

The Effects of Socioeconomic Status and Cram Schooling on L2 Writing: Evidence from Taiwanese EFL Learners

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Abstract

In theoretical accounts of second language acquisition, socioeconomic status (SES) has a great impact on the second language (L2) learning outcomes, where their relationship is suggested to be indirect (Ellis, 1994; Gardner, 1985, 2007). Previous studies mostly focus on the influence of SES on L2 general proficiency or L2 academic achievements rather than specific L2 proficiencies. In the educational context of non-English-speaking East Asian countries, cram schooling is believed to have played a mediating role in the relationship between family SES and English academic achievements (Butler, 2009). The present study clarifies the effects of SES and cram schooling on the L2 written task-based performances of 82 Taiwanese EFL college students by examining the correlations between complexity and accuracy. The high-SES and low-SES groups demonstrated two contrasting outcomes. A negative correlation between grammatical complexity and accuracy (known as the trade-off effect) on L2 written output was detected in the low-SES group. But no trade-off effect was attested among the high-SES EFL learners. Moreover, the cram-schooling factor is suggested to have neutralized the negative correlation in the low-SES EFL learners.

Keywords: second language writing, socioeconomic status, cram schooling, trade-off effect

Differences in family background are strongly associated with variations in second language (L2) learning outcomes. In theoretical accounts of second language acquisition (Ellis, 1994; Gardner, 1985, 2007), specific social factors (mainly age, sex, ethnicity, and social class) are associated with L2 proficiency in an indirect way where some intervening variables exist. Along with the increasingly aggravated rich-poor gap in nearly all regions of the world over the past decade, though at different speeds, inequality of access to English language learning has been magnified within non-English-speaking countries. It is expected that specific areal features in educational contexts related to socioeconomic status (SES) have a greater impact on L2 English learning in non-English-

speaking areas. In the case of Taiwan, a “double peak phenomenon” featuring a bimodal distribution of high and low achievers has been identified for years as one of the major problems in L2 (English) education (W. Chang et al., 2004), while family SES is listed as one of the key causes of this bimodal distribution. In addition, cram schooling is generally believed to have played a mediating role between students’ family background and learning outcomes in the test-driven system of Taiwan’s educational context (Chang & Chang, 2017; Y. J. Chen, 2007; Y. P. Chen, 2004; Hsieh, 2013; Li, 2010; Y. Liu, 2006; Lo, 2007). The present study was motivated by this prevalent problem and sought to clarify the relationships among SES, cram schooling, and L2 learning outcomes.

Previous studies investigating the effects of SES on L2 general proficiency or L2 academic achievement indicated that there is a positive relationship between SES and L2 general proficiency (e.g., Akram & Ghani, 2013; Gayton, 2010; Khansir et al., 2016; Kormos & Kiddle, 2013; etc.). That is, the higher the students’ family SES, the better is their L2 proficiency, and vice versa. However, the relationship between SES and L2 production has yet to be elucidated. Among the research on L2 writing and speaking, three indices are mainly used to measure spoken and written performances on a particular task—complexity, accuracy, and fluency. According to Skehan’s (1998, 2009) limited capacity hypothesis, it has been argued that there are trade-off effects among complexity, accuracy, and fluency (CAF) in demanding tasks. That is, there are competitive relationships mainly among complexity, fluency and accuracy. Nevertheless, studies have not explored whether SES is a relevant factor for the CAF constructs. Moreover, the specific areal feature in East Asian educational contexts, cram schooling, has not been taken into account in explaining the relationship between SES and L2 learning outcomes.

Based on the above, the present study aims at illuminating the role of SES and cram schooling in the L2 written task performances of Taiwanese EFL (that is, English as a foreign language) students by examining whether the trade-off effect exists or not. This study is designed to answer three research questions:

1. Does SES have a differential impact on EFL writing performances when evaluated by complexity and accuracy measures?
2. Are the written task performances of the l(ow)-SES and h(igh)-SES students related to the correlations between complexity and accuracy measures?
3. How and to what extent does the cram-schooling factor interplay with the SES factor and the correlations between complexity and accuracy measures?

The contributions of the present study are two-fold. First, this research elaborated a second language acquisition (abbreviated as SLA) empirical study from the relationship between SES and L2 general proficiency or L2 academic achievement to the relationship between SES and L2 written task performances. Second, this research may bridge the East Asian educational milieu with the research field of SLA by exploring the effect of the East-Asian educational feature, cram schooling on EFL writing.

Literature Review

Socioeconomic Status and Theoretical Accounts

Socioeconomic status (SES) plays an important role in the field of second language acquisition (SLA). SES refers to the relative position of an individual or family in the social stratum mainly based on a combined measure of education, occupation and/or income. The literature related to a

family's SES position relative to language learning can be traced back to the Bernstein's (1971) sociolinguistic theory of language codes, where a direct relationship was asserted between social class and the use of either elaborated or restricted code. Bernstein reported that the use of restricted code was found in both middle-class and working-class groups, whereas the elaborated code was only employed by the middle-class group. He further argued that class differences in the use of language codes were related to students' educational attainment, especially the relatively poor performance of working-class students in relation to the use of restricted code. However, such arguments were seriously criticized. Despite the controversy that Bernstein's code theory elicited, Bernstein's (1971) 'code theory' has exerted some increasing influence on both education and linguistics. The relationship between family background and linguistic performance has become a fascinating research issue, attracting a number of researchers exploring a wide range of topics from education, linguistics, psychology, sociology, neuroscience, and so on (e.g., Croll, 1995; Kuhl, 2011; Labov, 1966; Meir & Armon-Lotem, 2017; Pace et al., 2017; etc.).

In SLA theoretical accounts, certain social factors (mainly age, sex, ethnicity, and social class) have a significant impact on L2 learning outcomes even though their relationship is suggested to be indirect. The influence of social factors on L2 proficiency is mediated by a number of variables of a psychological nature, such as learners' motivation (Gardner, 1985, 2007) and learners' attitudes (Ellis, 1994). In Ellis's (1994, pp. 193–195) framework for explaining L2 acquisition, social factors have a direct impact on the language input that learners receive rather than on the comprehension and production of utterances. The social milieu helps to shape the input of the target language to which learners are exposed, including its variety, quantity, and scope. The received L2 input renders data for language processing, which is in turn influenced by individual learner factors and other factors. The language processing mechanisms interpret changes in the learner's L2 knowledge (the interlanguage system) employed in the comprehension and production of the L2 output. Gardner's (1985, 2007) socio-educational model "depicts a process in time, during which the students' background setting affects their motivation, and then their motivation and ability affect their learning situation and so produce a successful or unsuccessful outcome" (Cook, 2008, p. 224). Ever since Gardner & Lambert's (1959) pioneering work, motivation has been differentiated into instrumental motivation and integrative motivation in SLA research. Both involve the reasons to acquire a second language. Instrumental motivation means a desire to achieve practical goals, whereas integrative motivation refers to a favorable attitude or desire to identify oneself with the L2 community or culture. An increasing body of research offers evidence that motivation is inter-related with family's SES factors and L2 learning outcomes (e.g., Akram & Ghani, 2013; Gayton, 2010; Khansir et al., 2016; Kormos & Kiddle, 2013).

Distinct from the psychology-oriented interpretation of SLA, the sociology of education adopts a societal perspective to elaborate on the indirect relationship between SES and learning achievements. Since the 1960s (e.g., Bowels & Gintis, 1976; Coleman et al., 1966; Jencks et al., 1972), research has indicated that family resources play a crucial role connecting a family's socioeconomic background and students' academic achievements. To be specific, socioeconomic factors (mainly parental education, parental occupation, and parental income) determine an individual's access to educational resources, which in turn influence his/her academic achievements. Based on Bourdieu's (1986) resource-oriented conception of capital, family resources are divided into three types: (i) economic capital: command of material resources, such as money, assets, and property; (ii) cultural capital: academic qualifications (skills and intellectual knowledge) that enable holders to move up in society; and (iii) social capital: resources available in and through connections among individuals and groups in different social strata. Bourdieu's theory on capital has been widely investigated to examine its usefulness or limitations in the field

of education (e.g., Basit, 2012; Grenfell & James, 1998; Kalmijn & Kraaykamp, 1996; Martin, 2010; Ra, 2011; Sullivan, 2002; Tamatea & Pramitasari, 2018; etc.).

Cram Schooling in East Asia

Cram schools are locally known by different terms, such as “Buxiban” in China, “Juku” in Japan, “Hagwon” in South Korea, “Tuition Centers” in Singapore, and “Shadow Education” in Western countries (henceforth, cram schooling in the present study). The meaning of cram schooling varies from region to region and even from educational context to context. The present study adopts Bray’s (1999, p. 20) three features on the nature of cram schooling—supplementation, privateness, and academic subjects. The term cram schooling in the present study is referred to as fee-paying supplementary tutoring in academic subjects provided by private entrepreneurs or individuals outside standard school hours (Bray, 1999; Bray & Lykins, 2012).

The cram-schooling culture is popular in the East Asian regions¹ whose educational practices feature exam-driven educational systems (cf. Bray, 2009; Kwok, 2004; Williams, 2017). In the educational contexts of East Asia, family capital embodied in the form of ‘cram schooling’ plays an influential role in students’ academic achievements. It is a common belief in these Asian societies that children must be sent to cram schools in order to compete with talented students and to pass various entrance or qualification exams. Notice that students’ engagement in fee-paying extracurricular learning activities is not confined to academic study. It is also common for parents to send their children to participate in non-academic learning activities, such as music, fine arts, sports, martial arts, etc.

Cram schooling has great implications for educational inequality in relation to family background in the East Asia, as illustrated in two ways. First, family SES factors (mainly parental education, parental occupation, and parental income) have a positive relationship with access to cram schooling. The proportions of students receiving cram schooling are greater in high-SES families than in low-SES ones (e.g., Y. Chang, 2012; Entrich, 2015; Kim & Park, 2010; Zhang & Bray, 2016). Second, a rural-urban divide is associated with cram schooling participation. Students in the urban areas are more likely to attend cram schools than those in the rural areas (e.g., Bray, 1999; Y. Chang, 2012; Entrich, 2018; Guo et al., 2019). Given the detrimental influences of cram schooling on educational equality, it renders the issues of cram schooling worthy of attention for policy makers and detailed studies for researchers in East Asia regions.

Socioeconomic Status and Cram Schooling in Taiwanese Setting

The thriving ‘cram schooling’ phenomenon is concomitant with the prevalence of credentialism in the Confucian cultural circle of East Asia. Taiwan is one of the typical instances. Compared to occupation and income, educational background is an important measure to evaluate a person’s social standing in Taiwanese society (Y. Chang et al., 1996). As entrance examinations for higher-level education institutions became competitive in the late 1960s, parents generally hold the view that it is a must to send their children to attend after-school classes to make them relatively more competitive for schools and entrance examinations. Consequently, it created a prosperous industry of cram schooling. For half a century, attending cram schools has been a common experience for the majority of Taiwanese students. In many empirical studies of Taiwanese sociology and education, the cram schooling factor has been proven to be associated with students’ family SES and academic performance. Consistent with the findings in other countries, there was a positive relationship between cram schooling and students’ academic performances (e.g., Y. Chang, 2012;

Chen & Cheng, 2000; Kuan & Lee, 2010; J. Liu, 2012; Sun & Hwang, 1996; and Wu, 1999). Furthermore, J. Liu's (2012) outcomes indicated that there was a significantly positive effect of cram schooling on students' analytical ability and mathematical performance. Regarding the association between family SES background and cram schooling, most researches showed that there tended to be a positive relationship (e.g., Y. Chang, 2012; Chen & Cheng, 2000; Kuan & Lee, 2010; Sun & Hwang, 1996; and Wu, 1999). Notice that there was an extreme instance in this general tendency. Generally speaking, parental education was positively related to cram schooling participation. That is, parents with higher education tended to send their children to receive more cram schooling, whereas parents with lower education were less likely to send their children to receive cram schooling. Nevertheless, one study on Taiwanese cram schooling emphasized that parents with the highest education level (that is, postgraduate degrees) showed the same tendency as parents with the lowest education level because both groups were less likely to let their children attend cram schools (J. Liu, 2012)². In spite of this extreme case for parents at the highest education levels, J. Liu's (2012) results still showed a positive association between parental educational level and children's cram schooling for the parents whose education levels were lower than the postgraduate level. That is, students' cram schooling participation was correlated with the decrease in parental education level from college to elementary school.

Given the lingua franca role of English in the globalization context, the need to attending English cram schools is by no means stronger and longer when compared to other subjects. Attending English cram schools for the majority can be mainly attributed to two aspects: coping with entrance examination pressure and strengthening English communicative proficiency (J. Liu, 2006). Since the implementation of primary English education in 2001, Taiwanese students have started to attend English classes at school beginning in elementary school. Owing to the conventional wisdom of "the earlier the better" for English as a foreign language (EFL) learning, parents opt to send their children to private English schools earlier. For students from h(igh)-SES families, they could easily begin their English classes in private language schools in the preschool period. Meanwhile, l(ow)-SES students could not attend English cram schools as freely as they wished although their parents still tried their best to offer the fees for English cram schooling. In addition to securing the competitiveness of English academic performances at school, another major reason for the need for English cram schooling is to mend the unsatisfactory English instruction at school (especially, public schools) (cf. J. Chang, 2004, pp. 4–7). For a long time, EFL formal education in Taiwan has had a notorious reputation for developing incompetent English speakers/writers. This could be blamed on the adoption of grammar translation methods, insufficiently qualified English teachers, and examination-driven English evaluations. Cram-schooling has also been shown to be a key factor in explaining the relationships between SES and the English achievements of Taiwan's EFL learners. English cram-schooling is the common factor among the mediating factors proposed by various researchers (Chang & Chang, 2017; Y.J. Chen, 2007; Y.P. Chen., 2004; Hsieh, 2013; Li, 2010; Y.P. Liu, 2006; Lo, 2007). Generally speaking, the length of time that the h-SES students spent on English cram schooling were longer than those of the l-SES students; and the longer duration that h-SES students spent on English cram schooling were in turn associated with their better English achievements compared to the shorter duration spent by l-SES students. In addition to cram schooling, Lo (2007) indicated that attending private school was another moderator related to economic capital in her study on Taiwan's junior high school EFL learners. Learners' psychological factors have been proposed as moderators together with the cram-schooling factor. For example, Y. J. Chen's (2007) results showed that parental income was correlated with the English academic achievements of junior high school students where there existed four intervening variables— social capital, economic capital, English cram schooling, and affective factors. Chang & Chang's (2017) findings about Taiwan's junior high school students showed that family cultural

capital, time spent on English learning in cram schools, educational expectations, English learning motivation, and Chinese (L1) academic achievement had mediating effects between family background and English academic achievements. It is noteworthy that the English academic achievements mentioned in the relevant literature mainly referred to overall scores of English subjects or tested scores at school. However, there is no research directly exploring the correlation between SES and L2 speaking/writing production.

CAF Measurement of Written Performances

The extant literature focuses on the associations of SES factors with L2 general proficiency or L2 academic achievement (e.g., Ariani & Ghafournia, 2015; August & Shanahan, 2006; Conger, 2009; Hakuta et al., 2000; Salameh, 2012; Suliman, 2014). Their findings showed a positive correlation between SES and L2 general proficiency. That is, the higher the students' SES, the better their L2 proficiency, and vice versa. However, the relationship between SES and L2 production has yet to be elucidated. Among studies on L2 writing and speaking output, three indices are mainly used to measure spoken and written performances on a particular task—complexity, accuracy, and fluency (CAF). These three dimensions emerged from Skehan's (1998) contrast between 'meaning' and 'form' for learner task production, where 'meaning' is manifested by fluency, while 'form' is marked by accuracy and complexity. According to Skehan's (1998, 2009) limited capacity hypothesis, L2 learners' attentional capacity was limited to a single source so that they could not direct their attention equally to CAF during task performance. Under certain conditions, it was predicted that attending to one dimension leads to taking attention away from other dimensions, known as the trade-off effect. On the contrary, Robinson's (2001, 2003, 2007) cognitive hypothesis disagreed with Skehan's single-source view of attention and denied the existence of a trade-off effect between complexity and accuracy when the assigned complex tasks involved resource-directing dimensions. He indicated that L2 learners' complexity and accuracy could be improved simultaneously when conducting a task involving resource-directing dimensions (e.g., single-task performance, a task where prior knowledge and planning time are available, and a simple-task activity). Obviously, Robinson's assumption is different from Skehan's in that L2 learners can access multiple attentional pools rather than a single attentional pool. This controversy prompted the present study to focus on the impact of SES and cram schooling on the correlations between the complexity and accuracy of L2 writing empirically contributable to SLA to some extent.

Methodology

Participants

The population of this research included English majors aged 20 and above from Shih Hsin University at Taipei, Taiwan. In compliance with the Multiple Entrance Program required by Taiwan's educational Ministry, the English majors of this university³ were diverse in their family background, cram-schooling experiences, and English proficiencies. In order to gain a representative sample, this study tried to recruit as many participants as possible and showed no preference⁴. This study recruited 82 participants, taking up 25.5% in the qualified population of 321 students. They were volunteers in response to an in-class recruitment announcement and/or an online recruitment post, each of which was made by two research assistants. Thirty were male, and fifty-two were female. Their ages ranged from 20 to 26 years old. They were first language speakers of Mandarin Chinese with English as their second language. Following Taiwan's official educational system, all the participants were homogenous in some sense because each of them had attended a 6-year elementary school, a 3-year junior high school, and a 3-year senior/vocational

high school before they enrolled in college. Nevertheless, these participants differed greatly in their English learning experiences in receiving instructions at private-run cram schools, as shown in Table 1.

Table 1. Cram-schooling Experiences of Participants

Variable		Preschool	Elementary school	Junior high school	Senior/Vocational high school
Cram-schooling experience	No	58 (70.7%)	24 (29.3%)	25 (30.5%)	40 (48.8%)
	Yes	24 (29.3%)	58 (70.7%)	57 (69.5%)	42 (51.2%)

The English cram-schooling factor was assessed by the measures of English cram-schooling time duration and intensity.

1. **English Cram-schooling time duration:** The English cram-schooling time duration measure was indicated by the total years individual participants spent in English cram schools from the preschool period to the junior high school period. The English cram-schooling year lengths for all the participants ranged from none to 12 years. The participants were divided into two groups: (a) short-duration group ($n=33$): 0–6 years, and (b) long-duration group ($n=49$): 7–12 years.
2. **English cram-schooling time intensity:** The English cram-schooling time intensity was measured by the average hours per week a given participant spent in the English cram school(s) across the preschool, elementary, and junior high school periods. The minimum and maximum for the average hours per week were 0 and 14.33 hours. The participants were grouped into: (a) low-intensity group ($n=50$): ≤ 2 hours, and (b) high-intensity group ($n=32$): > 2 hours and ≤ 33 hours.

Based on their family SES indices, participants were divided into two groups: l-SES group ($n=42$) and h-SES group ($n=40$). Their SES indices were based on Taiwanese educationalist Sheng-Chuan Lin's SES measurement (Lin, 2000, pp. 41–81), which adapted Hollingshead's (1957) 'two factor indices of social position' to fit the practical reality of Taiwanese society. Lin's SES index was derived by the sum of multiplying the parental education scale value by a weight of 4 and the parental occupation scale value by a weight of 7. The parental education scores were coded on a five-point scale ranging from 1 (elementary school) to 5 (graduate school). Similarly, the parental occupation scores were coded from 1 (farm laborers/menial service workers) to 5 (higher executives and major professionals). Lin's SES index raw scores ranged from 11 to 55 and were further divided into a 5-scale ranking: Rank I (11–18), Rank II (19–29), Rank III (30–40), Rank IV (41–51), and Rank V (52–55). In the present study, the participants whose rankings belonged to Ranks I–III were categorized as the l-SES group, whereas those whose rankings belonged to Ranks IV or V were categorized as the h-SES group.

Instruments

Two instruments were utilized to collect data for the present study: a background questionnaire and a concise English comprehension test. The questionnaire consisted of personal data, family background, educational experiences of English cram schooling⁵, and current situations of English use. To assess the participants' current English proficiencies, a concise English comprehension test was conducted. This test was composed of three sections: vocabulary & grammar (8 multiple-choice questions), reading (8 multiple-choice questions), and listening (10 multiple-choice questions). As for statistic calculations, the data were processed using the statistical analysis program IBM SPSS Statistics (version 21).

Tasks and Procedures

Prior to formally conducting this study, the researcher filed certain required documents for the research project and then received the ethical review approval in May 2018. Next, this study followed the relevant regulatory requirements to recruit participants diverse in their family background and English proficiencies. Adopting the standardized operating procedures founded by Taiwan's Ministry of Science and Technology, each potential participant began with reading an informed consent form which briefly introduced this research and information relevant to participants' rights.⁶ Each participant submitted a written consent form before participating in this study. The participants formally began by filling out a questionnaire. They were then asked to take a concise English comprehension test. Once they finished the test, they were given a ten-minute break before performing three written tasks. In terms of task performance, each participant was given 30 minutes to produce three written texts to three writing prompts without pre-task planning time⁷. Provided that all three prompts were given at once, the participants could answer in any order they wished.

In order to gain overall written performances, the written task-based activity was composed of three types of tasks: a personal task, a narrative task, and a decision-making task (cf. Skehan & Foster, 1997). Moreover, they were associated with different levels of cognitive demand. In the personal task, each participant was required to introduce his/her favorite singer to their fellow students. This task was the cognitively least demanding. The narrative task was a picture-writing prompt. The photo was taken by the Buckingham Palace gates when the marching band was performing in front of a crowd of tourists. This picture-writing task involved a higher cognitive load since it contained many details from which the participants could develop a written text. Compared with the personal task, this narrative task required more cognitive effort. The decision-making task was an argumentative writing prompt: "Based on a survey of 1,000 American homeowners, 99% of those surveyed have two or more automobiles worth on average US\$100,000 each. Therefore, Americans are very wealthy." This was a sample statement normally used to demonstrate the fallacy of inadequate evidence. The participants were asked to write a response to this statement to show why they agreed or disagreed. Among the three tasks, this one was categorized as cognitively most taxing because it required several skills involving complex cognitive processing other than the first two tasks.

Text Measurements

All the participants' written texts were converted into electronic texts for ease of computational analyses. In order to obtain the overall written performances of each participant, three written texts produced by the same participant were combined for comprehensive analyses.

Manual coding was carried out to identify T-units and grammatical errors. Regarding the segmentation of sentences into T-units, this study followed the principles outlined by Hunt (1965) with minor modifications (cf. Elley et al., 1979; Mellon 1969; and Young, 1995, p. 58). T-unit refers to an independent or main clause with all its dependent clauses (Hunt, 1965, p. 20). It is commonly used in the analysis of written texts in the field of SLA. Grammatical errors include both lexical errors and syntactic errors. Lexical errors are errors in word form (e.g., *the hourse*) and word choice (e.g., *My entire childhood was fulled with Jay's song*). Syntactic errors deal with errors that violate the rules for forming grammatical sentences, such as errors in verb form (e.g., *They were played the performance*), errors in subject-verb agreement (e.g., *She never give up in difficult situations*), missing verbs (e.g., *They even can't eat when they ___ hungry*), wrong use of plural morphemes (e.g., *According to the essay, it puts the riches and the poors together*), etc.

There were four linguistic measures used to quantify the complexity and accuracy constructs, as introduced in the following.

- **Complexity:** The complexity construct is further divided into lexical complexity and grammatical complexity.
- 1. **Lexical complexity measure (MTLD):** Lexical complexity is normally discussed in terms of lexical frequency and lexical diversity. This study adopted lexical diversity to assess lexical complexity. Lexical diversity refers to “the range of different words used in a text, with a greater range indicating a higher diversity” (McCarthy & Jarvis, 2010, p. 381). Because the traditional Type-Token Ratio (TTR) measure varies greatly in accordance with text length, the lexical complexity of this study was measured using the measure of textual lexical diversity (MTLD), which is insensitive to text length (McCarthy & Jarvis, 2010). The MTLD data were derived from the computation of koRpus, an R package for text analysis.
- 2. **Grammatical complexity measures (MLT and C/TU):** Grammatical complexity was assessed using “mean length(words) of T-unit” (MLT; see Wolfe-Quintero et al., 1998) and “mean number of clauses per T-unit” (C/TU; see Cooper, 1976).
- **Accuracy (E/TU):** Among the measures of accuracy, this study adopted “number of errors per T-unit” (Bygate, 2001) and “percentage of error-free clauses” (Foster & Skehan 1996; Skehan & Foster, 1999; Yuan & Ellis, 2003). However, the results showed that both measures were highly inter-correlated. Therefore, “number of errors per T-unit” (E/TU) was chosen to illustrate the outcomes of accuracy in this research.

In order to clarify whether the negative correlation between complexity and accuracy (that is, the trade-off effect) existed or not for the relationships in question, the present study adopted Pearson correlation coefficient⁸ (denoted by r) to evaluate the correlations between the lexical complexity and accuracy measures (i.e., MTLD–E/TU) and the correlations between grammatical complexity and accuracy measures (denoted by MLT–E/TU and C/TU–E/TU). In the present study, a positive r value between complexity and accuracy signified a negative relationship (inferred as the existence of a trade-off effect) because the “accuracy” measure was assessed by the number of “errors” per T-unit (E/TU). On the other hand, a negative r value indicated a positive relationship, which in turn represented the non-existence of a trade-off effect.

Results

Correlation between complexity and accuracy on SES

Among the four measures of lexical/grammatical complexity and accuracy, the outcomes of Table 2 showed that a significant difference was only found in the mean length of the T-unit (MLT) of grammatical complexity ($t = 2.155, p = 0.034$). The h-SES group on average produced longer sentences than the l-SES group. Other than MLT, there was no significant difference between the h-SES and l-SES groups in their degrees of complexity and accuracy, even though the h-SES group showed slightly better writing performances, as indicated in the means of the measure of textual lexical diversity (MTLD), clauses per T-unit (C/TU), and errors per T-unit (E/TU).

Table 2. Means and Standard Deviations for Written Task Performances

Variables	n	<u>Lexical Complexity</u>		<u>Grammatical Complexity</u>				<u>Accuracy</u>	
		MTLD		MLT*		C/TU		E/TU	
		M	SD	M	SD	M	SD	M	SD
h-SES	40	80.06	24.74	9.74	1.81	1.28	0.16	0.40	0.24
l-SES	42	77.54	25.80	9.44	2.68	1.26	0.32	0.48	0.34

Note: * $p < 0.05$ level (2-tailed); ** $p < 0.01$ (2-tailed).

According to the results of the Pearson correlation coefficient in Table 3, the overall written performances of all participants showed negative correlations between grammatical complexity and accuracy, as shown by the statistical significance marked for MLT – E/TU ($r = .256, p < .05$) and C/TU – E/TU ($r = .309, p < .01$). This outcome was indicative of a trade-off effect between the grammatical complexity and accuracy indices attested in the overall data. Notice that the positive r values represented a negative correlation between grammatical complexity and accuracy because the accuracy measure of this study relied on the number of “errors” per T-unit (E/TU). On the other hand, there was a positive correlation between lexical complexity and accuracy, as indicated by the negative r value $-.270$ ($p < .05$) for MTLD–E/TU.

Table 3. Complexity–Accuracy Correlations Divided by high/low SES Division

SES	n	<u>Lexical complexity & Accuracy</u>	<u>Grammatical complexity & Accuracy</u>	
		MTLD–E/TU	MLT–E/TU	C/TU–E/TU
h-SES	40	-.445**	-.031	-.018
l-SES	42	.153	.407**	.434**
all participants	82	-.270*	.256*	.309**

Note: * $p < 0.05$ level (2-tailed); ** $p < 0.01$ (2-tailed).

When examining the relationships between complexity and accuracy on the basis of the high/low SES division, both groups partially resembled the characteristics of the overall data. As Table 3 showed, the negative correlations between grammatical complexity and accuracy were observed only in the l-SES group (MLT – E/TU: $r = .407, p < .01$; and C/TU – E/TU: $r = .434, p < .01$). On the other hand, the positive correlation between lexical complexity and accuracy was found only in the h-SES group (MTLD – E/TU: $r = -.445, p < .01$). Nevertheless, the l-SES and h-SES groups exhibited opposite patterns on the correlations between complexity and accuracy. The negative correlations between grammatical complexity and accuracy suggested that there was a trade-off effect in the l-SES group, but not in the h-SES group. In contrast, the data of the h-SES group seems to confirm Robinson’s cognitive hypothesis whereby the h-SES group could demonstrate greater lexical complexity and greater accuracy in L2 writing production in a cognitively complex task-based activity.

Correlation between complexity and accuracy on SES and cram schooling

This section investigated how the English cram-schooling factor interacted with SES and L2 written task performances. The English cram-schooling factor was examined by two measures: time duration and time intensity. The time duration measure on English cram schooling was indicated by the total year length a given participant spent in the extracurricular English cram school(s) from the preschool period to the junior high school period. Based on total year length, the participants were divided into two groups: a short-duration group (0–6 years) and a long-duration group (7–12 years). Adding the time duration variable to the high/low SES division, participants were further partitioned into four subgroups: (1) h-SES & long-duration subgroup, (2) h-SES & short-duration subgroup, (3) l-SES & long-duration subgroup, and (4) l-SES & short-duration subgroup. As shown in Table 4, those who spent more years in English cram-schooling generally outperformed those who had fewer years in the English comprehension test.

Table 4. Outcomes of Concise English Comprehension Test for Four Subgroups Divided by SES and English Cram-schooling Time Duration

SES	Cram schooling duration	n	Vocabulary & Grammar		Reading		Listening		Total score	
			M	SD	M	SD	M	SD	M	SD
h-SES	long	24	5.13	1.36	4.13	1.62	5.79	1.72	15.04	3.14
h-SES	short	16	4.06	1.00	4.31	1.78	5.38	1.50	13.75	2.84
l-SES	long	25	4.76	1.39	4.04	1.34	5.60	1.66	14.4	3.37
l-SES	short	17	4.65	1.62	3.65	1.46	5.29	1.65	13.59	3.04
All participants		82	4.71	1.39	4.04	1.53	5.55	1.63	14.29	3.13

According to the outcomes of the T-test for l-SES learners, there was no difference between long-duration and short-duration subgroups in their English proficiencies in vocabulary & grammar, reading, listening, and total score. Similarly, no statistical significance of the T-test was detected for the long-/short- duration subgroups among the h-SES learners except for the vocabulary & grammar section ($t = -2.675, p < .05$).

The time intensity measure of the English cram schooling was shown by the average hours per week that participants spent in extracurricular English class(es) across the preschool, elementary, and junior high school periods. According to the average hours per week of English cram schooling, the participants were grouped into a low-intensity group (≤ 2 hours) and a high-intensity group (> 2 hours and ≤ 14.33 hours). With the time intensity variable being embedded within the high/low SES division, participants were separated into four subgroups: (1) h-SES & high-intensity subgroup, (2) h-SES & low-intensity subgroup, (3) l-SES & high-intensity subgroup, and (4) l-SES & low-intensity subgroup. Table 5 showed that the high-intensity subgroups performed better on the English comprehension test than their low-intensity counterparts, except for the h-SES pair in the reading section. The results of the T-test showed that the two subgroups in the h-SES and l-SES groupings had no significant difference in their performances of vocabulary & grammar, reading, listening, and total scores.

Table 5. Outcomes of Concise English Comprehension Test for Four Subgroups Divided by SES and English Cram-schooling Time Intensity

SES	Cram schooling intensity	n	Vocabulary & Grammar		Reading		Listening		Total score	
			M	SD	M	SD	M	SD	M	SD
h-SES	high	14	4.93	1.39	4	1.88	5.79	1.81	14.71	3.50
h-SES	low	26	4.58	1.30	4.31	1.57	5.54	1.56	14.42	2.86
l-SES	high	18	4.83	1.34	4.11	1.28	5.83	1.89	14.78	3.41
l-SES	low	24	4.63	1.58	3.71	1.46	5.21	1.41	13.54	3.05
All participants		82	4.71	4.71	1.39	4.04	1.53	5.55	1.63	14.29

According to the outcomes of the Pearson correlation coefficient in Table 6 and Table 7, cram-schooling played a crucial role in the grammatical complexity and accuracy of the written output of the l-SES EFL learners. This was shown in the asymmetrical manifestation between the two subgroups of the l-SES students in the relationship between grammatical complexity and accuracy constructs. In Table 6, the l-SES & short-duration subgroup showed statistical significance in the correlations of MLT – E/TU ($r = 0.643, p < .01$) and C/TU – E/TU ($r = 0.748, p < .01$). However, there was no statistical significance in the l-SES & long-duration counterpart. Similarly, the Pearson correlation results of Table 7 showed that there was statistical significance in the l-SES & low-intensity subgroup (MLT – E/TU: $r = 0.514, p < .05$) and C/TU – E/TU ($r = 0.672, p < .05$), but not in the l-SES & high-intensity counterpart. Because the accuracy measure touched on the number of “errors” per T-unit (E/TU), the positive r values were indicative of negative relationships between grammatical complexity and accuracy constructs. When the students in question wrote sentences of greater grammatical complexity, these sentences contained more errors. On the other hand, students made fewer errors when their sentences had lower grammatical complexity. This suggests the existence of a trade-off effect between grammatical complexity and accuracy measures for the l-SES students who did not have longer and/or more extracurricular English classes.

Table 6. Complexity–Accuracy Correlations for Four Subgroups Divided by SES and Cram-schooling Time Duration

SES	Cram schooling duration	n	<u>Lexical complexity & Accuracy</u>	<u>Grammatical complexity & Accuracy</u>	
			MTLD–E/TU	MLT–E/TU	C/TU–E/TU
h-SES	long	24	-.451*	-.062	-.174
h-SES	short	16	-.454	.074	.287
l-SES	long	25	-.177	-.010	-.281
l-SES	short	17	-.131	.643**	.748**

Note: * $p < 0.05$ level (2-tailed); ** $p < 0.01$ (2-tailed).

Table 7. Complexity–Accuracy Correlations for Four Subgroups Divided by SES and Cram-schooling Time Intensity

SES	Cram schooling intensity	n	<u>Lexical complexity & Accuracy</u>	<u>Grammatical complexity & Accuracy</u>	
			MTLD–E/TU	MLT–E/TU	C/TU–E/TU
h-SES	high	14	-.397*	.18	-.14
h-SES	low	26	-.523*	-.203	.068
l-SES	high	18	-.120	.228	-.165
l-SES	low	24	-.226	.514*	.672*

Note: * $p < 0.05$ level (2-tailed); ** $p < 0.01$ (2-tailed).

However, such a competitive relationship between grammatical complexity and accuracy constructs did not appear in their l-SES counter subgroups who attended longer and/or more extracurricular English classes. Their r values were negative for MLT – E/TU (l-SES & long-duration subgroup: $r = -.010$) and C/TU – E/TU correlations (l-SES & long-duration subgroup: $r = -.281$; l-SES & high-intensity subgroup: $r = -.165$), signifying a positive relationship between grammatical complexity and accuracy measures².

In contrast, both the h-SES and l-SES subgroups seemed to be rather insensitive to the cram-schooling factor for the relationship between lexical complexity and accuracy. As Table 6 and Table 7 illustrated, the r values for the MTL D – E/TU correlation were all negative, either with or without statistical significance, suggesting a positive relationship between lexical complexity and accuracy. To be specific, this showed a general tendency in that the EFL students made fewer errors even when their words were relatively diverse. Nevertheless, the statistical significance was only observed in the h-SES subgroups. In Table 7, both the h-SES subgroups displayed statistical significance for the correlations between lexical complexity and accuracy (h-SES & high-

intensity: $r = -.397, p < 0.05$; h-SES & low-intensity: $r = -.523, p < 0.05$). The significance for the correlations between lexical complexity and accuracy was also found in the h-SES & long-duration ($r = -.451, p < 0.05$). Meanwhile, the same tendency for a positive relationship between lexical complexity and accuracy constructs also occurred in the l-SES subgroups, as evidenced in all the negative r values. However, no statistically significant difference was observed in the l-SES subgroups.

Discussion

The results of this research on L2 writing confirmed the effect of family socioeconomic status (SES) on the writing performances of EFL learners. Overall, the h(igh)-SES learners outperformed the l(ow)-SES ones in the EFL written task performance, confirming the findings of the extant literature for SES and EFL academic achievements/general proficiency. The h-SES group had on average higher scores than the l-SES group in all the four measures of complexity and accuracy on L2 written task performances. Compared with the l-SES learners, the h-SES EFL learners produced relatively diverse words, longer sentences, structurally complex sentences, and fewer errors in the English written texts. Among these measures, the statistically significant difference with a 0.05 level of significance was only observed in the mean length of the T-unit (MLT) of grammatical complexity (see Table 2). Note that this minute difference might be attributed to the limitation of the small-scale sample of this research and the indirect relationship between external factors and L2 language proficiency.

Considering the relationship between lexical/grammatical complexity and accuracy, the outcomes of this study exhibited two contrastive findings for the l-SES group and the h-SES group, respectively. The trade-off effect between grammatical complexity and accuracy was detected in the l-SES EFL learners, but not in the h-SES EFL learners. The trade-off effect was evident since the l-SES group revealed significant negative correlations between grammatical complexity and accuracy, as evidenced in the positive r values on MLT – E/TU and C/TU – E/TU (see Table 3). Meanwhile, the h-SES group showed positive correlations between grammatical complexity and accuracy even though these negative r values on MLT – E/TU and C/TU – E/TU did not achieve statistical significance (see Table 3). As for the relationship between lexical complexity and accuracy, a positive correlation was found in the h-SES group, but not in the l-SES group. The r value for MTLT – E/TU was negative and gained a statistical significance for the h-SES EFL learners, while it was positive for the l-SES one (see Table 3). The findings seem to conform to Skehan's (1998, 2009) limited capacity hypothesis, whereby l-SES EFL learners were restricted to a single-source pool of attention in the relationship between grammatical complexity and accuracy. Meanwhile, it obeys Robinson's (2001, 2003, 2007) cognitive hypothesis, whereby a competitive relationship did not exist between lexical complexity and accuracy for the h-SES EFL learners. A further account can be inferred from this interesting contrast. The family background of EFL learners is not merely related to shaping the input of the target language (Ellis, 1994, pp. 193–195) or affecting learning motivation/attitude (Gardner, 1985, 2007). This contrast between the l-SES and h-SES EFL learners suggests that the cognitive capacity of L2 learners is interrelated with a family's SES and L2 written production. The h-SES EFL learners are suggested to have an edge over the l-SES ones on the family resources involving developing cognitive capacity. This difference is rather comprehensible if we associate it with Bourdieu's (1986) cultural capital. Compared to the l-SES students, the h-SES students comparatively have more cultural capital. Concerning its practices related to EFL writing, they are normally realized through familiarity with the English-speaking culture, a stimulating environment of literacy and writing, extracurricular activities contributing to cognitive development, etc. Nevertheless, to clarify their associations will require careful examination and further research.

The outcomes of this study revealed that cram schooling interacted with SES and complexity–accuracy correlations, especially for the l-SES EFL learners. Our findings showed that the trade-off effect attested in correlations between grammatical complexity and accuracy among l-SES EFL learners was neutralized when the cram-schooling factor was added. Among the l-SES EFL learners, a contrastive relationship was reflected in the complexity–accuracy correlations between the two sets of subgroups differing in their family investment in cram schooling (i.e., long/short duration subgroups and high/low intensity subgroups). The negative relationship between grammatical complexity and accuracy, signified by the apparent positive r values on $MLT - E/TU$ and $C/TU - E/TU$, was observed in the l-SES learners in the short-duration and low-intensity subgroups. This showed that these l-SES EFL learners short on cram-schooling resources were incapable of maintaining higher performances in grammatical complexity and accuracy simultaneously. On the contrary, the correlations between grammatical complexity and accuracy (i.e., $MLT - E/TU$ and $C/TU - E/TU$) turned out to be positive for long-duration and high-intensity counterparts as evidenced by the negative r values except for the $MLT - E/TU$ for the h-SES & high-intensity subgroup (See Table 6 and Table 7). Even though the r values on $MLT - E/TU$ were both positive for high/low intensity subgroups of the l-SES EFL learners, this pair still demonstrated neutralization of the trade-off effect though in a weaker sense, since there was no statistical significance in the high-intensity counterpart. For h-SES students, afterschool supplementary English education does not exert a clear and consistent influence on the complexity and accuracy of EFL writing. This point of view is supported by two pieces of evidence. First, no statistical significance was observed in the correlations between grammatical complexity and accuracy (i.e., $MLT - E/TU$ and $C/TU - E/TU$) for the h-SES EFL learners. Second, there existed a positive relationship between lexical complexity and accuracy as consistently indicated by the negative r values for the long/short duration subgroups and high/low intensity subgroups among the h-SES students. In addition, the statistical significance for $MTLD - E/TU$ appeared in almost all the h-SES subgroups except for the short-duration subgroup.

A number of Taiwanese studies have proven that cram schooling has a positive effect on students' English academic achievement. However, this leaves a knowledge gap as to whether the same positive effect can also apply to EFL writing in an East-Asian educational context especially for the so-called Confucius Cultural Circle. The results of this Taiwanese empirical study can be of some support for this positive influence on l-SES EFL students as evidenced by neutralization of the trade-off effect on the correlation between grammatical complexity and accuracy. Attending English cram school is helpful for the EFL writing of l-SES learners, at least in elevating their English writing skills from failing to maintain high performances on grammatical complexity and accuracy to success. However, this beneficial effect of English cram schooling for the English writing of l-SES EFL learners does not extend to h-SES learners. Instead, compared with l-SES students, h-SES students can generally maintain better English written performances on lexical complexity and accuracy at the same time regardless of the cram-schooling factor. This conformed with J. Liu's (2012) finding in that parents with the highest/lowest education degree tend not to send their children to cram schools. Highly-educated parents, especially stay-at-home mothers, can instruct their children on their own. Therefore, h-SES families abundant in cultural capital can exempt their children from attending English cram schools or refrain from letting them have longer/more after-school English lessons. On the contrary, l-SES students short of family resources rely heavily on the strengthening of English cram schooling. Accordingly, the l-SES students whose families cannot afford the cram-schooling tuition fee manifested a strong trade-off effect on their L2 writing. This dichotomy indirectly shows that the inequality of English education in Taiwan is intrinsically rooted in family SES background.

Conclusion and Implications

The goal of this study is to assess the impact of socioeconomic status (SES) and cram-schooling factors on L2 writing performances for Taiwanese EFL learners. This study adopted a between-group design whereby the written task performances of EFL learners in Taiwan are compared on the basis of two factors: (1) family SES, and (2) the cram-schooling factor assessed by time duration (i.e., average years spent on English cram schooling) and time intensity (i.e., average hours per week spent on English cram schooling). L2 written task performances were evaluated on the lexical/grammatical complexity and accuracy constructs. This empirical study sheds some light on a previously unidentified interaction among SES, cram schooling, and L2 written output. The outcome of this study can be summarized by three major findings along with their implications about English learning studies as well as English teaching education.

First, the h(igh)-SES learners outperformed the l(ow)-SES ones in the EFL written task performance, albeit to a small extent. Despite the research limitation on sample size, this finding still conforms to the previous studies on the association between SES and general EFL proficiency. The finding concerning L2 written production indirectly proved that English educational inequality exists in the EFL educational context of East-Asian countries like Taiwan. Family SES background has a positive relationship with L2 written task performance. The present study aims at raising public attention for the inequality of EFL students' writing development by providing quantitative empirical proof. To enrich the understanding of this issue, researchers might consider carrying out research projects from a different approach, such as a qualitative method or mixed methods, for further study.

Second, l-SES and h-SES EFL learners manifested two contrastive patterns on the correlations between lexical/grammatical complexity and accuracy. With regard to the correlations between grammatical complexity and accuracy, a trade-off effect was observed in l-SES EFL learners, but not in h-SES EFL learners. A positive correlation between lexical complexity and accuracy was attested among h-SES EFL learners only. This contrast between l-SES and h-SES EFL learners suggests that the cognitive capacity of L2 learners is interrelated with family SES background and L2 written production. This empirical finding seems to echo the theoretical accounts of Skehan's (1998, 2009) limited capacity hypothesis and Robinson's (2001, 2003, 2007) cognitive hypothesis, where the differences of cognitive capacity on high-low SES division can be manifested in the correlations between complexity and accuracy. In the TESOL regard, this finding clearly pinpointed where policy-makers of the L2 (English) language education or EFL teachers/practitioners can work to enhance EFL learners' writing skills. Hence, EFL teachers are advised to cooperate in boosting students' cognitive skills in English writing practice. Such cognitive skills could include: attention skills, memory skills, faster processing speed, logic and reasoning skills, task analysis skills, auditory perception skills, and visual processing skills. Why was the trade-off effect manifested in the l-SES EFL learners rather than the h-SES ones? This dichotomy can be well explained by Myles' (2002) account, "Academic writing requires conscious effort and much practice in composing, developing, and analyzing ideas. Students writing in a second language are also faced with social and cognitive challenges related to second language acquisition." In contrast with h-SES EFL learners, l-SES EFL learners are inevitably short in family resources relevant to strengthening quality and quantity of English input and instructors, nurturing positive attitudes towards English writing, receiving more English writing opportunities and sufficient feedback on writing errors, and so on.

Third, the trade-off effect found in l-SES EFL learners was neutralized when the East-Asian contextual feature cram schooling was taken into consideration. But the cram-schooling effect was

not shown to be influential for h-SES EFL learners. This might be ascribed to the higher cultural capital h-SES students possess so that they could receive parental instructions at home and exempt them from attending (more) English cram schools. This finding showed that after-school English classes can help alleviate the EFL writing divergence between complexity and accuracy, which stems from the SES differences in students' family background. However, l-SES and h-SES students cannot equally afford to pay the tuition fees for English cram schooling. In order to diminish the family-rooted inequality on English writing development in the East Asian EFL countries like Taiwan, it is suggested that public schools and non-government organizations in the East-Asian countries could exert their social functions to offer free after-school instructor-led English writing classes and computer/mobile-assisted English writing programs/apps for the l-SES students whose families cannot afford English cram schooling. Regarding how to uplift l-SES students' writing proficiency on complexity and accuracy constructs, EFL instructors are advised to provide feedback in order to encourage students to detect grammatical errors and make self-correction. EFL instructors in a remedial English writing class are suggested to focus on elucidating writing skills involving English structures and correct usage of target vocabulary in sentences. By the end of each class, it would be best for students to have relevant electronic writing assignments in a computer-networked environment. Once the students finish their writing assignments, they can receive their English correction feedback immediately from a computer/mobile-assisted program/app. Meanwhile they can also email their problems directly to the instructors if they do not understand the feedback generated by a computer program or a mobile app. If the new technology is appropriately utilized in an EFL educational context, it can be a powerful tool to mend the gap between the rich and the poor in the EFL educational inequality in East Asia.

Notes

[1] These regions are also known as the so-called "East Asian Cultural Sphere," where one finds the influence of Confucian ethical philosophy, Buddhism, Taoism, and the writing systems using Chinese characters (cf. Sun, 2002; Wang, 2002). [[back](#)]

[2] J. Liu's (2012) study disagreed with the stratification effect on cram schooling based on the phenomenon that the parents with the highest and the lowest education levels were both less likely to let their children receive cram schooling. However, if examining this research carefully, the highest educated parents with postgraduate degrees had an extremely small share (3.4%) in the sample. Other than the extreme case for the parents with highest education, his statistical outcomes still revealed that children's cram schooling participation decreased along with their parental education level from college down to elementary school. Accordingly, the positive association between parental educational level and children's cram schooling may still hold. [[back](#)]

[3] Shih Hsin University has been adopting three pathways to recruit students. The first pathway is the so-called "Star Plan." This pathway allows high schools to recommend outstanding students, especially in rural or remote areas, to apply to suitable universities. The second pathway is referred to as the "Individual Application for Admission." Students can send out submissions for desirable programs on their own. The third pathway, "Entrance Examination," requires students to take the exam for later admission by placement. The three-pathway entrance leads to English majors at this university being diverse in their family backgrounds, cram-schooling experiences, and English proficiencies. [[back](#)]

[4] According to the outcomes of the concise English comprehension test, the participants demonstrated a great diversity on their English proficiencies. For example, their total scores for the 26 questions ranged from 7 to 21 ($M= 14.29$, $SD=3.133$). [[back](#)]

[5] The questions relevant to participants' experiences on English cram schooling are as follows:

Have you ever attended English cram schools before going to college? Please check the appropriate box below and specify your answer. [[back](#)]

[6] As required by the official ethical regulations, the informed consent form provided specific information about this research project, including research title, researcher's contact information, research goal, participant requirements and restrictions, research methods and procedures, research potential risks, research benefits to the participants and the society, research record retention period, data application and confidentiality, participant's withdrawal method, and researcher's signature. [[back](#)]

[7] Since Skehan & Poster's (1997) pioneering finding, planning time has been recognized to be influential on L2 task-based performance in the SLA literature. The subjects were not given any pre-task planning time in order to avoid its interference. [[back](#)]

[8] Pearson correlation coefficient (denoted by r) is a measure of the strength and association between two variables. An r value ranges from +1 to -1, where a positive r value stands for a positive linear correlation and a negative r signals a negative linear correlation. Thus, it is commonly utilized to examine the trade-off effect on L2 output in the existing literature (e.g., Biria & Liaghat, 2018; Tabari, 2017; Vercellotti, 2012; etc.) [[back](#)]

[9] Differing from the three negative values, the r value for the MLT – E/TU correlation was positive ($r = .228$) in the l-SES & high-intensity subgroup. This seemed to be an exception to the positive relationship between grammatical complexity and accuracy measures. However, it showed no statistical significance. [[back](#)]

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