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## The Effects of a Teaching Program Mixing Basic Skills Training and Comprehension Instruction with 7-8 Year-Old International School Students

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**Abstract:** The aim of the present study was to investigate the effects of two different teaching programs, one skill based, one mixed skill and content based with 7-8 year-old international school students (N=36). Group 1 (N=12) received a basic skills training in 2x40 mins sessions, Group 2 (N=12) received 1x40 mins basic skills training and 1x40 mins text comprehension instruction for a duration of twelve weeks. Group 3 (N=12) did not receive any additional training to their mainstream curriculum. The findings suggest that direct instruction of decoding appears to be effective, moreover appears to have indirect effect on sentence comprehension. Spelling results are somewhat ambiguous. Significant progress in text comprehension remained specific to the training. The study concludes that explicit, focused instruction of decoding, and text comprehension in a small group setting has real benefits.

**Keywords:** *Reading, decoding, comprehension, spelling, intervention.*

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### Introduction

The purpose of this research was to take the findings of a previously published study (Gabor, 2015) further which examined the effects of teaching decoding and spelling to 7-8 year-old students in an international school located in the French-speaking part of Switzerland. The above mentioned study concluded that while explicit, focused instruction of decoding and spelling in a small group has benefits, further studies were needed that examined the effects of a more balanced approach. Therefore, this new study was designed to find answer to the research question, "What are the effects of an intervention mixing basic skills (decoding and spelling) training and text comprehension instruction?" Instruction was carried out in the same school, in a different academic year, with different groups of students who were also in the 7-8 age range.

Basic skills have been studied extensively, and most of what we know concerns the processes taking part in decoding and spelling individual words, but not enough is known about text comprehension. Not enough empirical evidence exists that investigate the effects of instructional strategies that simultaneously target basic skills and text comprehension. This paper addresses the important question regarding the effects of instructional strategies that target both basic skills and text comprehension with young learners in an international school.

### Literature Review

A theoretical framework, the Simple View of Reading (Hoover & Gough, 1990) conceptualizes the complex process of learning to read in a surprisingly simple way. It considers reading as the product of two largely independent skills, decoding and linguistic comprehension. Considering comprehension as a product, and not sum of the two skills has important implications because if one of them is zero, the product will be zero (Oakhill, Cain, & Elbro, 2015). The

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problem is that in reality most children fall somewhere between the two extreme values of either zero decoding ability, or zero language comprehension (Høien-Tendesdal, 2010).

The first component in the Simple View of Reading is decoding. To date, a considerable amount of work has been done in an attempt to synthesize existing theories and empirical data about the complex process of visual word recognition, and a number of models have been developed (Adams, 1979; Joshi & Aaron, 2000; Morton, 1969; Vellutino, Tunmer, Jaccard, & Chen, 2007). *Dual-route models* (Ellis, 1998; Coltheart, 1981; Coltheart, Curtis, Atkind, & Haller, 1993), for example, generally imply that in the process of converting print to speech readers have two routes at their disposal. One of these routes, the *lexical route*, allows the reader to directly access familiar words already stored in their mental dictionary. The second, *sublexical route* makes it possible for the reader to pronounce unfamiliar letter strings, whether they are nonwords or unknown regular words. The process of repeated reading using this direct print to sound translation is also known as the *self-teaching hypothesis* (Share, 1995; Share, 2004; Share, 2008). Basic level processes that result in visual word recognition skills are crucial components of successful literacy acquisition. So far, it has been firmly established that one of these processes is *phonological awareness* which involves the individual's explicit ability to conceive and manipulate spoken structures (Goswami & Bryant, 1990; Hulme, Hatcher, Nation, & Stuart, 2002; Hulslander, Olson, Willcutt, & Wadsworth, 2010; Melby-Lervag, Lyster, & Hulme, 2012; Muter, Hulme, Snowling, & Stevenson, 2004). This process was addressed in this research.

The second component in the Simple View of Reading (Hoover & Gough, 1990) is linguistic comprehension. To date, there appear to be many definitions of comprehension, however, Kendeou, Muis and Fulton (2011) note that a common component of most existing definitions is that the final product of the process is the construction of a *coherent mental representation* of the text in the reader's memory. In building a mental model, Oakhill and colleagues (2015) consider the *interplay of several sub-skills* simultaneously. These, for example, are the activations of word meanings, understanding sentences, making inferences, monitoring comprehension, and understanding the structure of the given text.

Since the participants in this research were bilingual and multilingual students, it is important to consider this dimension. In her study Bialystok (2007) identified three areas that are relevant to the acquisition of literacy in bilingual children. These are *oral language competence*, *the understanding of symbolic concepts of print*, and *metalinguistic awareness* each of which contributes differently to literacy acquisition. The first, oral language competence influences comprehension. The second, the understanding of symbolic concepts of print affects decoding. The third, metalinguistic awareness impacts word recognition. All three areas fit well in the Simple View of Reading (Hoover & Gough, 1990). The first corresponds to the linguistic comprehension component, while the second and third to the decoding component of the model. What is also known about bilingual children is that they "may or may not have better oral competence than monolinguals, but they certainly have a *different* oral competence" (Bialystok, 2007, p. 54), and this competence is different in each language the child speaks. In whichever language oral skills are inadequate, in that language the child's reading will be compromised (Bialystok, 2007). With regard to the two areas that influence decoding, Bialystok found that "bilingualism permeates the development of all of the subskills that lead to literacy" (2007, p. 70) which means that children who have acquired skills in one language, can apply the same skills in the mastery of the second language. The metalinguistic awareness most clearly connected to reading is *phonological awareness*, and appears to easily transfer between languages (Bialystok, 2007).

### Research Goal

The goal of this study was to examine the effects of regular stimulation using two contrasting teaching programs in the unique, linguistically and culturally diverse setting of an international school. The first program was purely skill-based targeting reading, writing, and spelling. The second program mixed reading, writing, and spelling skills and content-based text comprehension instruction. The study was designed to test the following hypotheses.

1. Direct instruction of decoding and spelling skills is efficient in terms of improvement of these skills.
2. Direct instruction of decoding and spelling skills has sustainable effect: pupils maintain progress even when the training stops.
3. Direct instruction of decoding and spelling skills has indirect effect on sentence comprehension skills.
4. Pupils who receive direct teaching of text comprehension skills in addition to a training of decoding skills progress on basic skills and text comprehension. Those who only get training of basic skills (decoding and spelling), progress on basic skills targeted by the training, but not on text comprehension.

## Methodology

### Sample and Data Collection

Thirty-six randomly assigned Year 3 students from a non-selective international school (18 males, 18 females; with a mean age of 7 years 6 months) participated in the study. The study has been performed in accordance with the ethical standards of the Faculty of Psychology and Educational Sciences at the University of Geneva. All parents of the

participating children gave their informed written consent, and children gave their assent prior to their inclusion in the study. Appendix 1 shows the characteristics of the sample. The students were enrolled in the same school and were in equal numbers from two Year 3 classes who follow the same curriculum. The language of instruction of the students' mainstream education was English, and all participants were proficient although not all of them had English as their home language. None of the students were identified as having any form of exceptionality or need for support in learning. Following pre-tests (T1) based on standard scores of all four variables, three equal groups (G1, G2, G3) were formed as shown in Table 2. The equality of the groups was verified using MANOVA analyses on all four variables of decoding  $F(2,34)=.07, NS$ , spelling  $F(2,34)=.09, NS$ , sentence comprehension  $F(2,34)=.2, NS$ , and text comprehension  $F(2,34)=.2, NS$ .

#### *Testing materials*

When selecting testing instruments, reliability and validity were important measures in the decision making process. The Wide Range Achievement Test 4<sup>th</sup> edition (Wilkinson & Robertson, 2006) was found to be a suitable tool for measuring basic skills. The WRAT4 is a quick, simple, and accurate norm-referenced assessment tool of basic skills which was standardized on a sample population of over 3,000 individuals. Moreover, one specific suggested use of this tool is to contribute to research projects needing assessment of basic skills for pre-testing and post-testing purposes (Wilkinson & Robertson, 2006). According to the test manual, the median reliability coefficients in the age range of 7-9 are the following:

- .92-.93 on word reading
- .90-.93 on sentence comprehension
- .95-.96 on reading composite scores
- .82-.87 on spelling subtests

For the measurement of text comprehension skills, the reading comprehension subtest from the Wechsler Individual Achievement Test Second UK Edition (Wechsler, 2005) was used. The test's reliability coefficients are .94-.96 in the age range of 7-9. For the mid-intervention text comprehension measure in order to bridge the gap due to the lack of alternative form of the WIAT-II, the Neale Analysis of Reading Ability Second UK Edition (Neale, 1997) was selected. The test manual of NARA-II claims to have a parallel form reliability based on the correlation of standardized forms (first score), and internal consistency reliability of the accuracy and comprehension measures (second score).

In the age range of 6:00-7:11	.87	.95
In the age range of 8:00-9:11	.85	.95

#### *Spelling measures (approx.10mins)*

The dictated spelling contains words of increasing difficulty, and measures the examinees' ability to encode sounds into written form. The spelling subtest was given as a group test by the students' class teachers who were first explained the testing protocol.

#### *Decoding measures (approx.5mins/child)*

Examinees are asked to pronounce visually presented stimuli of words of increasing difficulty.

#### *Sentence comprehension measures (15mins/child)*

The examinee is asked to read the sentence aloud or silently, and identify one missing word. All of the students in this study opted for reading the sentences aloud before suggesting the word that they thought would best complete the sentence.

#### *Text comprehension measures WIAT-II and NARA-II (approx.10mins/child)*

The examinee silently reads short sentences and passages then answers comprehension questions about what has been read. Age specific reverse rules ensure that poor decoders are not penalized, allowing for optimal testing. Similarly to the WIAT-II, the NARA-II requires the child to silently read short passages then answer open-ended questions after each one to assess comprehension.

#### *Procedure*

Following pre-test measures of dictated spelling, decoding, sentence and text comprehension, G1 participants received two 40-minute basic skills training in groups of six students each week on Tuesday and Thursday afternoon for a duration of twelve weeks. G2 participants received two 40-minute sessions for twelve weeks during which time they received basic skills instruction on every Tuesday afternoon, and text comprehension instruction every Thursday afternoon. Similarly to G1 participants, G2 participants received instruction in small groups of six students. G3 participants did not receive any additional instruction to their mainstream curriculum. Table 1 shows the timing of the assessments and training.

Table 1. To show the timing of the assessments and training

	September	between October and February	February	between February and June	June
G1 (N= 12)	Pre-test <i>WRAT4BlueForm</i> <i>WIAT-II</i>	<b>24 sessions of basic skill instruction</b>	Post-test 1 <i>WRAT4GreenForm</i> <i>NARA-II</i>		Post-test 2 <i>WRAT4BlueForm</i> <i>WIAT-II</i>
G2 (N= 12)	Pre-test <i>WRAT4BlueForm</i> <i>WIAT-II</i>		Post-test 1 <i>WRAT4GreenForm</i> <i>NARA-II</i>	<b>12 sessions of basic skill and 12 sessions of text comprehension instruction</b>	Post-test 2 <i>WRAT4BlueForm</i> <i>WIAT-II</i>
G3 (N= 12)	Pre-test <i>WRAT4BlueForm</i> <i>WIAT-II</i>	<b>mainstream class instruction</b>	Post-test 1 <i>WRAT4GreenForm</i> <i>NARA-II</i>	<b>mainstream class instruction</b>	Post-test 2 <i>WRAT4BlueForm</i> <i>WIAT-II</i>

### The teaching programs

The *basic skills* program used the synthetic phonics based program, Teaching Reading Through Spelling by Cowdery et.al. (1994). At the start of the program, the main linguistic terms, for example alphabet, vowel, consonant, blend, syllable were explained, and formed the basis of the creation of a large terminology poster which was an ongoing group work. Meanwhile, the program was progressing following the main principles that

- each new step was built on secure foundation,
- letter-sound/sound-letter correspondences were presented visually, auditorily, and where appropriate kinesthetically,
- systematically provided over-learning was essential,
- the active participation of the students was necessary for progress.

The program aimed to explicitly teach letter-sound/sound-letter correspondences through the teaching of spelling rules, and to provide practice in the automatic recognition of initial and final blends, consonant and vowel digraphs. It was also an important aim of the program to draw the students' attention to the reliability of many patterns of the English language. The 24 lessons (G1) targeted the specific spelling rules and orthographic patterns. As shown in Table 1, for G2 the basic skills program had to be reduced to 12 sessions in order to allow for 12 sessions of text comprehension instruction. This was done by taking the needs of the students into consideration in a flexible manner while applying the above principles. The specific details, spelling rules, and orthographic patterns targeted by the basic skills program were the same as in the prequel to this study already published (Gabor, 2015).

The twelve-week long *text comprehension* component of the teaching program borrowed methodology from the French research-based Lector and Lectrix (C ebe & Goigoux, 2009) which systematically focuses on the simultaneous teaching of the often neglected *strategic skills* known to be required for successful text comprehension. Although many English language programs exist for children that target comprehension skills, it is difficult to find one that is consistent with the latest research findings. Having translated Lector and Lectrix, using suitable English narrative texts, twelve text comprehension lesson plans were developed (can be provided upon request).

The teaching principles of this program take into consideration that the simple practice of repeated reading does not necessarily result in comprehension. The students were taught to read strategically, and the instruction was organized into several steps such as

- explicitly stating the learning objectives,
- presenting the problems and procedures to be used,
- modeling the procedures before independent practice,
- providing opportunities for collective synthesis with the aim of raising students' awareness to the effects of the procedures used, as well as giving them feedback on their own understanding,
- reviewing regularly, and
- learning to build a coherent mental representation of the text.

The coordination of multiple and complex operations are needed for text comprehension which requires time and practice through a variety of different arrangements, individually, in pairs, or as a group. Therefore, comprehension exercises were built up gradually starting with very short texts, and moving on to longer and more complex passages.

The lessons were highly structured and predictable. Summary and reflections aimed to promote cognitive clarity regarding the reading activity. The design had the capacity to protect students who were sensitive to change. This was done by allowing them to anticipate procedures and to feel safe in a predictable environment. This freed up their mental resources to focus on the realization of their developing expertise in the field of text comprehension. Individual thinking time was provided before the students shared their thoughts with the group. During group work, gradual risk-taking ensured increased confidence. Students were protected from potential feelings of failure by choices they were always provided with. Downtime was avoided by promoting shared attention without overwhelming the students. The teaching principles of the comprehension program encouraged the learners to make conscious effort and to take responsibility for their own learning. During the active process of monitoring their own understanding of the text, students often needed to slow down, stop, or re-read parts of the text to eliminate temporary misunderstandings. Therefore, it was essential for the teacher to make decisions according to the students' needs.

Students learned to recall and restate ideas using their own words and mental representations. Tasks were designed so students' reading was interrupted for the sake of creating synthesis. Learners were encouraged to think with the heads of all characters, not just the heroes' with which readers usually identify easily. This involved the characters' thoughts, feelings, intentions, emotions, goals, knowledge, and reasoning. By going beyond what was explicitly stated in the text, the students learned to read between the lines, to make inferences, to practice reasoning, arguing, and comparing their views to their peers'. These activities simultaneously focused on the strategic skills needed for text comprehension.

#### Analyzing of Data

Data analysis was carried out using IBM Corp. Released 2014. IBM SPSS Statistics for Windows, Version 22.0 (Armonk, NY: IBM Corp.) as an analytic tool. Only standard scores were used in all analyses for two reasons. WRAT4 gives a warning regarding the usefulness of the raw scores, and no comparable raw scores were available in text comprehension due to the lack of alternate forms in the WIAT-II.

### Findings / Results

Table 2. to show descriptive statistics - mean standard scores and standard deviation in parenthesis

	Decoding Single Words	Dictated Spelling	Sentence Comprehension	Text Comprehension
N=12				
G1 T1	111.50 (9.793)	106.17 (16.044)	107.00 (13.170)	106.08 (6.007)
G1 T2	116.67 (12.010)	117.17 (12.082)	115.08 (10.825)	104.83 (11.900)
G1 T3	115.50 (12.523)	116.25 (12.779)	112.92 (12.667)	107.42 (8.597)
N=12				
G2 T1	112.67 (9.547)	107.67 (11.919)	107.67 (8.500)	104.08 (7.128)
G2 T2	114.08 (10.193)	115.25 (10.402)	109.08 (8.857)	105.17 (7.196)
G2 T3	121.50 (13.311)	114.25 (12.322)	117.67 (10.048)	121.42 (7.366)
N=11				
G1 T1	112.91 (9.679)	108.36 (6.888)	110.18 (13.242)	106.55 (11.370)
G2 T2	112.64 (12.266)	119.18 (8.183)	112.18 (13.504)	106.45 (9.427)
G3 T3	115.45 (10.737)	115.36 (8.834)	116.18 (11.990)	108.09 (11.432)

Note: Data from one participant in G3 was removed as the student moved country during the school year and T3 measurements were missing. Grey shaded cells indicate results immediately following the intervention period.

Descriptive statistics communicated important features of the data such as the mean scores of the variables and standard deviation (see Table 2). Multivariate analysis of variance (MANOVA) was conducted to test the statistical difference between mean scores of variables of the experimental and control groups. Mauchly's Test of Sphericity was used to determine whether the repeated analysis of variance was spherical (similarly correlating between the different variables at each measure) or circular. Tests of Within-Subject Effects, Tests of Within-Subject Contrasts, and Tests of Between-Subject Effects were conducted on all four dependent variables of word reading, dictated word spelling, sentence and text comprehension items (see Table 3).

Table 3. to show results of tests of within-subjects contrasts and effect size

		T1 - T2				T2 - T3					
		df		F	p	d	df		F	p	d
		test	error		sig≤.05		test	error		sig≤.05	
G1 (N=12)	Decoding	1	11	7.377	<b>.020</b>	0.47	1	11	.360	.561	-0.10
	Spelling	1	11	34.275	<b>.000</b>	0.78	1	11	.176	.683	-0.07
	Sent. Compr	1	11	14.898	<b>.003</b>	0.67	1	11	.990	.341	-0.18
	Text Compr	1	11	.284	.605	-0.14	1	11	1.081	.321	0.25
G2 (N=12)	Decoding	1	11	.863	.373	0.14	1	11	7.448	<b>.020</b>	0.63
	Spelling	1	11	8.016	<b>.016</b>	0.68	1	11	.291	.600	-0.09
	Sent. Compr	1	11	1.359	.268	0.00	1	11	10.940	<b>.007</b>	0.91
	Text Compr	1	11	.186	.675	0.15	1	11	31.854	<b>.000</b>	2.23
G3 (N=11)	Decoding	1	10	.018	.897	-0.02	1	10	1.545	.242	0.25
	Spelling	1	10	12.356	<b>.007</b>	1.44	1	10	4.315	.068	-0.45
	Sent. Compr	1	10	1.043	.331	0.15	1	10	8.544	<b>.015</b>	0.31
	Text Compr	1	10	.001	.976	0.01	1	10	.522	.487	0.16

Note: Bold figures indicate every significant result, grey shaded cells signify results immediately following the intervention period. d shows effect size

Table 3 shows that two-way mixed ANOVA results indicate significant differences between mean group standard scores between the experimental (G1 and G2) and control group (G3) on all targeted skills, except in spelling. Between T1 and T2, all three groups results showed significant improvement in spelling which in case of G2 and G3 was without the training. On the other hand, between T2 and T3, none of the groups' spelling resulted in significant improvement. In case of text comprehension, only the second intervention (G2) with explicit training had effect.

The difference between the scores for students in the experimental groups (G1: T1-T2; G2: T2-T3) was significantly larger than those of in the control group. The difference between the scores for students in G3, who did not receive the training, was much smaller compared to students in the two experimental groups (G1 and G2) except for spelling between T2 and T3 and for sentence comprehension between T2 and T3.

Group mean scores of each variable were used to calculate effect size as shown in Table 3. Effect size based on Cohen's (1988) definitions was medium immediately following the 12 weeks of (24 sessions) training on decoding ( $d=0.47$ ), spelling ( $d=0.78$ ), and sentence comprehension (0.67) in case of G1. On text comprehension which the first intervention program did not address, effect size was non-significant. When the basic skills training, reduced to twelve sessions from the original twenty-four, was repeated with G2, effect size was medium in case of decoding (0.63), non-significant in case of spelling, and large in case of sentence comprehension (0.90). Following the twelve-week explicit text comprehension training which was added to the basic skills training, effect size was superior ( $d=2.23$ ). With the G3 who did not receive the additional training, effect size remained small or negative throughout the academic year on all four measures except for spelling between T1 and T2. With G2 during the first semester when the students did not receive the additional training, no effect was observed except in spelling ( $d=0.67$ ). With G1 who did not receive the additional training during the second semester, four months after the training stopped, second post-tests revealed negative effect size on basic skill variables, and no effect on text comprehension.

In order to see how assessment results compare between T1 and T3 for the three groups (G1, G2, and G3) globally, F-tests were carried out. The results show significant differences over Time in decoding,  $F(2,31)=5.84$ ,  $p=.007$ , partial  $\eta^2=.274$ , spelling,  $F(2,31)=23.35$ ,  $p<.001$ , partial  $\eta^2=.601$ , sentence comprehension,  $F(2,31)=13.44$ ,  $p<.001$ , partial  $\eta^2=.464$ , and text comprehension,  $F(2,31)=14.97$ ,  $p<.001$ , partial  $\eta^2=.491$ . The results show that all students have progressed in all four areas of decoding, spelling, sentence-, and text comprehension during the academic year.

By contrast, the factor Group does not reach significance neither in decoding,  $F(2,32)<1$ , *NS*, nor in spelling,  $F(2,32)<1$ , *NS*, nor in sentence comprehension,  $F(2,32)<1$ , *NS*, nor in text comprehension  $F(2,32)<1$ , *NS*. This means there is no overall difference between the three groups (G1, G2, and G3) when we average the results over T1, T2, and T3.

In spelling, the differences over Time were not dependent on the Group as the interaction Time x Group was not significant,  $F(4,64)<1$ , *NS*. In decoding, the Time x Group interaction just failed to reach significance,  $F(4,64)=2.46$ ,  $p=.054$ , partial  $\eta^2=.133$ . In sentence comprehension and in text comprehension the differences over Time were dependent on the groups as there was a significant interaction between the two factors, respectively  $F(4,64)=3.69$ ,  $p=.009$ , partial  $\eta^2=.187$  and  $F(4,64)=5.71$ ,  $p=.001$ , partial  $\eta^2=.263$ .

According to these global results, students' progress between T1 and T3 in spelling was not dependent on the intervention. By contrast, both measures of comprehension showed differential results as a function of intervention,

and almost significant results in decoding. Table 2 shows description of the contrasts in case of the statistically significant results.

Further analyses revealed that in text comprehension there was no significant difference between the groups between T1 and T2,  $F(2,31)=.117$ , NS, partial  $\eta^2=.008$  when none of the groups received text comprehension instruction. The differences between the three groups were significant between T2 and T3,  $F(2,31)=9.792$ ,  $p=.001$ , partial  $\eta^2=.387$ . Results of the contrasts show significant difference between G1 and G2,  $p=.001$ , G2 and G3,  $p<.001$ , and not between G1 and G3,  $p=.799$ , who did not receive text comprehension instruction. In sentence comprehension the difference between the three groups was significant both between T1 and T2,  $F(2,31)=4.367$ ,  $p=.021$ , partial  $\eta^2=.220$ , and between T2 and T3,  $F(2,31)=6.485$ ,  $p=.004$ , partial  $\eta^2=.295$ . Between T1 and T2, the difference was significant between G1 and G3,  $p=.031$ , between G1 and G2,  $p=.009$ , but not between G2 and G3, NS. During this time, G1 received basic skills training. Between T2 and T3, the difference was significant between G1 and G2,  $p=.001$ , but not between G2 and G3. The difference between G1 and G3 just reaches significance,  $p=.047$ . Between T2 and T3, G2 received 50% basic skills and 50% text comprehension instruction.

### Discussion and Conclusion

In order to investigate the main question of the study, "What are the direct and indirect effects of mixing basic skills training and comprehension instruction?" each hypothesis was tested.

With regard to basic skills, based on the results of the prequel to this study (Gabor, 2015), it was expected that comparison of experimental groups (G1: T1-T2 and G2: T2-T3) with G3 would reveal more improvement at post-tests. Furthermore, seeing transfer effect of basic skills to sentence comprehension was expected. It was hoped that comparison of G1 with G2 would reveal continuous improvement at second post-tests of basic skills due to self-teaching. With regard to text comprehension, it was hoped that more improvement would be seen in case of the group (G2: T2-T3) who received explicit training than the other groups. Finally, it was expected that G3 results would show less progress on all skills.

Direct instruction of basic skills had an effect on spelling with the first experimental group (G1) between T1 and T2. When the training program, reduced to twelve sessions (see Table 1), was repeated with G2 during the second semester, it did not result in statistically significant improvement. While improvement in case of this group was not statistically significant, it is important to note that WRAT4 provides age-based norms in two-month intervals. Therefore, no change in standard scores means normal progress. Standard scores improved between measurement times. This improvement was most significant immediately after the training, and never significant in case of the third group who only received their mainstream curriculum. G2 showed significant improvement between T1 and T2 without the training. Direct instruction of text comprehension was efficient and resulted in superior progress (G2: T2-T3). None of the other groups received text comprehension instruction, and none showed significant improvement on this skill.

The first hypothesis, that direct instruction of decoding and spelling skills is efficient in terms of improving these skills, was proven in case of decoding. When the training program was repeated with G2 during the second semester, the same instruction did not result in statistically significant improvement. This result may be explained by the fact that the students received additional explicit spelling instruction as part of their mainstream curriculum. Another possible explanation is a possible dissociation between decoding and spelling skills. The second hypothesis regarding the temporal sustainability of the gain was confirmed, as well as the third hypothesis that directs instruction of decoding and spelling has indirect effect on sentence comprehension with 7-8 year-old students. The fourth hypothesis was confirmed with regards to decoding and text comprehension, but not to spelling. Students' text comprehension only improved after the training, and not in any other case. Spelling skills appeared to show some dissociation from decoding as improvement was measured without the training in case of G1 (T1-T2) and no improvement with the training in case of G2 (T2-T3).

As was seen from the results of this study, the combination of basic skills and text comprehension instruction is beneficial. While text comprehension depends on good decoding skills, it is a far more complex skill. Text comprehension requires the orchestration of many different skills (Oakhill et al., 2015) that need to be taught explicitly. Even though word reading and language comprehension are separate skills, successful reading demands the interplay of both. It is an important task of teachers to find a balanced approach that is flexible enough to leave room for differentiation based on individual student needs.

The review of the literature revealed that empirical evidence investigating the effects of intervention is much needed. This study has a number of educational implications. It confirms the benefits of explicit reading instruction in a small group setting. It confirms that instruction that focuses on fewer skills at a time, and ensures that skills are mastered before moving on to the next, results in more learning. Most importantly, in an increasingly global world, many students enter schools for whom the language of instruction is other than their home language. Consequently, these children do not receive their formal reading education in their first language. Worldwide, the number of bilingual and

multilingual students is growing at a rapid rate, but not enough research studies are available that explore the effectiveness of instruction for these students. What makes this study novel is the slant of the participants attending an international school who were proficient in the school's instructional language, although not all of them had it as their first language.

Limitation of the study was the lack of available testing instruments that are comparable in multiple languages with the multilingual population of international schools. Therefore, the questions could only be examined relying on the students' mastery of English. Due to the lack of personal resources and reasons of timetabling, it was not possible to conduct the two different programs at the same time.

### Suggestions

For similar future studies it would be helpful to have testing instruments that are comparable in multiple languages. Future studies could take the findings of this piece of research further by adding the element of differentiation to the mixed basic skills and comprehension instruction based on individual student needs. More empirical studies targeting text comprehension are needed with multilingual students.

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## Appendix 1: Characteristics of the sample

Attribute	Description	All	G1	G2	G3
<b>Total</b>	Entire Sample	36	12	12	12
<b>Gender</b>	Boys	18	7	3	8
	Girls	18	5	9	4
<b>Age</b>	Average	7y 6m	7y 7m	7y 6m	7y 5½m
<b>From</b>	United Kingdom	12	4	2	6
	France	4	1	2	1
	Italy	3	1	0	2
	Colombia	2	1	1	0
	Japan	2	0	2	0
	Netherlands	2	1	0	1
	Spain	2	2	0	0
	Switzerland	2	0	1	1
	United States	2	0	2	0
	Canada	1	0	0	1
	India	1	0	1	0
	Ireland	1	1	0	0
	Norway	1	0	1	0
	Singapore	1	0	1	0
<b>Language 1</b>	English	21	7	7	7
	French	5	0	2	3
	Spanish	4	3	1	0
	Italian	2	0	0	2
	Japanese	2	0	2	0
	Dutch	1	1	0	0
	Norwegian	1	0	1	0
<b>Language 2</b>	English	15	4	6	5
	French	14	2	6	6
	Spanish	2	1	1	0
	Italian	1	1	0	0
	Russian	1	1	0	0
<b>Language 3</b>	French	8	4	2	2
	Chinese	1	0	1	0
	German	1	0	1	0
	Spanish	1	0	1	0
	Telugu	1	0	1	0
<b>Language 4</b>	Hindi	1	0	1	0