# EFL LEARNERS' MOTIVATIONAL BEHAVIOR: A COMPARISON ACROSS TEN GRADE LEVELS

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## ABSTRACT

**Purpose –** Given the research gaps identified in a literature review, this study aims to uncover how the intensity of learners' motivational behavior and its predictors vary with grade level.

**Methodology –** A large-scale survey was conducted to examine motivational behavior and its predictors among EFL learners across three education levels and ten grades in Taiwan: primary school (Grades 3 to 6), junior high school (Grades 7 to 9), and senior high school (Grades 10 to 12). A total of 12,441 valid cases were collected from both rural and urban areas in Taiwan. ANOVA and multiple regression analysis were used to analyze the data.

**Findings –** The results showed a significant effect of grade level on the intensity of motivational behavior. Specifically, learners' intensity of motivational behavior tended to decline with grade level (years of study). The significant predictors of motivational behavior also differed with grade level.

**Significance –** In addition to theoretical and methodological contributions to L2 motivation research, this study can enhance understanding of factors that could enhance learners' motivational behavior and offer implications to assist EFL teachers in developing motivational teaching strategies.

**Keywords:** Language learning motivation, motivational behavior, EFL, age effect.

## INTRODUCTION

Motivation has long been recognized as an important factor in every aspect of learning, including second language (L2) learning. Motivation can affect what students learn, how they learn, and how well they learn (Schunk et al., 2014). Building upon this understanding of motivation in language learning, it is essential to explore how motivation impact learners' behaviors and outcomes. When motivated, students are more likely to engage in the learning process, persevere despite difficulties, dedicate longer time on-task, exert more effort (Liem, 2021), and employ self-regulatory strategies to help themselves learn (Ellis, 2015). Motivated learners also tend to display interest in learning activities, have confidence in themselves, work industriously, and perform well (Schunk et al., 2014). Educators generally believe that high motivation is related to learning success. Previous L2 studies also found a significant positive correlation between language learning motivation and L2 proficiency or achievement (Gardner, 2007; Moskovsky et al., 2016; refer also to the meta-analysis by Masgoret & Gardner, 2003). Given the importance of motivation in L2 learning, it is imperative to understand what contributes to or can predict language learning motivation.

Numerous research efforts have been devoted to understanding the antecedents or predictors of language learning motivation (Gardner, 2007; Kormos & Csizér, 2008; Lamb, 2012). However, few L2 studies have specifically investigated the motivation of pre-secondary students (Al-Hoorie, 2018; Boo et al., 2015; Mahmoodi & Yousefi, 2022). Even fewer studies have addressed the issue across different age groups, despite suggestions from literature in general education (Jozsa & Morgan, 2014) indicating potential age differences. This study addresses these research gaps by comparing

students' L2 English learning motivational behavior across ten grade levels (i.e., from Grade 3 to Grade 12), covering an unprecedented range of age groups, including the under-researched pre-secondary students, within an English-as-a-Foreign-Language (EFL) context. Additionally, the study explores significant predictors for motivational behavior, including those potential yet under-explored predictors, across different grade levels. By doing so, the current study adds new knowledge to the L2 motivation field by illuminating the most crucial factors in learners' motivational behavior across age groups and revealing how motivational behavior and its predictors vary with different age groups. In addition to theoretical values, the findings offer implications for EFL teachers to develop motivational teaching strategies.

## LITERATURE REVIEW

Motivation is a vibrant research topic in L2 research, with various theoretical approaches proposed to explain individuals' motivation to learn an L2. Some prominent approaches include the socio-educational model of second language acquisition (Gardner, 1985, 2010), the L2 Motivational Self System (L2MSS; Dörnyei, 2005, 2009), and the self-determination approach (Noels et al., 2000).

Gardner's socio-educational model holds particular significance in L2 motivation research. It represents the emergence of the first theoretical framework specifically designed to explain L2 learning motivation. Gardner's work redirects attention from ability factors to affective factors as crucial determinants of L2 achievement. This model dominated L2 research for decades particularly from the 1960s to 1990s. It also demonstrates "forward-pointing capabilities" by highlighting the close link between language learning and identity long before this concept became mainstream (Claro, 2019). Moreover, Gardner's motivation theory has influenced the development of contemporary L2 motivation theories. For instance, when Noels and colleagues (e.g., Noels, 2001; Noels et al., 2019) applied Deci and Ryan's (1985) self-determination theory to conceptualize L2 motivation, they followed Gardner's work. They defined different forms of "regulation" in Deci and Ryan's framework as "orientations." Intrinsic and extrinsic "motivations" are referred to as intrinsic and extrinsic "orientations" representing classes of reasons.

Even the L2MSS, the most common framework applied in L2 motivation studies since 2005 (Boo et al., 2015; Mahmoodi & Yousefi, 2022), "directly evolved from Gardner's theory" (Dörnyei, 2019, p. xx). The three constructs in L2MSS—*Ideal L2 Self*, *Ought-to L2 Self*, and *L2 Learning Experience*— closely correspond to three dimensions in Gardner's motivation theory: *Integrativeness*, *Instrumentality*, and *Attitudes Toward the Learning Situation* (Dörnyei, 2009). However, despite its popularity, the L2MSS may not be deemed appropriate for investigating pre-secondary students. According to (Dörnyei, 2009, p. 38), "the stable ideal-self representations do not emerge before adolescence, and neither can younger children consider multiple perspectives on themselves, most notably the ought-self projected by significant others". Therefore, this study involved pre-secondary students, Gardner's socio-educational model is considered an ideal framework to draw upon compared to the L2MSS.

**Socio-educational Model of Language Learning**

The socio-educational model conceives L2 learning as a dynamic and "ever-continuing process" involving the interplay of four classes of variables: the sociocultural milieu, individual difference variables (including intelligence quotient (IQ), language aptitude test scores, motivational factors, and anxiety levels), language learning contexts (formal and informal), and outcomes (linguistic and non-linguistic) (Gardner, 1985, p. 150). Motivation and its role in L2 learning constitute the model's primary focus. Gardner's model has undergone some revisions to incorporate new understanding. A more recent model proposes that motivation to learn an L2 is influenced by three variables: *integrativeness*, *attitudes toward the learning situation*, and *language anxiety.* These variables then mediate the influence of these variables on achievement in L2 (Gardner, 2019).

Despite revisions, *attitudes toward the learning situation*, *integrativenes*, and *motivation* remain the central constructs in Gardner's model. As Gardner's model mainly concerns learning L2 in the school context, *attitudes toward the learning situation* could involve attitudes toward any aspect of the formal learning situation, such as the teacher, the classmates, the course materials, and the learning activities. In the socio-educational model, the *attitudes* construct only taps into learners' evaluation of two aspects of the learning situation: the teacher and the course.

*Integrativeness* is a unique construct in Gardner's motivation theory. Before 1974, *integrativeness* was viewed as "a genuine interest in learning the other language in order to become closer psychologically to the other language community;" it was later expanded, to refer to "openness to other cultural groups in general and a willingness or ability to adopt the features of the other language group" (Gardner, 2010, p. 85). The socio-educational model postulates that *integrativeness* comprises three elements: an integrative orientation to learning the L2, an interest in foreign languages (or an openness to other groups in general and an absence of ethnocentrism), and a favorable attitude toward the L2 community (Gardner, 2010; Gardner, 2019). Among the three elements, integrative orientation is a well-known concept associated with Gardner's theory. L2 scholars and educators are strongly drawn to the distinction between integrative and instrumental orientations made by Gardner and his associates. This has led to a widespread "reductive misinterpretation of Gardner's theory as the sum of integrative and instrumental motivation" (Dörnyei & Ryan, 2015, p.76).

Gardner differentiates orientation from motivation. He defines an orientation as "a collection of reasons that reflect common or conceptually similar goals" (Gardner, 2001b, p.10), while motivation is defined as the driving force (Gardner, 2001a, p. 6). Integrative orientation refers to a set of reasons that reflect "an interest in integration with (or specifically in becoming closer psychologically to) the group who speaks the [target] language" (Gardner, 2001b, p. 10), while instrumental orientation reflects "an interest in learning the language for pragmatic reasons" (Gardner, 2001a, p. 8). The former suggests learning another language to communicate with people speaking that language for social purposes, while the latter emphasizes learning the language for some practical gain (Gardner, 2010). While the socio-educational model stresses the importance of integrative motivation (a complex consisting of *integrativeness*, *attitudes toward the learning situation*, and *motivation*), Gardner and his colleagues do not see integrative motivation or integrative orientation as paramount (Gardner & Tremblay, 1994). They recognize that other types of orientations (e.g., instrumental orientation) or other factors can also be linked with heightened motivation (Gardner, 2001a).

*Motivation* is the cornerstone of the socio-educational model (Gardner & Tremblay, 1994). Gardner emphasizes that orientations (reasons for

studying L2) per se are not directly associated with L2 achievement, but *motivation* can directly affect learning outcomes. In most cases, Gardner and his colleagues view motivation as a complex comprising three components: the desire to learn the language, favorable attitudes toward learning the language, and motivational intensity, i.e., the effort expended to learn the language (Gardner, 2019). These three components respectively tap into the cognitive, affective, and behavioral aspects of motivation (Gardner, 2007, p.15)

The socio-educational model was initially developed to explain learning French as L2 at school in Canada, a second language learning context with a distinguishable L2 community. Some L2 researchers, (e.g., Dörnyei, 2005; Kormos & Csizér, 2008; Lamb, 2004) thus questioned the relevance and explanatory power of the model's concepts in other contexts. In the early 1990s, several scholars expressed concerns that Gardner's theory had limited the investigations of alternative concepts and called for expanding the research agenda to align with motivational theories from general psychology or educational psychology (e.g., Crookes & Schmidt, 1991; Dörnyei, 1994; Oxford & Shearin, 1994). These doubts and calls have opened L2 motivation research to new theoretical frameworks and methodological approaches. At the same time, recent studies continued to prove that Gardner's theory is relevant and useful not only in second and foreign language (or ESL and EFL/English as a global language) learning contexts (Gardner, 2010; Oakes & Howard, 2022; Gearing & Roger, 2019; Rock et al., 2021). It is also applicable in bilingual/multilingual contexts (Calafato, 2021; Nicol & De France, 2020). Dörnyei (2019) acknowledged that Gardner's motivation theory is important and "cannot be ignored in contemporary theory building" (p. xxi) even though earlier he (e.g., Dörnyei, 1994, 2005) had expressed grave criticisms and objections against it.

**Motivational Behavior as the Criterion Variable**

Motivation researchers have long been captivated by the connection between motivation, and learning achievement. Considerable L2 studies have examined the relationship between language learning motivation and achievement. They often use performance or achievement measures (e.g., course grades or language test scores) as the criterion variable (refer to the meta-analysis by Masgoret & Gardner, 2003). Recently, L2 motivation researchers, particularly

those adopting the L2MSS framework, are increasingly inclined to utilize a behavioral measure (called "intended effort," "intended learning effort," or "motivated learning behavior"), as the criterion or dependent variable (refer to the meta-analysis by Al-Hoorie, 2018).

Al-Hoorie (2016) attributes this tendency to Dörnyei and his associates. They argued that motivation "is the antecedent of *action* rather than achievement" (Dörnyei, 2001, p. 198, original emphasis). It can explain "why people behave as they do rather than how successful their behavior will be" (Csizér & Dörnyei, 2005, p. 20). In other words, the relationship between motivation and achievement is assumed to be indirect and mediated by behavior, and many other factors (e.g., learner ability or teaching quality). Csizér and Dörnyei (2005) gave an extreme, hypothetical example to illustrate their point: Students may fail to learn anything even though they pursue a learning task enthusiastically because the instructional activity is inadequate. In this case, the expected significant correlation between motivation and achievement will not be obtained. Dörnyei (2001) cautioned that it is wrong to interpret the absence of a significant correlation, as indicating a lack of motivational impact on achievement. The results may be due to using a wrong criterion measure (i.e., L2 achievement); the expected correlation is based on a false assumption of a direct cause-effect link between motivation and learning outcomes.

Dörnyei (2005) depicted the relationship between motivation, learning behavior, and achievement as a *motivatio*n " *behavior* " *outcome* chain (p. 71). He went further to recommend using behavioral measures (e.g., language choice, course attendance, and task engagement) as the criterion or dependent variable in studies on the impact of motivational variables, such as motives (i.e., orientations in Gardner's theory) (Dörnyei, 2001). According to Dörnyei and Kormos (2000), analyzing the influence of motivational variables on learning behaviors would provide more reliable and valid estimates of motivation's impacts on L2 learning than examining the direct relationships between motivation and achievement.

Dörnyei's notion regarding the *motivatio*n-*behavior*-*outcome* chain, is consistent with Gardner's theory. As reviewed, Gardner (2019) proposes that motivational/attitudinal factors—*integrativeness* (which comprises integrative orientation), *attitudes toward the learning situation*, and *language anxiety*—can influence *motivation*.

This, in turn, affects L2 achievement. That is, *motivation* mediates the effects of other motivational/attitudinal variables and has a direct effect on learning outcomes. *Motivation* in Gardner's model subsumes a behavioral construct, *motivational intensity*, which is defined as efforts expended to learn the language. *Motivational intensity* in Gardner's socio-educational model is similar to the behavioral criterion, *intended effort* or *motivated learning behavior*, commonly used in L2MSS studies. L2MSS researchers define *intended effort* as "the amount of effort the student was willing to put into learning" (Csizér & Dörnyei, 2005, p. 23) and *motivated learning behavior* as "students' efforts and persistence in learning English" (Kormos & Csizér, 2008, p.336).

Despite the similarity between the two behavioral constructs, meta-analysis research reveals that *motivation* in Gardner's model showed significant correlations with learning achievement, with *r*s ranging from .29 to .39 (Masgoret & Gardner, 2003), whereas *intended effort* in the L2MSS was not significantly correlated to achievement (Al-Hoorie, 2018). Al-Hoorie (2018) concluded that "Intended effort does not seem to qualify as a representative of the 'behavior' piece of the chain" and called for a theoretical clarification for using it as an outcome measure" (p. 741). Given the stronger association between Gardner's construct and L2 achievement, this study followed Gardner's work and adopted the expanded conceptualization of motivational behavior proposed by Tremblay and Gardner (1995). To expand their theoretical framework, Tremblay and Gardner (1995) added *persistence* and *attention* to the original *motivational intensity* construct to form a construct of *motivational behavior*. Tremblay and Gardner's (1995) conceptualization of *motivational behavior* seems to capture the characteristics of a motivated learner more comprehensively. It was used as the criterion variable in the current study.

## THE STUDY

As discussed in previous sections, scant research investigated the motivational behavior of pre-secondary students (Al-Hoorie, 2018; Boo et al., 2015; Mahmoodi & Yousefi, 2022), let alone the predictors of their motivational behavior. Limited research has also examined the potential effects of age. This study filled the research

gaps by exploring motivational behavior and its predictors across ten grade levels (including pre-secondary students). The study drew upon concepts from Gardner's theory alongside other motivational constructs to provide a more comprehensive understanding of the forces influencing students' motivational behavior. Nine social and psychological variables were chosen to test their predictability for motivational behavior. These include socio-economic status, (supportive) classroom climate, English learning self-efficacy, English class anxiety, and five motivational orientations. They have all been reported to be related to motivation in previous literature, either empirically or theoretically.

Previous studies have often included English learning self-efficacy, English class anxiety, and motivational orientations as antecedents of motivation (Gardner, 2019; Tremblay & Gardner, 1995). The five orientations for language learning include integrative orientation, instrumental orientation, intrinsic orientation, extrinsic orientation, and required orientation. As reviewed, the first four types of orientations are commonly discussed in L2 motivational studies. Required orientation, also known as *Chinese Imperative*, is unique in that it was proposed to reflect "the emphasis on requirements that are internalized within the culturally specific context" of Taiwan or, more broadly, the Chinese/Confucian culture (Chen et al., 2005, p. 623). Chen et al. (2005) claimed that this motivational orientation is rooted in the traditional Chinese culture that emphasizes exam results and equates personal success on high-stakes exams (or personal achievement) with the success of the family or clan. The greater importance of required orientation than other orientations in Chinese/ Confucian culture is attested in Chen et al.'s (2005) and Hennebry and Gao's (2018) studies on Taiwanese adult learners and secondary school students in Hong Kong, respectively.

Classroom climate and socioeconomic status (SES) are two under-researched factors in L2 motivation studies. However, much educational research has indicated that both factors are associated with learning motivation. Regarding classroom climate, Wang et al.'s (2020) systematic review and meta-analysis of studies in education confirmed that classroom climate was significantly related to learning motivation and engagement ($r = .25$). Theoretically, Noels et al.'s (2019) L2 motivation theory grounded in self-determination theory explicitly posits that support from significant others (e.g., family,

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teachers, L2 community, and others) is an antecedent of academic engagement. This includes behavioral engagement, which is similar to Gardner's concept of *Motivational Intensity*. As for SES, OECD's (2020) report on PISA results demonstrates that SES is strongly related to students' academic success. The few L2 studies examining parental SES on L2 learning further revealed that SES had significant effects on L2 motivational orientations (Iwaniec, 2020; Kormos & Kiddle, 2013) and motivated behavior (Kormos & Kiddle, 2013).

Another aspect this study aimed to investigate is the effect of age on motivation. When searching the literature for a meta-analysis, Al-Hoorie (2018) found that few recent L2 motivation studies explored age effects. Nevertheless, previous studies suggested that the relationships between motivational variables (Kormos & Csizér, 2008) and the reasons for learners to learn English as a foreign language (Nikolov, 1999) varied with different age groups. Studies have also revealed age differences in motivation (Gardner, 1985; MacIntyre et al., 2003; Williams et al., 2002). In light of the potential effects of age on motivational behavior and its predictors, the current study collected data from students across ten grade levels, including primary and secondary school students.

To sum up, the objective of this study was to uncover significant predictors of motivational behavior and explore how students' motivational behavior and its predictors varied with grade levels (age groups). Specifically, two research questions were addressed:

1.  Is there any significant difference in English learning motivational behavior among students of different grade levels?
2.  What social and psychological variables significantly predict learners' motivational behavior across different grade levels?

## METHODOLOGY

This study adopted a survey research design, a popular methodology in many fields. A survey study often involves administering structured questionnaires to respondents to gather quantitative data, that can be analyzed to draw conclusions and make inferences about the broader population. The survey can be cross-sectional (i.e., collecting data at a single time from different individuals or groups within a population) or longitudinal (i.e., collecting data from the same individuals or groups

over several time points). This study conducted a cross-sectional survey to collect data through a questionnaire (refer to the Instruments section for the questionnaire content and the Participants section for the procedure of recruiting participants). The data were analyzed using IBM SPSS Statistics 28.0 to answer the research questions.

**The Context**

This study was conducted in Taiwan, an EFL context. Education is compulsory for learners, aged 7 to 18 (Grades 1 to 12). The compulsory education is divided into three phases: a six-year primary school (Grades 1 to 6), a three-year junior high (Grades 7 to 9), and a three-year senior high (Grades 10 to 12) school. Children are admitted to primary and junior high schools mainly based on their permanent residence. Admission to senior high schools and universities depends highly on students' performance in national entrance exams.

English is taught as a required subject from Grades 3 to 12 (aged 9 to 18) and tested on the high-stakes entrance exams. Taiwan is characterized by a test-oriented culture, which highly values students' test performance and academic achievement. The most common teaching approach in English classes is teacher-centered. Most lessons center on the knowledge and skills tested on the entrance exams: grammar, vocabulary, reading comprehension, and listening comprehension.

**Participants**

To obtain a more representative sample, stratified convenience sampling was conducted to recruit students from Grades 3 to 12 across Taiwan. The stratification used was geographical region (northern vs. southern Taiwan) and district levels (rural vs. urban). Through referrals of acquainted school teachers, and a snowball sampling procedure, the researcher invited teachers at various schools that met the stratification criterion for assistance. Printed copies of questionnaires and an administration manual were mailed to teachers who agreed to administer the questionnaire to their students at their available time. Informed consent was sought from the homeroom or classroom teachers and the students. Before the questionnaire was administered, students were informed of the research purpose. They were ensured that the survey was anonymous, that their participation was completely voluntary and would not influence their course grades, and that they could withdraw at any time.

After the questionnaires were mailed back, research assistants checked the returned questionnaires. Before keying data, they removed those containing "straight line" responses, indicating poor response quality (Kim et al., 2019). Based on the results of the Missing Value Analysis in SPSS, cases with a high percentage of missing responses (50% or more) were deleted, as suggested by Hair et al. (2014). The final data comprised 12,441 cases. Missing values were imputed using the EM approach (full information maximum likelihood estimates), a model-based method. According to Hair et al., the EM approach can accommodate nonrandom and random missing data processes. It also yields consistent estimates and unbiased results.

The final data set comprised a similar percentage of cases from northern and southern Taiwan ($n = 6105$; 49.1% vs. $n = 6336$; 50.9%); a somewhat higher percentage of cases were from the rural areas ($n = 6695$; 53.8%) than the urban areas ($n = 5746$; 46.2%). Because more young participants produced a high percentage of missing responses and were thus removed, the sample size for each grade level at the primary schools was smaller than that at the high schools (refer to the $N$ in Table 1).

**Instrument**

The questionnaire used in this study is written in Chinese and contains three sections. The first section inquires about the participants' background information. Items on socio-economic status are also included. The second section contains measures of English learning motivation, including motivational behavior and English learning orientations. The third section comprises measures of other potential predictors of motivational behavior: English classroom anxiety, English learning self-efficacy, and supportive classroom climate. Except for socio-economic status, the other variables under study were measured using a four-point Likert scale, with the following response anchors: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. The questionnaire was pilot-tested with 63 primary school students (Grades 3 to 6) to ensure that young learners had no difficulty comprehending and responding to the questions.

***Measure of Socio-economic Status (SES)***

The SES of the participants' family was assessed using Lin's (2005) modification of the Hollingshead (1957) two-factor index of social

position, a weighted average of parental education attainment and occupational status, with occupation being given more weight than education. Hollingshead's index is one of the most common objective measures of SES (Qian et al., 2014). Lin (2005), considered Taiwan's social context in classifying and ranking education levels and occupational groups. Reported parental education attainment was coded with a five-point scale: 1 = postgraduate and beyond; 2 = university or junior college; 3 = junior high or senior high school; 4 = primary school or literate without schooling; 5 = illiterate. Reported parental occupations were also coded using a five-point scale: 1 = high-level professionals or executives (e.g., university principals, professors, doctors, etc.); 2 = professionals or mid-level executives (e.g., principals or teachers of primary and high schools, lawyers, engineers, etc.); 3 = semi-professionals or general public servants (e.g., county councilors, police officers, secretaries, wholesalers, etc.); 4 = skilled workers (e.g., barbers, drivers, tailors, cooks, etc.); 5 = unskilled workers (e.g., homemakers, guards, waiters/waitresses, etc.). For ease of interpretation, different from Hollingshead's original system, where a higher score represents lower SES. Reverse-scoring was applied in this study so that a higher score represents higher SES. When both parents' occupation and education levels were reported, the higher score was included in the computation of the SES score using the following formula: Education score × 4 + Occupation score × 7. The potential range of SES was from 11 to 55.

### *Measures of English Learning Motivation*

This study adopted six measures of English learning motivation developed by Kan (2005), who investigated Taiwanese students' motivation among primary and junior high school students in two cities. In developing the questionnaire items, Kan drew on relevant theories and previously validated measurement instruments (e.g., the AMTB) and conducted a preliminary survey with 353 primary and junior high school students to gather data on their reasons for learning English. The results were then used to modify and adapt items used in previous studies for assessing L2 learning orientations.

**Measure of Motivational Behavior**. This scale comprised 13 items (10 positively and 3 negatively worded items). Seven items were adapted from the motivational intensity scale of Gardner's (1985) AMTB to measure *effort* (e.g., "After I get my English assignments back, I always rewrite them, correcting my mistakes"). Three items

were designed to measure *attention* (e.g., "I am very attentive in English classes"), and another three for measuring *persistence* (e.g., "If English is not taught in school anymore, I will continue learning English somewhere else"). After reversing negatively worded items, a high score indicates highly motivated behavior.

**Measures of Orientations for Learning English.** Five measures were used to assess the participants' orientations (reasons) for learning English: integrative, instrumental, intrinsic, extrinsic, and required orientations. A high score on each measure indicates a high level of that particular learning orientation.

*Integrative Orientation*. This measure contains four items concerning reasons that suggest a learner's desire or willingness to learn about or interact with people speaking the target language (e.g., "I learn English because I want to make friends and chat with English-speaking foreigners").

*Instrumental Orientation*. This measure comprises five items related to pragmatic reasons for learning English (e.g., "I learn English because I'll need it for my future career").

*Intrinsic Orientation*. This measure comprises 11 items that assess three sub-types of reasons for learning English: learning for *stimulation* (3 items; e.g., "I learn English for the 'high' feeling I experience while speaking English"), *accomplishment* (5 items; e.g., "I learn English for the pleasure I experience when surpassing myself in my English studies"), and *knowledge* (3 items; e.g., "I learn English for the satisfied feeling I get in finding out new things and acquiring new knowledge").

*Extrinsic Orientation*. This measure includes 15 items for assessing three types of regulation: *identified* (4 items; e.g., "I learn English because I want to be the kind of person who can speak English"), *introjected* (7 items; e.g., "English is widely used in daily life. I learn English because I would feel guilty if I don't know English") and *external* (4 items; e.g., "I learn English because I have the impression that everyone expects me to learn it").

*Required Orientation*. This measure contains five items that reflect learning English to fulfill imposed learning requirements (e.g., "I learn English because it is a required subject in the school curriculum").

### *Measure of English Class Anxiety*

A brief 5-item measure adapted from Horwitz et al.'s (1986), 33-item Foreign Language Classroom Anxiety Scale was used to assess English class anxiety (e.g., "I feel nervous when I know that I'm going to be called on in English class"). These items have been successfully administered to Taiwanese young learners in Wu (2004).

### *Measure of English Learning Self-efficacy*

This measure contains three items taken from Wu's (2004) measure of English learning attitude, which consisted of 11 items on students' confidence in learning English (e.g., "I believe that I can learn English well").

### *Measure of Supportive English Classroom Climate*

A measure of supportive English classroom climate was adapted from Chang and Lin's (2001) Classroom Climate Inventory to assess the extent to which learners gain support in English classes, with four items on teacher support (e.g., "I feel that English teachers at my school will try every means to help us learn English well") and three items on peer support (e.g., "In my English class, my classmates usually help each other learn English").

Cronbach's alpha was calculated to estimate the internal reliability of the above social and psychological measures except for socio-economic status. The coefficients were all above the threshold of .70, (ranging from .70 to .95) which is considered acceptable for internal reliability.

## RESULTS

### *RQ1: Is there any significant difference in English learning motivational behavior among students of different grade levels?*

To address the first research question, the means of motivational behavior for each grade level were first calculated. Table 1 shows that the means for primary school students all exceeded 2.5 on a 4-point Likert Scale, suggesting a moderate to strong level of motivational behavior in English learning. However, from junior high school

onward, the means were at or below 2.5, implying moderate to weak motivational behavior.

**Table 1**

*Descriptive Statistics of Motivational Behavior by Grade Level*

| Education Level | Grade Level | N | Mean | SD |
|---|---|---|---|---|
| **Primary School** | **Grade 3** | 983 | 2.86 | 0.57 |
| | **Grade 4** | 1,036 | 2.80 | 0.61 |
| | **Grade 5** | 1,054 | 2.62 | 0.62 |
| | **Grade 6** | 1,083 | 2.54 | 0.59 |
| **Junior High School** | **Grade 7** | 1,171 | 2.50 | 0.54 |
| | **Grade 8** | 1,148 | 2.37 | 0.58 |
| | **Grade 9** | 1,270 | 2.30 | 0.58 |
| **Senior High School** | **Grade 10** | 1,609 | 2.50 | 0.51 |
| | **Grade 11** | 1,566 | 2.44 | 0.50 |
| | **Grade 12** | 1,521 | 2.44 | 0.53 |
| **Total** | | 12,441 | 2.52 | 0.58 |

The results reveal a trend where motivational behavior declined with years of study in a row, from Grades 3 to 9, with the ninth graders showing the lowest level of motivational behavior and then slightly bouncing up at Grade 10 (by 0.20), followed by a minor drop (see Figure 1).

**Figure 1**

*Motivational Behavior by Grade Level*



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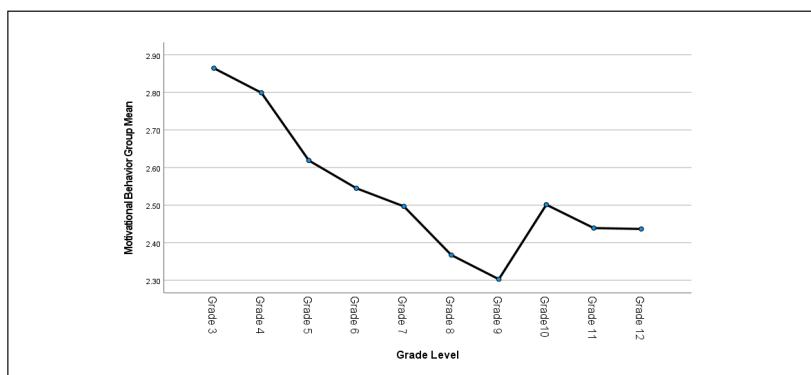
To examine whether the difference in motivational behavior among students at different grade levels was significant, a one-way analysis of variance (ANOVA) was conducted. As Levene's test was statistically significant ($F(9, 12431) = 17.68$, p < .001), the homogeneity of variance hypothesis was rejected. ANOVA with the Welch test (a robust test of equality of means) was conducted. A significant result was obtained ($F_{Welch\ (9,\ 4852.025)} = 104.74, p < .001$), indicating an overall significant medium effect of grade level ($\eta2 = 0.08$). The Games-Howell post-hoc test, which does not require homogeneity, was applied to scrutinize further whether statistically significant differences existed between groups. Table 2 summarizes the results. Given the large number of comparisons involved, a Bonferroni-adjusted alpha level of .001 (.05/45) was used to determine significance. The results reveal that, except for the sixth graders, primary school students had a significantly higher level of motivational behavior than students at junior high school (Grades 7 to 9) and senior high school (Grades 10 to 12). As for the sixth graders, their motivational behavior was significantly higher than that of high school students, except for the seventh and tenth graders (i.e., the first-year students at junior high and senior high, respectively). Among the primary school students, students in the higher grades (Grades 5 and 6) showed significantly weaker motivational behavior than those in the lower grades (Grades 3 and 4).

**Table 2**

*Results of Games-Howell Post-hoc Test of Motivational Behavior by Grade*

| (I) Grade | (J) Grade | Mean Difference (I-J) |
|---|---|---|
| Grade 3 | Grade 4 | 0.065 |
| | Grade 5 | 0.246*** |
| | Grade 6 | 0.320*** |
| | Grade 7 | 0.368*** |
| | Grade 8 | 0.497*** |
| | Grade 9 | 0.562*** |
| | Grade 10 | 0.363*** |
| | Grade 11 | 0.426*** |
| | Grade 12 | 0.428*** |
| Grade 4 | Grade 5 | 0.180*** |
| | Grade 6 | 0.254*** |

(continued)

| (I) Grade | (J) Grade | Mean Difference (I-J) |
|---|---|---|
| | Grade 7 | 0.302*** |
| | Grade 8 | 0.432*** |
| | Grade 9 | 0.496*** |
| | Grade 10 | 0.298*** |
| | Grade 11 | 0.360*** |
| | Grade 12 | 0.363*** |
| Grade 5 | Grade 6 | 0.074 |
| | Grade 7 | 0.122*** |
| | Grade 8 | 0.252*** |
| | Grade 9 | 0.316*** |
| | Grade 10 | 0.118*** |
| | Grade 11 | 0.180*** |
| | Grade 12 | 0.182*** |
| Grade 6 | Grade 7 | 0.048 |
| | Grade 8 | 0.178*** |
| | Grade 9 | 0.242*** |
| | Grade 10 | 0.044 |
| | Grade 11 | 0.106*** |
| | Grade 12 | 0.108*** |
| Grade 7 | Grade 8 | 0.130*** |
| | Grade 9 | 0.194*** |
| | Grade 10 | -0.004 |
| | Grade 11 | 0.058 |
| | Grade 12 | 0.060 |
| Grade 8 | Grade 9 | 0.064 |
| | Grade 10 | -0.134*** |
| | Grade 11 | -0.072 |
| | Grade 12 | -0.069 |
| Grade 9 | Grade 10 | -0.198*** |
| | Grade 11 | -0.136*** |
| | Grade 12 | -0.134*** |
| Grade 10 | Grade 11 | 0.062 |
| | Grade 12 | 0.065 |
| Grade 11 | Grade 12 | 0.002 |

*Note.* *** < .001

Among the junior high school students, although Grade 9 students did not differ significantly from Grade 8 students in motivational behavior, their level of motivational behavior was significantly lower than that of students at all other grades, including primary school students and senior high school students. This finding is noteworthy

because Grade 9 students in Taiwan face the first high-stakes entrance exam in their lives, which would determine admission to a senior high school of their choice. Instead of elevating motivational behavior, the impending high-stakes exam seemed to diminish students' motivational behavior.

After a continuous decline in motivational behavior from Grades 3 to 9, Grade 10 students at the senior high school exhibited a slight increase in motivational behavior (by 0.2). Grade 10 students showed significantly stronger motivational behavior than students in Grades 8 and 9 at junior high school. However, their motivational behavior was still significantly weaker than that of most primary school students. The senior high school students surveyed in this study came from general senior high schools with higher academic admission requirements than vocational senior high schools, which focus more on vocational training. The tenth graders could thus be seen as higher-tracked junior high school graduates. In this vein, it seems reasonable for Grade 10 students in this study to show a higher level of motivational behavior than the last two years of junior high school students. Nevertheless, senior high school students' motivational behavior slightly declined with years of study. Similar to the ninth graders, the approach of another high-stakes entrance exam for Taiwanese students in Grade 12 did not lift students' motivational behavior.

### RQ2: What social and psychological variables significantly predict learners' motivational behavior across different grade levels?

To answer this question, a simultaneous multiple regression (enter method) was performed to analyze the data of each grade level after correlation analysis confirmed that all nine predictors under study had significant correlations with motivational behavior (the dependent variable). According to Hair et al. (2014), the desired ratio for observations per independent variable (predictor) in multiple regression is 15 to 20. When the ratio is reached, "the results should be generalizable if the sample is representative" (p. 171). In this study, there were nine predictors in the multiple regression. The sample size for each grade level (ranging from 983 to 1,609) was far above the recommended observations of 135 to 180.

To safely interpret estimates from linear regression models, several assumptions need to be met, including normality of the error term distribution, linearity of the phenomenon measured, independence

of residuals, homoscedasticity, and no multicollinearity between predictors (Hair et al., 2014). However, research has evidenced that linear regression analysis is robust to deviations from normality, especially given large sample sizes (e.g., sample sizes ≥ 500, Knief & Forstmeier, 2021). Thus, except for the normality assumption, the other four assumptions (linearity, independence of residuals, homoscedasticity, and no multicollinearity) were examined.

For the data of each grade level, the linearity assumption was assessed by examining the relationship between the outcome variable (motivational behavior) and each predictor and between the studentized residuals and the unstandardized predicted values on the scatterplots. The results indicate that the relationships were best characterized by linearity. The Durbin-Watson test was used to investigate the independence of residuals. The Durbin-Watson statistics obtained for the data of each grade level ranged from 1.83 to 2.05, all within the acceptable range (1.5 to 2.5); the independent residuals assumption was met. To evaluate multicollinearity, the Variance Inflation Factor (VIF) of each predictor in the regression models was examined. The VIF for each predictor ranged from 1.05 to 3.76. As the commonly recommended cutoff value for VIF is 10 (Burton, 2021), the results indicate that the regression models yielded in this study did not suffer from multicollinearity. Finally, the modified Breusch-Pagan test was used to check for violation of the homoscedasticity assumption. When heteroscedasticity was detected, a robust regression using Hayes' RLM macro for SPSS (adopting the H3 approach) was applied, which generates robust standard errors that adjust for heteroskedasticity in the residuals (Hayes & Cai, 2007). As heteroscedasticity was detected only in the data of Grade 8, robust regression was only applied to Grade 8. The results for each grade level are summarized in Table 3.

**Table 3**

*Results of Multiple Regression Analysis for the Predictors of Motivational Behavior by Grade-Level*

| | Predictor | B | SE | β | t |
|---|---|---|---|---|---|
| **Grade 3** | (Constant) | 1.60 | .10 | | 15.88*** |
| | SES | .00 | .00 | .04 | 1.58 |
| | required | -.10 | .02 | -.16 | -6.65*** |
| | integrative | .05 | .02 | .08 | 2.72** |

| | Predictor | B | SE | β | t |
|---|---|---|---|---|---|
| | instrumental | .04 | .02 | .05 | 1.69 |
| | intrinsic | .31 | .03 | .43 | 11.55*** |
| | extrinsic | -.04 | .03 | -.04 | -1.16 |
| | anxiety | -.10 | .02 | -.15 | -6.41*** |
| | self-efficacy | .11 | .02 | .15 | 5.16*** |
| | supportive class | .06 | .03 | .07 | 2.49* |

$R = .74$; $R^2 = .54$; Adjusted $R^2 = .54$; $F (9, 973) = 127.03$, $p < .001$

| | Predictor | B | SE | β | t |
|---|---|---|---|---|---|
| **Grade 4** | (Constant) | 1.27 | .09 | | 13.71*** |
| | SES | .01 | .00 | .11 | 5.55*** |
| | required | -.11 | .02 | -.14 | -6.80*** |
| | integrative | .06 | .02 | .09 | 3.58*** |
| | instrumental | .03 | .02 | .04 | 1.39 |
| | intrinsic | .32 | .03 | .43 | 12.59*** |
| | extrinsic | -.04 | .03 | -.05 | -1.56 |
| | anxiety | -.07 | .01 | -.11 | -5.17*** |
| | self-efficacy | .12 | .02 | .18 | 7.09*** |
| | supportive class | .09 | .02 | .10 | 4.16*** |

$R = .80$; $R^2 = .64$; Adjusted $R^2 = .64$; $F (9, 1026) = 202.41$, $p < .001$

| | Predictor | B | SE | β | t |
|---|---|---|---|---|---|
| **Grade 5** | (Constant) | 1.15 | .09 | | 12.47*** |
| | SES | .01 | .00 | .10 | 4.93*** |
| | required | -.15 | .02 | -.20 | -8.94*** |
| | integrative | .06 | .02 | .09 | 3.52*** |
| | instrumental | .03 | .02 | .03 | 1.34 |
| | intrinsic | .29 | .03 | .38 | 11.05*** |
| | extrinsic | .01 | .03 | .01 | 0.19 |
| | anxiety | -.06 | .02 | -.08 | -3.71*** |
| | self-efficacy | .11 | .02 | .15 | 5.69*** |
| | supportive class | .11 | .02 | .13 | 5.30*** |

$R = .80$; $R^2 = .64$; Adjusted $R^2 = .64$; $F (9, 1044) = 207.61$, $p < .001$

| | Predictor | B | SE | β | t |
|---|---|---|---|---|---|
| **Grade 6** | Constant | 1.31 | .09 | | 14.27*** |
| | SES | .01 | .00 | .14 | 7.12*** |
| | required | -.16 | .02 | -.22 | -9.79*** |
| | integrative | .05 | .02 | .08 | 2.89** |
| | instrumental | -.01 | .02 | -.01 | -0.46 |
| | intrinsic | .30 | .03 | .40 | 11.50*** |
| | extrinsic | .02 | .03 | .02 | 0.75 |
| | anxiety | -.04 | .01 | -.06 | -2.85** |
| | self-efficacy | .10 | .02 | .15 | 5.72*** |
| | supportive class | .05 | .02 | .06 | 2.90** |

$R = .80$; $R^2 = .64$; Adjusted $R^2 = .64$; $F (9, 1073) = 208.81$, $p < .001$

(continued)

|  | Predictor | B | SE | β | t |
|---|---|---|---|---|---|
| **Grade 7** | Constant | 1.33 | .09 |  | 15.52*** |
|  | SES | .01 | .00 | .09 | 4.90*** |
|  | required | -.16 | .02 | -.25 | -11.09*** |
|  | integrative | .05 | .02 | .08 | 3.14** |
|  | instrumental | .04 | .02 | .05 | 1.77 |
|  | intrinsic | .30 | .02 | .42 | 12.89*** |
|  | extrinsic | -.00 | .02 | -.01 | -0.17 |
|  | anxiety | -.03 | .01 | -.04 | -1.88 |
|  | self-efficacy | .06 | .02 | .09 | 3.63*** |
|  | supportive class | .08 | .02 | .09 | 4.52*** |
| | $R = .80$; $R^2 = .63$; Adjusted $R^2 = .63$; $F(9, 1161) = 221.88$, $p < .001$ | | | | |
| **Grade 8** | Constant | 1.14 | .09 |  | 12.32*** |
|  | SES | .00 | .00 | .05 | 2.43* |
|  | required | -.17 | .02 | -.25 | -11.34*** |
|  | integrative | .08 | .02 | .12 | 4.22*** |
|  | instrumental | .04 | .02 | .05 | 2.04* |
|  | intrinsic | .29 | .03 | .37 | 10.48*** |
|  | extrinsic | -.01 | .03 | -.01 | -0.18 |
|  | anxiety | -.00 | .02 | -.00 | -0.21 |
|  | efficacy | .10 | .02 | .15 | 5.72*** |
|  | supportive class | .08 | .02 | .10 | 4.27*** |
| | $R = .82$; $R^2 = .67$; Adjusted $R^2 = .66$; $F(9, 1138) = 241.63$, $p < .001$ | | | | |
| **Grade 9** | Constant | 1.04 | .08 |  | 12.77*** |
|  | SES | .00 | .00 | .05 | 3.12** |
|  | required | -.14 | .01 | -.20 | -10.03*** |
|  | integrative | .00 | .02 | .01 | 0.24 |
|  | instrumental | .06 | .02 | .07 | 2.79** |
|  | intrinsic | .35 | .03 | .45 | 13.95*** |
|  | extrinsic | -.03 | .02 | -.03 | -1.26 |
|  | anxiety | -.02 | .01 | -.02 | -1.19 |
|  | self-efficacy | .13 | .02 | .19 | 7.88*** |
|  | supportive class | .07 | .02 | .08 | 4.27*** |
| | $R = .80$; $R^2 = .64$; Adjusted $R^2 = .64$; $F(9, 1260) = 252.44$, $p < .001$ | | | | |
| **Grade 10** | Constant | 1.53 | .08 |  | 18.07*** |
|  | SES | .00 | .00 | .02 | 1.21 |
|  | required | -.18 | .01 | -.29 | -15.09*** |
|  | integrative | .02 | .02 | .04 | 1.50 |
|  | instrumental | .01 | .02 | .01 | .26 |
|  | intrinsic | .29 | .02 | .42 | 14.48*** |
|  | extrinsic | .03 | .02 | .03 | 1.32 |

(continued)

| | Predictor | B | SE | β | t |
|---|---|---|---|---|---|
| | anxiety | -.03 | .01 | -.04 | -2.46* |
| | self-efficacy | .08 | .01 | .12 | 6.02*** |
| | supportive class | .08 | .02 | .09 | 5.46*** |
| | $R = .79$; $R^2 = .62$; Adjusted $R^2 = .62$; $F(9, 1599) = 293.63$, $p = .000$ | | | | |
| **Grade 11** | Constant | 1.49 | .09 | | 16.53*** |
| | SES | .00 | .00 | .01 | 0.77 |
| | required | -.21 | .01 | -.35 | -17.26*** |
| | integrative | .01 | .02 | .01 | 0.51 |
| | instrumental | .03 | .02 | .03 | 1.28 |
| | intrinsic | .26 | .02 | .36 | 11.91*** |
| | extrinsic | .04 | .02 | .04 | 1.68 |
| | anxiety | .01 | .01 | .01 | 0.41 |
| | self-efficacy | .07 | .02 | .10 | 4.61*** |
| | supportive class | .10 | .02 | .11 | 6.08*** |
| | $R = .77$; $R^2 = .59$; Adjusted $R^2 = .59$; $F(9, 1556) = 246.04$, $p < .001$ | | | | |
| **Grade 12** | Constant | 1.01 | .09 | | 11.52*** |
| | SES | .00 | .00 | .03 | 1.89 |
| | required | -.14 | .01 | -.22 | -11.05*** |
| | integrative | .06 | .02 | .08 | 3.70*** |
| | instrumental | .04 | .02 | .04 | 1.85 |
| | intrinsic | .29 | .02 | .41 | 14.12*** |
| | extrinsic | .00 | .02 | .00 | 0.13 |
| | anxiety | -.00 | .01 | -.00 | -0.17 |
| | self-efficacy | .12 | .01 | .16 | 8.06*** |
| | supportive class | .11 | .02 | .12 | 7.71*** |
| | $R = .81$; $R^2 = .66$; Adjusted $R^2 = .66$; $F(9, 1511) = 325.94$, $p = 000$ | | | | |

*Note*. SES = parents' socioeconomic status
*$p < .05$. **$p < .01$. ***$p < .001$

The results of $R^2$ reveal that, across different grade levels, around 54 percent to 66 percent of the variance in motivational behavior could be collectively explained by the nine social and psychological variables. Although the model comprising the nine variables as a whole was statistically significant, not every variable was a significant predictor for motivational behavior. Significant predictors generally varied with grade level, except that the same set of variables could significantly predict the motivational behavior of students in Grades 4 to 6.

The number of significant predictors tended to decrease with grade levels. For primary school students (except for third graders), seven out of the nine variables could significantly predict their motivational behavior. The number of significant predictors for junior high school

students (except for eighth graders) fell to six. For senior high school students, the number dropped to five (for tenth and twelfth graders) or even four (for eleventh graders). As students advanced to a higher education level, some variables under study lost their impact on motivational behavior. Parents' socioeconomic status and integrative orientation were significant positive predictors mainly for primary and junior high school students. The significant (negative) effect of English class anxiety on motivational behavior was primarily limited to primary school students. Acock (2014) recommended considering the effect size of $\beta$ less than 0.2 as small, that of $\beta$ larger than 0.2 but less than 0.5 as medium, and that greater than 0.5 as large (p. 272). An inspection of the $\beta$s of the three variables (socioeconomic status, integrative orientation, and English class anxiety) in Table 3 indicates that their effect sizes were generally small, suggesting modest contributions to motivational behavior.

Four significant predictors were consistent across all ten grades: intrinsic orientation, required orientation, English learning self-efficacy, and supportive classroom climate. Among them, intrinsic orientation consistently showed the highest significant predictability for motivational behavior across the ten grade levels indicating its strongest influence. The positive standardized regression coefficients ($\beta$s) for intrinsic orientation ranged from .36 to .45, indicating that intrinsic orientation had a medium effect on motivational behavior. From Grades 3 to 12, the higher a student's intrinsic orientation, the stronger motivational behavior he/she exhibited. Required orientation was the second-best significant predictor from Grades 3 to 12 (except for Grade 4), with $\beta$s ranging from -.14 to -.35, indicating a small to medium effect size. The negative value of $\beta$ for required orientation suggests that a lower level of required orientation was associated with a higher level of motivational behavior. English learning self-efficacy (with $\beta$s ranging from .09 to .19) and supportive classroom climate (with $\beta$s ranging from .06 to .13) were positive predictors with effect sizes ranging from small to moderate. Higher English learning self-efficacy and a more supportive classroom climate were associated with stronger motivational behavior.

## DISCUSSION

### The Effect of Grade Level on Motivational Behavior

Results of the first research question show a tendency for L2 learners' motivational behavior to decline with grade level (i.e., years

of study and age). This tendency is in accord with the findings of many studies in educational research (Jozsa & Morgan, 2014 and the studies reviewed in it, which found similar declines in motivational behavior with increasing grade level). In L2 motivation research, the effect of grade level or age is under-explored. Only a few earlier studies reported such a trend in motivation intensity (Gardner, 1985; Kan, 2005; Kraemer & Zisenwine, 1989; MacIntyre et al., 2003) or motivational orientations, such as intrinsic orientation (Kan, 2005; Williams et al., 2002) and integrative orientation (Kan, 2005). These studies covered a narrower range of grade levels than the current study. Some explanations for the declining L2 learning motivation have been postulated, including learners' waning curiosity about the subject and the subject's diminishing novelty, increasing difficulty, and lack of utility to the learners over years of study (e.g., Gardner, 1985; Kraemer & Zisenwine, 1989). These factors may contribute to the observed decline in motivational behavior for learning English from Grades 3 to 12 among students in Taiwan. Further research is necessary to verify these explanations.

More surprising is the finding that in this test-oriented culture where striving for good performance on high-stakes exams is highly valued, learners' motivational behavior was not elevated by the approaching of the two national entrance exams. This finding contrasts with Kraemer and Zisenwine's (1989) finding of a quadratic trend across nine grade levels. Kraemer and Zisenwine investigated changes in attitudes and motivation among students of Jewish heritage learning Hebrew as a third language in a private Jewish school system in South Africa. They found that their participants' motivation decreased from Grades 4 through 10 and gradually increased until the end of high school. Kraemer and Zisenwine attributed this increase in motivation to the approaching state matriculation exam in Hebrew. As the academic function and social status of the target languages between the current study and Kraemer and Zisenwine's (1989) research were different, the conflicting findings between the current study and Kraemer and Zisenwine's research suggest the importance of examining how the function and status of the target language can impact changes in learners' motivation at different stages of education. Research in this direction may provide new insights into the dynamics of language learning motivation, particularly regarding the influence of the target language's function and status on learners' motivation.

## Significant Predictors of Motivational Behavior Across Grade Levels

The second research question addresses predictors of motivational behavior. Among the nine social and psychological factors recognized in previous literature as potential predictors of L2 learning motivation, this study identified four crucial factors that had significant effects on motivational behavior for students across ten grade levels: intrinsic orientation, required orientation, learning self-efficacy, and supportive classroom climate. English L2 instruction that incorporates these four factors: strategies to enhance intrinsic orientation, required orientation, learning self-efficacy, and supportive classroom climate is likely to foster students' motivational behavior. The importance of intrinsic orientation and learning self-efficacy (or self-confidence) in motivation is well recognized in educational psychology (refer, for example, Wigfield et al., 2015) and L2 studies (e.g., Noels et al., 2019; Piniel & Csizér, 2013). However, the role of required orientation in accounting for language learning motivation may have received less attention due to its culture-specific nature, particularly in Chinese/Confucian cultures (Chen et al., 2005; Hennebry & Gao, 2018; Warden & Lin, 2000). This study corroborated the observed role of required orientation in such a culture. Supportive classroom climate also received insufficient attention from L2 motivation researchers despite empirical and theoretical support for its relevance to motivation (Noels et al., 2019; Wang et al., 2020). This study proved that a supportive classroom climate could contribute to L2 learners' motivational behavior.

Parents' socioeconomic status and integrative orientation deserve special attention for primary and junior high school students because they were significant predictors for six out of the seven grade levels at these educational levels highlighting their consistent influence on motivational behavior. The results on integrative orientation are notable, especially when compared with those obtained for instrumental and extrinsic orientations. In this study, integrative orientation was a significant predictor for seven grade levels (all but Grades 9 to 11). In contrast, instrumental orientation was a significant predictor for only two grade levels (Grades 8 and 9). Extrinsic orientation could not predict motivational behavior for any age group. This finding suggests the relatively higher importance of integrative orientation in explaining motivational behavior than instrumental and extrinsic

orientations, perhaps due to its emphasis on interpersonal aspects and cultural engagement. Because no study simultaneously examined the relative significance of the five motivational orientations under study in predicting motivational behavior (or intended effort), it is difficult to compare findings across studies. Nevertheless, the finding is compatible with previous studies that showed *integrativeness* (comprising integrative orientation) fared better than instrumental orientation or instrumentality in predicting intended effort or motivation (e.g., Kwok & Carson, 2018; Gardner, 2007). Although some scholars argued that instrumental orientation played a more prominent role than integrative orientation in EFL contexts and even questioned the relevance of integrative orientation in such contexts (e.g., Dörnyei, 1990; Warden & Lin, 2000), this study found that integrative orientation is still valuable for explaining EFL students' motivational behavior (including primary and junior high students), substantiating recent studies that continue demonstrating the utility of the concept (e.g., Gearing & Roger, 2019; Rock et al., 2021).

The results about the significant effect of socioeconomic status on motivation are also noteworthy. Socioeconomic status is an under-researched variable in L2 motivation research. Consistent with the findings of Kormos and Kiddle's (2013) research on Chilean secondary school students, this study revealed that socioeconomic status had a significant impact on motivational behavior. It further showed that socioeconomic status was important not only for secondary school students but also for primary school students. Thus, the role of socioeconomic status in foreign language learning is worth the attention of L2 motivation researchers, as it significantly influences learners' motivational behavior and potentially their academic achievement. Future research may include this variable in a more fine-grained design, examining how socioeconomic status interacts with other social, contextual, and psychological variables (such as access to resources, parental involvement, and peer influence) in influencing learners' motivation and subsequent achievement across different age groups.

## CONCLUSION

L2 motivation has been a vigorous and thriving research area in second language acquisition. With the expansion of new motivational theories

and methodological approaches since 2000 came a proliferation of research output on language learning motivation. There has been considerable research on L2 motivation, which has buttressed our understanding of language learning motivation. Nevertheless, most of the studies focused on tertiary education. Limited studies examined pre-secondary learners. Few researchers investigated L2 learners' motivation across different grades or educational levels. To fill these gaps, the present study investigated students' motivational behavior and potential predictors of motivational behavior across ten grade levels, including primary, junior high, and senior high schools. This study contributes to L2 motivation research in several aspects, including the exploration of young and adolescent EFL learners' English learning motivation, the illustration of the feasibility of examining young learners' L2 motivation using existing research instruments, and the revelation of the noticeable grade level effect on motivational variables. First, it adds much-needed empirical data and knowledge about young and adolescent EFL learners' English learning motivation to the field. Second, it illustrates that exploring young learners' L2 motivation is feasible using existing research instruments. Third, the results revealed a noticeable grade level (age) effect, suggesting the importance of considering learner age in exploring and explaining motivational variables. Fourth, by simultaneously examining the effects of several motivational orientations, this study uncovered the relative influences of different orientations on motivational behavior. This approach succeeded in, on the one hand, illuminating the crucial role of intrinsic orientation and, on the other hand, demonstrating that the impact of integrative orientation on EFL learners' motivational behavior cannot be ignored. More importantly, the results proved that it is meaningful to consider culture-related orientations within a particular cultural context, such as the required orientation in Confucian/Chinese culture. Fifth, this study sheds light on the potential effects of two under-researched social variables in L2 motivation research: supportive classroom climate and socioeconomic status. Finally, intrinsic orientation, required orientation, learning self-efficacy, and supportive climate were found to have significant effects on the motivational behavior of students across all three education levels (Grades 3 to 12). This finding points to directions that L2 educators can seek to enhance and maintain students' attention, efforts, and persistence in learning L2: strengthening learners' intrinsic orientation and English learning self-efficacy, undermining required orientation, and building a supportive learning environment at school.

Despite its contributions, this study has several limitations. First, the significance of the predictors in multiple regression depends on the set of predictors chosen for analysis. Therefore, it remains to be seen whether the results concerning the effects of the five motivational orientations and the other four variables were a function of the choice of predictors. Second, multiple regression analysis, like other statistical methods based on correlation, does not prove causation. Third, given the cross-sectional nature of this study, developmental inferences cannot be made regarding the decline of motivational behavior with grade level or age. The development of motivation can be better addressed by studies adopting a longitudinal design. Fourth, this study relied on learners' responses to a questionnaire to measure motivational behavior. Although this is a common practice in L2 motivation research, caution should be exercised because the results may not fully reflect students' actual learning behaviors.

## ACKNOWLEDGMENT

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