a multidimensional construct. Moreover, the subsequent division of subscales might account for distinct, contextually valid and reliable dimensions of collaborative practices and attitudes towards collaboration between ASP staff and school teachers. This study presents empirical evidence that in the sample of 44 ASPs in Switzerland, professional collaboration with school teachers exists already at the moment, but could be improved by focusing on

developing specific content-related aspects of the construct. The sample size of the study (>200 ASP staff from 44 ASPs) accounts for various ASPs contexts. The number of students enrolled ranged from 38 to 435, and the ASP teams comprise of between three and forty people (see p. 7). Therefore, the sample represents small as well as large programs. This suggests that the results presented are not limited to a selective sample of ASPs, but rather reflect collaborative practices in a wide range of ASP settings. In line with previous findings (Arnold, 2009; Speck et al., 2011), collaboration between ASP staff and school teachers remains on an informal level. This is not only reflected in the differing sample means of the items and scales, but also in the high percentage of missingness. Especially for the scale measuring the *intensity of collaboration with the school (IC_SCHOOL)*, the drop in sample size might lead to systematic bias of results when using the CQI in practice.

In comparison, this effect of systematic non-compliance is not present on any other scales. For the comparable indicators for the collaboration inside the ASP, the sample reduction is not observed. Reflecting the difference between informal and formal opportunities to collaborate, Penuel, Riel, Krause & Frank (2009) suggest that access to valued resources, information and expertise might be available in different collaborative situations. Yet, having the resources and opportunity to collaborate -whether in informal or formal contexts - is key to the development of the process in general. Therefore, the results indicate that whereas exchange in the ASP team is already facilitated by frequent informal contact, the opportunity of information exchange with school-based classroom teachers and also its relevance for ASP practice might be restricted by the scarcity of contact. Nevertheless, the concept of the "strength of weak ties" acknowledges that institutionalized, formal collaboration opportunities are not always the most effective (Penuel & Riel 2007). This assumption is also supported by German scholars who argue that the concept of collaboration should be redefined and its conditions and expected outcomes further investigated for ASPs (Hascher, et al. 2015). Collaboration between school teachers and the ASP staff is one with specific characteristics which might not be similar to those of ASP-based teacher collaboration. Nevertheless, collaborative practice might also depend on school level variables, such as the norms concerning privacy, autonomy, conflict-avoidance, and non-interference (Levine & Marcus, 2010, p. 396) which has not been investigated in this study. Therefore, further studies should consider group-analyses to account for similarity between the individuals of one ASP.

The analysis of external validity shows that the ratings of the individuals on the different scales are systematically correlated. For example, people who more often engage in exchange with school teachers also report a higher level of collaboration within the ASP team. Moreover, the correlations between the subscales of the same scale are higher than other reported associations between the subscales, which suggests that it is important to account for the two different content areas in the scales IC, TC and PC: if those factor structures were ignored, this might significantly impact further studies on the predictions of collaborative actions in regression analyses.

Limitations of the Study

The challenge of the operationalization of the construct of professional collaboration is that it relies on the retrospective self-reports of the individuals. This might be one reason why

the effects of collaboration on different variables, such as teacher self-efficacy or student achievement, are not consistent and vary between different samples in previous research (Holtappels, et al., 2011). This discrepancy might be due to the professional differences between the teachers and the ASP staff but also because they rarely meet in their every-day life.

The results of this study further support the assumption that some aspects of collaboration depend on individual conditions and differences such as age or professional background. Individual variances and answering patterns might be present on some of the items reflecting the intensity of collaboration with the school, such as differing roles as "facilitators of collaboration" that individuals occupy and relate to.

This assumption also implies certain aspects of collaboration, such as intensity, can partially be affected by the context of the ASP, leadership practices, and by individual behaviour and professional attitudes. According to Speck et al. (2011) this is one of the most important difficulties faced in attempts to improve and influence collaboration on an institutional level. These variables could be investigated through qualitative methods and inductive interviews that on the staff's perceptions of impediments of collaboration. Also in this study, the self-reported actions and form of the online-questionnaire with standardized items narrows the information that can be elicited, because we cannot control for interpretation processes of the participants. Furthermore, the rating structure might also be affected by social desirability, which could result in a tendency to positive ratings which are skewed to the left.

Conclusion

Previously used stand-alone approaches for measuring collaboration in ASPs (Holtappels et al., 2011) have focused on isolated aspects of collaboration such as the intensity, topic, and satisfaction with professional collaboration in separate scales. Those scales helped the field to understand collaborative practice in the ASP context and gave us information about how collaboration between schools and ASPs are organized. However, these three scales neither illicit information nor give indications as to how the *process of collaboration* could be improved in practice. The results of this study suggest that the process of collaboration can and should be measured to inform ASP improvement. Results of the study indicate strong internal and external validity for most scales. Caution should be used when applying the scale concerning the intensity of collaboration between ASP staff and school staff (IC_ASP). Overall, the results nevertheless suggest that the CQI can be used to reliably measure unique and important aspects of professional collaboration in ASP settings. Results on the CQI may be used to provide direction to practitioners concerned with the quality and professional development in ASPs. In the CQI, information is provided about what could be done to improve the intensity, topics, satisfaction with, and process of collaboration. Program developers, practitioners, and policy-makers can use findings generated through the use of the CQI to make targeted improvements in training of ASP staff as well as the development of ASP quality standards. Since ASPs are important aspects of school reform efforts worldwide, reflections about the collaboration between ASPs and school teachers are core to position the ASPs in the school

system and explore methods of systematic professionalization and development of the ASPs as educational institutions relevant to student development.

The difficulties in scale reliability, missingness and differences in subgroup's ratings provide empirical evidence that assessing collaboration in any systematic research context is an ambitious goal. The construct has many facets and dimensions, representing the intensity of activities, topics as well as individual and collective attitudes toward collaboration.

The relevance of these findings is especially high for practice, action research and intervention studies focusing on the improvement or change in collaborative practices in after-school programming. A validated instrument for assessing key aspect of professional collaboration such as the CQI may be used to stimulate and assess progress toward increasing alignment between ASP and non-ASP based teachers, and the cultivation of a shared organizational culture.

References

American Education Research Association (AERA), American Psychological Association (APA), National Council on Measurement in Education (NCMA) (2014). *Standards for Educational and Psychological Testing*. Washington, DC: American Educational Research Association.

Afterschool Alliance (2016). *America after 3PM Special Report: The Growing Importance of After-school in Rural Communities*. Washington, DC: Afterschool Alliance.

Arnold, B. (2009). Kooperation zwischen Ganztagsschule und ausserschulischen Partnern. In H.-G. Holtappels, E. Klieme, T. Rauschenbach, & L. Stecher (Eds.), *Ganztagsschule in Deutschland. Ergebnisse der Ausgangserhebung der ,Studie zur Entwicklung von Ganztagsschulen (StEG)* (pp. 123-136). Weinheim: Juventa.

Baltes-Götz, B. (2013). *Behandlung fehlender Werte in SPSS und Amos*. Trier: Universität Trier. ZIMK.

Beher, K., Haenisch, H., Hermens, C., Nordt, G., Prein, G., & Schulz, U. (2007). *Die offene Ganztagsschule in der Entwicklung. Empirische Befunde zum Primarbereich in Nordrhein-Westfalen*. Weinheim: Juventa.

Böttcher, W., Maykus, S., Altermann, A., & Liesegang, T. (2011). Multiprofessionelle Kooperation an Ganztagsschulen. In K. Speck, T. Olk, O. Böhm Kasper, H.-J. Stolz, & C. Wiezorek (Eds.), *Ganztagsschulische Kooperation und Professionsentwicklung. Studien zu multiprofessionellen Teams und sozialräumlicher Vernetzung* (pp. 102-113). Weinheim: Beltz Juventa.

Coelen, T. (2008). Tagesstrukturen und Ganztagsbildung durch Kooperation zwischen Demokratie bildenden Institutionen. In S. Larcher Klee & B. Grubenmann (Eds.), *Tagesstrukturen als sozial- und bildungspolitische Herausforderung* (pp. 137-149). Bern: Haupt.

Darling-Hammond, L., LaPointe, M., Meyerson, D., Orr, M. T., & Cohen, C. (2007). *Preparing School Leaders for a Changing World: Lessons from Exemplary Leadership Development Programs*. Stanford, CA: Stanford University, Stanford Educational Leadership Institute.

Deitel, R. (2009). After-School Programs: Finding the Right Dose. *Phi Delta Kappan, 91*, 62-64.

Dizinger, V., Fussangel, K., & Böhm-Kasper, O. (2011). Interprofessionelle Kooperation an Ganztagsschulen aus der Perspektive der Lehrkräfte. In K. Speck, T. Olk, Böhm-Kasper, O. Stolz, Heinz-Jürgen, & C. Wiezorek (Eds.), *Ganztagsschulische Kooperation und Professionsentwicklung. Studien zu multiprofessionellen Teams und sozialräumlicher Vernetzung* (pp. 114-127). Weinheim: Beltz.

Döring, N., & Bortz, J. (2011) *Forschungsmethoden und Evaluation in den Sozialwissenschaften*. Berlin, Heidelberg: Springer.

Field, A. (2009). *Discovering Statistics Using SPSS*. London: SAGE Publications.

Fischer, N., & Klieme, E. (2013). Quality and Effectiveness of German All-Day Schools: Results of the "Study on the Development of All-Day Schools". In J. Ecarius, E. Klieme, L. Stecher, & J. Woods (Eds.), *Extended Education – an International Perspective* (pp. 27-52). Opladen: Budrich.

Gannett, E. (2012). *Expanded Learning: Opportunities for Partnerships with a New Twist and a New Name*. Wellesley, MA: Wellesley College for Women.

Hascher, T., Idel, T.-S., Reh, S., Thole, W., & Tillmann, K. J. (2015) (Eds.), *Bildung über den ganzen Tag*. Opladen: Verlag Barbara Budrich.

Holtappels , H. G., Lossen, K., Spillebeen, L., & Tillmann, K. (2011).). Schulentwicklung und Lehrerkooperation in Ganztagsschulen. *Zeitschrift für Erziehungswissenschaft*, (14), 25-42.

Huang, D., & Deitel, R. (2011). *Making Afterschool Programs Better (CRESST Policy Brief)*. Los Angeles, CA: University of California.

Jutzi, M., Schüpbach, M., & Thomann, K. (2013). Bedingungen multiprofessioneller Kooperation in zehn Schweizer Tagesschulangebote. In M. Schüpbach, A. Slokar, & W. Nieuwenboom (Eds.), *Kooperation als Herausforderung in Schule und Tagesschule* (pp. 95-112). Bern: Haupt Verlag.

Jutzi, M., Schüpbach, M., Frei, L., Nieuwenboom, W., & von Allmen, B. (2016). Pursuing a Common Goal: how School Principals and After-school Directors Perceive Professional Culture of Collaboration. *International Journal for Research on Extended Education, 4*(1), 9-29.

Kamski, I. (2011). *Innerschulische Kooperation in der Ganztagsschule. Eine Analyse der Zusammenarbeit von zwei Berufsgruppen am Beispiel von Lehrkräften und Erzieherinnen und Erziehern.* Münster: Waxmann.

Kull, M. (2016). *Tagesschulangebote im Kanton Bern. Reporting Schuljahr 2014/2015.* Bern: Erziehungsdirektion des Kantons Bern.

Levine, T. H., & Marcus, A. S. (2010). How the Structure and Focus of Teachers` Collaborative Facilitate and Constrain Teacher Learning. *Teaching and Teacher Education, 26*, 389-398.

Little, P. M. D., & Harris, E. (2003). A Review of Out-of-School Time Program Quasi-Experimental and Experimental Evaluation Results. *Out-of-School Time Evaluation Snapshot, 1*(9), 1-12.

Lomos, C., Hofman, R. H., & Bosker, R. J. (2011). The Relationship between Departments as Professional Communities and Student Achievement in Secondary Schools. *Teaching and Teacher Education, 27*(4), 722-731.

The Massachussetts Afterschool Community (MAC) (2007). *Our Common Wealth: Building a Future for our Children and Youth*. Retrieved from http://www.massafterschoolcomm.org/downloads/MSC_full_report.pdf

Maag Merki, K., Leuders, T., Ehlert, T., Werner, S., & Schulz, A. (2007). *Selbstreflexives Lernen im schulischen Kontext. Predatenerhebung. September/Oktober 2007.* Pädagogische Hochschule Freiburg.

Mahoney, J. L., Lord, H., & Carryl, E. (2005). An Ecological Analysis of After-School Program Participation and the Development of Academic Performance and Motivational Attributes for Disadvantaged Children. *Child Development, 76(4),* 811-825.

Ministry of Education in the Canton of Bern [MoE Bern]. (2009). *Tagesschulangebote. Leitfaden zur Einführung und Umsetzung.* Bern: MoE.

Noam, G. G. (2003). *Afterschool Education. Approaches to an Emerging Field*. Cambridge, MA: Harvard Education Press.

Niehoff, S., Lettau, W.-D., Fussangel, K., & Radisch, F. (2014). Die Erstellung der Übergangsempfehlung als gemeinsame Aufgabe von Lehrpersonen und pädagogischem Personal? *Schulpädagogik heute, 9*(5), 1-16.

O'Donnell, P., & Ford, J. R. (2014). The Continuing Demand for 21st Century Community Learning Centers across America: More than Four Billion Dollars of Unmet Need. In T. K. Peterson (Ed.),

Expanding Minds and Opportunities. (pp. 53-58). Washington, DC: Collaborative Communications Group.

Organization for Economic Co-Operation and Development (OECD) (2014). *Out-of-School-Hours Care Services (PF 4.3).* Retrieved from: www.oecd.org/social/family/database

Pfeifer, M., Bergmann, K. & Holtappels, H. G. (2008). *Entwicklung von Lernkultur unter veränderten Lern- und Arbeitszeitbedingungen.* Schwalbach: Wochenschau Verlag.

Penuel, W. R., & Riel, M. (2007). The `New` Science of Networks and the Challenge of School Change. *Phi Delta Kappan*, 611-615.

Roos, M., & Wandeler, E. (2012). *Förderpraxis in den Schulen der Stadt Zürich.* Baar: spectrum3.

Rost, D. H. (2013). *Interpretation und Bewertung von pädagogisch-psychologischen Studien. Eine Einführung.* Bad Heilbrunn: Klinkhardt.

Penuel, W. R., Riel, M., Krause, A., & Frank, K. (2009). Analyzing Teachers` Professional Interactions in a School as Social Capital: A Social Network approach. *Teachers College Record, 111*(1), 124-163.

Schüpbach, M. (2014). Extended Education in Switzerland: Values in Past, Present, and Future. *International Journal of Research in Extended Education, 2*(2), 5-19.

Schüpbach, *Educare TaSe 2014-2016.* More information on: http://www.educare-schweiz.ch/.

Sheldon, J., Aberton, A., Hopkins, L., & Baldwin Grossmann, L. (2010). Investing in Success: Key Strategies for Building Quality. *American Journal of Community Psychology, 45*, 394-404.

Speck, K., Olk, T., & Stimpel, T. (2011). Auf dem Weg zu multiprofessionellen Organisationen? *Zeitschrift für Pädagogik, Beiheft 57*; 184-201.

Tillmann, K., & Rollet, W. (2011). Multiprofessionelle Kooperation und Partizipation an Ganztagsschulen. In K. O. Speck, Thomas; Böhm-Kasper, Oliver; Stolz, Heinz-Jürgen; Wiezorek, Christine (Ed.), *Collaboration and professional development in all-day schools* (pp. 29-47). Weinheim: Beltz Juventa.

U. S. Department of Education (2015). *21st Century Learning Centers.* Retrieved from http://www2.ed.gov/programs/21stcclc/index.html

Vandell, D. (2014). Afterschool Program Quality and Student Outcomes: Reflections on Positive Key Findings on Learning and Development. In T. K. Peterson (Ed.), *Expanding minds and opportunities* (pp. 10-16). Washington, DC: Collaborative Communications Group.

Woodland, R. (2016). Evaluating PK-12 Professional Learning Communities: An Improvement Science Perspective. *American Journal of Evaluation, 37*(4), 505-521.

Appendix

Table. 1: Item Descriptive Statistics and Factor Loadings for Exploratory Factor Analysis with Varimax Rotation for Scales on the *Intensity of Collaboration (IC)*

When do you have the possibility for exchange with your colleagues during your working hours?		N	M(SD)	r_{it}	IC_ASP	IC_SCHOOL
	Intensity of Collaboration IC					
IC_1	...in informal conversations with ASP staff.	255	4.69 (1.10)	.45	.13	.69
IC_2	...in meetings with ASP staff with an administrative focus.	247	2.79 (.68)	.52	.01	.81
IC_3	...in meetings with ASP with an educational focus.	226	2.66 (.87)	.53	-.08	.82
IC_4	...in individual exchange with the ASP director.	243	3.61 (1.21)	.43	.37	.69
IC_5	...in informal conversations with the school teachers.	178	3.28 (1.37)	.64	.75	.13
IC_6	...when attending school staff meetings.	95	2.34 (1.13)	.79	.91	-.09
IC_7	...in meetings with school teachers with an administrative focus.	95	2.35 (.99)	.81	.91	.02
IC_8	...in meetings with school teachers with an educational focus.	95	2.32 (1.08)	.67	.79	.09
IC_9	...in individual exchange with the school principal.	105	2.48 (1.29)	.64	.71	.31

Note. Scaling: 1=annualy; 2=twice a year; 3=monthly; 4= once a week; 5=daily; 6= several times a day. Factor Loadings > .40 are in boldface. IC=Intensity of Collaboration

Table. 2: Item Descriptive Statistics and Factor Loadings for Exploratory Factor Analysis with Varimax Rotation for *Scales on the Topics of Collaboration (TC)*

Please indicate, how strongly you agree to the following statements about different topics of collaboration with school teachers.		N	M(SD)	r_{it}	TC_AC	TC_SE
	Topics of Collaboration					
TC1	Concerning students with disciplinary problems.	246	2.88 (.94)	.53	.26	**.69**
TC2	Concerning the completion of homework and homework support.	245	3.02 (.96)	.51	**.64**	.42
TC3	Concerning the support of special needs students.	240	2.68 (1.00)	.64	.19	**.68**
TC4	Concerning the support of socio-emotional abilities (for example social inclusion).	237	2.65 (.96)	.69	.09	**.62**
TC5	Concerning the support of mathematical skills (for example calculating).	230	2.15 (.94)	.76	**.89**	-.05
TC6	Concerning the support of linguistic abilities (for example reading, writing, and speaking).	230	2.40 (.93)	.72	**.93**	.10
TC7	Concerning organizational tasks and duties (for example registration and attendance).	242	2.74 (.97)	.42	-.29	**.77**

Note. Scaling: 1=strongly disagree; 2=rather disagree; 3=rather agree; 4= strongly agree. Factor Loadings > .40 are in boldface. TC=Topics of Collaboration

Table. 3: Item Descriptive Statistics and Factor Loadings for Exploratory Factor Analysis with Varimax Rotation for Scales on the *Satisfaction with Collaboration (SC)*

How do you value/appreciate/judge others and your own effort to present and previous collaboration with school teachers?	N	M(SD)	r_{it}	SC
Satisfaction with Collaboration (SC)				
SC1 I try actively to make contact with school teachers.	234	3.09 (.87)	.61	**.77**
SC2 Collaboration with school teachers is rewarding for me.	237	3.30 (.72)	.67	**.80**
SC3 The collaboration with school teachers is successful for both sides.	236	2.97 (.72)	.66	**.79**
SC4 Previous collaboration with school teachers was profitable/successful for me.	206	2.98 (.79)	.58	**.73**
SC5 I have had many positive experiences when collaborating with school teachers in the past.	203	3.01 (.79)	.68	**.81**

Note. Scaling: 1=strongly disagree; 2=rather disagree; 3=rather agree; 4= strongly agree. Factor Loadings > .40 are in boldface. SC=Satisfaction with Collaboration

Table. 4: Item Descriptive Statistics and Factor Loadings for Exploratory Factor Analysis with Varimax Rotation for Scales on the *Process of Collaboration (PC)*

What is the focus of the collaboration with the school teachers and how does it develop over time?	N	M(SD)	rit	PC_ACT	PC_GO
Process of Collaboration (PC)					
PC1 The purpose of our collaboration is to systematically improve instruction and ASP activities to increase student learning.	231	4.67 (1.03)	.35	-.01	.67
PC 2 ASP staff and school teachers make decisions together about how to support student learning.	233	3.91 (1.28)	.51	.24	.70
PC 4 The school principal and school teachers participate in the development of ASP activities.	227	3.27 (1.47)	.64	.49	.27
PC 5 School teachers are well informed about rules and behavior guidelines in the ASP (for example concerning opening hours, activities, homework support; action plans and interventions etc.).	234	4.84 (.96)	.61	.52	.29
PC 6 The ASP staff is well informed about rules and behavior guidelines of the school (for example action plans and interventions concerning disciplinary problems).	243	4.72 (1.01)	.41	.69	.21
PC 7 ASP staff consider teacher`s suggestions in their daily practice.	228	4.55 (1.08)	.46	.63	.29
PC 8 It is clearly defined who is in charge of coordinating the collaboration between school and ASP.	231	4.74 (1.29)	.39	.78	-.13
PC 9 ASP staff and school teachers exchange information about student data (grades, individual learning goals etc.).	228	3.39 (1.39)	.64	.31	.75
PC 10 ASP staff and school teachers exchange information on students` attendance and registration in the ASP.	228	3.68 (1.30)	.45	.47	.61
PC 11 The ASP staff knows how they can reach school teachers and initiate contact.	235	4.16 (1.29)	.45	.69	.25

Note. Scaling: 1=strongly disagree; 2= disagree; 3=rather disagree; 4= rather agree; 5= agree; 6=strongly agree. Factor Loadings > .40 are in boldface. PC=Process of Collaboration

Global Pattern of Extended Education and Its Impact on Educational Outcomes: The Case of Science Education

Sang Hoon Bae, Hyowon Park[1], Eun Ju Kwak, Eunwon Cho, Hyeonseok Jung

Abstract: Science education as a part of STEM education is becoming important not only for the future success of the individual but also for the economic development of the nation. This study explores the global pattern of extended education and its impact on learning outcomes in the area of science. First, the study found substantial national differences in access to afterschool science programs. Children and youth in developing countries generally lack opportunities to learn science after school, which was found to predict PISA 2015 science achievement in this study. The study suggests that inequality in extended education among countries requires urgent attention, as does inequality within countries. Second, the study found a negative relationship between additional study time for science and PISA science performance at the national level. Regarding this finding, it is speculated that the content of learning during additional study time differs from that of higher-order learning experiences measured by the PISA science test. The result may also be explained by the argument that the purpose of additional afterschool study is usually remedial lessons and/or test preparation. This cross-national research will provide insights to policy makers who intend to find global patterns in extended education, develop policy direction at the global level, and offer advice to national governments.

Keywords: extended education, PISA 2015, afterschool science program, additional study time

Introduction

It is increasingly important that children have opportunities to learn after school. Many researchers have revealed that participation in extended education, also called "afterschool," "all-day school," "extracurricular activities," and "out-of-school time-learning activities," contributes to improving cognitive and socio-emotional development of children and youth (Afterschool Alliance, 2009; Durlak & Weissberg, 2007; Lauer et al., 2006). Attending quality afterschool programs was also found to have positive effects on student health and well-being (Little, Wimer, & Weiss, 2008). It is widely agreed that extended education provides considerable social benefits in that it keeps children safe while their parents still work, helps students engaged in significant learning experiences that may not be offered by the regular classes, and contributes to cultivating future talents who will play important

---

1   Corresponding author: edfuture1@gmail.com

roles in certain fields such as arts and STEM. Finally, extended education has contributed to reforming public schools, particularly the less-open, less-flexible, and teacher-driven aspects of the regular curriculum. It functions as a place where innovative and creative teaching strategies are implemented based on learners' interests (Bae & Jeon, 2013; Noam & Triggs, 2018). In many countries like South Korea, Japan, and the United Kingdom, extended education has been used to build bridges between public schools and the local communities (Dyson & Jones, 2014; Kanefuji, 2017). On the one hand, the educational capacities of schools are extended to solve the problems of local towns. On the other hand, extended education becomes a platform where educational resources of the local communities are employed for better education.

In this context, extended education is gaining popularity among the public and policy makers in many countries. It is spotlighted as an effective attempt to fix the problems that public schooling has faced, respond to diverse social needs such as childcare and education for immigrants, and develop a skillful workforce in certain areas. Accordingly, substantial financial and physical resources are provided to improve the quality of extended education and enhance opportunities to learn after school, especially for underserved and underrepresented children and youth.

However, most efforts have been made to promote the quality and equality of extended education in the context of a certain country. Public attention has also been given to domestic education issues. During the past decade, extended education research has kept increasing, but the focus of the research was primarily on the issues within the country. Only a few comparative qualitative studies have been done to explore differences and similarities between two selected countries (e.g., Bae & Kanefuji, 2018; Klerfelt & Stecher, 2018; Schuepbach & Huang, 2018). The exception is those studies that investigate private supplementary tutoring, also known as shadow education, across countries (e.g., Bray, 2013; Bray, Kwo & Jokic, 2015).

Fueling this study is the lack of empirical comparative research on extended education at the international level – in other words, cross-national comparative research. A primary focus of this exploratory research is to examine the global pattern of extended education provision and participation at the national level. In addition, the study examines whether national differences, if any, are related to learning outcomes of the students aggregated at the national level. The aim of this cross-national research is to provide researchers and policy makers with information about how the national context influences extended education. In addition, this study aims to suggest what the policy implications of achieving quality and equality of extended education at the global level are.

In the context of extended education, this research concerns "science education," which is the core subject of STEM (Science, Technology, Engineering, and Math) and is considered a powerful predictor of national competitiveness. A great deal of research (National Research Council, 2010) has pointed out that STEM education plays a significant role in the educational and career success of the individual as well as the competitiveness of the nation. Studies (Brophy et al. 2008; National Science Board, 2008; White, 2014) suggest that participation in well-designed STEM education helps students develop problem-solving skills, critical and creative thinking, and collaboration skills that are all necessary for the knowledge-based economy and jobs of the present and future. Furthermore, higher

STEM scores are associated with a greater tendency by students to enroll in higher education in STEM fields and become professionals in these areas. There is no doubt that more graduates and professionals in the area of STEM will lead to stronger high-tech industries and advanced innovative businesses. In line with research findings suggesting the importance of STEM education, many countries have made greater efforts to improve the quality of STEM programs and offer more opportunities for afterschool learning, particularly to disadvantaged students (National Science Board, 2007). Nonetheless, little research has been conducted to reveal the global pattern of STEM education in the context of extended education. This cross-national exploratory study was conducted to fill that void.

The research questions are as follows:

1. Do national differences exist in the provision of school-based afterschool science programs and additional study time on science by students?
2. Are the percentage of the nation's schools offering afterschool science programs and the average of additional study time on science spent by students associated with the average science performance of the students at the national level?
3. What determines how many schools offered afterschool science programsand how much additional study time for science is spent by students at the national level?

Review of the Related Literature

Extended Education

Extended education refers to the intentionally structured learning and development programs and activities that are not part of the regular classes and generally offered before and after school and at locations outside the school. However, the term or name used varies across different countries – in other words, afterschool programs, all-day school, extracurricular activities, out-of-school time learning, extended schools, expanded learning, and leisure-time activities. The features of extended education are closely related to social, political, and educational contexts of the society where it has been developed and implemented. Given the variety of names and features across nations, "extended education" was created as an umbrella term (for more information, see Bae, 2018).

In addition, Bae (2018) suggested a typology based on the purpose of extended education programs: a) extended education programs from child development-based conception, b) extended education programs from the role of the school-based conception, and c) extended education programs from family-reproduction conception. Given the availability of cross-national data[1], the current study involves the analysis of the data about the "school-based afterschool programs," which are based on child-development conception and "additional study after school of the student" that relates to family-reproduction conception. "School-based afterschool programs" have been developed to solve the problems of the

---

1 The OECD PISA (Program for International Student Assessment) 2015 survey collected national data about the provision of afterschool programs and additional afterschool study time spent by students across subjects.

regular curricular activities, which tend to be standardized and are not flexible enough to respond to the diverse needs of the students (Bae & Jeon, 2013).

Worldwide, these programs are implemented to promote student creativity, problem-solving skills, and socio-emotional skills by adopting innovative teaching approaches and experimental learning strategies (Noam & Triggs, 2018). "Additional study after school," often called "supplementary private tutoring" and "shadow education," is becoming globally popular and institutionalized (Bray, 2013; Mori & Baker, 2010). Bray (2013) suggested that the institutional features of shadow education include supplementation, privateness, and academic subject-focus.

Afterschool Programs

Studies (Afterschool Alliance, 2008; Durlak & Weissberg, 2007; Lauer et al., 2006; Little, Wimer, & Weiss, 2008) have found that afterschool programs affect student emotional development, which in turn affects academic performance. In addition, afterschool programs were found to promote youth development including self-esteem, positive attitudes (e.g., self-perception), and social behavior. Students who participate in afterschool programs tend to show a significant improvement in attitudes such as self-perception and bonding with their school and decreased problem behaviors. Furthermore, these positive effects of afterschool program participation can be expanded to improve academic performance.

The effects of participation in afterschool programs on academic achievement can be moderated by certain conditions such as the focus of the programs (e.g., academic-focused *vs.* enrichment-focused), socio-economic status (SES) of participants (e.g., low-income *vs.* higher-income families), and participation time. For instance, in the case of afterschool programs in Korea, it was found that as the afterschool program becomes more academic-centered, participants tend to register better achievement levels (Bae, Kim, & Yang, 2010). The study (Pierce, Auger, & Vandell, 2013) also found that underprivileged students tend to benefit more from afterschool program participation.

While previous studies have paid much attention to the effect of afterschool program participation on student outcomes, few studies have examined what determines the provision of afterschool programs by the school. Considering the factors that were found to influence educational investment and achievement at the individual and national levels, this study involves variables at the school, the community, and student levels in examining the determinants of provision of afterschool science programs by the school. More specifically, the study assumed that the educational resources of the school, the number of full-time teachers with certification in this study, is related to the school's capacity to provide afterschool programs. Next, the study investigated whether the active participation of parents in school events, the percentage of parents who volunteered in extracurricular school activities in this study, is associated with the availability of afterschool programs. Finally, the study posited that a school in which students are more motivated is more likely to offer afterschool programs.

Additional Study Time

In this study, "additional study time" is a general term for additional afterschool study including homework as well as private supplementary education, also called "shadow education." The term "shadow education" conveys the image of outside-school learning activities compared to officially provided public education that students buy to increase their educational opportunities (Baker et al., 2001). These activities tend to go beyond doing routinely assigned homework. Instead, they consist of organized and structured learning, often by private vendors, in order to supplement regular school learning and/or take advantage of examinations in which they compete with peers – particularly in East Asian countries like South Korea, Japan, and Hong Kong (for more information, see Bae & Jeon, 2013; Bray, 2013; Mori & Baker, 2010; Sivan & Siu, 2017).

Many researchers have suggested that shadow education has grown and become institutionalized, and have sought to examine its impact on academic performance. For instance, Farbman (2012) suggests that afterschool study time is related to higher school performance. However, some researchers (Husen, 1972) questioned the positive effects of additional afterschool study on academic achievement. Suter (2016) suggests a negative association between additional study hours and science achievement. In relation to the findings above, Cooper, Robinson, and Patall (2003) synthesized the results of studies from 1987 to 2003. They found no relationship between afterschool study time and academic achievement. According to the researchers, excessive study time may cause burnout for certain students, which in turn negatively affects academic performance.

Meanwhile, the negative impact of additional study or shadow education on academic achievement should be interpreted with caution, since the result may not be a consequence. This means that lower student achievement could be a motivator for additional study. Moreover, Baker et al. (2001) explained the negative relationship between additional study time and academic achievement in terms of the different purposes students had for participating. According to them, in many cases, students participate in shadow education for remedial reasons rather than for enrichment. In this context, as will be seen later, this study included student motivation as an independent variable in the model to investigate the predictors of additional study time by the student.

STEM Education and Afterschool Program

Worldwide, STEM education in the K-12 setting is gaining popularity since it is believed to enhance 21st-century skills such as adaptability, non-routine problem solving, and systems thinking (National Research Council, 2010). Moreover, higher achievement in STEM education leads to increased enrollment in post-secondary education in STEM fields (Merrill & Daugherty, 2010), and therefore a greater possibility for students to become professionals in these fields. The increased interest in STEM education led to the provision of various programs at the national level. The programs not only include regular STEM classes, but also a variety of extended education programs and activities. In addition, the government and individual schools make efforts to promote STEM outcomes, particularly science performance. The efforts are not limited to improving the quality of regular science classes, but also include quality afterschool programs.

Science is at the forefront of STEM education (Bybee, 2010). With the growing interest in STEM education, what determines science achievement has been called into question. What affects science performance may be categorized into two factors – the individual and school levels. First, the study found that individual-level factors include demographic characteristics, motivation level, self-perception and awareness, parental support, and study time (Areepattamannil & Kaur, 2013; Ing, 2014). Among these factors, demographic characteristics (e.g., gender and socio-economic status and language) and self-perception are found to be the two major determinants of science achievement (Shen & Pedulla, 2000; Wang, Oliver, & Straver, 2008). Interestingly, the studies found that study time is inconsistent in its relationship with academic achievement. A negative effect was found after a certain level (Karwiet, 1984). The factors at the school level include school context, teacher quality, and their belief in their students (Areepattamannil & Kaur, 2013). Among the school-level factors, teacher subject-area certification is the most consistent predictor of science achievement by the student (Darling-Hammond, 2000; Tuerk, 2005). Nonetheless, the findings above mainly relate to the regular classes and may be applicable to the extended education context.

In this sense, it is notable that PISA conducted surveys to collect national data about the provision of school-based afterschool science programs and additional student study time spent on science. PISA attempted to measure the current state of afterschool programs by asking students, teachers, and school principals. Although some critics contend that PISA does not measure the full aspect of afterschool programs, cross-national data collected serves a pivotal role in capturing the global trend of afterschool programs in this area. This study, therefore, analyzed the PISA 2015 data to explore the global pattern of extended education and its impact on science performance of the students at the national level.

Methodology

Data and Sample

The study involves analysis of secondary data. The data was collected from the database of the 2015 version of PISA, which is a triennial international survey administered by the OECD (Organization for Economic Cooperation and Development). PISA primarily aims to evaluate the quality and equality of education systems by testing 15-year-old students. The tested subjects include mathematics, science, and reading. For PISA 2015, approximately 540,000 students participated in the test, representing about 29 million students from 73 countries and economies—35 members *vs.* 38 non-members[2] (OECD, 2018a). Specifically, this study used the results of the PISA 2015 science test and the information about the country provided by OECD statistics.

---

2   The Republic of Cyprus is opted-out in the official document due to political issues related to the United Nations. However, the data for the Republic of Cyprus was included in this study as the data was available.

Variables

Dependent Variables

To answer the research questions, five dependent variables were selected. Detailed information about the dependent variables is shown in Table 1.

Table 1. Item and Scale of Dependent Variable

Dependent Variable	Item and Scale
PISA science score (average score)	– PISA 2015 science mean score of a country – PISA 2015 scientific question categories are as follows: • scientific competencies that explain phenomena scientifically, evaluate and design scientific enquiry, and interpret data and evidence scientifically • knowledge categories including content knowledge, procedural knowledge, and epistemic knowledge • content areas pertaining to physical systems, living systems, and earth and space systems
Percentage of top performers (%)	– Percentage of students with science scores of level 5 or above (above 633.33 score points) in the country
Percentage of low performers (%)	– Percentage of students with science scores of below level 2 (less than 409.54 score points) in the country
Afterschool program provision (%)	– Percentage of schools that provide afterschool programs (i.e., science club and competition) – PISA asked school principals the following yes-or-no question: • This academic year, which of the following activities does your school offer to students in the national modal grade for 15-year-olds? • Among ten choices, this study used two choices (i.e., science club and science competitions) that match research questions – The means of the answer "yes" for each choice were calculated to make one variable
Additional study time (hour)	– Additional study time after school per week – PISA asked the following question in relation to science learning participation after school: • This school year, approximately how many hours per week do you spend learning in addition to your required school schedule in the following subjects? • Please include the total hours for homework, additional instruction, and private study.

Source: OECD (2014a; 2014b; 2016a; 2016b; 2018b).

Independent Variables

To examine the relationships between the average national PISA science performance and two extended education variables—afterschool program provision and additional study time (RQ2)—two control variables were chosen at the national and school levels. The first variable is the amount the nation spends on education, and the other is the allotted regular classes for science.

To explore what factors determine which percentage of the nation's schools offer afterschool science programs and additional study time spent on science per student, aggregated at the national level (RQ3), three independent variables were selected from the school, the parent, and the student levels. They are the percentage of full-time teachers at the school, the degree of parental volunteering, and student motivation. The variables in the model were chosen based on the results of previous studies. The simplicity of the model and availability of the data were also considered.

Table 2.   Item and Scale of Independent Variable

	Independent variable	Item and Scales
RQ2	Education expenditure (Thousands USD)	– Cumulative expenditure per student between 6 and 15 years of age – Equivalent USD converted using PPP
	Regular classes (hours)	– Hours per week allotted for science classes in regular lessons
RQ3	Full-time teachers (%)	– Percentage of full-time teachers in the school – A full-time teacher is employed at least 90% of the time as a teacher for the full school year.
	Parental volunteering (%)	– Percentage of parents who volunteered in physical or extracurricular activities
	Student motivation (%)	– Percentage of students who agreed or strongly agreed with the following statements: – How much do you agree with the statements below? • Making an effort in my school science subject(s) is worth it because this will help me in the work I want to do later on. • What I learn in my school science subject(s) is important for me because I need this for what I want to do later on. • Studying my school science subject(s) is worthwhile for me because what I learn will improve my career prospects. • Many things I learn in my school science subject(s) will help me to get a job.

Source: OECD (2014a; 2014b; 2016a; 2016b; 2018b)

Data Analysis

To answer the research questions, the study conducted descriptive and inferential statistics. First, means, standard deviations, and the ranges of all variables were calculated to investigate the general characteristics of the data and samples. The unit of analysis are individual countries.

Second, to explore the global pattern of extended education (RQ1), this study conducted descriptive statistics of three variables by country – PISA science score, afterschool program provision, and additional study time. Results are displayed in a world map with the mean and frequency values of the variables by country. The maps showed a snapshot of the global pattern of extended education in the context of science. The maps also suggest insights on the relationships among the variables at the national level. This study also presented quadrant graphs with the selected variables, which shows a snapshot of the correlations between the two variables of interest.

Finally, multiple regression analyses were conducted to examine the relationships between PISA science score and the two extended education variables (RQ2) and explore what determines the above two variables (RQ3). Microsoft Excel 2015 and the software Bing were used to create maps and graphs. SPSS 18.0 was used to conduct multiple regression analyses.

Findings

Descriptive Statistics

Table 3 shows descriptive statistics of variables used for analysis. There exist considerable national disparities in average national PISA science performance (SD=49.13). The gap among countries is wider in afterschool program provision (SD=19.46) than it is in additional study time of students (SD=1.17).

Table 3.   Descriptive Statistics

	M	*SD*	*N*	*Min.*	*Max.*
PISA science performance					
PISA science mean score	465.30	49.13	73	331.64	555.57
Percentage of top performers	5.36	5.10	73	0.01	24.19
Percentage of low performers	31.36	18.02	73	5.91	85.74
Extended education					
AS program provision	59.03	19.46	73	7.02	92.20
Additional study time	3.66	1.17	57	1.69	7.19
Other variables					
Education expenditure	75	40	53	12	187
Regular classes	3.66	0.90	57	1.66	5.83
Full-time teachers	80.82	17.53	73	16.09	99.45
Parental volunteering	16.48	9.37	57	4.80	48.30
Student motivation	72.00	10.62	73	48.22	93.60

Note: the unit of education expenditure = thousand

## Global Pattern of Extended Education (RQ 1)

As shown in Figure 1, student science performance measured by the national mean score in the PISA 2015 science test varies across nations. In general, countries in North America, Europe, East Asia, and Oceania tend to show higher levels of achievement than countries from other regions. A similar pattern was found for the percentage of the schools providing afterschool science programs. Synthesizing the two patterns, the study suggests that afterschool science programs flourish in economically advanced countries with support from public schools. Regarding the findings above, the following speculative reasoning may be possible. First, countries seeking economic growth and development tend to employ technology-driven development strategies that can be driven by talented people in the science field. Second, public schools are encouraged to provide more science-learning opportunities not only during regular classes but also through afterschool science programs and activities—science clubs and competitions in this study. Finally, the cross-national pattern of additional study time for science is slightly different from the other two patterns—PISA science score and afterschool program provision. The information from the maps (see Figure 1) and the national rankings on the selected variables (see Appendix 1) suggest that students from some economically advanced countries and higher-achieving countries spend less additional time studying for science.
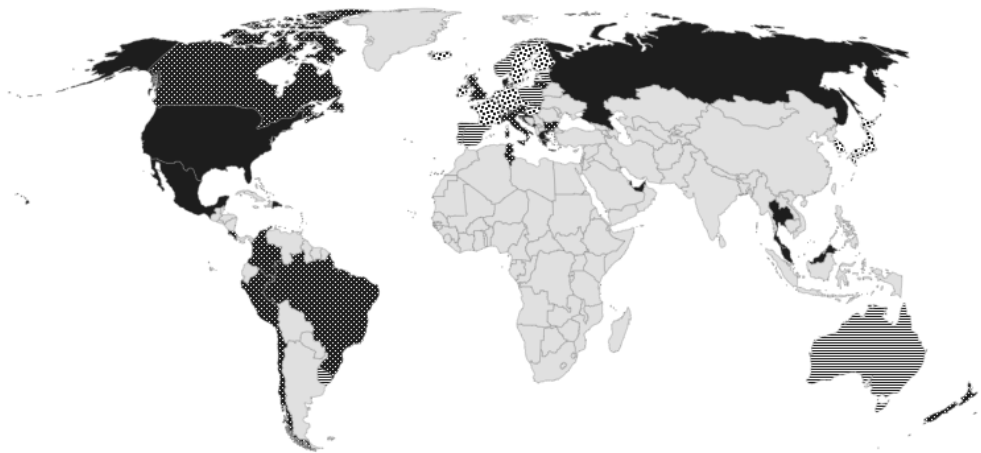
Figure 1. Distribution of Global Competitiveness Index, PISA Science Score, AS Program
Provision, and Additional Study Time
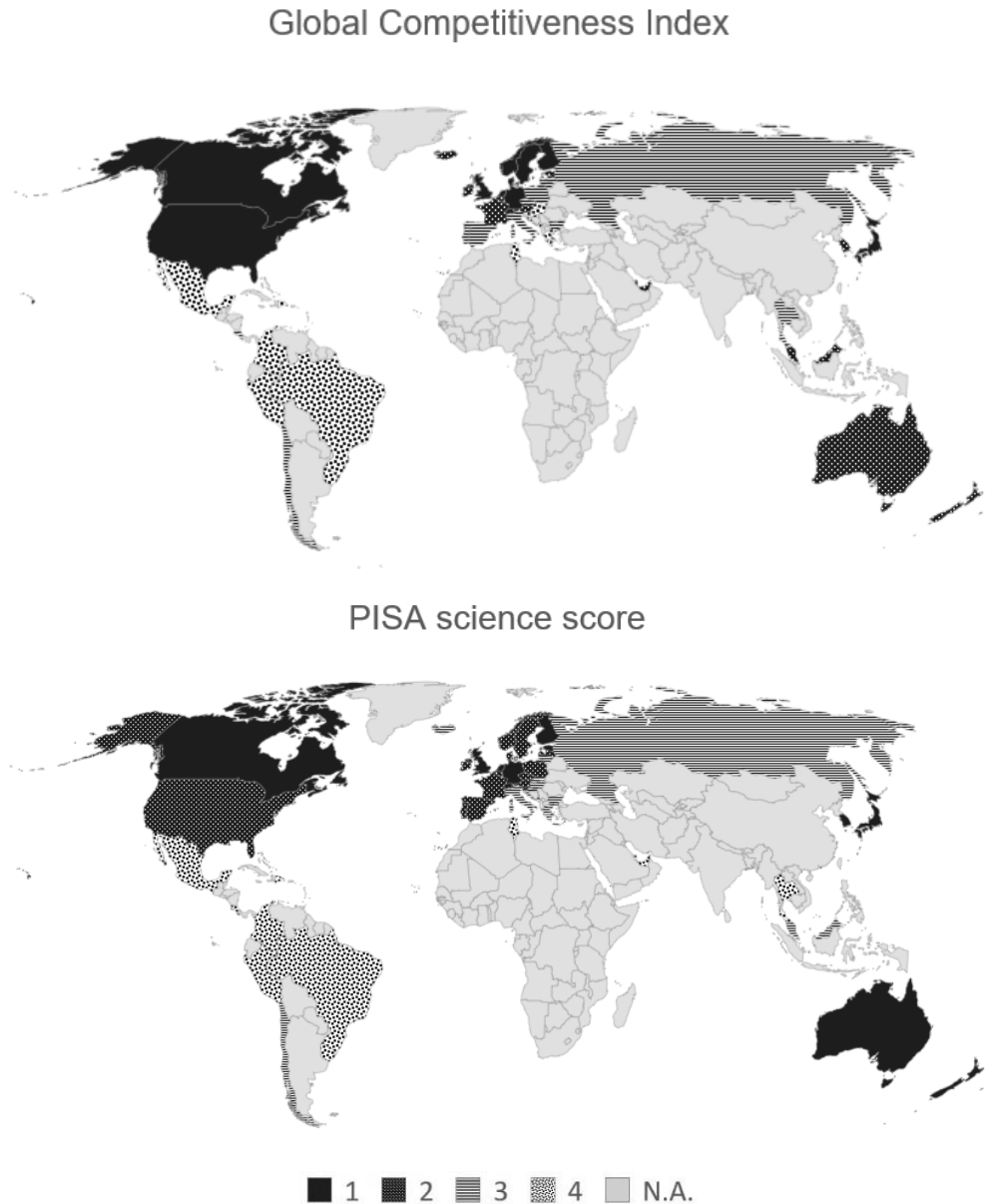
Afterschool program provision
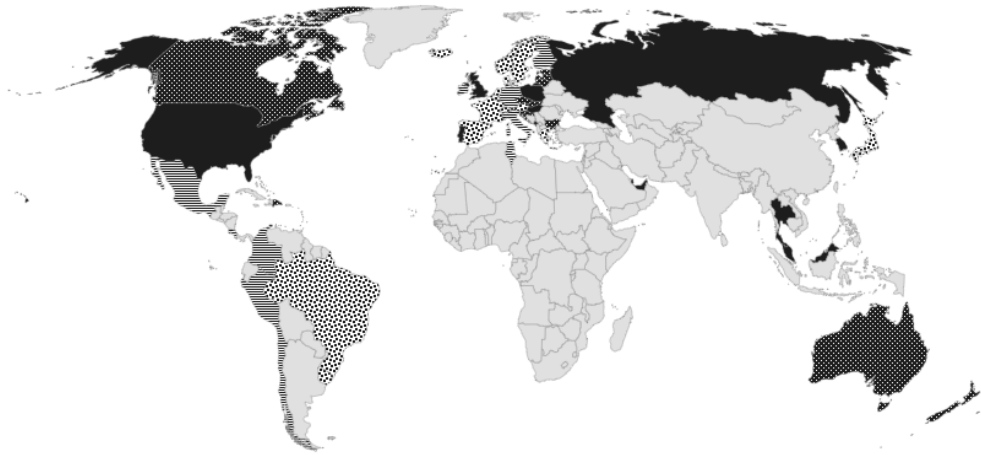
Additional study time

■ 1 ▨ 2 ☰ 3 ░ 4 ▢ N.A.

Note 1. For comparison purposes, the data of 54 countries (OECD members and non-members) was divided into quartiles with quartile 1 being the highest and quartile 4 being the lowest. Countries with no data available are marked as N.A. (Not Applicable).

Note 2. In the case of China, the data does not represent the whole country; thus, this study excluded China from the map and marked it as N.A.

Source: World Economic Forum; Global Competitiveness Report 2015–2016, Table 1.
OECD, PISA 2015 Database, Table I.2.3, Table II.6.46 and Table II.6.3.

The Relationships Between Extended Education and PISA Science Score (RQ2)

Correlations

In order to have thumbnail views of the relationships between the independent and dependent variables, two-dimensional scatter plots were created. The two charts in Figure 2 show the correlations between the average national PISA science score and the two extended education variables. The result suggests that countries in which more schools offer afterschool science programs are more likely to achieve higher PISA science scores aggregated at the national level. In other words, a positive correlation was found. Unexpectedly, however, a negative correlation was discovered between additional study time and PISA science scores. Specifically, countries in which students spent more time studying for science after school tend to record lower PISA science scores at the national level.

Given the unexpected negative correlation between additional study time and PISA science scores, the study speculated that some variables may moderate the relationship between the two variables. To explore moderators, the study used in turn a couple of third variables on the bottom chart of Figure 2.

The upper chart of Figure 3 shows the three-dimensional scatter plot with three national-level variables. In this chart, the horizontal axis is additional study time (independent variable), the vertical axis is PISA science score (dependent variable), and finally the size of the circle refers to the accumulated national educational expenditure per person (the third variable). Interestingly, a positive correlation was found between the independent and dependent variables in the case of the sample countries that spent more money for public education—the top 17 out of 49 countries (see the bottom chart of Figure 3). In other words, for countries that have greater educational investment, additional study time for science leads to higher PISA science scores at the national level. This result implies that the relationship between additional study time and PISA science scores may depend on national levels of educational expenditure. However, due to the small size of the sample, interpretation should be made with caution.

Figure 2. Correlation Between Extended Education and PISA Science Score
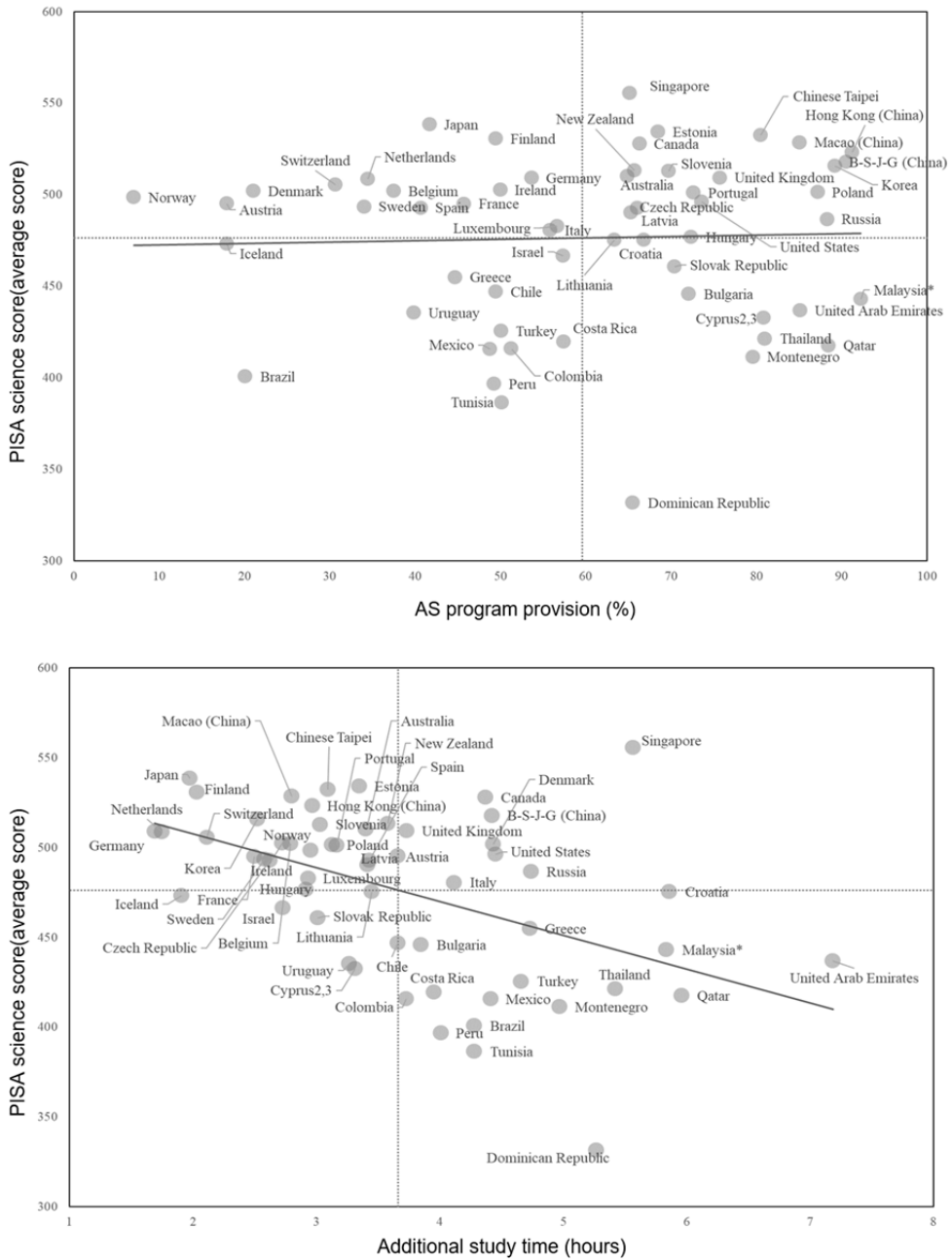
Figure 3. Relationship Between Additional Study Time, PISA Science Score, and National
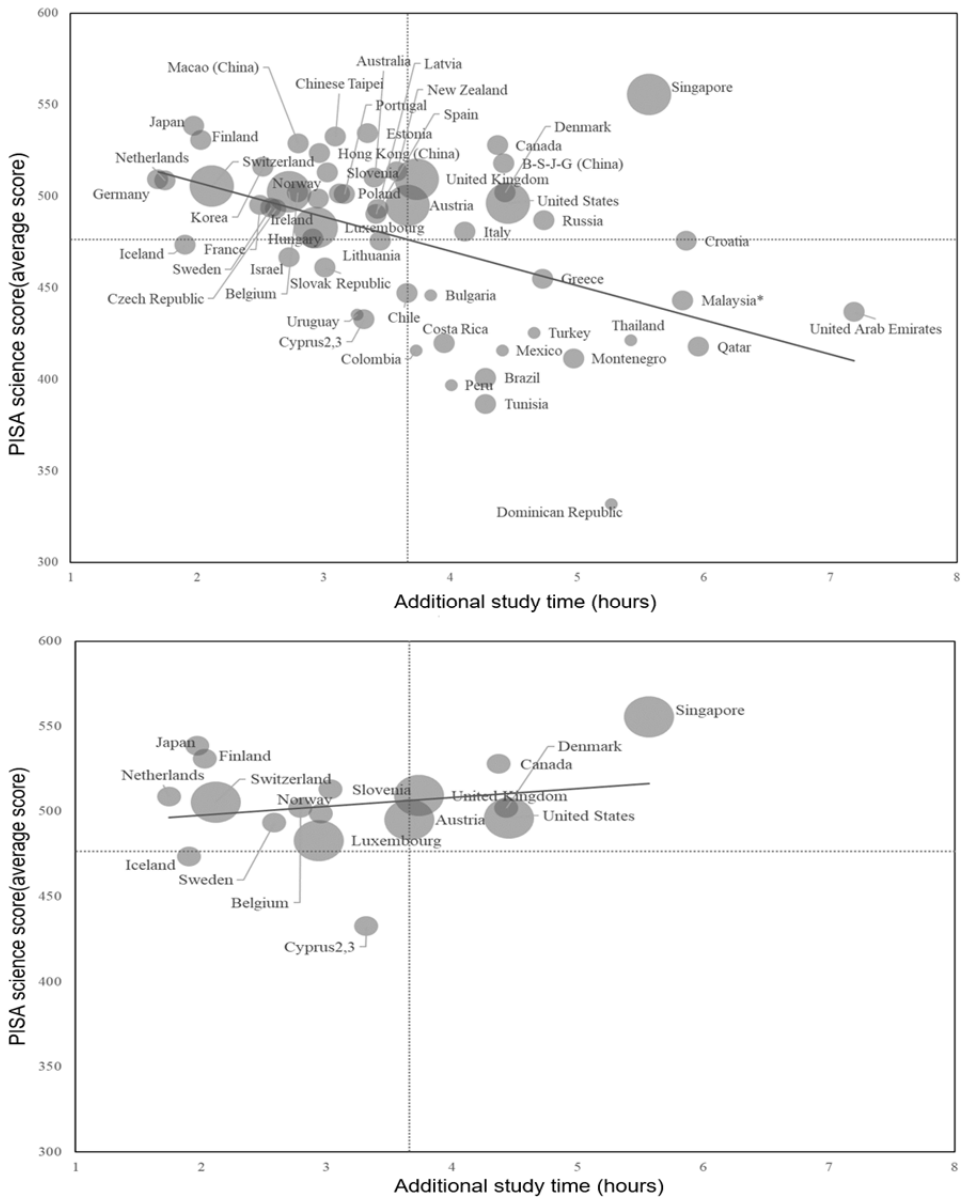   Educational Expenditure

Figure3. The relationship between additional study time, PISA science scores, and national educational expenditure

Note. N=54, Three groups were classified by education expenditure and displayed as bubbles. This study analyzed the top one-third of countries among them.

Source: OECD (2014a; 2014b; 2016a; 2016b; 2018b)

The Relationships Between Extended Education and PISA Science Score

As shown in Table 4, the accumulated national educational investment per student was found to be positively associated with the average national PISA science achievement (β = .58) and the percentage of top performers (β = .60). However, it was negatively related to the percentage of low performers (β = -.55, $p<.001$). These findings suggest that a nation's educational investment that may influence the quality of education has the strongest impact on PISA science achievement at the national level. Second, the study found that countries in which more schools offer afterschool science programs are more likely to have higher national PISA science scores (β = .26), more top performers (β = .25), and few lower performers (β = -.26) ($p<.05$). Finally, when controlling for other variables, additional study time spent on science was negatively related to the average national PISA science score (β = -.34, $p<.01$).

Furthermore, additional study time was found to have a positive influence on the national percentage of low performers. This finding means that countries in which students spent more time on science after school tend to have greater numbers of lower-performing students ($p<.01$, β = .36). Although this is the finding from the national-level analysis, it appears to contradict the common notion that "more study time leads to higher achievement." Methodologically speaking, the results of multiple regression analysis do not suggest a causational relationship between independent and dependent variables.

Therefore, one can only interpret the findings based on the relevant theories and previous studies. First, the interaction effect may lead to speculation that national social and educational contexts may affect the relationship between additional study time and the nation's average PISA science score. For instance, as shown in Figure 3, the relationship between additional study time and the PISA science score may differ with the level of national educational investment. However, due to the problem of sample size, it is recommended that future research be conducted using a larger sample.[3] Second, it may also be assumed that what the students learn during additional study time is different from what the PISA test is intended to measure. As suggested by previous studies (Bae & Jeon 2013; Bray, 2013; Sivan & Siu, 2017), the purpose of additional study may be supplementary and remedial learning. However, the PISA 2015 science test measures higher-level competencies and knowledge in relation to scientific phenomena. That is, the content of additional afterschool study may have little to do with what the PISA 2015 science test measures. Finally, since the results from multiple regression analysis only suggest that a relationship exists between variables, one can interpret the result in the opposite way. Therefore, it may be argued that students who perform worse at science might take supplementary science tutoring—more study time spent for afterschool science.

---

3   Considering the relationship among the three variables shown in Figure 3, the interaction effect was examined by including national educational expenditure as the moderator in the multiple regression model. However, the value of variance inflation factors (VIF) was high, indicating the multicollinearity issue. Future studies may be conducted using other variables as moderators.

Table 4. Relationship Between Extended Education and PISA Science Score by Group

	Mean scores			% of Top performers			% of Low performers		
	B	S.E	β	B	S.E	β	B	S.E	β
Intercept	460.08	24.92		2.25	3.13		31.49	9.07	
Education expenditure	0.67***	0.13	0.58	0.08 ***	0.17	0.60	-0.22***	0.05	-0.55
Regular classes	10.08†	5.82	0.19	1.18	0.73	0.20	-3.43	2.12	-0.19
Extended education AS program provision	0.59*	0.25	0.26	0.07 *	0.03	0.25	-0.20*	0.09	-0.26
Additional study time	-15.04**	5.34	-0.34	-1.05	0.67	-0.21	5.60**	1.94	0.36
R²		0.49			0.39			0.45	

Note: N=49, *** $p<0.001$, ** $p<0.01$, * $p<0.05$, † $p<0.1$, unit of education expenditure = thousand

Determinants of Afterschool Program Provision and Additional Study Time (RQ 3)

As shown earlier, the study found that afterschool program provision and additional study time are associated with national PISA science achievement, either positively or negatively, which raises the question of what determines these two variables—the percentage of schools offering afterschool science programs and additional study time spent on science.

The study found that the ratio of full-time teachers in the school is associated with national provision of school-based afterschool programs ($β = .39$, $p<.001$). The degree of parental volunteering in school activities was associated with afterschool program provision at the 0.1 level. These findings imply that full-time teachers and parents may be important resources of the school in implementing afterschool science programs.

Student motivation was found to be positively related to the dependent variable of additional study time ($β = .61$, $p<.001$). Considering the theory that suggests that lower performers might have higher motivation, the negative relationship between additional study time and PISA science score at the national level appears to be reasonable.

Table 5.   Determinants of Afterschool Program Provision and Additional Study Time

	AS program provision				Additional study time		
	B		S.E	β	B		S.E	β
Intercept	-10.78		18.59		-1.97		0.89	
Full-time teachers	0.50	**	0.15	0.39	0.01		0.01	0.12
Parental volunteering	0.50†		0.30	0.22	0.01		0.01	0.11
Student motivation	0.31		0.27	0.15	0.07	***	0.01	0.61
R²			0.30				0.47	

Note: N=57, *** $p<0.001$, ** $p<0.01$, * $p<0.05$, † $p<0.1$

Conclusion and Implications

Extended education flourishes in many parts of the world. The same is true of school-based afterschool science programs as part of STEM education, which is becoming increasingly critical not only for individual educational and career success, but also for national econom-

ic development. However, as this study reveals, the problem is that there are substantial national differences in access to afterschool science programs. In general, afterschool science programs offered by schools are more likely to thrive in developed countries. In other words, children and youth in developing countries are disadvantaged in terms of opportunities to learn science after school, which is not good for global sustainable development.

Because of increased Official Development Assistance (ODA) by developed countries and education-aid programs by international organizations such as UNESCO and the World Bank, the quality of public schooling, particularly basic education, in developing countries has been steadily enhanced (Heyneman & Lee, 2016). However, due to the lack of resources at the international level, most efforts have been devoted to promoting the quality and equality of formal and regular public schooling in developing countries. As a great deal of research has revealed, participation in extended education is becoming enormously important for the growth and development of children and youth—particularly participation in STEM education. In this sense, inequality in extended education among countries requires urgent attention, as does inequality within countries. This study found international disparity in access to school-based afterschool science programs and its impact on science achievement. Moreover, the current study revealed the percentage of full-time teachers in the school, showing the importance of education investment for securing devoted educators in the school, and that the culture of parental volunteering is partially critical in providing school-based afterschool programs. Future research may be conducted to find the determinants of afterschool program provision at the national level with larger samples and more variables.

The second meaningful finding is that there is a negative relationship between additional study time for science and PISA science performance at the national level, which is contradictory to the common notion. Due to the constraints of the exploratory study analyzing secondary data with the simple research modeling, the results of the study are not enough to explain why such an unexpected relationship is found. Moreover, the PISA 2015 survey may have measurement issues. In other words, it does not capture the full aspect of extended education including shadow education. Nonetheless, it may be clear that the content that the students learn during additional study time differs from higher-order learning experiences that the PISA science test is intended to measure. Supporting this argument, researchers (Bae & Jeon, 2013; Bray, 2013; Mori & Baker, 2010; Sivan & Siu, 2017) have suggested that the purpose of shadow education, additional study after school in this study, is remedial lessons and/or test preparation. Future studies may be conducted to investigate students' afterschool learning experiences and whether they differ among nations. In addition, the current study concerns extended education in the science area. Future research may be extended to other subject areas.

This study is a cross-national comparative study, of which the unit of analysis are individual countries. All variables are calculated into country-level means. The nature of the mean as a variable in social science excludes the dynamics within the research context. Nevertheless, it should be noted that comparative research has the potential to help researchers better understand the national and regional context that influences the patterns of individual behaviors and attitudes as well as the policy direction of the national institutions, either public or private. Cross-national research also provides insights to policy makers who intend to find global patterns and standards, develop the direction of education around the world, and finally offer advice to national governments. The same holds true for extended education.

References

Afterschool Alliance. (2009). America after 3pm. Retrieved from
    http://www.afterschoolalliance.org/AA3PM.cfm

Areepattamannil, S., & Kaur, B. (2013). Factors predicting science achievement of immigrant and non-immigrant students: A multilevel analysis. *International Journal of Science and Mathematics Education, 11*(5), 1183 -1207.

Bae, S. H. (2018). Concepts, Models, and Research of Extended Education. *International Journal for Research on Extended Education, 6*(2), 153-165.

Bae, S. H. & Kanefuji, F. (2018). A comparison of the afterschool programs for Korea and Japan: From the institutional and ecological perspectives. *International Journal for Research on Extended Education, 6*, 27-48.

Bae, S. H., Kim, S. S., & Yang, S. K. (2010). The relationship between afterschool participation and students' private tutoring expenses and academic achievement. *The Journal of Educational Administration, 28*(2), 55-79.

Bae, S. H. & Jeon, S. B. (2013). Research on afterschool programs in Korea: Trends and outcomes. *International Journal for Research on Extended Education, 1*, 53-70.

Baker, D. P., Akiba, M., LeTendre, G. K., & Wiseman, A. W. (2001). Worldwide shadow education: Outside-school learning, institutional quality of schooling, and cross-national mathematics achievement. *Educational Evaluation and Policy Analysis, 23*(1), 1-17.

Bray, M. (2013). Shadow education: Comparative perspectives on the expansion and implications of private supplementary tutoring. *Procedia-Social and Behavioral Sciences, 77*(2013), 412-420.

Bray, M., Kwo, O., & Jokic, B. (Eds.) (2015). *Researching private supplementary tutoring: Methodological lessons from diverse cultures*, Hong Kong: Comparative Education Research Center, The University of Hong Kong.

Brophy, S., Klein, S., Portsmore, M., & Rogers, C. (2008). Advancing engineering education in p-12 classrooms. *Journal of Engineering Education, 97*(3), 369-387.

Bybee, R. W. (2010). Advancing STEM education: A 2020 vision. *Technology and Engineering Teacher, 70*(1), 30-35.

Cooper, H., Robinson, J. C., & Patall, E. A. (2006). Does homework improve academic achievement? A synthesis of research, 1987–2003. *Review of educational research, 76*(1), 1-62.

Darling-Hammond, L. (2000). How teacher education matters. *Journal of Teacher Education, 51*, 166-173.

Durlak, J. A., & Weissberg, R. P. (2007). The impact of after-school programs that promote personal and social skills. *Collaborative for Academic, Social, and Emotional Learning (CASEL)*, 50.

Dyson, A. & Jones, L. (2014). Extended schools in England: Emerging rationales. *International Journal for Research on Extended Education, 2*, 5-19.

Farbman, D. (2012). The case for improving and expanding time in school: A review of key research and practice. National Center on Time & Learning.

Heyneman, S. P., Lee, B. (2016). International organizations and the future ofeducation assistance. *International Journal of Educational Development 48*, 9-22.

Huang, D., Matrundola, D. L. T., & Leon, S. (2014). Identification of key indicators for quality in afterschool programs. *International Journal for Research on Extended Education, 2*(1), 20-44.

Husen, T. (1972). Does more time in school make a difference? Education Digest, 38, 11-14.

Ing, M. (2014). Gender differences in the influence of early perceived parental support on student mathematics and science achievement and STEM career attainment. *International Journal of Science and Mathematics Education, 12*(5), 1221-1239.

Kanefuji, F. (2017). Extended Education Supported by Parents and the Community: Its Impacts on Japanese Schoolteachers. *International Journal for Research on Extended Education, 5*(1), 26-46.

Karweit, N. (1984). Time-on-Task Reconsidered: Synthesis of Research on Time and Learning. *Educational leadership, 41*(8), 32-35.

Klerfelt, A., & Stecher, L. (2018). Swedish School-age Educare Centres and German All-day Schools – A Bi-national Comparison of Two Prototypes of Extended Education. *International Journal for Research on Extended Education, 6*(1), 49-65.

Lauer, P. A., Akiba, M., Wilkerson, S. B., Apthorp, H. S., Snow, D., & Martin-Glenn, M. L. (2006). Out-of-school-time programs: A meta-analysis of effects for at-risk students. *Review of Educational Research, 76*(2), 275-313.

Little, P., Wimer, C., & Weiss, H. B. (2008). After school programs in the 21st century: Their potential and what it takes to achieve it. *Issues and Opportunities in Out-of-School Time Evaluation, 10*(Harvard Family Research Project), 1-12.

Merrill, C., & Daugherty, J. (2010). STEM education and leadership: A mathematics and science partnership approach. *Journal of Technology Education, 21*(2), 21-34.

Mori, I., & Baker, D. (2010). The origin of universal shadow education: What the supplemental education phenomenon tells us about the postmodern institution of education. *Asia Pacific Education Review, 11*(1), 36–48.

National Science Board. (2007). *National action plan for addressing the critical needs of the U.S. science, technology, engineering, and mathematics education system.* (Publication No. NSB-07-114). Washington, DC: U.S. Government Printing Office.

National Research Council. (2010). *Exploring the intersection of science education and 21st century skills: a workshop summary.* Washington, DC: National Academies Press.

Noam, G. G., & Triggs, B. B. (2018). Expanded learning: A thought piece about terminology, typology, and transformation. *International Journal for Research on Extended Education, 6*(2), 165-175.

Organisation for Economic Cooperation and Development (OECD). (2014a). *Student questionnaire for PISA 2015: Computer-based version, main survey version.* Retrieved from http://www.oecd.org/pisa/data/2015database/

OECD. (2014b). *School questionnaire for PISA 2015: Computer-based version, main survey version.* Retrieved from http://www.oecd.org/pisa/data/2015database/

OECD. (2016a). *PISA 2015 results (Volume I): Excellence and equity in education science performance among 15–year–olds.* Retrieved from https://dx.doi.org/10.1787/9789264266490-6-en

OECD. (2016b). *PISA 2015 results (Volume II): Policies and practices for successful schools.* Retrieved from https://dx.doi.org/10.1787/9789264267510-en

OECD. (2018a). *PISA 2015 results in focus.* Paris: OECD publishing.

OECD. (2018b). *Scientific question categories.* Retrieved from http://www.oecd.org/pisa/scientific-question-categories.htm

Pierce, K. M., Auger, A., & Vandell, D. L. (2013). Narrowing the achievement gap: Consistency and intensity of structured activities during elementary school. In Unpublished paper presented at *the Society for Research in Child Development Biennial Meeting*, Seattle, WA (Vol. 8).

Schuepbach, M., & Huang, D. (2018). Comparison of Extended Education and Research in this Field in Taiwan and in Switzerland. *International Journal for Research on Extended Education, 6*(1), 8-26.

Shen, C., & Pedulla, J. J. (2000). The relationship between students' achievement and their self-perception of competence and rigour of mathematics and science: A cross-national analysis. *Assessment in Education: Principles, Policy & Practice, 7*(2), 237-253.

Sivan, A., & Siu, G. P. K. (2017). Extended education for academic performance, whole person development and self-fulfilment: The case of Hong Kong. *International Journal for Research on Extended Education, 5*(2), 178-187.

Suter, L. E. (2016). Outside school time: an examination of science achievement and non-cognitive characteristics of 15-year olds in several countries. *International Journal of Science Education, 38*(4), 663-687.

Tuerk, P. W. (2005). Research in the high-stakes era: Achievement, resources, and no child left behind. *Psychological Science, 16*, 419–425.

Wang, J. J., Oliver, J. S., & Staver, J. R. (2008). Self-concept and science achievement: Investigating a reciprocal relation model across tine gender classification in a crosscultural context. *Journal of Research in Science Teaching, 45*(6), 711–725.

White, D. W. (2014). What is STEM education and why is it important? *Florida Association of Teacher Educators Journal, 1*(14), 1-9.

Bray, M. (2013). Shadow education: Comparative perspectives on the expansion and implications of private supplementary tutoring. *Procedia-Social and Behavioral Sciences*, 77, 412-420.

Appendix 1. Rankings of selected variables

Ranking	Global Competitive-ness Index	PISA science score	Afterschool program provision	Additional study time	Edu. expenditure
	N=68	*N=73*	*N=73*	*N=57*	*N=53*
1	**Switzerland**	Singapore	Malaysia*	U.A.E.	**Luxembourg**
2	Singapore	**Japan**	Hong Kong	Qatar	**Switzerland**
3	**United States**	**Estonia**	B-S-J-G (China)	Croatia	**Norway**
4	**Germany**	Chinese Taipei	**Korea**	Malaysia*	**Austria**
5	**Netherlands**	**Finland**	Qatar	Singapore	Singapore
6	**Japan**	Macao (China)	Russia	Thailand	**United States**
7	Hong Kong	**Canada**	Kazakhstan*	Dominican Rep.	**United Kingdom**
8	**Finland**	Viet Nam	**Poland**	Montenegro	Malta
9	**Sweden**	Hong Kong	U.A.E.	Russia	Cyprus
10	**United Kingdom**	B-S-J-G (China)	Macao (China)	**Greece**	**Sweden**
11	**Norway**	**Korea**	Thailand	**Turkey**	**Belgium**
12	**Denmark**	**New Zealand**	Cyprus	**United States**	**Iceland**
13	**Canada**	**Slovenia**	Chinese Taipei	**Denmark**	**Denmark**
14	Qatar	**Australia**	Montenegro	B-S-J-G (China)	**Finland**
15	**New Zealand**	**United Kingdom**	**United Kingdom**	**Mexico**	**Netherlands**
16	U.A.E	**Germany**	**United States**	**Canada**	**Canada**
17	Malaysia*	**Netherlands**	**Portugal**	Tunisia	**Japan**
18	**Belgium**	**Switzerland**	**Hungary**	Brazil	**Slovenia**
19	**Luxembourg**	**Ireland**	Bulgaria	**Italy**	**Australia**
20	**Australia**	**Belgium**	**Slovak Rep**	Peru	**Germany**
21	**France**	**Denmark**	Malta	Costa Rica	**Ireland**
22	**Austria**	**Poland**	**Slovenia**	Bulgaria	**France**
23	**Ireland**	**Portugal**	Indonesia	**United Kingdom**	**Italy**
24	**Korea**	**Norway**	**Estonia**	Colombia	**Portugal**
25	**Israel**	**United States**	Croatia	**Austria**	**New Zealand**
26	China	**Austria**	**Canada**	Chile	**Korea**
27	**Iceland**	**France**	Albania	**New Zealand**	**Spain**
28	Estonia	**Sweden**	**Czech Rep**	Lithuania	**Poland**
29	**Czech Rep**	**Czech Rep**	**New Zealand**	**Spain**	**Israel**
30	Thailand	**Spain**	Dominican Rep.	**Latvia**	**Estonia**
31	**Spain**	**Latvia**	**Latvia**	**Australia**	**Czech Rep**

Ranking	Global Competitive-ness Index	PISA science score	Afterschool program provision	Additional study time	Edu. expenditure
32	**Chile**	Russia	Singapore	**Estonia**	**Latvia**
33	Lithuania	**Luxembourg**	**Australia**	Cyprus	**Slovak Rep**
34	**Portugal**	**Italy**	Lithuania	Uruguay	Russia
35	Indonesia	**Hungary**	Georgia	**Portugal**	Croatia
36	**Poland**	Lithuania	Moldova	**Poland**	Argentina*
37	Kazakhstan*	Croatia	Costa Rica	Chinese Taipei	Lithuania
38	**Italy**	Buenos Aires	**Israel**	**Slovenia**	**Hungary**
39	**Latvia**	**Iceland**	**Luxembourg**	**Slovak Rep.**	Costa Rica
40	Russia	**Israel**	**Italy**	Hong Kong	Chinese Taipei
41	Malta	Malta	Romania	**Norway**	**Chile**
42	**Turkey**	**Slovak Rep.**	North Macedonia	**Luxembourg**	Brazil
43	Costa Rica	Kazakhstan*	Kosovo	**Hungary**	**Turkey**
44	Romania	**Greece**	**Germany**	Macao (China)	Uruguay
45	Bulgaria	**Chile**	T.A.T.	**Belgium**	Bulgaria
46	Viet Nam	Bulgaria	Buenos Aires	**Israel**	**Mexico**
47	**Mexico**	Malaysia*	Colombia	**Ireland**	Thailand
48	**Slovenia**	U.A.E.	Lebanon	**Czech Rep.**	Montenegro
49	Colombia	Uruguay	Tunisia	**Sweden**	Colombia
50	**Hungary**	Romania	**Turkey**	**Korea**	Dominican Rep.
51	Jordan	Cyprus	Argentina*	**France**	Kazakhstan*
52	Cyprus	Argentina*	**Ireland**	**Switzerland**	Peru
53	Georgia	Moldova	**Finland**	**Finland**	Georgia
54	**Slovak Rep.**	Albania	**Chile**	**Japan**	–
55	Peru	**Turkey**	Peru	**Iceland**	–
56	Montenegro	T.A.T.	Algeria	**Netherlands**	–
57	Uruguay	Thailand	**Mexico**	**Germany**	–
58	Brazil	Costa Rica	**France**	–	–
59	Croatia	Qatar	Viet Nam	–	–
60	**Greece**	Colombia	**Greece**	–	–
61	Moldova	**Mexico**	**Japan**	–	–
62	Algeria	Montenegro	**Spain**	–	–
63	T.A.T.	Georgia	Uruguay	–	–
64	Tunisia	Jordan	Jordan	–	–
65	Albania	Indonesia	**Belgium**	–	–
66	Dominican Rep.	Brazil	**Netherlands**	–	–
67	Lebanon	Peru	**Sweden**	–	–
68	Argentina*	Lebanon	**Switzerland**	–	–
69	–	Tunisia	**Denmark**	–	–
70	–	North Macedonia	Brazil	–	–
71	–	Kosovo	**Austria**	–	–
72	–	Algeria	**Iceland**	–	–
73	–	Dominican Rep.	**Norway**	–	–

Note. *Argentina, Kazakhstan and Malaysia: coverage is too small to ensure comparability. U.A.E.= United Arab Emirates, T.A.T.= Trinidad and Tobago. OECD(*N*=35) countries have been shaded.

Source: World Economic Forum; Global Competitiveness Report 2015–2016, Table 1.

OECD. (2016a; 2016b), PISA 2015 Database, Table I.2.3, Table II.6.46, Table II.6.37 and Table II.6.58.

Navigating Partnership Model for Expanded Learning Opportunities: A Case of the State of Oklahoma

Chang Sung Jang

Background

Schools nowadays have been confronted with unprecedented pressure from nationwide accountability systems which in order to get rid of learning barriers and/or improve the achievement of all students (Bathgate & Silva, 2010). Consequently, school leaders are seeking a variety of ways to increase the learning opportunities of students both inside and outside of schools. Corresponding to this trend, extending school time, which increases the number of days in each school year or adds hours to the school day, has been introduced as a popular strategy. In the United States, this approach emerged with the Time for Innovation Matters in Education Act (2009), which focuses on offering expanded learning time (Weiss et al., 2009). As educational reform initiatives, the rationale of this strategy is that increased time in- and out of-schools probably leads to students' increased learning and achievement. Evidence from research shows that increased learning opportunities serve as a pipeline not only in bridging race- and class-based achievement gap but also successful childcare, particularly for disadvantaged groups (e.g., Blau & Currie, 2004; Cooper et al., 1996; Entwisle, Alexander, & Olsen, 2007).

In a facet of supporting increased time for learning at the outside of schools, school leaders and community providers are adopting partnerships with a perception that fully integrating schools and afterschool community-based organizations serve as a vehicle for expanded learning opportunities (ELO). As a core component of school-community partnerships, ELO has become a primary principle in (a) widening the spectrum of learning environments at the outside of the classroom, (b) spurring a more dynamic network that elevates student engagement, and (c) preventing a dropout crisis that plagues poor communities disproportionately (Bathgate & Silva, 2010). Moreover, ELO strategy grants greater benefits in collaborating program planning, resource alignment, instruction, data use, and professional development in between schools and community (Gannett, 2012). Broader influences in school attendance, behavioral and socio-emotional aspects, and academic achievement are reported as the positive outcomes of applying ELO by school-community partnerships. Thus, it can be accomplished by not simply extending the school day or school year but by promoting students' participation in constructive activities (America's Promise Alliance, 2015; National Education Association, 2008).

Given the significance of school-community partnerships in redesigning school structure and culture, connected engagement approach, which refers to the direct association between a school and (one or more) local companies, community providers, and nonprofit or-

ganizations, is being used in general (Balfanz et al., 2012). Known as a partnership model (Lawson, 2010), this approach commonly attempts seamless integration with community partners and schools to promote enriched learning. By embracing inclusive multi-partner collective impact initiatives, it also aims to provide a potentially transformative way to engage students to build social capital which is required when they transit into local society (Belfiore & Lash, 2017). Therefore, a wide variation of forms and education programs appear, which are offered by varying community organizations in the collective learning network. These range from community-mediated learning that is for youth development in their identity and social capital to service learning that is highly linked to address community issues such as lower rates of substance abuse, teen pregnancy, and juvenile crime (Bosma et al., 2010; Perkins, 2015).

While more districts and communities are applying the partnership models to meet student needs and enrich learning opportunities (Epstein, 2010; Hands, 2010). Consistent standards of practices are yet clearly illustrate. This not only stems from the fact that it is hard to find a widely accepted term for describing ELO but also each community has a different stage in utilizing a partnership model and they are not merely following one successful model (America's Promise Alliance, 2015). Therefore, navigating cases which experience distinctive trends and challenges that individual communities face in particular contexts might be able to contribute to exploring implications about how they advance their own efforts as well as to broaden the horizons in demonstrating diverse aspects of the partnership model. In this sense, the case of Oklahoma Partnership for Expanded Learning (OPEL), which was launched in 2015 in order to connect stakeholders throughout the state of the Oklahoma, is described in this paper. Based on the investigation of distinctive features and facets of OPEL case, implications for improving ELO practices in the vein of the partnership model are also discussed.

Partnership Model for Accomplishing ELO Initiatives: the OPEL Case

This section examines the broad profile of OPEL via comprehensive documents reviews such as state reports published by the government of Oklahoma, OPEL website, and data from various sources. In order to address the purpose, this paper explores the developmental process, challenges, and innovation of the case of OPEL, by following two sub-categories: (a) overview of OPEL, which includes legal and contextual bases of ELO in Oklahoma, and (b) desired outcomes of OPEL.

Overview of OPEL

In the United States, expanded learning practices (e.g., afterschool, summer learning) are being introduced with a wide perception that they might be able to serve as leverage in developing students' own interests and skills, enriching interactions with peers and/or adults, and addressing risky behaviors, particularly for low-achieving groups. According to Duncan and Murnane (2011), annual trends in spending on enrichment activities show that the financial gap between top quintile income and bottom quintile income groups has been growing con-

tinuously since the 1970s. For example, when comparing children who come from families with an annual income of $72,000 and over with families earning $18,000 or less, the children in the lower bracket have considerably less (50%) the access to enrichment activities such as sports, clubs, lessons, and after- and before-school care programs (Laughlin, 2013).

Especially in Oklahoma, approximately 20% of children were left alone and unsupervised from adults for an average of 7 hours per week in 2014. According to Stanek et al. (2017), also, 28% of 8th-grade children were not proficient in math during the 2011-2012 school year and 23% of children dropped out between 9th-grade and graduation in 2011, respectively. Moreover, the state of Oklahoma has an important context for implementing expanded learning practices since it ranks within the bottom few states in total per-pupil expenditures (Cornman, Zhou, Howell, & Young, 2018). It also shows consistently lower performance in reading and math compared to the national public average (National Center for Education Statistics, 2018). Given the current situation, it is not surprising that building a productive educational system and offering a wide range of learning opportunities is imperative to close the opportunity gap amongst students (Carter & Welner, 2013) and also to reduce the occurrence of potential problems.

These demands for ELO practices could also be found in a series of legal statements in a 2015 School Law Book published by the state of Oklahoma (Oklahoma State Department of Education, 2015). In both sections 395 (Quality Afterschool Opportunities Act) and 400 (Creation of Quality Afterschool Opportunities Initiative), quality afterschool opportunities are expected to be an effective way to reduce childhood obesity and improve academic performance. What is more, it states that guidance from a statewide non-profit afterschool network could foster necessary collaboration needed between the State Department of Education, the State Department of Health, and the State Department of Human Services for successful quality ELO initiatives. Consequently, it served as legal basis in introducing a community-based partnership model for improving ELO in Oklahoma.

In response, OPEL, a statewide network of organizations which acknowledges the success of and consistent need for ELO throughout Oklahoma, was launched in 2015. With a grant of $225,000 from the C.S. Mott Foundation in 2015, the partnership which focuses on developing a comprehensive communication and outreach plan about the importance of out of school programs were created. The mission of OPEL is "to build and sustain a statewide alliance that connects partners, promotes quality and advances public policy to increase ELO" (Stanek et al., 2017, p. 19). Along with the mission of the organization, OPEL endeavors to offer a wide range of learning activities for youth that enhance their academic, physical, social, and emotional development. In order to make program implementation successful, partnerships among stakeholders are serving as a key driver. More specifically, partnerships, which seek an intimate collaboration of agencies and organizations within the state of Oklahoma, play a central role in building expanded learning-based programs and providing technical support to newly established programs.

Positive impacts of partners' work meant to increase equitable high-quality of ELO programs can be found in the following three areas: (a) increasing quality ELO, (b) sustainability of ELO, and (c) advocacy on behalf of expanded learning professionals. In this process, OPEL performs a leading role in solidifying a network by wide range of efforts such as (a) sharing best practices and providing associative support, (b) identifying funding

sources and provide information to ELO providers to build firm relationships that address achievement gaps and maximize resources in a community, and (c) providing legislative updates on policies to stakeholders and performing a series of assessments toward ELO programs to distinguish barriers and to determine future directions responding to tendencies on policies and/or consumer preferences changes. Simply put, as a statewide afterschool network of Oklahoma, the partnership plays a pivotal role in raising awareness, building capacity and sustainability, and promoting the importance of ELO.

Desired Outcomes of OPEL

In 2014, approximately 11% (68,751) of Oklahoma's students were participating in afterschool programs and the ELO participation rate is growing consistently. Also, more than 40% (230,198) of students in Oklahoma responded that they would participate in ELO programs if one were available to them. Moreover, children and families in the state positively recognized that ELO programs provide a wide range of benefits to them. The survey results conducted by America After 3PM shows that higher rates of parents are satisfied with afterschool program overall (94%), its quality of care (88%), the degree of variety of activities (88%), and affordability of the program costs (81%) (Afterschool Alliance, 2014). According to the 2017 State Report of Expanded Learning in Oklahoma, the outcomes from applying partnerships for ELO can be separated into two aspects: academic and behavioral/social development for youth.

Academic Development. In a sense that children who have high-quality afterschool experiences tended to behave better in school, perform better on tests, and receive higher grades compared to non-participants (Durlak, Weissberg, & Pachan, 2010), academic development is a critical goal of ELO. In Oklahoma, ELO practices help to close the achievement gap for underserved students by promoting in schools. More specifically, students who regularly attend high-quality ELO programs earn the equivalent of up to 90 days of learning. Particularly, 28.5% of people in Oklahoma are in poverty and the class-based education gap continues to grow (Oklahoma Policy Institute, 2012). As some of the research indicated, considering the correlation could be found between high school dropout rates and the lack of ELO and little employment opportunities (Stanek et al., 2017), providing expanded learning times and opportunities probably serve to a key for narrowing the achievement gap, especially for low-income children. As some of the research indicated, correlations can be found between high school dropout rates, lack of ELO, and little employment opportunities (Stanek et al., 2017). As such, providing expanded learning times and opportunities may be a key for narrowing the achievement gap, especially for low-income children.

Establishing sound school-community partnerships has also positive effects on enhancing STEM skills of students. For instance, as one of the partners of OPEL, 21st Century Community Learning Centers (CCLC) currently provides expanded learning to over 12,000 children in Oklahoma at over 100 sites throughout the state with 59 grantees. By collaborating with local organizations, 21st CCLCs are providing ELO programs which focus on offering basic and advanced skill sets which recent corporates are heavily emphasize on. In this process, partnerships function as leverage in incorporating a quality improvement and assessment system with professional learning communities in the state. Furthermore, with collaboration with an individual, private-sector agencies, public institutions, and associations to provide services

and resources for program offers, it grants children broader opportunities to learn STEM skills via project-based curriculum in an informal setting. Given the prediction that approximately 80% of jobs in Oklahoma will require some sort of education beyond high school level by 2025 (Stanek et al., 2017), engaging in ELO experiences would be beneficial in acquiring such qualifications for a future career as well as improving workforce readiness of students.

Behavioral/Social Development. Providing expanded time in- and out of-schools is important to prevent students from being exposed to teenage crime, especially to those who are unsupervised after school. In 2011, more than 18,000 youth in Oklahoma were arrested for crimes or for experimenting with drugs, alcohol, cigarettes, and sex. Moreover, the state ranks higher in rates of parental incarceration, domestic violence, child abuse and neglect, mental illness and substance abuse (Oklahoma Institute for Child Advocacy, 2014). According to the 2014 report from the Federal Bureau of Justice Statistics, Oklahoma ranks fourth in imprisonment rate and the state leads the country in terms of female incarceration rates. The problem is that prison populations are increasing continuously over the past several decades in Oklahoma. Additionally, Oklahoma ranks 2nd highest terms of birth rates of teen females aged 15-19 in the nation (Oklahoma State Department of Health, 2014). In order to manage the youth who encounters juvenile crimes, the state allocated approximately $266 millions of appropriations in 2015. The majority of these costs are associated with children and their parents, who are likely to be lower socioeconomic status and achieve lower levels of educational attainment over their lifetime.

Considering these current social problems in Oklahoma, ELO practices are vital to keeping students safe and out of trouble. In general, from 3 p.m. to 6 p.m. is a peak time that youth are most likely to commit crimes or become victims of crimes (Stanek et al., 2017). When engaged in a variety of health and wellness programs and physical activities in afterschool times, children could get a chance to improve their behavioral/social skills. The numbers of students coming into contact with Oklahoma's juvenile justice system has been decreasing in recent years due to increasing treatment programs and diversion services. For this reason, 66% of parents in Oklahoma are agreeing that ELO programs, as a "safe haven," are able to help in reducing the likelihood of what youth will engage in risky behaviors (Afterschool Alliance, 2014). Furthermore, the cost for one student who attends ELO programs is approximately estimated at $3,380, compared to $28,652 to incarcerate one youth for one year, respectively. To sum up, in a viewpoint of behavioral/social development, the effectiveness of ELO could be found in a higher return on educational investment by reducing crime and welfare costs of the state.

Discussion and Implications

Building school-community partnerships which emphasize community-driven support is recognized as an essential strategy to successfully implement ELO in Oklahoma. In order to develop and sustain the effective human capital systems, highly required is that schools and districts should from properly informed, engaged, and demanding community (U.S. Department of Education, 2010). OPEL is functioning as a turnaround unit which identifies partners, establishes local partnerships, and seeks resources that will address the achievement gap of an un-

derserved group of students and strengthen school and community engagement. As a noteworthy case of the partnership model, OPEL helps to meet the social services needs of Oklahoma's youth and their families, including on-site access to health clinics, positive behavior intervention programs, out-of-school programming opportunities for their academic, emotional, and physical development. Thus, it is important to note that a close association with a bunch of local agencies and organizations apparently allow providing a variety of meaningful educational opportunities to children by both in a formal and informal way. From the above brief description of OPEL, several implications for the efforts of ELO practices are discussed as follows.

Firstly, community collaboration is a critical but challenging task for the fulfillment of partnerships. In effect, schools simply cannot provide all of the resources to children needed their success. Thus, in the long run, required is involvement of the business community and political support in the partnerships and it might be as significant as the hands-on efforts of learning providers (America's Promise Alliance, 2015). A systematic approach which establishes common goals and addresses an array of potential barriers among partners is also needed for effective collaboration. For this, a greater consideration must be given to performing a series of practices: building standards of quality; sharing data; connecting ELO programs in beneficial ways with students' needs rather than merely extending school days. Secondly, academic achievement is not the only important outcome of ELO practices. In the case of OPEL, increasing access towards ELO has been guaranteed in reducing juvenile crime. While academic improvement might create the impetus for coordinated ELO initiatives, greater emphasis must be placed on encompassing students' behavioral/emotional development and helping them to retain social skills.

References

Afterschool Alliance. (2014). Oklahoma after 3pm. Washington, DC: Author. Retrieved from http://www.afterschoolalliance.org/documents/AA3PM-2014/OK-AA3PM-2014-Fact-Sheet.pdf

America's Promise Alliance. (2015). *Expanded learning, expanded opportunity: How four communities are working to improve education for their students*. Washington, DC: Author. Retrieved from https://www.americaspromise.org/sites/default/files/d8/ExpandingLearning_CaseStudy_final.pdf

Balfanz, J., Andrekopoulos, W., Hertz, A., & Kliman, C. T. (2012, July). *Closing the implementation gap: Leveraging city year and national service as a new human capital strategy to transform low-performing schools*. Boston, MA: City Year, Inc. Retrieved from https://www.cityyear.org/sites/default/files/PDF/ClosingtheImplementationGap.pdf

Bathgate, K., & Silva, E. (2010). Joining forces: The benefits of integrating schools and community providers. *New Directions for Youth Development, 2010*(127), 63-73.

Belfiore, G., & Lash, D. (2017, October). *Learning design for broader, deeper competencies*. Louisville, CO: Next Generation Learning Challenges My Ways. Retrieved from https://s3.amazonaws.com/nglc/resource-files/MyWays_11Learning.pdf

Blau, D., & Currie, J. (2004). Preschool, day care, and afterschool care: Who's minding the kids? NBER Working Paper 10670. Cambridge, MA: National Bureau of Economic Research.

Bosma, L. M., Sieving, R. E., Ericson, A., Russ, P., Cavender, L., & Bonine, M. (2010). Elements for successful collaboration between K–8 school, community agency, and university partners: The lead peace partnership. *Journal of School Health*, *80*, 501-507.

Carter, P. L., & Welner, K. G. (2013). *Closing the opportunity gap: What America must do to give all children an even chance*. New York: Oxford University Press.

Cooper, H., Nye, B., Charlton, K., Lindsay, J., & Greathouse, S. (1996). The effects of summer vacation on achievement test scores: A narrative and metaanalytic review. *Review of Educational Research, 66,* 227-268.

Cornman, S. Q., Zhou, L., Howell, M. R., & Young, J. (2018). Revenues and expenditures for public elementary and secondary education: School year 2014-15 (fiscal year 2015): First look (NCES 2018-301). Washington, DC: National Center for Education Statistics. Retrieved from https://nces.ed.gov/pubs2018/2018301.pdf

Duncan, G. J., & Murnane, R. J. (2011). *Whither opportunity? Rising inequality, school, and children's life chances.* New York, NY: Russell Sage Foundation.

Durlak, J. A., Weissberg, R. P., & Pachan, M. (2010). A meta-analysis of afterschool programs that seek to promote personal and social skills in children and adolescents. *American Journal of Community Psychology, 45*(3), 294-309.

Entwisle, D., Alexander, K., & Olsen, L. (2007). Lasting consequences of the summer learning gap. *American Sociological Review*, *72*, 167-180.

Epstein, J. L. (2010). School/family/community partnerships: Caring for the children we share. *Phi Delta Kappan*, *92*, 81-96.

Federal Bureau of Justice Statistics. (2014). *Prisoners in 2014*. Washington, DC: Author. Retrieved from https://www.bjs.gov/content/pub/pdf/p14.pdf

Gannett, E. (2012, Spring/Summer). Expanded learning: Opportunities for partnerships with a new twist and a new name [Commentary]. *Research & Action 33*(2), 6-7. Retrieved from https://www.wcwonline.org/Research-Action-Report-Spring/Summer-2012/commentary-expanded-learning-opportunities-for-partnerships-with-a-new-twist-and-a-new-name

Hands, C. M. (2010). Why collaborate? The differing reasons for secondary school educators' establishment of school-community partnerships. *School Effectiveness and School Improvement*, *21*, 189-207.

Laughlin, L. (2013). *Who's minding the kids? Child care arrangements: Spring 2011*. Household Economic Studies Report Number: P70-135. Washington, DC: United States Census Bureau.

Lawson, H. (2010). An appreciation and a selective enhancement of the developing model for university-assisted community schools. *Universities and Community Schools, 8*, 5-20.

National Education Association. (2008). *Closing the gap through extended learning opportunities* [Policy Brief]. Washington, DC: Author. Retrieved from http://www.nea.org/assets/docs/HE/mf_PB04_ExtendedLearning.pdf

National Center for Education Statistics. (2018). *2017 NAEP mathematics and reading assessments: Highlighted results at grades 4 and 8 for the nation, states, and districts*. NCES Number: 2018037. Washington, DC: Author. Retrieved from https://www.nationsreportcard.gov/reading_math_2017_highlights/

Oklahoma Institute for Child Advocacy. (2014). *Oklahoma juvenile justice at a glance*. Oklahoma City, OK: Author. Retrieved from http://oica.org/wp-content/uploads/2014/01/JJ-Fact-Sheet.pdf

Oklahoma State Department of Education. (2015). *2015 school law book*. Oklahoma City, OK: Author. Retrieved from http://sde.ok.gov/sde/sites/ok.gov.sde/files/documents/files/2014_OSDE_La w_Book.pdf

Perkins, T. (2015). School-community partnerships, friend or foe? The doublespeak of community with educational partnerships. *Educational Studies, 51*(4), 317-336.

Stanek, M., Roff, A., Monies, J., Duell, S., & McKeon, T. (2017). *State report of expanded learning in Oklahoma*. Oklahoma City, OK: Oklahoma Partnership for Expanded Learning. Retrieved from http://opelok.org/index_18_1018671473.pdf

Weiss, H, B., Little, P. M. D., Bouffard, S. M., Deschenes, S. N., & Malone, H. J. (2009). *The federal role in out-of-school learning: After-school, summer learning, and family involvement as critical learning supports*. Cambridge, Mass: Harvard Family Research Project.

School Age Care Services in Australia

Jennifer Cartmel

School Age Care services in Australia are regarded as the fastest growing children care sector. The changes in family circumstances such as longer working hours, families with both parents in full-time employment, single-parent families, changing community and inter-familial care-giving dynamics mean that SAC services are increasingly becoming a vital conduit between home-life and school-life (Cartmel & Hayes, 2016; The Centre for Adolescent Health, Murdoch Children's Research Institute, 2018). In June 2017, 363,700 Australian children were reported as attending SAC (ABS, 2018). Children who attend are aged between five to twelve years. The services operate before school and after school and during vacation periods. Daily hours of attendance can total 5 hours a day (nearly the same hours as school). Even though services have been operating for more than forty years there has been limited research about the way programs are developed.

All Australian governments developed The National Quality Agenda (NQA) for Early Childhood Education and Care with the express goal of creating a national quality strategy for the early years, to ensure the wellbeing of children throughout their lives, and to deliver the vision of the Early Childhood Development Strategy (ECDS) endorsed by the Council of Australian Governments (COAG) in July 2009, that "by 2020 all children have the best start in life to create a better future for themselves, and for the nation". The NQA established the National Quality Framework (NQF), which has implemented a regulatory approach underpinned by the importance of learning and development opportunities for all Australian children. School Age Child Care services are included in this National Quality Agenda even though they provide services for children for older age groups of children. The NQF consists of the National Law and National Regulations, National Quality Standard, assessment and quality rating process and approved learning frameworks *My Time Our Place Framework for School Age Care in Australia* (DEEWR, 2011).

The introduction of the National Quality Framework and the National Quality Standard Rating Scale and in particular *My Time Our Place, Framework for School Age Care Services in Australia* (DEEWR, 2011) states that "school age care educators are responsive to all children's strengths, abilities and interests. They value and build on children's strengths, skills and knowledge to ensure their wellbeing and motivation and engagement in experiences… Responding to children's ideas and play forms an important basis for program decision-making" (p. 14). The Framework acknowledges that children need a place to engage

in a range of play and leisure experiences that allow them to feel happy, safe and relaxed (DEEWR, 2011). It also recognises that children need time to interact with friends, practice social skills, solve problems, try new activities and learn life skills.

Services are generally hosted on school sites and are provided by a range of organisations including schools, community groups and faith based organisations as well as commercial companies. Generally, services are managed separately to the operation of the school. Staff have assorted vocational or university qualifications ranging from children's services diplomas to degrees in education, psychology, nursing, leisure management. There are no nationally agreed qualification requirements for Australian SAC services. The qualifications vary significantly across the country, for example in Queensland. The child staff ratios are 1 adult to 15 children, and educator must hold or be actively working towards a 2 year qualification; two adults for every 30 children at least one educator must hold or be actively working towards a 2 year qualification.

Policy and Regulations

The Australian Government has commissioned a review of National Quality Agenda - 2019 National Quality Framework Review. This review will consider the ongoing effectiveness and sustainability of the NQF in light of the continuing evolution of the early childhood education and care sector, and whether the regulatory framework enables contemporary best practice regulation. For school age care services there are two key standard out aspects that are under review.

1. How can the requirements of the NQF better reflect the unique operating context of OSHC? (Questions 19)
2. Are the NQF's physical space requirements for school age children suitable for their learning and development, and proportionate to risks for children of this age? (Question 13)

These two questions are linked. The different operating context of SAC services requires consideration of whether they should operate as a separate service type under the National Law, rather than be considered in the same way as a service for children birth to 5 years. The different operating context of SAC compared to services for children birth to 5 years needs to be taken into consideration. Specific regulatory requirements for SAC services are generally at jurisdictional level, including programming expectations, exemptions from some physical environment requirements and educator qualification requirements. Further SAC services are unique in offering learning through play and leisure under the My Time, Our Place approved learning framework for school aged children and often utilising school premises where they have limited control of the physical environment.

Indoor and outdoor space requirements of service premises are specified in the National Regulations. The question is whether space requirements should be different depending on the age of children in attendance. Currently, the space available for school children during school hours may be less than space required for OSHC, however greater space is required per child for OSHC services. This can present issues for the supply of OSHC services oper-

ating in high demand areas where the number of places available is restricted by space requirements. Further space requirements exist for centre-based services in regard to administrative space, and shaded area. Access to outside environments, adequate ventilation and natural light are important for developmental outcomes for children in education and care. Clarification of definitions such as natural light and ventilation may be needed. This is especially relevant given the increase in services operating in multi-storey facilities.

(Members of the WERA IRN EE network contributed information about the physical requirements in services in international countries to contribute to this discussion about space requirements)

Peak Organizations

In Australia there is a National Outside School Hours Services Alliance (NOSHSA) as well as peak associations in each Australian states. These peak organisations provide support and advocacy for school age care services. In Queensland the Queensland Children's Activities Network (QCAN) is very active in developing the professional status for the sector. The organisation has two particular initiatives which are summarised in the following section:

1. Professional Standards for Educators in outside school hours care
2. Action Research projects as professional development

Professional Standards for Educators in Outside School Hours Care

These Professional Standards for Educators in Outside School Hours Care are based on the Australian Professional Standards for Teachers developed by the Australian Institute for Teaching and School Leadership and were developed by Queensland Children's Activities Network (QCAN) to support educators working in out of school hours care settings.

These professional standards for educators guide professional learning, practice and engagement facilitates the improvement of educator quality and contributes positively to the public standing of the profession. The Professional Standards for Educators comprise seven Standards which outline what educators should know and be able to do. The Standards are interconnected, interdependent and overlapping. The Standards are grouped into three domains: Professional Knowledge, Professional Practice and Professional Engagement. In practice, the role of the educator in Outside School Hours Care settings draws on aspects of all three domains.

Within each Standard focus areas provide further illustration of educator knowledge, practice and professional engagement. These are then separated into descriptors at four professional career stages: Foundation, Developing, Proficient and Lead. The language used to describe each of the career stages has been thoughtfully approached. As many educators in SAC do not hold formal qualifications when they begin their career in SAC, the standards articulate the essential knowledge, practice and engagement foundations. The next level describes educator's progress as developing and complements the formal qualifications that educators may be working towards. At the proficient and lead levels, educators may have completed and obtained a relevant qualification. The Standards and their descriptors represent an analysis of effective, contemporary practice by educators throughout Australia.

Their development included a synthesis of the descriptions of educators' knowledge, practice and professional engagement used by accreditation and training authorities, employers and professional associations.

These Professional Standards define the work of educators and make explicit the elements of high-quality, effective provision in quality services that will contribute to enhancing outcomes for children. They present a common understanding and language for discourse between educators, educational leaders, nominated supervisors, governing organisations, professional associations and the public. These standards inform the development of professional learning goals, provide a framework by which educators can judge the success of their work and assist self-reflection and self- assessment. Educators can use the Standards to recognise their current and developing capabilities, professional aspirations and achievements. It is intended that these standards contribute to the professionalisation of SAC and raise the status of the profession. QCAN is undertaking an evaluation of the implementation of these standards.

The Evaluation is being informed by Kirkpartrick's Model of Professional Development and will gather information from SAC stakeholders including service leaders, educators, and school principals. It will examine the impact of the implementation of a set of professional standards; and what the associated professional development has on developing a sense of identity for the SAC workforce. The research has been framed by a five level model of evaluation (Guskey, 2016) to provide a systematic evaluation of the learning associated with the professional standards for an emerging workforce. The five layers include

Layer 1: Survey – Educator reaction to professional learning
How will you use the professional standards?
– Individualised improvement strategies
– Share the knowledge with team members
– Embed the standards in existing management practices
– Whole of service approaches to improvement

Layer 2: Individual interviews – Educator learning (knowledge, skills & attitudes)
– How have standards been implemented?
– What successes have been experienced?
– Organisational barriers and facilitators

Layer 3: Individual interviews – Organisation support and change

Evaluation of Layer 4: Educator practice and Layer 5: Outcomes for children are yet to be planned and it will depend on the knowledge and understandings gained in the evaluation of Layers 1-3.

Action Research Projects

Peak organisations for OSHC services are supporting services and educators to undertake Action Research Projects. There are a number of examples of action research project initiatives that have occurred. The National Outside School Hours Services Association (NOSH-SA) in a partnership with an Australian Government initiative sought to contribute under-

standings about flexibility of services, to improve access to out of school hours care and to help build a sustainable and responsive OSHC sector (NOSHSA, 2013).

The Queensland Workforce Council and Queensland Children's Activities Network have also been active in gathering educators together to undertake action research projects that contribute to knowledge about the characteristics and practices within the sector. During 2014-2015 QCAN supported 6 projects that involved 12 educators (QCAN, 2015); in 2019 there are more than 12 projects being undertaken. Disseminating the findings of projects has become a regular feature of the annual QCAN conference as well as publications in "grass roots" and peer reviewed academic publications. These action research projects lead to a deepening of knowledge that contributes to the use of more effective practices, which lead to higher quality service delivery and better outcomes for children and families.

The methodology of action research was chosen as it provided opportunities for up-skilling of OSHC educators consistent with workforce development strategies, thereby increasing professionalism in the sector and enhancing the role of the educator. The intention was to uncover deeper understandings and solve "real world" problems in participatory and collaborative ways (O'Leary, 2014, p. 1666). The intentions were to produce changes in practice and knowledge in an integrated fashion through a cyclical process. It is deemed to be an effective strategy for individuals of all levels of research expertise and experience to use (Hart, 1996; Townsend, 2014). West (2011) states that it is a particular approach that educators value as it empowers them to consider their own practice, circumstances and environments and work collaboratively with all stakeholders to examine potential for change.

The action research is a strategy of collaborating to organize social research uses a variety of research methodologies. Action research may not have some of the features of conventional social research however it has social value in its capacity to meet the demands of emerging fields of research that are grounded 'in real world contexts in front of knowledgeable stakeholders' (Greenwood & Levin, 2007, p. 18) such as school age care services.

The following projects will be reported at the QCAN Annual conference to be held in August, 2019.

- How does Outside School Hours Care prepare pre service teachers?
- How do you foster resilience in an OSHC setting?
- What are the perceptions of rough and tumble play in a multi age setting?
- Can we improve service quality by investing in staff well-being?
- Is there an increasing responsibility for OSHC to provide quality outdoor experiences?
- How do we enrich the OSHC experience for older children?
- Does a multi-tiered leadership model enhance an OSHC educator's job satisfaction?
- What are the Importance/ Benefits of Community Engagement?
- How can we foster children's creativity and exploration of play to encourage them to provide input into the program and promote independence while upholding the rights of the child?
- What are the stakeholder perceptions of quality in OSHC?
- How can we structure our environment to encourage children to meaningfully and effectively utilize their indoor and outdoor spaces?
- How do we incorporate and promote life skills into our program for all age groups of children?

Higher Degree Research Initiatives

One of the areas in which there has been growing interest is encouraging individuals to undertake higher degree research studies. These studies as well as inspiring other researchers are providing an important evidence base about the school age care sector.

In 2017, Dr Bruce Hurst completed his doctoral study—*"Eat, play, go, repeat": Researching with older primary-age children to re-theorise School Age Care.* Bruce's research has provided new ways of understanding the experiences of older primary children in Outside School Hours Care. He has a deep commitment to children's rights to speak, be heard and have excellence in their play and leisure settings. Children worked as co-researchers with him to complete his study. His work draws on postmodern theories of power and knowledge to provoke educators to re-think how they think about, and work with children.

Bruce is one of the few Australian academic researchers who specialises in these important settings for school-age children. Other research higher degree students are working on projects including the evaluation of "Talking Circles" used to capture children's conversations and decision-making in school age care services and another is gathering children's perceptions of what is regarded as "learning" in school age care services.

Conclusion

School age care services have become an important context of Australian childhood and family life. On the surface they appear as a physical and social space to hold children waiting for their parents, simultaneously they are developing as what could be described as a business unit, and as a space contributing to school age children's learning, development and wellbeing. There are an emerging cohort of academic researchers and practitioners in Australia who are keen to support the professionalisation of the sector as well as enhanced communication and governance processes between the host schools and services.

References

Australia Bureau of Statistics (ABS). (2018). *Childhood education and care, Australia.* Retrieved from https://www.abs.gov.au/ausstats/abs@.nsf/mf/4402.0

Australian Government Department of Education, Employment and Workplace Relations (DEEWR). (2011b). *My time, our place: Framework for school age care in Australia.* Retrieved from http://files.acecqa.gov.au/files/ National-Quality-Framework-Resources

Cartmel, J., & Hayes, A. (2016). Before and after school: Literature review about Australian school age child care. *Children Australia*, *41*(3), 201-207. doi: http://dx.doi.org/10.1017/cha.2016.17

Greenwood, D. & Levin, M. (2007). *Introduction to action research: Social research for social change, 2nd ed,* Thousand Oaks, CA: Sage.

Guskey, T. R. (2016). Gauge impact with five levels of data. *Journal of Staff Development*, 37(1), 32-37.

Hart, E. (1996). Action research as a professionaliszing strategy: Issues and dilemmas, *Journal of Advanced Nursing*, 23(3) 454-461

Hurst, B. (2017). *"Eat, play, go, repeat": Researching with older primary-age children to retheorise School Age Care*, unpublished doctoral dissertation, University of Melbourne. Retrieved from http://hdl.handle.net/11343/190706

National Outside School Hours Services Alliance (NOSHSA) https://www.noshsa.org.au/

Queensland Children's Activities Network (QCAN) https://www.qcan.org.au/

The Centre for Adolescent Health, Murdoch Children's Research Institute (2018). *Student Wellbeing, Engagement and Learning across the Middle Years,* Canberra: Australian Government Department of Education and Training.

Townsend, A. (2014). Weaving the threads of practice and research, in F.Rauch et al (Eds) *Promoting Change through Action Research*, Sense, 7-22.

West, R. (2011). Action research as a professional development activity, *Arts Education Policy Review*, 112 (2), 89-94. DOI:10.1080/10632913.2011.546697

Author Information

Benjamin von **Allmen**, Dr., Primary Education, Freie Universität Berlin, Germany. Main research interests: Effects of all-day schools. Address: Freie Universität Berlin, Habelschwerdter Allee 45, D-14195 Berlin, Germany.
Email: benjamin.vonallmen@fu-berlin.de

Sang Hoon **Bae**, Sungkyunkwan University, Department of Education. Main research interests: education reform, policy evaluation, student engagement, college effects, effects of extended education participation. Address: Sungkyunkwan University. 507 Hoam Hall, 25–2, Sungkyunkwan-Ro, Jongno- Gu, Seoul, Korea. Zip. 03063.
Email: sbae@skku.edu

Jennifer **Cartmel**, Griffith University, School of Human Services and Social Work. Main research areas: outside school hours care; children's social and emotional learning, critical reflection; intergenerational services; children's services – curriculum, policy and workforce development. Address: Griffith University, University Drive, Meadowbrook, Q 4131, Australia.
Email: j.cartmel@griffith.edu.au

Emanuela **Chiapparini**, Bern University of Applied Sciences, School of Social Work. Main research interests: all-day schools, extracurricular activities, child well being, peer groups, cooperation, professionalization, user involvement. Address: Bern University of Applied Sciences, School of Social Work, Hallerstrasse 10, 3012 Bern, Switzerland.
Email: emanuela.chiapparini@bfh.ch.

Eunwon **Cho**, Sungkyunkwan University, Department of Education. Main research interests: student engagement, college effect, student success. Address: Sungkyunkwan University , 25-2, Sungkyunkwan-Ro, Jongno-Gu, Seoul, Korea 03063.
Email: petal87@skku.edu

Linda **Fälth**, Linnaeus University, Institution of Pedagogy and Learning. Main research interests: interventions, RTI, reading difficulty, dyslexia and reading development among both children and adults. Address: P G Vejdes väg, 351 95, Växjö, Sweden.
Email: linda.falth@lnu.se

Lukas **Frei**, M. Sc. in Psychology, Primary Education, Freie Universität Berlin, Germany. Main research interests: Socio-emotional development of students in all-day schools. Freie Universität Berlin, Habelschwerdter Allee 45, D-14195 Berlin, Germany.
Email: l.frei@posteo.net

Chang Sung **Jang**, M.Ed., Ph.D. student of Department of Educational Leadership and Policy Studies at the University of Oklahoma. Main research interests: Education reform and human resource development in secondary education, and organizational performance and competency development in adult education. Address: 820 Van Vleet Oval, Collings Hall 340, Norman, OK 73019, USA.
Email: csjang1227@ou.edu

Hyeonseok **Jung**, Sungkyunkwan University, Department of Education. Main research interests: effects of extended education participation, student engagement, college effects. Address: Sungkyunkwan University, Sungkyunkwan-Ro, Jongno- Gu, Seoul, Korea. Zip. 03063.
Email: wondu92@skku.edu

Michelle **Jutzi**, Bern University of Teacher Education, Institute of Research Development and Evaluation. Main research interests: quantitative and qualitative studies on collaboration between school and after-school programs, social network analyses, leadership and school development. Address: Bern University of Teacher Education, Weltistrasse 41, 3014 Bern, Switzerland.
Email: michelle.jutzi@phbern.ch.

Christa **Kappler**, Zurich University of Teacher Education. Main research interests: all-day schools, gender and diversity, qualitative social research methods, career choice processes. Address: Zurich University of Teacher Education, Research Centre "Professionalisation and competence development in the area of education". Lagerstrasse 2, 8090 Zürich.
Email: Christa.Kappler@phzh.ch.

Eun Ju **Kwak**, Sungkyunkwan University, Department of Education. Main research interests: student engagement, college effects, effects of extended education participation. Address: Sungkyunkwan University, Sungkyunkwan-Ro, Jongno- Gu, Seoul, Korea. Zip. 03063.
Email: kejs@skku.edu

Birgitta **Lundbäck**, Linnaeus University, Institution of Pedagogy and Learning. Main research interests: special education needs, effects of extended education participation. Address: P G Vejdes väg, 351 95, Växjö, Sweden.
Email: Birgitta.lundback@lnu.se

Wim **Nieuwenboom**, Dr., University of Applied Sciences Northwestern Switzerland in Olten and Primary School Education, Freie Universität Berlin, Germany. Main research interests: Mental health in children and adolescents: Strengthening resilience at school, early intervention and addiction prevention, quantitative methodology. Address: Freie Universität Berlin, Habelschwerdter Allee 45, D-14195 Berlin, Germany
Email: wim.nieuwenboom@fhnw.ch

Hyowon **Park**, Sungkyunkwan University, Department of Education. Main research interests: education administration, policy evaluation, teacher education, comparative education. Address: Sungkyunkwan University. 90102 International Hall, 25-2, Sungkyunkwan-Ro, Jongno-Gu, Seoul, Korea 03063.
Email: edfuture1@gmail.com

Andrea **Scholian**, Zurich University of Applied Sciences, School of Social Work. Main research interests: all-day schools, educational equity, community development. Address: Zurich University of Applied Sciences, School of Social Work, Institute of Childhood, Youth and Family. Postfach 707, 8037 Zürich.
Email: andrea.scholian@zhaw.ch.

Patricia **Schuler**, Zurich University of Teacher Education. Main research interests: all-day schools, professionalization. Address: Zurich University of Teacher Education, Research Centre "Professionalisation and competence development in the area of education". Lagerstrasse 2, 8090 Zürich.
Email: Patricia.Schuler@phzh.ch.

Marianne **Schuepbach**, Prof. Dr., Professorship of Primary Education, Freie Universität Berlin, Germany. Main research interests: Development of school performance as well as socio-emotional development of students (all-day school, class repetition), educational quality of all-day school and lessons, cooperation in lessons and all-day school (including team teaching in inclusive teaching settings). Address: Freie Universität Berlin, Habelschwerdter Allee 45, D-14195 Berlin, Germany.
Email: Marianne.schuepbach@fu-berlin.de

Larry E. **Suter**, Individual consultant and Visiting scholar at the University of Michigan, Center for Political Studies. Main research interests: Comparative education, theories of student motivation, informal activities such as after-school, career choice. Address: 2933 Evening Dew dr. Woodstock, MD 21163, USA.
Email: Larrysuter@me.com.

Rebecca H. **Woodland**, University of Massachusetts Amherst, Professor and Co-Director of the Center for Education Policy in the Department of Educational Policy, Research and Administration. Main research interests: The examination of school-based systems of P-12 teacher collaboration, quality of instruction and student learning through social network analysis. Address: University of Massachusetts Amherst, College of Education, 813 N. Pleasant Street, 01003 Amherst, Massachusetts, USA.
Email: woodland@umass.edu.

Jutta Ecarius • Eckhard
Klieme • Ludwig Stecher •
Jessica Woods (eds.)

Extended Education – an International Perspective

Proceedings of the International Conference on Extracurricular and Out-of-School Time Educational Research

This timely volume assesses the current impact and future of out-of-school education with case studies from eight different countries.

Eveline Wuttke • Jürgen
Seifried • Stephan
Schumann (eds.)

Economic Competence and Financial Literacy of Young Adults

Status and Challenges

The authors take a detailed look at the economic competence and financial literacy of young adults, especially of those who start an apprenticeship or who take up their studies at an university.