



**Strategic age- and motivation- related preferences
in Greek state elementary and junior high schools**
**Στρατηγικές προτιμήσεις αναφορικά με τους παράγοντες
ηλικίας και κινήτρων μάθησης σε ελληνικά δημόσια
Δημοτικά και Γυμνάσια σχολεία»**

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Research has been occupied with a variety of individual difference variables implicated in language learning strategy use. Among them, age has been rather neglected while motivation seems to be particularly powerful. The strong impact of the aforementioned factors on learners' strategic behavior is shown in a large-scale study conducted with 1,548 EFL students in state elementary and junior high schools in the city of Thessaloniki, Northern Greece. Along with a background questionnaire, recording demographics and measuring motivation, an adapted form of Oxford's (1990) Strategy Inventory for Language Learning (SILL) was employed so as to suit the learners' young age. A picture of age and motivational differences in the strategy preference of elementary and junior high school students is depicted with older learners displaying less, albeit still high, motivation in comparison to younger ones. Based on the results, implications for future research and the English language classroom are suggested.

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Έρευνες έχουν ασχοληθεί με ποικίλες μεταβλητές ατομικών διαφορών που εμπλέκονται στη χρήση γλωσσικών στρατηγικών μάθησης. Ανάμεσά τους, η ηλικία έχει μάλλον παραμεληθεί ενώ τα κίνητρα μάθησης φαίνονται να είναι ιδιαίτερος ισχυρά. Η σταθερή επίδραση των προαναφερθέντων παραγόντων στη στρατηγική συμπεριφορά μαθητών διαφαίνεται σε μια μεγάλης έκτασης έρευνα που διεξήχθη με 1.548 μαθητές της αγγλικής ως ξένης γλώσσας σε δημόσια Δημοτικά και Γυμνάσια σχολεία στην πόλη της Θεσσαλονίκης στη Βόρεια Ελλάδα. Μαζί με ένα συνοδευτικό ερωτηματολόγιο για καταγραφή δημογραφικών στοιχείων και μέτρηση των κινήτρων μάθησης, χρησιμοποιήθηκε μία προσαρμοσμένη μορφή του "Ερωτηματολογίου Στρατηγικών για Γλωσσική Εκμάθηση" (SILL) της Oxford (1990) ώστε να είναι κατάλληλο για τη νεαρή ηλικία των μαθητών. Απεικονίζονται οι διαφορές ως προς την ηλικία και τα κίνητρα μάθησης στις στρατηγικές προτιμήσεις των μαθητών Δημοτικών και Γυμνασίων με τους μεγαλύτερους ηλικιακά μαθητές να επιδεικνύουν χαμηλότερα, μολονότι επίσης υψηλά, κίνητρα μάθησης σε σχέση με τους μικρότερους ηλικιακά μαθητές.

Με βάση τα αποτελέσματα, γίνονται προτάσεις για μελλοντικές έρευνες καθώς και για τη διδασκαλία της αγγλικής ως ξένης γλώσσας.

Key words: Language learning strategies; age; motivation; primary educational level; secondary educational level

1. Introduction

Language learning strategies are generally regarded as physical actions, behaviors, or internal mental processes involving emotions and consciousness for the facilitation of language input selection, organization, integration, and use in linguistic production (Psaltou-Joycey, 2010). Strategies lead to enhancement of learning, which can be made easier, faster, and more pleasurable, towards autonomy or self-regulation or self-management (Cohen, 2007).

Based on research and the existing literature, Oxford's (1990) strategy classification seems to be "the most comprehensive" (Ellis, 1994, p. 539) including six categories: memory strategies, which help the retention of new information in long-term memory; cognitive strategies for the processing and use of the language; compensatory strategies in order to make up for missing information in oral speech and in writing; metacognitive strategies, which regulate learning through planning, organizing, and evaluating; affective strategies for lowering one's anxiety; and the social set for seeking assistance and cooperation.

Language learning strategies have been explored with regard to a large number of factors, especially achievement in a second or foreign language (L2). Both situational and learner variables can be conducive to strategy selection and degree of utilization (Oxford and Burry-Stock, 1995) with those internal to the learner more extensively researched, such as language proficiency level, motivation, age, learning styles, gender, beliefs, or career orientation. In general, motivation has shown strong correlations with language learning strategy use from an early age (Psaltou-Joycey, 2010) while age has attracted only "a handful of studies" (Takeuchi et al., 2007, p. 70). Most studies have inquired into adults (Mochizuki, 1999; Oxford and Nyikos, 1989; Peacock and Ho, 2003; Sheorey, 1999; Wharton, 2000), especially in the Greek socio-educational context (Kazamia, 2003; Psaltou-Joycey and Kantaridou, 2009), utilizing the original or adapted versions of Oxford's (1990) well-tested Strategy Inventory for Language Learning (SILL).

The small volume of research into the strategy use of Greek-speaking young learners (Papanis, 2008; Psaltou-Joycey and Sougari, 2010) and adolescents stimulated a study for a doctoral thesis at primary educational level (Vrettou, 2011) and a similar study undertaken simultaneously at secondary level (Vrettou, 2009) in the year 2008 according to a number of variables. All the data bases were unified so that they could be explored with regard to the age and motivation factors adding to the students' profile at the two levels.

2. Research background

2.1. Strategies and age

In contrast to other variables influencing strategy deployment, comparing age groups has given rise to studies with considerably “mixed findings” (Takeuchi et al., 2007, p. 70). Age did not have a significant main effect on the strategy preference – as reported in Oxford’s (1990) SILL – of adults in Griffiths (2003) or Psaltou-Joycey (2008) while Kazamia (2003) found significant positive correlations between age and two memory strategies of the same inventory. When Lee and Oxford (2008) examined 1,110 EFL learners from one middle school, three high schools, and two universities in Korea employing the SILL, education level, and, by extension, age, had a statistically significant positive main effect as well as an interaction effect (together with gender) on overall strategy use. Linear were also the findings by Peacock and Ho (2003), who discovered that their mature 112 students (aged 23 and over) used four of Oxford’s strategy categories (i.e. memory, metacognitive, affective, and social) as well as twenty strategies (mostly belonging to those categories) more than their 894 younger students (aged 18-22) in a Hong Kong university.

Tracking the strategy use of 300 EFL Muslim students in the fourth, fifth, and sixth grade of elementary school in Greece, Papanis (2008) found that the 5th-graders used socio-affective strategies significantly more than the 4th- and the 6th-graders. Adding to curvilinear results, Psaltou-Joycey and Sougari (2010) found that their young learners (262 6th-graders in elementary school) used five of their strategy categories (the compensatory category not included) as well as 20 out of the 30 items on an adapted SILL significantly more than their older informants (254 3rd-graders in junior high school), who exceeded only in the use of 3 strategies. Furthermore, in another study of 93 undergraduate EFL Iranian students by Kashefian-Naeeni et al. (2011), the younger group (aged below 20) significantly outperformed the group aged 20 to 23 only in the use of metacognitive strategies on the SILL.

In the Spanish context, Victori and Tragant (2003) undertook a study of 766 EFL students forming three age groups (10-, 14-, and 17-year-olds) that had received a different amount of English instruction. A strategy questionnaire written in Catalan was employed with open-ended questions. According to the results, as students’ age and hours of instruction progressed, more cognitively complex strategies for vocabulary learning were deployed more frequently.

In order to isolate the effect of age from that of language proficiency, Tragant and Victori (2006) conducted another study with three age groups of 703 students (having started learning English at the ages of 8, 11, and over 18) after 200, 416, and 726 hours of English instruction for each group. The analysis showed that developmental changes in strategy use occur as age increases irrespective of proficiency level or hours of instruction with older learners displaying more complex and elaborate strategies than younger ones. These changes are not always systematic or linear for all types of strategies or all kinds of learners.

In a subsequent study of 412 bilingual secondary school students in Spain, forming three age groups (namely, ages 12-13, 14-15, and 16-17) and four proficiency levels according to their course grades, Tragant and Victori (2012) found a general tendency for students attaining higher grades to reportedly use more strategies of most types across the three age levels. Nevertheless, significant strategic differentiation tended to diminish as students grew older, leading the researchers to conclude that with the advancement of age, less variation of

strategy use might be expected. As far as task-related strategies are concerned, Pinter (2006) compared ten pairs of elementary school children and five pairs of college EFL learners in Hungary to conclude that although children used a great many strategies, adults used those in a more effective, consistent, extensive, and systematic way.

In conclusion, language learning strategies change as age advances with increasing complexity and sophistication (Psaltou-Joycey, 2010), at least for some learners, as one might add. None the less, lack of systematicity or linearity for some types of strategies may have to do with methodological considerations such as the number and age difference of the subjects selected, or the questionnaire employed for strategy elicitation. Individual factors such as the proficiency level of the participants, their aptitude, beliefs, or motivation could also be of great importance. Situational factors such as the English classroom or the influence of the cultural context could additionally play a vital role in strategy development. Thus, the present study aimed to shed some light on age- and motivation-related strategic preferences of a large number of elementary and junior high school students as far as the Greek context is concerned through the use of a well-validated questionnaire with pedagogical implications for the teaching of these specific students.

2.2. Strategies and L2 motivation

L2 learning motivation, or L2 motivation, is the desire to learn another language (Oxford, 2003). Originating from the Latin word “movere” (= “to move”), motivation represents the condition of one being moved into action with a particular motive, intention, or goal. L2 motivation has an overriding impact upon strategy deployment, as clearly deduced by one of the pioneering studies in the field, that by Oxford and Nyikos (1989).

In a few studies, as motivation level rises, strategy use becomes more frequent being accompanied by higher proficiency (Ehrman & Oxford, 1995; Oxford et al., 1993; Vrettou, 2011). In quite a lot of research, there are positive statistically significant relations between motivation and strategy use. Most studies examine adults (Chang, 2011; Kafipour et al., 2011; McIntosh and Noels, 2004; Mochizuki, 1999; Okada et al., 1996; Psaltou-Joycey, 2003; Schmidt and Watanabe, 2001; Wharton, 2000). Lee and Oxford’s (2008) study involves middle schoolers, high school and university students. In one study by Lan and Oxford (2003) there is participation of elementary students. Employment of cluster analysis has shown that high motivation levels seem to be linked to high achievement, high overall or selective strategy deployment, and metacognitive awareness of strategic use (Kantaridou, 2004; Yamamori et al., 2003).

Most of the aforementioned research has used the SILL for assessment of strategy use. As for motivation, a diversity of instruments was employed ranging from “importance of language learning” (in Mochizuki, 1999; Psaltou-Joycey, 2003; and Wharton, 2000) or “liking of English” (in Chang, 2011 and Lan and Oxford, 2003) to self-determination indexes (in McIntosh and Noels, 2004) or Gardner’s Attitude and Motivation Test Battery (in Kafipour et al., 2011).

2.3. Age and L2 motivation

Research has shown that young learners have largely positive attitudes - displaying liking to learn foreign languages - in a variety of contexts (Donato et al., 2000; Lamb, 2004; Nikolov and Curtain, 2000). However, early zest seems to flag around the middle of adolescence. Thus, favorable attitudes towards learning English and interest in foreign languages tended

to decrease from the 10th to the 15th year of age in an intensive summer language program in Spain (Masgoret et al., 2001). Similarly, students aged 10 surpassed in both motivation and attitudes those aged 13 and 16 in the Basque country (Cenoz, 2003).

At secondary level, there was also a drop of motivation to learn an L2 from the first to the second grade of junior high school in a French late immersion program in Canada (MacIntyre et al., 2002) as well as from the first to the third year in the South-west of England (Williams et al., 2002). A decrease of motivation to learn Arabic as a second language also occurred for senior high school students in the ninth and tenth years as compared to those in the seventh and eighth years in Ghenghesh (2010).

Unlike all the above studies which confirm lessening of motivation from elementary to high school, Tragant (2006) found that all the highest scores in liking English were obtained in the last year of high school for all her three age groups (having started English at 8, 11, and over 18 years) tracked longitudinally. That might have to do with the particular sample and the cohorts' interpretation of motivation. It might also imply some possibility for a motivational peak towards the end of adolescence when learners get more mature and goals may become crystallized into a definite plan of action.

It appears that motivational rise might extend in time. In Hungary, Kormos and Csizér (2008) found significant differences in the "reasonably high" language learning attitudes and motivated behavior (in terms of effort and persistence) between high school students (with a median age of 16.5), university students (average age 21.5 years), and adult language learners (median age 33.7 years), with scores becoming higher for each age group.

In sum, most of the above researchers converge in the direction of attributing the diminution of motivation in mid puberty to cognitive, psychological, and situational factors. Early enthusiasm about a foreign or second language generally seems to be followed by age-related negative attitudes towards the school subjects and the educational system in general (Cenoz, 2003; MacIntyre et al., 2002; Williams et al., 2002). As well as that, lack of continuity and more traditional methodology in later years fall short of high expectations adding to disillusionment and disheartening of the learners (Alexiou and Mattheoudakis, 2013; Nikolov and Curtain, 2000).

The current study sought to sketch the situation in Greece by tracking down changes in the motivational profiles of students in primary and lower secondary education, thus adding to the implications for their teaching.

3. Aim and research questions of the study

The following research questions were formulated for the present study:

- Are there any statistically significant differences by age and/or motivation to learn English in respect of overall strategy use?
- Are there any statistically significant differences by age and/or motivation to learn English in respect of the strategy categories?
- Are there any statistically significant differences by age and/or motivation to learn English in respect of particular strategies?

4. Method and general design

Two descriptive studies, one addressing young learners (Vrettou, 2011) and one addressing adolescents (Vrettou, 2009), were held being similar in instrumentation and examined the influence of a number of variables (namely, language proficiency level, motivation, and gender) on strategic use. They took place in western, central, and eastern Thessaloniki from late January till mid April 2008. The collection of the quantitative data was performed through the method of cluster sampling whereby a specific number of schools is selected and all of the students of those schools are tested (Cohen et al., 2000). All the above data were unified and analyzed from a different perspective in order to examine the impact of the age together with the motivation factors in relation to the strategy use of the students.

4.1. Instruments

Strategy use was recorded through an adapted and subsequently translated-into-Greek form of Oxford's (1990) self-report SILL, which uses five-point Likert scaling. To be more specific, the widely used 7.0 50-item version (for mainly adult speakers of other languages learning English) of the SILL underwent adaptation (Vrettou, 2011) so that it could be more comprehensible to younger learners. The adapted form was categorized into six strategy groups – memory, cognitive, compensation, metacognitive, affective, and social sets. In general, all the items were made more specific and correspond to the items in the original instrument except for No 12, replaced by the use of a dictionary for unknown words (a strategy included in Oxford's theory but not on her SILL).

The students were additionally administered a background questionnaire for reporting demographic facts and motivation to learn English. As far as motivation was concerned, it was elicited through the average of five-point Likert scale responses to three questions concerning a) liking English (i.e. "Do you like English?"), b) desire to learn the language (i.e. "Do you want to learn English?"), and expended effort (i.e. "How much effort do you put into learning English?"), following Gardner's (2001) well-researched socio-educational model of second language acquisition. The above aspect of motivation appeared to be primarily responsible for achievement among other attitudinal and motivation variables in a large meta-analysis of studies on attitudes and motivation held by Gardner and colleagues (Masgoret and Gardner 2003¹).

In the analysis, categories of motivation were drawn in accordance with Oxford's (1990) division of mean scores ranging on a scale from 1 to 5 (1.0-2.4, low use; 2.5-3.4, medium use; 3.5-5.0, high use). Since a large number of the informants exhibited high motivation, the above researcher's additional distinction into high (3.5-4.4) and very high use (4.5-5.0) was adopted for the sake of further comparison of the motivation sets.

4.2. Participants

Twenty-seven state elementary schools participated with 763 12-year-old 6th-graders (386 girls and 377 boys). Sixteen state junior high schools also took part with 785 15-year-olds in the third grade (475 females and 310 males). Overall, a total sample of 1548 was investigated for the purposes of the current study. As regards age, the sample was fairly balanced (49.3% at primary and 50.7% at secondary level) and representative, too. As reported in official data held by the local Bureaus of Education, the primary level students constituted 10% of the total number of the 6th-graders in the city of Thessaloniki for the school year 2007-8 (7,621 in total out of 44,742 elementary school students); on the other

hand, the secondary level students constituted 9.7% of the overall number of the 3rd-graders in the city for the same year (8,069 in all out of 22,574 junior high school students).

4.3. Data collection

The background and strategy questionnaires were given in an hour of English by the researcher of the present study herself so that elucidation could be provided where necessary. Participation in the study was anonymous and voluntary with the majority being eager to take part. However, 170 questionnaires were rejected from any analysis due to learning difficulties that students had in the Greek language according to their Greek language teachers' reports, or due to provision of the same answers on the strategy questionnaire, especially in instances in junior high school.

4.4. Statistical procedures

The Statistical Package for the Social Sciences (SPSS) version 17 was used for descriptive and inferential statistics. Reliability analysis was applied through computation of Cronbach's alpha. Concurrent validity was estimated through Pearson correlation coefficient, which produced correlations between scale variables. Means and standard deviations were calculated for the scale variables of overall strategy use, the six strategy categories, and the fifty strategy items. Frequencies were analyzed and categorized for the categorical variables of age (elementary and junior high school) and motivation (low, medium, high, and very high). The chi-square test of independence was applied to investigate the relation between the variables of age and motivation to learn English. A two-way analysis of variance (ANOVA) tested the presence of significant differences in overall strategy use according to the independent variables of age and motivation. A two-way multiple analysis of variance (MANOVA) was performed when more than one dependent variables were considered (that is, the six strategy categories and the fifty strategies) together with the above independent variables. The Tukey-HSD post hoc test followed both ANOVA and MANOVA to find the location of the significant differences made by motivation.

5. Results and discussion

The overall internal consistency or reliability of the adapted strategy questionnaire for the entire sample was high with a Cronbach's alpha of 0.898. Reliability of the SILL is calculated overall rather than with its six subscales (Oxford and Burry-Stock, 1995, p. 6). The concurrent validity of the strategy instrument was also supported for both elementary students ($r(735) = 0.182$, $p = 0.000$; Vrettou, 2011) and junior high school students ($r(710) = 0.137$, $p = 0.000$; Vrettou 2009) through the positive correlations of the students' overall strategy mean scores with their scores on the Quick Placement Test (UCLES, 2001), a standardized proficiency measure, which had also been taken by all the informants.

A cross-tabulation of age and motivation was conducted in order to assess any dependence between the two independent qualitative variables. As shown in Table 1, significance arose with medium-motivated junior high school students (26.2%) outperforming their elementary school counterparts (11.1%). On the other hand, it appears that the majority of the primary level students are highly- and very highly-motivated (86.7%) whereas the respective percentage of highly- and very highly-motivated secondary level students is a lot lower (69%). The evident diminution of motivation to learn English in adolescence accords with a number of studies into motivation and age (Cenoz, 2003; Ghenghesh, 2010; MacIntyre et al., 2002; Masgoret et al., 2001; Williams et al., 2002).

Motivation to learn English	Age		Total
	Elementary	Junior High	
Low motivation	17	38	55
	2.2%	4.8%	3.6%
Medium Motivation	85	206	291
	11.1%	26.2%	18.8%
High motivation	308	389	697
	40.4%	49.6%	45.0%
Very high motivation	353	152	505
	46.3%	19.4%	32.6%
Total	763	785	1548
	100%	100%	100%

$$\chi^2 (3) = 147.463 \quad p = 0.000 < 0.001$$

Table 1. Motivation to learn English by age

The research question results and ensuing discussion follow.

5.1. Research Question 1: Are there any statistically significant differences by age and/or motivation to learn English in respect of overall strategy use?

Two-way ANOVA results in Table 2 indicate that age did not have a significant main effect on overall strategy use. The main effect of motivation was significant demonstrating the major influence of this factor. Following post hoc results revealed that very highly-motivated respondents made higher strategy use than highly-motivated ones, who used strategies to a larger degree than medium-motivated learners, who were well ahead of their low-motivated peers in strategic deployment. The significant impact of motivation on overall use of strategies was found in other studies as well (Oxford and Nyikos, 1989; Ehrman and Oxford, 1995; Lan and Oxford, 2003; Psaltou-Joycey, 2003; Wharton, 2000). No significant interaction effects between age and motivation were detected showing the distinctness of the factors as far as the total average strategy score is concerned.

5.2. Research Question 2: Are there any statistically significant differences by age and/or motivation to learn English in respect of the strategy categories?

A two-way MANOVA was conducted with strategy categories as the dependent variables and age and motivation to learn English as the independent variables (Appendix, Table 3). Age had a significant influence on memory, compensation, affective and social strategy categories. More specifically, junior high school students reportedly deployed memory strategies to a lesser extent than elementary school students. It is likely that as learners' cognition develops and matures, they tend to utilize more complicated and intellectually stimulating strategies rather than mnemonics for retention of vocabulary.

The use of the compensatory strategy category was also higher for the junior school learners since making up for gaps in communication requires a fairly large amount of knowledge and experience of the language. Affective strategies were used less frequently by the adolescents of the study compared to the young learners. As the advancement of age may bring about cognitive together with emotional maturity, management of emotions, which is indispensable at the early stages of learning, might not be a priority.

Main & interaction effects	Type III Sum of Squares	df	Mean Square	F	p	Tukey-HSD post hoc test results
Age	74.060	1	24.687	0.619	0.431 n.s.	
Motivation to learn English	0.112	3	.112	136.923	0.000***	LM< MM< HM< VH
Age X Motivation	1.063	3	.354	1.966	0.117 n.s.	

Notes

- Dependent variable: Overall strategy use
- Significance: ***= $p < 0.001$
- LM= low motivation, MM= medium motivation, HM= high motivation, VH= very high motivation
- Means and standard deviations for motivation: LM: 2.36 (SD= 0.49), MM: 2.75 (SD= 0.51), HM: 3.09 (SD= 0.46), VH: 3.40 (SD= 0.43)

Table 2. Two-way ANOVA results with overall strategy use as the dependent variable and age and motivation to learn English as the independent variables

The fact that social strategies were also used significantly less by the older participants of the study probably has to do with the educational context of junior high schools in Greece. Although the New Greek Cross-Thematic Curriculum Framework for Compulsory Education (2003) favors and promotes group and cooperative work, individual learning is still dominant in every day classroom practices.

As to motivation to learn English, it made a significant difference in all the six strategy categories, verifying its great importance in strategic choice. In fact, the higher the motivation of the respondents, the greater their use of all the strategy sets was. Motivation had a significant impact on all strategy categories in other studies as well (for example, Chang, 2011; Lan and Oxford, 2003; Mochizuki, 1999; Schmidt and Watanabe, 2001).

An interaction of age and motivation to learn English occurred only for memory strategies. Although the increase of mnemonic strategy use is linear regarding motivation in elementary school students, older learners' mean scores in memory strategies go up less and less strongly from medium to high and very high motivation levels. Thus, more mature and motivated learners seem to be eclectic favoring other strategies rather than memory ones.

5.3. Research Question 3: Are there any statistically significant differences by age and/or motivation to learn English in respect of particular strategies?

Table 4 (Appendix) includes the two-way MANOVA results with the fifty strategies on the adapted SILL as the dependent variables, and age and motivation to learn English as the independent variables.

5.3.1. Age differences

Age had a significant main effect on a total of 25 strategies. There were significant negative associations of age and 16 strategies from most categories. In other words, older students made lower use than their younger counterparts concerning the following 16 strategies: “using new English words in a sentence which one makes up” (No 2), “connecting the sound of a new English word with a picture of the word in one’s mind” (No 3), “using rhymes” (No 5), “miming” (No 7), “reviewing” (No 8), “saying or writing new English words many times” (No 10), “writing known English words in many different sentences” (No 13), “trying to find grammatical rules” (No 20), “making new English words from Greek” (No 26), “noticing one’s English mistakes and using that information” (No 31), “planning one’s schedule to have enough time to study English” (No 34), “giving oneself a reward or treat for doing well in English” (No 41), “writing down one’s feelings in a diary” (No 43), “talking to somebody else about one’s feelings” (No 44), “asking for help from English speakers” (No 48), and “trying to learn about the culture of English speakers” (No 50).

There were significant positive associations of age and 9 strategies. Specifically, high school students made more frequent use of a dictionary (No 12), practiced the skills of reading more (No 16 and 27) and the skills of writing and listening to a larger extent (strategies No 17 and 32 respectively), avoided word-for-word translation (No 22), and used more compensatory strategies, particularly guessing from context (No 24), moving one’s hands (No 25), and using a synonym or circumlocution (No 29). Moreover, there was a marginally significant positive effect on trying to use the language as much as possible (No 30, $p=0.052$).

Obviously, as age and, by consequence, proficiency increases, learners come into contact with more demanding language and more systematic practice of the language skills, need to use resources, and use the language for communication as much as possible. As learners mature, they appear to be in need for more meaningful and holistic learning without great concern for grammar or mistakes. They also downplay memory and some affective strategies, plan studying less, and rely more on themselves asking for help less frequently.

5.3.2. Motivation to learn English effects

Motivation to learn English had a significant main effect on the use of a remarkable number of 43 of the 50 strategies on the questionnaire. There was a negative difference only in the use of two compensatory strategies, namely, moving one’s hands (No 25) and making up new words from Greek (No 26), which do not seem to work in a cognitively demanding English classroom. Motivation made a significant and consistently positive difference in the use of 41 strategies: six memory ones (No 1, 2, 3, 4, 5, 8), twelve cognitive ones (No 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 23), three compensatory ones (No 24, 28, 29), all the metacognitive strategies (No 30-38), all of the affective strategies except one (No 39, 40, 41, 42, 44), and all of the social set (No 45-50). Notably, many of the above strategies are connected to the four language skills, that is, listening (No 15, 32), speaking (No 11), reading (No 16, 18), and writing (No 17, 23) with strategy No 30 emphasizing the use of the foreign language learned.

The sweeping influence of motivation was obvious in other studies, too; for instance, in Oxford and Nyikos (1989), in Wharton (2000), and in Lan and Oxford (2003), where “liking of English” had a significant impact on 60% of the Taiwanese Children’s SILL.

5.3.4. Interaction effects

There were 9 strategies that displayed interactions between age and motivation to learn English (namely, No 1, 2, 10, 11, 20, 23, 32, 45, 46) indicating that the two factors sometimes work in unison as regards individual strategies.

6. Conclusions and implications

As learners in middle adolescence in the Greek context mature cognitively and emotionally, they deploy remarkably fewer memory and affective strategies, and strive to communicate using more compensatory strategies than younger learners. The former also rely more on themselves using fewer social strategies such as asking for help less frequently, make higher use of resources, read and write more extensively, listen more carefully, plan less, and avoid verbatim translation.

It is vitally important that teachers comprehend their students' age-differentiated learning behavior in order that a better rapport is established between them. As far as the Greek adolescents are concerned, aside from offering a wide range of activities for meaningful communication, which can satisfy students' need for use of the language, it appears that teachers need not overemphasize memorization strategies and opt for more elaborate language activities for vocabulary retention and retrieval. What is more, they should continually encourage their students' endeavors and seeking assistance; they should also engage them in less individualized work providing them with more opportunities for peer collaboration.

Overall, as the effects of age might blend with those of language proficiency, deeper and more detailed investigation of age in the future could involve learners of a wider age range (including adults) having the same linguistic level and probably the same amount of instruction in cross-sectional and longitudinal research yielding more robust results.

Besides age, motivation to learn English proved to be even more influential on the vast majority of the strategies despite its significant decline in junior high school. Consequently, gearing teaching towards bolstering up students' motivation, especially at secondary educational level, seems to be mandatory so that they can utilize a wide repertoire of all strategic categories. That could lead to practicing all the four linguistic skills to a great extent, managing their emotions and being socially active while planning, organizing, and assessing their learning in an effort to employ the language for communication in as many ways as possible. In other words, reinforcement of students' zeal for the target language could essentially contribute to furtherance of their overall linguistic accomplishment, which is a primary goal in L2 acquisition.

Note

1. The term "second language acquisition" in Gardner's model signifies reference to a language other than a learner's first one. Besides, the majority of the research related to the model was conducted in Canada exploring learning of French as a foreign rather than a second language as far as availability of the language is concerned (Masgoret and Gardner, 2003).
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Appendix

Table 3. Two-way MANOVA results with strategy categories as the dependent variables and age and motivation to learn English as the independent variables

Main and interaction effects	Strategy categories	Type III Sum of squares	df	Mean square	F	p
Age	Memory	7.066	1	7.066	22.999	0.000***
	Cognitive	0.194	1	0.194	0.706	0.401 n.s.
	Compensation	9.190	1	9.190	22.175	0.000***
	Metacognitive	0.056	1	0.056	0.159	0.690 n.s.
	Affective	2.475	1	2.475	5.224	0.022*
	Social	2.437	1	2.437	5.511	0.019*
Motivation to learn English	Memory	33.535	3	11.178	36.385	0.000***
	Cognitive	96.699	3	32.233	117.583	0.000***
	Compensation	6.435	3	2.145	5.176	0.001**
	Metacognitive	240.142	3	80.047	229.140	0.000***
	Affective	45.513	3	15.171	32.019	0.000***
	Social	92.679	3	30.893	69.859	0.000***
Age X Motivation	Memory	3.188	3	1.063	3.459	0.016*
	Cognitive	1.330	3	0.443	1.617	0.183
	Compensation	0.402	3	0.134	0.323	0.809
	Metacognitive	1.274	3	0.425	1.216	0.302
	Affective	0.941	3	0.314	0.662	0.576
	Social	0.661	3	0.220	0.498	0.684

Strategy category	Age				Comparisons of significant findings
	E		J		
	Mean	S. D	Mean	S. D	
Memory	2.79	0.61	2.47	0.54	E > J
Cognitive	3.20	0.61	3.03	0.55	
Compensation	2.78	0.68	3.00	0.61	J > E
Metacognitive	3.63	0.72	3.30	0.71	
Affective	3.12	0.71	2.87	0.71	E > J
Social	3.50	0.73	3.18	0.69	E > J

Strategy category	Motivation to learn English								Tukey-HSD post hoc test results
	LM		MM		HM		VHM		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Memory	2.06	0.48	2.39	0.56	2.60	0.55	2.85	0.59	LM < MM < HM < VH
Cognitive	2.41	0.58	2.75	0.53	3.09	0.51	3.42	0.54	LM < MM < HM < VH

Compensation	2.68	0.83	2.89	0.66	2.89	0.63	2.91	0.66	LM< MM, HM,VH
Metacognitive	2.36	0.74	2.86	0.60	3.43	0.61	3.96	0.55	LM<MM< HM<VH
Affective	2.41	0.78	2.76	0.67	2.96	0.67	3.24	0.73	LM<MM, HM<VH
Social	2.59	0.67	2.98	0.70	3.31	0.67	3.68	0.64	LM<MM< HM<VH

Memory strategy mean scores for Age X Motivation									
Age	Motivation to learn English								Comparisons of significant findings
	LM		MM		HM		VHM		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Elementary School	2.22	0.52	2.47	0.63	2.72	0.56	2.97	0.59	LMJ<LME< MMJ, MME
Junior High School	1.99	0.45	2.36	0.53	2.52	0.53	2.59	0.51	<HMJ<VHJ< HME<VHE

Notes

- Significance: *= p< 0.05, **= p< 0.01, ***= p< 0.001
- E= elementary school, J= junior high school
- LM= low motivation, MM= medium motivation, HM= high motivation, VH= very high motivation



Table 4. Two-way MANOVA results with strategies as the dependent variables and age and motivation to learn English as the independent variables

Strategy items	Significant differences	Comparisons of significant findings
1. I try to think of relationships between new English words and old ones	Motivation*** Age X Motivation**	LM< MM< HM, VH LMJ, LME< MME, MMJ< HMJ,HME, VHJ <VHE
2. I use new English words in a sentence which I make up so I can remember them	Age** Motivation*** Age X Motivation**	E< J LM, MM< HM< VH LMJ<MMJ<LME, MME, HMJ, VHJ< HME< VHE
3. I connect the sound of a new English word and a picture of the word in my mind to help me remember the word	Age* Motivation***	E> J LM< MM, HM< VH
4. I remember a new English word by making a mental picture of the situation in which I heard or saw the word (in a dialogue, story, or song etc)	Motivation***	LM< MM, HM, VH
5. I use rhymes to	Age**	E> J

remember new English words	Motivation*	LM< MM, HM, VH
6. I use flashcards to remember new English words	n. s.	
7. I mime words to remember them	Age*	E> J
8. I review English words and grammar often	Age** Motivation***	E> J LM< MM< HM< VH
9. I remember a new English word by remembering its location on the page, on the board, or on a shop sign	n. s.	
10. I say or write new English words many times to learn them	Age*** Motivation*** Age X Motivation*	E> J LM< MM< HM< VH LMJ<LME, MMJ< HMJ, VHJ< HME< VHE
11. I try to talk like native English speakers	Motivation*** Age X Motivation*	LM< MM< HM< VH LME< LMJ< MME, MMJ< HME, HMJ< VHE, VHJ
12. I use a dictionary to look up unknown words	Age* Motivation***	E< J LM< MM< HM, VH
13. I alone write the English words I know in many different sentences so I can remember the words better	Age* Motivation**	E> J LM< MM, HM< VH
14. I start conversations in English	Motivation***	LM< MM< HM< VH
15. I watch English language TV shows or listen to tapes or CDs or go to movies to practice in English	Motivation***	LM< MM< HM, VH
16. I read books or magazines in English	Age** Motivation***	E< J LM< MM< HM< VH
17. I write notes, messages, letters, or reports in English (in class or on my own)	Age** Motivation**	E< J LM< MM< HM< VH
18. I first skim an English passage (read over the passage quickly) then go back and read carefully	Motivation**	LM< MM< HM, VH
19. I look for words in the Greek language that are similar to new words in English	n. s.	
20. I try to find grammatical rules in	Age*** Motivation***	E< J LM< MM< HM< VH

English	Age X Motivation*	LMJ<MME, MMJ< LME, HMJ< HME, VHJ< VHE
21. I find the meaning of an English word by dividing it into parts that I understand	Motivation***	MM, LM, HM< VH
22. I avoid translating word-for-word	Age***	E< J
23. I make summaries of information that I hear or read in English (either in my mind or in the margins of the text)	Motivation*** Age X Motivation*	LM, MM, HM< VH LME< MME< LMJ, MMJ, HMJ< HME< VHJ< VHE
24. To understand unfamiliar English words, I make guesses from context	Age*** Motivation***	E< J LM< HM, MM, VH
25. When I think of a word during a conversation in English, I move my hands	Age** Motivation*	E< J VH, MM, HM < LM
26. I make up new words from Greek (with English sounds or ending) if I do not know the right ones in English	Age** Motivation***	E> J VH, HM< MM, LM
27. I read English texts without looking up every new word	Age***	E< J
28. I try to guess what the other person will say next in English	Motivation***	LM< MM, HM, VH
29. If I can't think of an English word, I use a word or phrase that means almost the same thing	Age*** Motivation***	E< J LM< MM< HM, VH
30. I try to find as many ways as I can to use my English	Motivation***	LM< MM< HM< VH
31. I notice my English mistakes and use that information to help me do better	Age*** Motivation***	E> J LM< MM< HM< VH
32. I pay attention when somebody is speaking English	Age** Motivation*** Age X Motivation**	E< J LM< MM< HM< VH LME< LMJ< MME, MMJ< HMJ, HME< VHJ, VHE
33. I try to find out how to be a better learner of English	Motivation***	LM<MM<HM<VH
34. I plan my schedule so I will have enough	Age** Motivation***	E> J LM< MM< HM< VH

time to study English		
35. I look for people I can talk to in English	Motivation***	LM, MM< HM< VH
36. I look for opportunities to read as much as possible in English	Motivation***	LM< MM< HM< VH
37. I have clear goals for improving my English skills	Motivation***	LM< MM< HM< VH
38. I think about my progress in learning English	Motivation***	LM< MM< HM< VH
39. I try to relax whenever I feel afraid of using English	Motivation***	LM< MM, HM< VH
40. I encourage myself to speak English even when I am afraid of making a mistake	Motivation***	LM< MM< HM< VH
41. I give myself a reward or treat when I do well in English	Age* Motivation**	E> J LM< MM, HM< VH
42. I notice if I am nervous when I am studying or using English	Motivation***	LM< MM, HM, VH
43. I write down my feelings in a language learning diary	Age***	LM< MM, HM, VH E> J
44. I talk to somebody else about how I feel when I am learning English	Age** Motivation*	E> J LM, MM, HM< VH
45. If I do not understand something in English, I ask the other person to slow down or say it again	Motivation*** Age X Motivation*	LM<MM<HM, VH LME<LMJ, MME<MMJ, HMJ, VHJ, HME< VHE
46. I ask English speakers to correct me when I talk	Motivation*** Age X Motivation*	LM< MM< HM, VH LME<LMJ<MME, MMJ, HMJ, VHJ< HME< VHE
47. I practice English with my fellow students	Motivation***	LM< MM, HM< VH
48. I ask for help from English speakers	Age* Motivation***	E> J LM, MM< HM, VH
49. I ask questions in English	Motivation***	LM< MM< HM< VH
50. I try to learn about the culture of English speakers	Age*** Motivation***	E> J LM, MM< HM< VH

Notes

- Significance: * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$
- E = elementary school, J = Junior high school
- LM = low motivation, MM = medium motivation, HM = high motivation, VH = very high motivation

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