



A Review on the Effects of Instructional Time and Teacher Quality on Language Learning Performance

Xueying Liu, Jing Yin

School of Languages and Communication Studies, Beijing Jiaotong University, Beijing, China

Email: lxy107727@163.com, yinj@bjtu.edu.cn

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Abstract

Researchers agree on the importance of instructional time and teacher quality as two necessary elements in language learning performance. But the effects of the distribution of instructional time on the acquisition of a second or foreign language are still not clear cut, and the interaction between different indicators of teacher quality makes the investigation of the effects of teacher quality on second language learning difficult. Thus, this paper tries to review the large body of literature on current relationships between language learning performance and instructional time (extensive and intensive time) as well as teacher quality (teachers' knowledge, belief, experience, education) to summarize the important findings on current studies and discuss those research blanks. In addition, this literature review will show some implications for future research.

Subject Areas

Linguistics

Keywords

Second Language Learning, Language Learning Performance, Instructional Time, Teacher Quality, Education

1. Introduction

Various studies have investigated the mechanisms underlying the second language acquisition, but little is known about the factors that drive students' second language proficiency in classroom. Related research has shown that several factors predict students' achievement in any second language classroom, and those

factors include learner, school, text, and teacher-related variables [1]. Besides learners' internal factors, instruction and educators are the key components of high-quality language education, thus instructional arrangement and teacher quality can further influence learners' language acquisition.

To be specific, engaging in appropriate instruction and practice is an important step for acquiring L2 skill and further maintaining them. An important question regarding time arrangement of instruction is when educators and learners should learn new class and repeat/recycle the same learning materials for learners' consolidation of knowledge. In view of this problem, scholars' experiments show different results. What is certain, however, is that time allocation of instruction is indeed important for second language acquisition. Meanwhile, educators' education and teaching experiences are often considered as contributing to the development of knowledge and beliefs and, thus, are also frequently studied as these relate to instruction. Learning more about these associations is important, as knowledge, beliefs, education, and teaching experience are malleable aspects of educator preparation and training on which we can "intervene" in efforts to shift instruction to improve children's outcomes. Therefore, the quality of a teacher in terms of teacher's knowledge, belief, teaching experience, education can all determine ESL students' learning outcomes to a large extent.

Therefore, in this literature review, the relationship between learners' language learning performance and instructional time as well as teacher quality will be discussed in detail.

2. Instructional Hours and Language Learning Performance

The maxim that "practice makes perfect" reflects a common belief that practice is directly related to improvement in performance [2]. This observation has been described in cognitive psychology by the "power law of practice" [3], according to which time devoted to practicing a skill is a determining factor in automatization, as reflected in a more accurate and faster performance. A line of enquiry which is of great interest to students and educators alike is how instructional hours can be best utilized in order to optimize learning. The researchers examine the effect of instructional hours on language acquisition by selecting students of different ages and quizzing them on different aspects of language. But due to different testing aspects, tools and time allocation, the results are different.

2.1. Types of Time Distribution

In the process of studying the influencing factors of L2 proficiency in classrooms, many scholars have recognized the importance of instructional hours as an element in language learning performance [2] [4]-[17]. In order to better analyze to what extent the distribution of instructional hours affects students' second language gains, researchers adopt different types of programs where the distribution of instructional hours varies. Generally speaking, the two types of time distribution, extensive and intensive, can meet the researchers' experimental require-

ment, and specifically, the hours of instruction distributed in long sessions over a short period (intensive course) and the hours of instruction in which the students attend short sessions over a long period of time (regular course). But taking into account previous researches on the effectiveness of concentrating the hours of instruction of a second language [6] [8] [9] [10] [17] [18], sometimes more detailed categories are required, for example, in Collins' experiment, massed, massed plus and distributed classes were adopted. Additionally, there are two opposite views on different types of programs. From the perspective of cognitive psychology, "spacing effect" suggests that study conditions in which repetitions of items to be learned appear in spaced or distributed sequences have been found to be more favorable for subsequent retrieval than presentations in which repetitions occur instantly [19]-[27]. However, the second language acquisition and teaching literature has pointed out that, all things being equal, the more time students devote to learning a second language, the higher their level of proficiency will be [28] [29]. As for the time allocation, due to the different needs of the research, different researchers have different perspectives on the division of time, which makes the results of the experiments inconsistent with those of the larger classroom.

2.2. The Influence of Instructional Hours on Different English Abilities

When investigating the effect of instructional time on English abilities, researchers usually choose different aspects of language proficiency to test through a variety of tasks according to research needs, for example, learners' grammar, vocabulary knowledge, listening, speaking, reading and writing skills.

"Intensity" can be considered a fundamental condition for implicit competence to develop [2], and continuous practice in authentic communicative situations is necessary for the acquisition of the target language mechanisms in a subconscious way (or implicitly) [30]. That is to say, regular L2 courses rarely provide learners with such amount of practice, and the practice they offer (distributed) does not facilitate implicit learning, and intensive instruction, on the other hand, constitutes a more conducive environment for implicit learning to occur [31]. As a result, in the case of children in primary or secondary school, several researchers have highlighted the fact that traditional L2/foreign language programs which provide limited hours of instruction per week in a non-concentrated time distribution have not been shown particularly effective in the acquisition of a second language [6] [18] [32]. The previous research presents the correlation between the instructional hours and early foreign language learning in different language areas. Serrano demonstrated a relatively strong correlation of 0.57 ($p < 0.001$) between the intensive program and lexical ability in adults at the intermediate level than at the advanced level; meanwhile, the correlation between the regular course and lexical ability in adults at the intermediate level is 0.29 ($p > 0.05$) [2]. Compared with the extensive program, intensive program seems have more to do with students' language development. And a consensus seems to exist that the

more time available for learning, the higher the proficiency levels attained [28]. Considerable research has been done in the 5-month massed program, and it has been found successful in terms of students' development of basic communication skills in English both at the end of their intensive course and in the long term [7] [33], students' attitudes towards learning English [6], and their performance in other subject matter [34]. A study of intensive and extensive programs was done by Lapkin, Hart, and Harley [8]. By comparing the same amount of French instructional hours in three classes in three respective learning conditions: drip-feed French Second Language model, half-day compact model and 80 minutes per day for 5 months, they found that as for students' reading and writing ability, the massed learning conditions had greater improvement than the distributed group. Muñoz examined the performance of students in three types of EFL program which offered the same amount of instructional hours (extensive, semi-intensive, and intensive) at the intermediate level [32]. The result showed that at the end of their respective programs, students who were enrolled in the extensive program made less language gains than those students who registered in the intensive EFL course. Opposite to the findings above, Rogers examined the degree to which the temporal distribution of training sessions influences the learning of L2 grammar [35]. The finding revealed that when the results were measured on immediate posttests, there was no significant difference between massed (intensive) and distributed (extensive) conditions in improving learners' L2 grammar. Meanwhile, he also found that when measured on 6-week delayed posttests, students in distributed group significantly outperformed the massed group, which showed that the distributed learning condition was more durable against the effects of time than massed condition.

In order to clearly show the contributions and results of previous studies, inspired by the table of Serrano, R. and Muñoz, C. [15], the researcher of this paper constructed **Table 1**: A summary of empirical studies investigating time distribution in language learning.

Taken together, these results show the inconsistency of the time distribution effects, which leaves many problems to be solved. 1) The division of intensive (massed) and extensive (distributed) program is relative, which leads to the problem that if the intensive learning condition is more conducive for learners to develop language performance, is there any definite arrangement of instructional hours which can be practically used in the actual second language teaching and learning? 2) There is a dearth of research in the EFL learning literature concerning the effect of the distribution of instructional hours on students' vocabulary learning, which is an important part in language learning. The improvement of language ability depends on the development of vocabulary. 3) Very few studies pay attention to delay-time effect of different types of time distribution in different language areas. 4) Few studies have reported the importance of dividing EFL students based on their second language proficiency level, because the time distribution may have different effects on students with different language proficiency level.

Table 1. Summary of empirical studies investigating time distribution in language learning.

Study	Time distribution	Type of test	Results
McKee (1983)	Intensive French: 120 h; 25 h/week Traditional: 120 h; 4 h/week	Listening Reading Writing (controlled and free) Questionnaire	Intensive higher than traditional but not significantly in listening, controlled writing and reading Intensive significantly better in free writing Intensive more eager to use target language and more motivated
Spada and Lightbown (1989)	Intensive English: 350 - 400 h in 5 months “Drip-feed” traditional: 70 h/10 months	Baldwin-Cartier Test de classement (BTC) MEQ listening comprehension Picture card game (oral skills)	Intensive students superior to traditional at their level in all tasks and at higher levels with same instruction hours in listening and reading Intensive learners more fluent and confident
Lightbown and Spada (1994)	Intensive English: 350 - 400 h/school year; 18 - 20 h/week Traditional: max. 70 h/year; 2 h/week	Listening Reading Speaking Delayed-posttest (interview, communicative task and questionnaire)	Intensive students superior to traditional at their level in all tasks and at higher levels with same instruction hours in listening and reading Superiority maintained in delayed posttest
Lapkin <i>et al.</i> (1998)	Drip-feed French Second Language model (40 min/day in 10 months) Half-day compact model (half day French instruction for 10 weeks) 80-min/day for 5 months	Prepost French test including listening, reading, writing, speaking Follow-up test: reading, writing Students’ and parents’ questionnaires	More advantages for half-day compact model, then 80-min (in reading) Gains maintained in follow-up test Students in compact models reported more improvement in learning French, but also some boredom and reduction of attention span
Collons <i>et al.</i> (1999)	Massed English: 350 - 400 h in 5 months Massed plus: same as massed plus extra activities in English Distributed: 350 - 400 h in 10 months	Vocabulary recognition MEQ: emphasis on listening comprehension but also reading Narrative: describing pictures orally	Students in massed and massed plus performed better in all tasks than in distributed
Peters (2000)	Intensive French: 350 - 400 h/year; 18 - 20 h/week Traditional: 120 h/year; max 4 h/week	Interviews Listening Speaking Reading Writing	More gains on the part of intensive learners More self-confidence for intensive learners
MacFarlane <i>et al.</i> (2004)	Intensive French: 350 - 400 h/year; 18 - 20 h/week Traditional: 120 h/year; max 4 h/week	Interviews	Students in intensive programs more self-confidence and positive attitudes towards learning French
Freed <i>et al.</i> (2004)	Traditional French: 2 - 4 h/week Intensive French: 17.5 h/week (plus out-of-class contact) Study Abroad in France: 16.4 h/week (plus out-of-class contact)	Recorded interviews (to analyze oral fluency) Out-of-class contact questionnaire (use of French outside of class)	Intensive students more significant gains in most measures of fluency than other two groups Intensive students reported higher use of French outside the class
White and Turner (2005)	Intensive English: 350 - 400 h/school year; 18 - 20 h/week Traditional: max 35 - 70 h/year; 1 h/week	Oral ability Audio-Pal Story Retell Info-Gap	Intensive students gained significantly more than those in traditional classes
Hinger (2006)	Regular Spanish classes: 48 h in one semester, 2.5 h/week Intensive: 48 h in 1 month, 12 h/week	Recordings of verbal behavior during class	Students in intensive group had more group cohesion and were more motivated

Continued

Serrano (2007)	Extensive: 110 h/7 months, 4 h/week Semi-intensive: 110 h/3 - 4 months, 8 - 10 h/week Intensive: 110/5 week, 25 h/week	Sentence Cloze Listening Writing	Students registered in extensive classes make less progress in a 110 h course than those in intensive groups (both semi-intensive and intensive)
Serrano (2011)	Regular course: 110 h in one year, twice per week, 2 h at a time Intensive course: 110 h in one year, 5 days/week, 5 h at a time	Proficiency test Written task Oral narrative	intermediate-level students tend to make more language gains in intensive programs than in regular programs, whereas advanced EFL students do not seem to benefit from intensive classroom practice as much as intermediate students do
Rogers (2015)	Massed group: in 5 consecutive lessons (Sunday, Tuesday, Thursday, Sunday, Tuesday), 2.25 days between each training session Distributed group: once a week, on Tuesdays, for 5 consecutive weeks	Yes/No comprehension check question	when the results were measured on immediate posttests, there is no significant difference between massed (intensive) and distributed (extensive) conditions in improving learners' L2 grammar When measured on 6-week delayed posttests, students in distributed group significantly outperformed the massed group

3. Teacher Quality and Language Learning Performance

Besides instructional hours, teacher quality is also regarded as an influencing factor that plays an important role in child L2 proficiency in classrooms. Nearly all observers of the education process, including scholars, school administrators, policymakers, and parents, point to teacher quality as the most significant institutional determinant of academic success [36]. Teacher is indispensable in the instructional procedure; therefore, the quality of a teacher in terms of teaching experience, subject mastery, and questioning behavior can determine ESL students' learning outcomes to a large extent. In this literature review, the indicators, teachers' knowledge, belief, experience and education will be discussed.

3.1. Indicators of Teacher Quality

Many indicators can be used to examine the teaching quality, for example, teachers' knowledge, belief, experience, education, and etc. As for teachers' knowledge, knowledge is important for teaching because educators could use information to make instructional decisions in their classrooms [37] [38], and educator's knowledge is related to the classroom instruction and students' subsequent outcomes [39] [40] [41] [42]. As a multifaceted construct [42] [43] [44] [45], particular knowledge related to instruction has multiple types which have been identified and examined by researchers, including disciplinary content knowledge [46], conceptual, procedural knowledge of language and literacy [47], and pedagogical content knowledge [41]. As for teachers' belief, it is also theorized to be related to instruction [48] [49] and impacts teachers' instructional behaviors in the classroom [50] [51]. Like knowledge, belief, this somewhat ambiguous concept, has been measured in a variety of ways by researchers, with mixed findings as to whether or not educators' beliefs are associated with instruction in empirical studies. Additionally, educators' education and teaching experiences are often

considered as contributing to the development of knowledge and beliefs and, thus, are also frequently studied as these relate to instruction [52]. At a political level and within public discourse, there is a tendency to presume a straightforward linear relationship between teachers' years of experience and the quality of teaching [53]. By contrast, research demonstrates a complex relationship between a range of factors that is non-linear and cyclical, whereby experience is one of many factors influencing the quality of teaching [53] [54]. Moreover, educators' procedural and conceptual knowledge about language and literacy instruction is higher when they have more years of education [47], and educators' knowledge increases their intended use of the practice, thus indicating that education could shift educators' beliefs [55]. Considering those previous literatures, the teacher quality is an indispensable research factor of language learning performance, and those indicators can interact with each other to affect learning.

3.2. The Influence of Teacher Quality on Different English Abilities

The quality of teacher determines students' learning outcomes in ESL classrooms to a very large extent [56]. The quality of a language teacher influences subject-matter delivery, communication skills, questioning behavior, classroom management, and other classroom-related variables in the process of instruction [1]. Researchers have also examined how these indicators are associated with instruction. Some correlational studies have been conducted to demonstrate the effect of teacher quality on language learning and instruction. The research conducted to investigate the relationship between teacher and student's grammar achievement reveals a correlation of 0.57 ($p < 0.01$) between teachers' subject mastery, questioning behavior and students' achievement in English grammar in the Gambia [56]. In examining the relationship between teachers' general pedagogical knowledge (GPK) and instructional quality, König and Pflanzl reported the correlations between pre-service teachers' knowledge and indicators measuring cognitive activation (0.42), pace of instruction (0.58), student-teacher relations (0.22), teachers' awareness of students' comprehension problems (0.22) and classroom management (0.20) [57], and all correlations are positive, which means that the higher the test score of a future teacher, the better his or her students rated the instructional quality provided by that future teacher [58].

In addition, results from experimental studies suggest a causal relationship between some indicators of teacher quality and language learning or instruction. In examining teachers' English language knowledge and literacy, Piasta, Connor, Fishman, and Morrison found that the higher disciplinary knowledge can be a predictor of children's literacy outcomes when examined in combination with time in decoding instruction [59]. But Cash, Cabell, Hamre, DeCoster, and Pianta found that educators' knowledge can only predict the gains of expressive vocabulary and print knowledge of child [60]. Moreover, sometimes changes in educators' knowledge do not result in improved outcomes for children [46] [61],

suggesting that the type of knowledge measured, in these cases disciplinary content knowledge and “knowledge of emergent literacy”, may not always be linked to language and literacy instruction. Sandvik *et al.* found that educators’ reported beliefs aligned with current research, yet educators’ reported instruction was not consistent with these beliefs [26]. That is to say, educators reported spend very little time in high quality language and literacy instruction in contrast to their reported beliefs both about how children develop skills and their roles as educators in that process [52]. Schachter *et al.* found the negative associations between beliefs and oral language, vocabulary and code, though teachers’ responses do not necessarily reflect their actual beliefs [52]. Conversely, other researches indicated that educators’ beliefs seem to match observable instruction related to educator-child interactions [62]. Vartuli found that teachers’ personal and professional experiences often affect their beliefs which usually influence teachers’ classroom practices [49] [63] [64]. Meanwhile, education and previous teaching experiences can be seen as proxies for knowledge and beliefs as these experiences may contribute, directly or indirectly, to the development of these constructs [47] [52]. Hindman and Wasik found that educators’ literacy instruction and procedural and conceptual knowledge about language are positively significantly related to educators’ years of education [46]. About the relationship between teachers’ experience and teaching, the results are equivocal. Generally, teaching experience improves instruction [65] [66] [67], in contrast, some researchers only found the minimal association between instruction and teaching experience [62] [68]. But after experiment, many researchers have reached a consensus that educator’ practice improves until around the fifth year of teaching and then plateaus [67] [69], with additional declines over time [52], in contrast, Graham found that there is no evidence of lower teaching quality for beginning teachers (0 - 3 years’ experience), but some evidence of a decline in teaching quality for teachers with 4 - 5 years’ experience [70].

To sum up, compared with educators’ knowledge, belief, education and experience, other indicators, for example, educators’ gender, job satisfaction, job stress, and self-efficacy, haven’t attracted scholars’ enough attention, thus these indicators are not discussed in this review. Taken together, these results show some problems which haven’t been solved yet. 1) There are some indicators for researchers to objectively measure, which increases the difficulty and reduces the effectiveness of the experiment. 2) The interaction of various indicators makes it difficult to see the effect of each indicator in the experimental results. 3) The indicators of teacher quality include not only those mentioned above, and there are some research blanks of the investigation into the other indicators. 4) Due to different research purposes, experimental tools, experimental situations and language abilities, some findings are inconsistent with each other, which needs to be verified. Overall, the research on the relationship between teacher quality and language learning or instruction is still in the equivocal state, and the evidence of this relationship is not clear cut.

4. Summary

This review of the literature simply brushes the superficial relationship between student language achievement and teacher quality as well as instructional time. From those findings mentioned above, scholars try to measure the relationships between teachers' knowledge, belief, teaching experience, education and learners' language performance to measure the effect of teacher quality on language learning. Also, different types of instructional time (extensive and intensive) are measured to investigate the effect of instructional hours. Although researchers have explored the associations from various aspects, many studies have shown opposite results due to different methods of measurement, experimental tools, learning abilities and categories, which makes the research in this area ambiguous and prevents the results from being applied to practical teaching.

5. Implications for Future Research

Through this review, there are some implications for future research. First, the time allocation (the distribution of instructional time) should be unified, which will be conducive to the future application of the research results to teaching. Second, the two factors (instructional hours and teacher quality) respectively may have different effects on learners' listening, speaking, reading and writing skills, thus, the individual effects and interactions of each factor on each skill need to be separately discussed. Third, some of the current experimental results in these two factors are contradictory and need further confirmation. Overall, the effect of instructional time and teacher quality on language learning performance gradually attracts the attention of scholars and educators, and more detailed and comprehensive researches will be conducted in the future. In the future, relatively consistent time allocation and standardized methods of measurement should be paid more attention to to expand the application scope of experimental results in teaching and provide more pedagogical innovations.

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Conflicts of Interest

The authors declare no conflicts of interest.

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