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# Young Bilingual Children's Spelling Strategies: A Comparative Study of 6- to 7-Year-Old Bilinguals and Monolinguals

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# Young Bilingual Children's Spelling Strategies: A Comparative Study of 6- to 7-Year-Old Bilinguals and Monolinguals

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**Abstract**

Developing literacy in two languages can be challenging for young bilingual children. This longitudinal study investigates the effects of bilingualism in the spelling strategies of English-Portuguese speaking children. A total of 88 six-to-seven-year-old bilinguals and monolinguals were followed during one academic year and data gathered on a range of verbal and written language skills and non-verbal measures while controlling for SES. For both bilinguals and monolinguals letter knowledge, phonological awareness and word concept were significant predictors of spelling. However, non-verbal reasoning played an increasing role in explaining spelling variance for bilinguals, suggesting that learning to spell in two alphabetic languages places more demands on non-verbal processing skills. Spelling error analyses further revealed that bilinguals when compared to monolinguals showed more reliance on phonological strategies, less compliance with the L1 orthographic system and at times transference from L2. The results suggest important implications for our understanding of spelling acquisition and the development of effective intervention practices for bilingual children.

**Keywords:** bilingualism, spelling development, spelling error analysis


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# Estrategias de Ortografía en Niños Bilingües: Un Estudio Comparativo de Niños Bilingües y Monolingües de 6 y 7 Años

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**Resumen**

Desarrollar la alfabetización en dos idiomas puede ser un desafío para los niños bilingües. Este estudio longitudinal investiga los efectos del bilingüismo en las estrategias de ortografía de los niños que hablan inglés y portugués. Un total de 88 niños bilingües y monolingües entre los seis y siete años participaron en este estudio durante un año académico, en el cual se recogieron datos sobre una variedad de habilidades de lenguaje verbal y escrito y medidas no verbales teniendo en cuenta el nivel socioeconómico. Tanto para los niños bilingües como para los niños monolingües el conocimiento de letras, la saber fonológico y el concepto de palabra fueron principales predictores de la ortografía. Sin embargo, el razonamiento no verbal jugó un papel cada vez mayor en la variación de la ortografía de los niños bilingües, lo que sugiere que aprender a escribir en dos idiomas alfabéticos impone más demandas en las habilidades de procesamiento no verbal. El análisis de los errores de escritura revela que los niños bilingües en comparación con los monolingües mostraron una mayor dependencia de estrategias fonológicas, un menor cumplimiento de las reglas del sistema ortográfico inglés y, en ocasiones, transferencia del portugués para escribir fonemas en inglés. Los resultados muestran implicaciones importantes para la comprensión de la adquisición de la ortografía en niños bilingües y sugieren el desarrollo de prácticas de intervención efectivas para niños bilingües.

**Palabras clave:** Bilingüismo, aprendizaje de la ortografía, análisis de errores de ortografía


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Early spelling is an important component of literacy acquisition and a unique predictor of later reading (Treiman et al., 2018). However, spelling raises particular challenges for young children as the process of deciphering spoken words to represent them graphically requires phonological awareness (PA), phoneme-grapheme and lexical knowledge as well as cognitive skills (Czapka, Klasset & Festman, 2019; Norton, Kovelman, & Petitto, 2007; Stage & Wagner, 1992). Developing literacy in two alphabetic languages can be particularly challenging for young bilingual children. Previous research studies have uncovered associations between L1 and L2 in language processing tasks requiring phonological awareness and word decoding. However, the nature of the relationship between bilinguals' two languages is still unclear with both positive, negative or no associations found for different groups and linguistic domains (Kang, 2012; Raynolds & Uhry, 2010; Sparks, Patton, Ganschow & Humbach., 2008; Zammit, Agius & Camilleri, 2018). For example, Sun-Aperin and Wang (2011) whilst finding positive cross-language transference for reading noted that orthographic skills in L1 and L2 were independent of each other in spelling. Therefore, the influence that both languages have on bilinguals' spelling development and how cross-language information influences bilinguals spelling strategies remain open questions.

The present longitudinal study investigates the influence bilingualism may have on the spelling strategies in young bilingual children within two challenging orthographic systems: English and Portuguese. A combination of quantitative data and spelling error analysis was used to uncover bilinguals' spelling strategies. It also extends present research by comparing bilinguals and monolinguals not only on a range of verbal and written language skills, but also on non-verbal measures while controlling for socioeconomic status (SES). These two latter factors are seldom included in studies exploring literacy acquisition in bilinguals but have both been shown to significantly influence linguistic skills (Calvo and Bialystok, 2014; Melby-Lervag & Lervag, 2011; Woumans, 2015). For example, whilst significant variations in literacy skills, such as PA, have been attributed to differences in SES (Chung et al., 2017), past research has often not matched monolingual and bilingual

groups in terms of socioeconomic backgrounds (Czapka, Klasset & Festman, 2019; Gathercole, Kennedy & Thomas, 2016).

Although it is estimated that more than half of the world population is bilingual (Bialystok, 2017), bilinguals are complex to study as they are a very diverse population, with different proficiencies and linguistic backgrounds. Bilingualism is also not static, being constantly subject to changes as children move from one context (social and linguistic) to another and develop skills as needed for their particular circumstances. In the present study and for sampling purposes bilingualism is defined as the regular use of two languages, and bilinguals are those who actively use two languages on an everyday basis at home, in the community and at school from an early age (Grosjean, 2010; Kroll, Dussias, Bice, & Perrotti, 2015; Mayer, Crowley, & Kaminska, 2007).

**Spelling in Bilinguals**

While spelling strategies may vary across languages (Mayer et al., 2007, Rønneberg & Torrance, 2019), spelling single words requires the coordination of distinct processes (Czapka, et al., 2019). For young spellers in an alphabetic system, spelling involves segmenting spoken words into phonemes, and knowing letter names/sounds while also understanding the alphabetic principle of mapping a sequence of sounds to represent them graphically onto a sequence of letters (Treiman & Bourassa, 2000, Raynolds & Uhry 2010). However, symbol-sound correspondence is just an initial step in spelling (Kahn-Horwitz, Schwartz & Share., 2011) as with more complex writing systems such as English and Portuguese, phoneme-to-grapheme correspondence is insufficient to become a successful speller. In spelling children learn to connect knowledge about the alphabet, phonology, orthography and morphology of their language (Treiman & Bourassa, 2000).

Language transference is one of the key outcomes from research on the literacy acquisition of bilinguals, suggesting that both languages impact on the representation of each other (Dixon, Zhao & Joshi, 2010). Studies specifically focusing on spelling in bilinguals have, however, revealed distinct outcomes, with some research suggesting *positive* cross language facilitation whilst others identifying *negative* (interference) literacy skills transference across languages (Bialystok, 2017; Raynolds & Uhry, 2010). The nature of the scripts in the two languages may explain some of the differences noted

across studies (Deacon et al., 2013). That is, bilinguals' language transference may be different with two languages that share characteristics in the writing systems (e.g., two alphabetic systems) from those with two very different orthographies (e.g., an alphabetic and a logographic system) (Deacon et al., 2013; McBride-Chang & Ho, 2005). Transference may also depend on the speaker's levels of fluency and the complexity of both writing systems (Mishra & Singh, 2014; Sun-Aperin & Wang, 2011; Yeong, Fletcher & Bayliss, 2014).

Transference across two languages with a similar alphabet may result from bilinguals developing a single orthographic representation for words (Van Heuven, Schieefers, Dijkstra, & Hagoort , 2008) or, by an automatic activation of the non-target lexicon via translation equivalents (Mishra & Singh, 2014). Both explanations imply that a simultaneous activation of two languages will also require a selection system to detect similarities and conflict across languages, and inhibit automatic transference (see Bialystok, 2017). This in turn will require bilinguals to develop specific strategies to cope with competitive information from both languages.

**Writing Systems: English and Portuguese**

The complexity of the relationship between phonemes and graphemes in a language influences children's initial spelling strategies but also levels of cross language transference (Arab-Moghaddam & Senechal, 2001; Yeong et al., 2014). Both English and Portuguese are alphabetic languages and share some phonological and orthographical properties. However, these two orthographies also present differing complexity. English is often described as a *deep* orthography as it is characterised by complex and inconsistent correspondences between phonemes and their grapheme representations (Arab-Moghaddam & Senechal 2001; Mayer et al, 2007). The spelling of vowels is particularly inconsistent in English and although sometimes the choice of vowels is based on positional factors, other times it is not (e.g., made and maid).

Portuguese on the other hand is regarded of intermediate consistency; it has a simpler syllabic structure than English, however the relationship between phonemes and graphemes is also not simple and direct (Defior,

Martos & Cary, 2002; Vale, 2011). As in English, the Portuguese orthographic system depends on different factors: phonological, syntactic and lexical. Although vowels in Portuguese are clearly less problematic than in English, the spelling of some vowel sounds also present inconsistencies (e.g., O and U). Particular consonant sounds such as /s/ can also be complex for children to spell because different graphemes can be used to represent it.

## Purpose of the Study

In order to understand factors influencing the spelling strategies used by English-Portuguese young bilingual spellers, bilingual and monolingual children's literacy and non-verbal skills were studied and the following research questions were explored:

1. Are there significant differences between English speaking monolinguals and English-Portuguese bilinguals in terms of spelling and literacy related skills?
2. Do young English-Portuguese bilinguals and English monolinguals use similar sources of information/ strategies to spell in English?

## Method

### Samples and Sampling Procedure

Two groups of children took part in this study: one group of English monolingual children and one group of English-Portuguese bilinguals. The monolingual group comprised 44 children, 18 girls and 26 boys. At the first assessment this group was on average 6.6 years old (ranging from 6.1 to 7.2 years of age). The second group comprised 44 English-Portuguese bilingual children, with a mean age of 6.9 (ranging between 6.2 to 7.3 years). There were 23 girls and 21 boys in this group.

Both the monolingual and bilingual children attended private schools following the English National Curriculum: the former in two schools in two cities in England, and the bilinguals in two cities in Portugal. All schools provided the same curriculum subjects, except for Portuguese which was taught in the bilingual schools as L2. In all schools literacy in English was introduced to the children in Foundation (3-4 years); in the bilingual schools

literacy instruction in Portuguese started at the age of 6. Bilinguals were selected according to the following criteria: (1) being fluent in English and Portuguese (based on school records), (2) having no experience of other languages, (3) having attended a British English-speaking school from the age of three.

No child included in the samples had any cognitive, linguistic, sensory or emotional impairment, indicated by the school records. Data were collected in different schools to obviate the possibility that group differences were the result of variables such as teaching strategies or school climate.

Independent schools were chosen because they served children from similar SES. The criterion used in this study to group children in terms of SES was parental occupation derived from the Standard Occupational Classification (Office of National Statistics, 2000). Parental occupation data confirmed that there was no significant difference between the monolingual and bilingual groups in terms of the social group assigned to. However, it is important to emphasise the limitations of using parental occupation as the sole measure of SES (Savage, Devine, Cunningham et al., 2013).

## Procedure

Permission to carry out the study was sought from the schools, parents and verbally from the children. All the children were seen individually in their schools. At the beginning of each session the structure of the tasks was explained again to the children and they were reminded that they could stop any time they wished to.

Data were collected at three separate times in the academic year. The first session took place between September and October. The second session took place between the end of March and April. Three months later, in a third session, the children were given a group spelling test in their classrooms. Bilinguals' second language vocabulary was assessed once in a separate session. Data collection times and measures used are summarised in table 1.

Table 1. *Measures given to both monolinguals and bilinguals at three data collection times*

| Time 1 | Time 2 | Time 3 |
|---|---|---|
| Alphabet knowledge | Alphabet knowledge | |
| Word concept | Word concept | |
| PA | PA | |
| Spelling (words and nonwords) | Spelling (words and nonwords) | Spelling (words: Group Spelling Test) |
| Vocabulary | Vocabulary | |
| Non-verbal reasoning | Non-verbal reasoning | |
| | L2 Vocabulary (bilinguals) | |

**Measures Developed for the Study**

**Letter identification**

The assessment procedure began with a test of letter name-and-sound knowledge using a set of plastic letters presented to the children in the same non-alphabetic order. Children were asked to identify both lowercase and uppercase letters.

**Word concept**

This task was designed to assess children's ability to separate words from graphic representations that were not words within a set of different letter strings and numbers.

**PA**

Two tasks were developed to assess children's ability to isolate phonemes in words: in the first task children were asked to say just the last sound of a word and in the second to say the remainder of a word after the first sound was omitted.

For the letter identification, word concept and the PA tasks the score was the number of items answered correctly.

**Spelling of words**

In this task children were asked to spell a list of words by writing them down. They were encouraged to try to write the word, and to have a guess when they

were not sure. Children were shown a picture for each word, with the same word heard twice on a sound recorder.

**Spelling of nonwords**

A similar procedure was used regarding spelling of nonwords, except here children were told: "this time we are going to hear some made-up words".

Spelling scoring system - A point was given for each letter correctly spelled. The letters in the words were considered correctly spelled if they were written in the exact order (even if some letters in between were missing). For example, *BL* for *ball* was scored 2 points. If two letters were written in a reversed order only one point was given. Digraphs were scored 1 point but half a point was given when only one of the letters of the digraph was represented. If a word was correctly spelled except for one extra letter half a point was deducted from the total.

The measures developed specifically for this study were previously piloted and reliability scores tested on separate samples.

**Other Assessment Measures Used**

The British Picture Vocabulary Scale (BPVS) was used to assess children's receptive vocabulary in English (Dunn et al., 1982). A Portuguese translation of the Peabody Picture Vocabulary Test -Revised (PPVT-R). PPVT-R was administered to bilinguals to assess vocabulary in Portuguese.

In terms of non-verbal reasoning two measures were used: children were asked to solve the British Ability Scales Matrices (BAS) (Elliot, Murray and Pearson, 1982) and after all the individual data was carried out the children were given the Draw-a-Man Test (Goodenough, 1926) in their classroom.

The children were given test A from the Parallel Spelling Test (Young, 1983) in their classroom at the end of the school year, in this study referred to Group Spelling Test.

## Results

To ascertain if group mean scores for bilinguals and monolinguals were significantly different, independent *t*-tests were calculated for all variables. The results indicate that monolinguals, when compared to bilinguals, obtained

significantly higher results on all spelling measures at all testing times (see table 2). Monolinguals could on average name more letters of the alphabet than bilinguals, however, no group differences were found in terms of identifying letter sounds. Monolinguals also showed significantly higher average scores on the word concept task, but no significant group differences were observed for PA. There were also no significant differences between monolinguals and bilinguals on non-verbal ability measures (BAS Matrices and Draw-a-man Test). In terms of receptive vocabulary in English, monolinguals performed significantly better than bilinguals.

Table 2. Comparative data for monolinguals and bilinguals on all measures at all testing times

| | | Monolinguals | | Bilinguals | | |
|---|---|---|---|---|---|---|
| Time | Test | Mean | SD | Mean | SD | *t*-value |
| Sep./Oct. | Spell words | 43.86 | 5.36 | 38.64 | 7.92 | 3.58 **(df.74) |
| | Spell nonwords | 40.46 | 4.22 | 35.70 | 6.82 | 3.89 ***(df.84) |
| | Name letters | 46.28 | 8.63 | 28.09 | 17.89 | 6.00*** (df.84) |
| | Sound letters | 48.40 | 2.66 | 47.79 | 4.62 | .74 (df.84) |
| | Word concept | 8.60 | 1.50 | 7.70 | 1.52 | 2.79(df.84)** |
| | Phoneme isolation | 7.53 | 2.27 | 8.07 | 2.33 | -1.08 (df.84) |
| | Phoneme deletion | 7.23 | 2.08 | 6.19 | 3.10 | 1.84 (df.74) |
| | BAS Matrices | 55.65 | 8.88 | 57.58 | 6.86 | -1.13 (df.84) |
| | Draw-a-Man | 108.26 | 41.66 | 117.41 | 32.52 | -1.12 (df.82) |
| | Vocabulary-BPVS | 113.47 | 9.92 | 86.74 | 17.67 | 8.65 (df.84)*** |

Table 2. Continued

| | | Monolinguals | | Bilinguals | | |
|---|---|---|---|---|---|---|
| Time | Task | Mean | SD | Mean | SD | *t*-value |
| March/ April | Spell Words | 63.07 | 6.71 | 56.17 | 9.01 | 4.07 *** (df.86) |
| | Spell nonwords | 60.53 | 5.03 | 51.20 | 6.46 | 7.56 ***(df.86) |
| | Name letters | 50.11 | 5.04 | 46.89 | 7.53 | 2.36*(df.86) |
| | Sound letters | 50.48 | 1.89 | 50.39 | 2.26 | .21 (df.83) |
| | Phoneme isolation | 11.64 | 1.48 | 11.89 | 1.32 | -.84 (df.86) |
| | Phoneme deletion | 9.34 | 2.30 | 9.23 | 2.53 | .22 (df.86) |
| | Word concept | 9.89 | .90 | 9.20 | 1.29 | 2.89 (df.77)*** |
| | BAS Matrices | 56.41 | 7.99 | 58.23 | 7.90 | -1.07 (df.86) |
| | Draw-a-Man | 101.61 | 39.74 | 110.00 | 37.20 | -1.00 (df.83) |
| | Vocabulary - BPVS | 112.09 | 8.82 | 91. 95 | 16.55 | 7.12 (df.86) *** |
| July | PST (Words) | 23.32 | 5.33 | 17.05 | 5.89 | 5.19 ***(df.84) |

Key: PST Parallel Spelling Test, BAS British Ability Scales
* p< .05 ** p= .001 *** p< .001

**Vocabulary in L2**

The results on the vocabulary test given to bilinguals at the second testing time showed that the bilingual group varied significantly in terms of their proficiency in Portuguese (Mean 73.30, SD 19.79).

To help uncover possible reasons for the bilingual group's lower spelling scores regression analyses were performed where spelling was entered as the independent variable and alphabet knowledge, word concept, PA, vocabulary, non-verbal ability, gender and age were entered as dependent variables. The multiple regression analyses results are summarised in tables 3 and 4 for monolinguals and tables 5 and 6 for bilinguals. The procedure used for

computing the regressions was the forward selection. The criterion for variable selection used was an F test probability level of .05.

Table 3. *Multiple regression analyses predicting spelling at the three testing times with the independent variables from testing time 1 – Monolinguals*

| Testing time dependent variables | Testing time independent variables | B | SE B | *B* | *t* | *p* |
|---|---|---|---|---|---|---|
| T1 Sept./Oct | T1 Sept./October | | | | | |
| Spelling words | Phoneme deletion | 1.181 | .340 | .458 | 3.47 | .001 |
| | Draw-a-man test | .353 | .157 | .298 | 2.25 | .03 |
| Spelling nonwords | Phoneme deletion | .965 | .279 | .475 | 3.46 | .001 |
| T2 March/April | T1 Sept./October | | | | | |
| Spelling words | Phoneme deletion | 1.532 | .420 | .474 | 3.65 | .001 |
| | Draw-a-man test | .463 | .193 | .311 | 2.39 | .021 |
| Spelling | Phoneme deletion | .882 | .328 | .370 | 2.69 | .010 |
| nonwords | Phoneme isolation | .731 | .300 | .335 | 2.43 | .020 |
| T3 July | T1 Sept./October | | | | | |
| Spelling words | Phoneme deletion | .872 | .358 | .343 | 2.44 | .019 |
| | BAS Matrices | .532 | .262 | .286 | 2.03 | .049 |

Table 4. *Multiple regression analyses predicting spelling at testing times 2 and 3 with the independent variables from testing time 2 – Monolinguals*

| Testing time dependent variables | Testing time independent variables | B | SE B | *B* | *t* | *p* |
|---|---|---|---|---|---|---|
| T2 March/April | T2 March/April | | | | | |
| Spelling | Word concept | 3.173 | .909 | .402 | 3.49 | .001 |
| words | Phoneme deletion | 1.227 | .329 | .418 | 3.73 | .001 |
| | Sound letters | .027 | .008 | .263 | 2.34 | .024 |
| Spelling | Word concept | 2.110 | .705 | .358 | 2.99 | .005 |
| Nonwords | Phoneme deletion | .870 | .255 | .396 | 3.41 | .002 |
| | Sound letters | .017 | .006 | .308 | 2.65 | .012 |
| T3 July | T2 March/April | | | | | |
| Spelling | Phoneme deletion | 1.004 | .272 | .451 | 3.70 | .001 |
| words | Sound letters | .025 | .007 | .441 | 3.62 | .001 |

Table 5. *Multiple regression analyses predicting spelling at the three testing times with the independent variables from testing time 1 – Bilinguals*

| Testing time dependent variables | Testing time independent variables | B | SE B | *B* | *t* | *p* |
|---|---|---|---|---|---|---|
| T1 Sept./Oct | T1 Sept./October | | | | | |
| Spelling | Phoneme deletion | .690 | .329 | .272 | 2.10 | .043 |
| words | Word concept | 1.457 | .558 | .293 | 2.61 | .013 |
| | Name letters | .108 | .045 | .252 | 2.42 | .021 |
| | Sound letters | .509 | .226 | .281 | 2.25 | .031 |
| Spelling | Sound letters | .868 | .175 | .557 | 4.97 | .000 |
| nonwords | Word concept | 1.539 | .480 | .360 | 3.21 | .003 |

Table 5. Continued

| Testing time dependent variables | Testing time independent variables | B | SE B | *B* | *t* | *p* |
|---|---|---|---|---|---|---|
| T2 March/April | T1 Sept./October | | | | | |
| Spelling words | Phoneme deletion | 1.258 | .349 | .424 | 3.61 | .001 |
| | Word concept | 1.908 | .698 | .328 | 2.74 | .010 |
| | Name letters | .131 | .055 | .262 | 2.38 | .023 |
| Spelling nonwords | Sound letters | .801 | .143 | .539 | 5.59 | .000 |
| | Word concept | 1.419 | .402 | .347 | 3.53 | .001 |
| | Draw-a-man test | .305 | .114 | .248 | 2.69 | .011 |
| T3 July | T1 Sept./October | | | | | |
| Spelling words | Word concept | 1.912 | .530 | .477 | 3.61 | .001 |
| | Draw-a-man test | .368 | .151 | .323 | 2.44 | .020 |

Table 6. *Multiple regression analyses predicting spelling at testing times 2 an 3 with the independent variables from testing time 2 – Bilinguals*

| Testing time dependent variables | Testing time independent variables | B | SE B | *B* | *t* | *p* |
|---|---|---|---|---|---|---|
| T2 March/April | T2 March/April | | | | | |
| Spelling words | BAS Matrices | .849 | .245 | .446 | 3.46 | .001 |
| | Phoneme isolation | 2.278 | .871 | .337 | 2.62 | .012 |
| Spelling nonwords | BAS Matrices | .243 | .187 | .177 | 1.30 | .230 |
| | Phoneme deletion | 1.007 | .318 | .400 | 3.17 | .003 |
| | Vocabulary | .145 | .049 | .339 | 2.96 | .005 |
| | Word concept | 1.544 | .530 | .312 | 2.93 | .006 |

Table 6. Continued

| Testing time dependent variables | Testing time independent variables | B | SE B | *B* | *t* | *p* |
|---|---|---|---|---|---|---|
| T3 July | T2 March/April | 1.981 | .587 | .442 | 3.38 | .002 |
| Spelling | Word concept | .429 | .160 | .351 | 2.68 | .011 |
| words | BAS Matrices | | | | | |

The regression analyses show that, for bilinguals word concept, PA, alphabet knowledge (naming and sounding letters) were strong predictors of spelling performance from the start of the academic year. For monolinguals, PA was a systematic predictor of spelling with word concept becoming an important predictor at the second testing time. For bilinguals the BAS matrices become an important predictor of spelling performance through testing times 2 and 3. Vocabulary in English had only a minor contribution in relation to spelling of non-words during testing time 2 for bilinguals.

**Qualitative Spelling Error Analysis**

The next step in the data analysis required understanding if language transference was also explaining bilinguals lower spelling scores. Qualitative spelling error analysis was conducted to ascertain if bilinguals spelling errors were: (a) the result of reliance on the Portuguese orthographic system to spell in English (*L2 transference*) or (b) the result of an overreliance on phonetic strategies to spell (*intra-language* error, not directly linked to L2).

The analysis concentrated solely on children's misspellings as these offer clearer information about the types of strategies that were used by each group (Treiman et al, 2013). The analysis focused on phonemes that could offer indication of L2 transference so most phonemes that are spelled the same in English and in Portuguese were not included in the analysis (e.g., /β/). Shared cross language phonemes offer little information about the possible reliance by bilinguals on Portuguese orthography to spell words in English. The phonemes not included in the analysis are indicated with a double dash (--).

However, the analysis included some phonemes such as consonant clusters and nasals, as these can be particularly challenging for young spellers

(Treiman, 1993; Read, 1986). These more challenging phonemes were analysed to see if, despite being common to both languages, they would be misspelled by bilinguals more times than monolinguals. This would, in turn, suggest that bilinguals' lower spelling performance was not entirely due to their reliance on the orthographic system of L2 to spell in English.

A spelling error produced by bilinguals was classified as being the result of L2 transference if the following criteria were all met: (1) it was a common representation of the phoneme in Portuguese but not in English, (2) it was not observed amongst monolinguals' misspellings in the present study and, (3) not found by other researchers as a common error in English-speaking young monolinguals.

Qualitative error analysis was performed on all the items spelled by children in both testing time 1 and 2, because of word count limitations, only illustrative examples are offered of 2 words (*Trousers* and *Shoe*) and 2 nonwords (*Dake* and *Rejune*). The qualitative spelling error analysis data is presented by identifying the spelling errors produced by both monolinguals and bilinguals for the phonemes selected.

**Illustrative Examples**

Trousers /traʊzəz/

Table 7. *Children's misspellings for the phoneme /tr/ in trousers*

| Letter (s) used | Monolinguals N | Bilinguals N |
|---|---|---|
| T | 5 | 11 |
| CH | | 6 |
| X | | 1 |

Treiman (1993) also found *T* to be the most common misspelling of /tr/. Young children treat consonant cluster as a unit with large number of consonant cluster errors involving the omission of the interior consonant (Steffler et al, 1998). Treiman (1993) also found a number of children spelling /tr/ as *CH*, which in the present study was observed six times in bilinguals. This seems to be a spelling error due to children perceiving similarities in

sounds (Cassar and Treiman, 1997). Young children find the sound /tr/ similar to /tʃ/ (Read, 1986). L2 was only apparent in the use of *X* for /tr/ by one bilingual. This seems to be due to the similarity between /tr/ and /tʃ/ and in Portuguese /ʃ/ is in sometimes spelled *X*.

Table 8. *Misspellings for the phoneme /aʊ/ in trousers*

| Letter (s) used | Monolinguals N | Bilinguals N |
|---|---|---|
| O | 14 | 10 |
| AW | 12 | 11 |
| A | 10 | 24 |
| OW | 8 | 1 |
| AU | 3 | 7 |
| E | 3 | 1 |
| I | 2 | 3 |
| U | 2 | 6 |
| AO | | 7 |

All letters used by bilinguals and monolinguals to spell /aʊ/ were found to be used by an important percentage of children studied by Read (1975). The only exception was the use of *AU*. Because /aʊ/ in Portuguese would be spelled *AU* or *AO*, this error could at first be judged as resulting from L2. However, this does not seem to be the case as the same misspelling was observed amongst monolinguals. The use of *AO* was however considered as possible L2 transference because it was not observed amongst monolinguals' spellings for this phoneme and it was one of the two possible spellings of / aʊ / in Portuguese.

Table 9. *Misspellings for the phoneme /z/ in trousers*

| Letter (s) Used | Monolinguals N | Bilinguals N |
|---|---|---|
| Z | 4 | 10 |
| SS | 2 | 3 |

The analysis of the phoneme /z/ here refers to both the first and second *S* in the word *trousers*. The decision to analyse the occurrence of /z/ twice together in the word *trousers* was based on the fact that, with some spellings, it was not possible to determine if either the first or the second had been represented (e.g., spelling trousers as *TRAWS).*

Most children in the present study represented /z/ with *S*. This was followed by the use of *Z* and *SS*. This was also the pattern observed in previous studies (Treiman, 1993; Read, 1975). Because of the great similarity between monolinguals' and bilinguals' spelling errors for this phoneme, no L2 transference errors could be inferred.

Table 10. *Misspellings for the phoneme /ə/ in trousers*

| Letter (s) Used | Monolinguals N | Bilinguals N |
|---|---|---|
| U | 9 | 6 |
| I | 2 | 15 |
| A | | 13 |

The results for the phoneme /ə/ showed a different pattern of misspellings for monolinguals and bilinguals. While monolinguals' most common misspelling was the use of *U*, bilinguals' most frequent error was the use of *I*, followed by the use of *A*. Bilinguals' high choice of *I* for /ə/ does not seem to be a reliance on L2, as in Portuguese /ə/ is never spelled with an *I*. The use of *A* could, however, be a case of a L2 transference error. The sound /ə/ is not part of the Portuguese phonetic system but /ʌ/, spelled *A* is one of the most similar sounds to /ə/. Additionally, here no monolingual used the letter A to spell this phoneme. However, Read (1975) found that both *A* and *I* were common misspellings for /ə/ amongst his sample.

SHOE /ʃu:/

Table 11. *Misspellings for the phoneme /ʃ/ in shoe*

| Letter (s) Used | Monolinguals N | Bilinguals N |
|---|---|---|
| S | 3 | 6 |
| CH | 1 | 5 |
| H | | 8 |
| X | | 2 |

There was some similarity between the data obtained with bilinguals and monolinguals on the phoneme /ʃ/ and the results from Read's (1975) and Treiman's (1993) studies. Only the use of *H* for /ʃ/ by bilinguals seemed to be higher than that observed in the studies just mentioned. This, however, does not seem to be a case of L2 influence because in Portuguese *H* is a silent letter. The high use of *CH* by bilinguals to spell /ʃ/ could, in part, be a case of L2 transference because in Portuguese *CH* is the most common spelling of /ʃ/. However, as one monolingual produced the same spelling error and other authors have also reported the same misspelling amongst young spellers (Raynolds & Uhry, 2010; Read, 1975), this error was considered here only as possible L2 error.

Clearer L2 transference errors were found, however, on two spellings where /ʃ/ was represented with the letter *X*.

Table 12. *Misspellings for the phoneme /u:/ in shoe*

| Letter (s) Used | Monolinguals N | Bilinguals N |
|---|---|---|
| O | 5 | 19 |
| OO | 5 | 13 |
| OW | 16 | 10 |
| U | 2 | 10 |
| OOW | 8 | 3 |

All the spellings observed for the phoneme/u:/ in the word *shoe* were also reported by Mayhew (1977), Read (1975), and Treiman (1993). Although the

percentage and rank order of the spellings observed by these authors varied slightly, they were an approximate representation of the percentages found here for monolinguals and bilinguals.

**Spelling of Nonwords**

REJUNE /rɪʤuːn /
/r/--

Table 13. *Children's misspellings for the phoneme /ɪ/ in rejune*

| *Letter (s) Used* | *Monolinguals N* | *Bilinguals N* |
|---|---|---|
| I | 6 | 24 |
| U | 2 | 1 |
| EI | 2 | |
| EE | | 2 |

The fact that bilinguals more often than monolinguals chose to spell /ɪ/ with *I* instead of an *E,* could be due to their reliance on the Portuguese orthographic system, where /ɪ/ is more often spelled with *I* than with *E*. However, this error is likely to result from a reliance on phonetic strategies, because not only did several monolinguals also spell /ɪ/ as *I*, but previous studies also indicated this as a commonly spelling choice amongst young spellers (Mayhew, 1977, Read, 1975, Treiman, 1993).

Table 14. *Misspellings for the phoneme /ʤ/ in rejune*

| Letter (s) Used | Monolinguals N | Bilinguals N |
|---|---|---|
| G | 9 | 13 |
| D | 5 | 3 |

Children's spellings of /ʤ/ were very similar amongst monolinguals and bilinguals and were also in agreement with the results reported by Treiman (1993).

Table 15. *Misspellings for the phoneme /u:/ in rejune*

| Letter (s) Used | Monolinguals N | Bilinguals N |
|---|---|---|
| O | 5 | 11 |
| E | 3 | |
| OO | 1 | 3 |

Apart from *U* which was the expected spelling for /u:/ in *rejune*, *O* and *OO* were the most frequently used spellings by bilinguals. The results for this phoneme are in accordance with the data gathered by Treiman (1993) and Read (1975).

Table 16. *Misspellings for the phoneme /n/ in rejune*

| Letter (s) Used | Monolinguals N | Bilinguals N |
|---|---|---|
| N | 18 | 27 |

The high number of bilinguals omitting the final *E* in the syllable *NE* was not likely to be due to L2 transference as in Portuguese words do not end in a single *N* without a vowel, including the silent vowel *E*.

DAKE /deɪk/
/d/--

Table 17. *Children's misspellings for the phoneme /eɪ/ in dake*

| Letter (s) Used | Monolinguals N | Bilinguals N |
|---|---|---|
| I | 15 | 1 |
| AY | 8 | 3 |
| E | 1 | 10 |

*A*, which was the likely spelling for this phoneme, was children's first choice to spell /eɪ/. All other representations observed here by both groups were also observed by Mayhew (1977), Read (1975) and Treiman (1993). The high number of bilinguals spelling /eɪ/ as *E* does not seem to be the result of reliance

on the L2 alphabetic system, as in Portuguese the most likely spelling of /eɪ/ is *EI*. No clear evidence of L2 type errors was found amongst bilinguals on the spelling of this phoneme.

Table 18. *Misspellings for the phoneme /k/ in dake*

| Letter (s) Used | Monolinguals N | Bilinguals N |
|---|---|---|
| CK | 42 | 18 |
| C | 23 | 49 |
| Q | 8 | 3 |

The fact that so many bilinguals used *C* for /k/ seems to be expected. According to Read (1975) this was the most common spelling choice for /k/ amongst his younger subjects. No clear L2 transference errors were observed on bilinguals' spellings for this phoneme. It was interesting to observe that less bilinguals than monolinguals used *Q* to spell /k/, which according to the Portuguese orthographic system would be the most likely representation of /k/ in this nonword

## Discussion and Conclusions

### Group Similarities and Differences: Spelling, Literacy Skills and Non-Verbal Reasoning

The present findings identify important group similarities and differences in terms of the spelling strategies of bilinguals and monolinguals. Overall, monolinguals had significantly higher spelling scores than bilinguals at all testing times. Monolinguals could on average also name more letters of the alphabet than bilinguals, although this difference was reduced at Time 2 and no group differences were found in terms of identifying letter sounds. Monolinguals also showed significantly higher average scores in terms of word concept and receptive vocabulary in English. No significant group differences were observed in terms of PA and non-verbal reasoning measures.

To further understand if different spelling strategies were also explaining group differences, a qualitative spelling error analysis was carried out. The results show that bilinguals produced more phonetic spellings suggesting less

compliance with the orthographic and morphemic characteristics of English than monolinguals.

**Bilinguals' Spelling Strategies**

Overall, the results offer clear evidence about the strategies used by bilinguals and monolinguals when spelling. Regression analyses indicate that for both bilinguals and monolinguals letter knowledge, PA and word concept were important predictors of spelling. However, while no group differences were observed in terms of PA, word concept task was the only systematic contributor to spelling where bilinguals performed significantly lower than monolinguals. Early print knowledge was required in the word concept task to decide if an item could be accepted as a word or not, suggesting bilinguals' lower exposure to English orthography as a main reason for their lower spelling performance.

Analysis of spelling errors offered further evidence that bilinguals lower spelling scores were linked to lower print knowledge, likely derived from limited exposure to written English outside school. Less literacy-learning opportunities in English at home and in the community will initially lead to a shorter orthographic lexicon and explain bilinguals' lower compliance with the English orthographic system and overreliance on phonetic spelling strategies (Yeong et al., 2014). A reliance on non-lexical strategies to spell is required when children do not yet possess sufficient orthographic representations in long-term memory that can be automatically retrieved (Czapka et al., 2019; Raynolds & Uhry, 2010; Steffler et al., 1998). Orthographic conventions are learnt more through experience with print than through explicit teaching (Cassar & Treiman, 1997, Vale, 2011). Through reading, children develop a written vocabulary, which supports the formation of orthographic units that are frequent in a language (Deacon et al., 2013).

The spelling errors of bilinguals also suggest, albeit to a much smaller degree, the use of the Portuguese writing system as a source of information for spelling in English. Confirming the view that even in monolingual mode, bilinguals may search for both lexicons when confronted with words that are also orthographically close (Mishra & Singh, 2014). Bilinguals may transfer information (phonetic or orthographic) from L2 to L1 to overcome gaps of

information in L1. Or, they may simply transfer information across languages because this is an important strategy when spelling sounds that are common across both systems such as with cognates (positive language transference) (Raynolds & Uhry, 2010). The challenge for young bilinguals is to learn when to apply this strategy and when to refrain from using it. Here it is important to also consider that despite some irregularities Portuguese has a more regular writing system than English and is therefore easier to "access". The orthographic depth of both L1 and L2 may therefore also play a role in language transference in spelling (Sparks et al., 2008).

The fact that for bilinguals, non-verbal ability had an increasing role in explaining variance in terms of spelling performance, suggests that learning to spell in two alphabetic languages may, in the initial stages, place more demands on non-verbal skills. The role played by non-verbal skills in spelling for bilinguals may result from the cognitive control required to separate the two writing systems (Czapka et al., 2019; Olulade et al., 2016). The BAS Matrices in particular involve visual analogies. Directing attention to visual patterns is important in spelling and even more crucial when two alphabetic languages share some, but far from all, of the phoneme-grapheme correspondences.

**Supporting Bilinguals' Spelling Strategies**

The present results have important implications for educational practice in supporting young bilingual spellers and, in particular, where the language used at school may differ from the home environment or wider community. The bilinguals in this study attended English medium schools, learned Portuguese as a second language at school but lived in a Portuguese-speaking country so their exposure to Portuguese was significant.

Learning two alphabetic systems will require more opportunities to understand the similarities and differences between the spelling patterns in both languages (Deacon et al., 2013). These differences and similarities can be internalised through experiences where children are encouraged to develop and test their own hypotheses about the orthography of each language. It is also important to teach bilinguals a variety of strategies for spelling which can be applied when they are not able to automatically retrieve a spelling from memory (Steffler et al., 1998). Spelling error analysis also proved to be an

important assessment tool in providing clues to the spelling strategies used by bilingual children and to identify which spellings may be particularly challenging. Linan-Thompson, Degollado & Ingram (2017) emphasise the importance of considering spelling errors as part of a developmental process in bilinguals, instead of evidence of negative language transference.

Finally, the present study contains several limitations linked to the difficulty of considering bilingual children in relation to monolingual groups. Bilinguals are challenging to study because of the complexity of factors associated with bilingualism, including: two spoken languages, two writing systems and the linguistic and psychosocial diversity associated with bilingualism. Bilingual children will start school with varying degrees of exposure to oral and written language and it is important to support them to deepen their insight into both writing systems in a manner that is appropriate and enjoyable. Parents in partnership with teachers play an important role in providing support which helps children to become familiar with the writing system of each language and coming to understand common and distinct spelling patterns across both languages.

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# College Student Suicide Risk: The Relationship between Alexithymia, Impulsivity, and Internal Locus of Control

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# College Student Suicide Risk: The Relationship between Alexithymia, Impulsivity, and Internal Locus of Control

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**Abstract**

Suicide has become the second leading cause of death for individuals between 15 and 29 years old and increasingly more common within college students (WHO, 2016). The purpose of this study was to examine the associations among alexithymia, impulsivity, and locus of control as predictors of suicide risk in college students. Participants were comprised of 550 undergraduate students from two universities in the southeastern United States. Multiple regression analyses were examined to evaluate what variables could be significant predictors of suicide risk in college students. Age, alexithymia subscales of difficulty identifying feelings and externally oriented thinking, and impulsivity subscales of motor, self-control, and nonplanning were considered significant in the regression analysis of suicide risk. Psychoeducational implications, limitations, and future directions are also discussed.

**Keywords:** alexithymia, suicide risk, impulsivity, college students


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# Riesgo de Suicidio en Estudiantes Universitarios: La Relación entre Alexitimia, Impulsividad y Locus de Control Interno

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**Resumen**

El suicidio se ha convertido en la segunda causa de muerte entre las personas entre 15 y 29 años y es cada vez más común entre los estudiantes universitarios (WHO, 2016). El propósito de este estudio fue examinar las asociaciones entre alexitimia, impulsividad y locus de control como factores predictivos del riesgo de suicidio en estudiantes universitarios. Los participantes fueron 500 estudiantes de grado de dos universidades en el sureste de los Estados Unidos. Se realizaron análisis de regresión múltiple para evaluar qué variables podrían ser predictores significativos del riesgo de suicidio en estudiantes universitarios. La edad, las subescalas de alexitimia de dificultad para identificar los sentimientos y el pensamiento orientado externamente, y las subescalas de impulsividad de motor, autocontrol y no planificación se consideraron significativas en el análisis de regresión del riesgo de suicidio. También se discuten las implicaciones psicoeducativas, las limitaciones y las direcciones futuras.

**Palabras clave:** alexitimia, riesgo de suicidio, impulsividad, estudiantes universitarios


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Suicide has become the second leading cause of death for individuals between 15 and 29 years old worldwide (WHO, 2016). Colleges and universities across the country are not immune to its impact, as suicidal thoughts and behaviors (STB) are common among college students. Specifically, 12-month suicidal ideation estimates (i.e., either characterized as broad ideation or as seriously contemplating suicide) have been referenced to be in the 5–35% range (Robins and Fiske, 2009, Wong et al., 2011), and 12-month suicide attempts have been referenced to range between 0.6–11% (Chou et al., 2013, Eisenberg et al., 2013). The American College Health Association (2011) also stated that as many as six percent of college students consider suicide each month, and one out of every 100 college students has attempted suicide at some point in the past. Although a wide range of prevention interventions have been developed and implemented in colleges worldwide, a Cochrane review indicated minor support that these programs lead to reductions in suicidality (Harrod et al., 2014). For this reason, policy makers, college administrators, clinicians, and helping professionals must have accurate insight into and knowledge regarding the identification of at-risk students so that appropriate interventions may be put in to place to serve this individuals (Haas, Hendin, & Mann, 2003). Therefore, the purpose of this research was to examine the association among alexithymia, impulsivity, locus of control, and suicide risk in undergraduate students to help better explore the personal attributes or traits that may be associated with a phenotype or profile for suicidal risk.

## Literature Review

Research in the field of suicide has been problematic, as much of the work completed to date has focused on the prediction of suicide rather than a clear understanding of the phenomenological aspects of suicide (Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007a; 2007b). Silverman et al. (2007a) recognized that the nuances of the term *suicide* contributed to the challenges faced in suicidology, and asserted how that a common nomenclature would better serve the field. Typically, when the term *suicide* is used, it is done so in a broad fashion, referring to many varied behaviors rather than a single action. Such behaviors may include suicidal thoughts, intentions,

ideation, gestures, attempts, completions, and equivalents. In addition, another problematic issue is that statistical data does not necessarily inform suicide prevention. Linehan (2008) asserted that most research on suicide has been based on the theory that suicide is a symptom of a mental disease. Under this assertion, one must treat the underlying disease in order to effectively treat suicide, which has resulted in various suicide prevention strategies being developed based upon this theoretical premise. Linehan argued this model has not been effective because no randomized trial has shown evidence that targeting mental disorders results in significant reductions in suicide attempts or deaths by suicide. She also referenced that suicide research should focus not on pathology, but on personality factors or traits that better predict suicidal ideation and behaviors.

Pompili (2010) similarly supported the theory that confining the etiology of suicide to psychiatric illness is problematic. Within this premise, suicide should be considered a phenomenological event, unique to individuals rather than a syndrome or symptom of a psychiatric illness. Although suicide research has focused on suicidal ideation, recent suicide attempts, and other short-term risk factors, Pompili referenced researchers should center the focus on personality factors because dispositions may hold the more precise cause or deeper reasoning for desiring suicide.

Nock and colleagues (2008) reinforced the notion for researchers to depart from examining demographic and psychiatric factors and move toward examining theoretical models that explain suicidal behaviors. The authors' premise was identifying risk factors and traits in a theoretical model would be critical in aiding college and helping professionals to develop appropriate interventions with suicidal students (Schwartz, 2006; 2011). By examining personal attributes or traits, a theoretical model may be formed that would better define a phenotype or profile for suicide. One such psychological factor—alexithymia—is the subject of exploration in this study.

**Alexithymia and Suicidal Ideation**

Alexithymia is a personality construct described by the subclinical incapacity to distinguish and verbalize emotions in the self. A number of studies have supported the position that alexithymia is related to suicide risk (Laget et al., 2006; Iancu et al., 1999; Alpaslan et al., 2015). In particular, Laget et al.

(2006) examined alexithymia scores on the Toronto Alexithymia Scale-20 with 570 participants who were characterized with dependence disorders. The researchers found that repeat attempters (both past and recent) had a more severe psychological profile compared to other suicide attempts. Furthermore, their findings indicated TAS-20 scores were higher among recent and past attempters. Iancu et al. (1999) studied alexithymia, affect intensity, and emotional range in suicidal clients. Using 60 participants, the researchers found that when comparing 20 suicidal depressed (SD) clients to 20 non-suicidal depressed (NSD) clients to 20 control group participants, the SD group had higher alexithymia scores on the Toronto Alexithymia Scale than the NSD and control group participants. Although the results indicated that alexithymia, affect intensity, and emotional range were not proven to be represent sensitive predictors of suicidal behavior, the researchers found that hopelessness and depression severity were more reliable in the prediction of suicidal risk. Likewise, Alpaslan and colleagues (2015) suggested that the presence of alexithymia is a significant predictor of suicide probability in a sample of 381 non-clinical Turkish high school girls with disorder eating attitudes (DEA). Their findings indicated the Suicide Probability Scale (SPS) total score, Hopelessness, Suicide Ideation, and the Hostility subscale scores of the SPS were significantly higher in the alexithymic DEAs group than the non-alexithymic DEAs group.

**Locus of Control and Suicide Risk**

Previous findings have identified an association between locus of control and suicidal behavior among adolescents and young adults. In particular, findings indicated that individuals who had engaged in suicidal behaviors were characterized by a more external locus of control orientation (Goldney et al., 1989; Goldney et al., 1991; Topol & Reznikoff, 1982). In an 8-year longitudinal study of suicidal ideation among high school students, Goldney et al. (1989; 1991), found that locus of control scores correlated with suicidal ideation over time. Goldney et al. (1991) proposed that suicidal ideation is not merely a temporary experience but is linked with more pervasive psychological traits. Topol and Reznikoff (1982) found that hospitalized suicidal adolescents scored more externally than hospitalized nonsuicidal teenagers and non-hospitalized controls. Topol and Reznikoff also proposed

the locus of control construct may be useful in identifying potentially suicidal adolescents. Recent findings have indicated suicide risk scores correlated negatively and significantly with self-esteem and resilience and positively with locus of control (Montes-Hidalgo & Tomás-Sábado, 2016) and that locus of control and family connectedness related to current nonsuicidal self-injury (NSSI) engagement (Wester et al., 2016).

**Impulsivity and Suicide Risk**

Recent studies using the Barratt Impulsiveness Scale (BIS; Patton et al., 1995) have indicated a connection between impulsivity and suicide risk (Izci et al., 2016; Ponsoni, et al., 2018; Menon et al., 2015). In particular, higher BIS-11 attention factor scores were found to be higher in adults with bipolar II disorder with a history of suicide attempts and higher BIS-11 motor and nonplanning factor scores in adults with bipolar I with histories of suicide attempt when compared to a nonclinical matched control group (Izci et al., 2016). Ponsoni et al. (2018) referenced differences in BIS-11 motor factor scores in clinical patients with a history suicide attempts compared to clinical patients without a history of suicide attempts. Their study revealed that each additional point on the BIS-11 motor factor scale increased probability of past suicide attempts by 1.14%. Lower motor impulsivity as measured by the BIS-11 have also been found to be an independent predictor of suicide intent with medically stabilized attempted suicide subjects (Menon, Sarkar, Kattimani, & Mathan, 2015). Furthermore, higher impulsivity and suicide risk was seen in clients with dependence and a history of suicidal ideations compared with same type clients without a history of suicidal ideations and significantly higher nonplanning factor scores. (Khemiri, Jokinen, Runeson, & Jayaram-lindström, 2016). Gvion & Apter (2012) proposed the construct of impulsivity, particularly as it relates to suicide and suicidal behavior, needs additional research to refine it to differentiate between state versus trait impulsivity as well as the role of other factors such as aggression relate to impulsivity as a risk factor in suicide.

**College Students and Suicide Risk**

A large national sample of undergraduate college students indicated that 8% had attempted suicide at least once in their lives (Drum, Brownson, Denmark,

& Smith, 2009). In spite of the fact that suicide is one of the leading causes of death on college campuses, few college students report receiving information about suicide from their college or university. A majority of college students (65.9%) reported they have not received information about suicide prevention from their college or university. Instead many students referenced that colleges and universities were much better about providing information concerning other topics, such as violence prevention, sexually transmitted disease/infection prevention, and stress reduction rather than suicide prevention. Garlow et al. (2008) found 16%_of university students with suicidal ideation were actually receiving treatment. In another university study, only 20% to 25% of students that died by suicide had contacted campus counseling centers (Schwartz, 2006). Conversely, college students who utilized campus counseling centers were 18 times more at risk of suicide. This might indicate that more severely emotionally disturbed students are more apt to use campus counseling services. Nevertheless, the point remains that only about one in four college students who die by suicide contacted campus counseling centers. The vast majority do not receive any form of treatment. At this time, no statistics are available regarding how many college students contact their professors, instructors, or advisors with these concerns.

## Implications of Current Study

While previous findings have indicated separate associations between the three constructs of alexithymia, locus of control, and impulsivity with suicide ideation using various populations, the purpose of this study is to examine the specific association between alexithymia, impulsivity, locus of control, and suicide risk together within college students. In addition, demographic factors such as age, sex, and race were investigated to understand the etiology of suicide. Assuming that suicide risk is multidimensional, an individual may understand the relationship between a dispositional variable (e.g., alexithymia) and suicide risk. If a dispositional precursor to suicide can be better understood, such information may inform the development of assessment and intervention protocols for colleges and universities that are interested in identifying and assisting high risk students.

**Hypotheses**

The main null hypothesis of our study is that there is no relationship between the variables of Alexithymia, Locus of Control, and Impulsivity, and the Suicide Brief Questionnaire-Revised total score. The alternative hypothesis/Ha is: At least one of the independent variables is useful in explaining/predicting SBQ-R, expressed as: $H_1$: At least one $\beta i$ is $\neq 0$. In regards to expected results, the authors hypothesized that students with higher alexithymia and impulsivity total and subscale scores would have be at higher risk with suicide ideation and behavior. In addition, the authors theorized college students with higher SBQ-R total scores would be more internalized in their locus of control. If we fail to reject, we conclude that there isn't any evidence of explanatory power, which suggests there is no point in using this model or variables to evaluate these traits in college students for understanding suicide risk.

## Method

This study used a quantitative design to examine alexithymia, impulsivity, and locus of control as predictors of suicide risk among college students and frequencies associated with these variables. Participants were undergraduate students recruited from two universities in the southeastern United States who were asked to complete a web-based, self-report survey. The first university was a mid-sized public university and the second was a mid-sized private university. A multiple regression analysis was used to analyze the relationship between each of the constructs and suicide risk. A number of covariates were included in the regression model including gender, race, school, and age. These analyses were conducted to help identify the factors that may be most predictive of suicide risk.

**Participants**

Invitations were sent to 879 college students. Out of these invitations, 621 (71%) accessed the survey (95 students at the private university and 526 at the public university). Of the 621 students to access the survey, 550 (89%) completed the survey in its entirety. Partial or incomplete surveys were not used in data analysis. Eligibility to participate in this study included an

enrolled status in the university systems and a required age limit of 18 years old. The university samples differed significantly by gender—whereas only 46.1% of participants at the public university were female, 73.3% of participants at the private university were female ($X^2 = 22.35$, $p < .001$). Freshmen comprised 42.7% of participants; 31.0% were sophomores, 16.0% were juniors, and 5.8% were seniors. Academic classification percentages were comparable across the two universities. As for the race identified by the participants, 446 (81.3%) were White or Caucasian, 29 (5.3%) were Black or African American, 29 (5.3%) were Middle Eastern (i.e., Saudi), 26 (4.6%) were Asian, 10 (2.6%) were Hispanic or Latino, seven (1.3%) were American Indian or Alaska Native, and one (.2%) was a Pacific Islander (i.e., Filipino). The public university was somewhat more racially diverse (i.e., 17.6% specifying a racial minority vs. 12.2% at the private university). Lastly, the mean age of respondents was 20.52 ($SD = 3.60$). The mean for the public university was 20.55 ($SD = 3.63$) and the mean for the private university was 20.35 ($SD = 3.42$; i.e., a non-significant difference).

**Measures**

**Toronto Alexithymia Scale–20.** The Toronto Alexithymia Scale–20 (TAS– 20; Bagby, Parker, & Taylor, 1994a; 1994b) was developed with the assumption that individuals with alexithymia have difficulty identifying feelings, describing feelings, and are externally oriented in their thinking. The 20-item instrument includes a five-point Likert scale with three scales that can be summed to create a total alexithymia score. Scores of 51 or lower are considered low and scores equal to or higher than 61 are considered high (Taylor et al., 1992). The total scale has shown good internal consistency (.81; Bagby et al., 1994a). The TAS-20 has a three-factor model with: 1) *Difficulty Identifying Feelings, 2) Difficulty Describing Feelings* and 3) *Externally-Oriented Thinking.* Individual alexithymia factors have shown generally acceptable internal consistencies of 0.78, 0.75, and 0.66, respectively (Bagby et al., 1994a). Sample items include: "I have feelings I can't identify"; "It is difficult for me to find the right words for my feelings"; "Being in touch with emotions is essential."

**Barratt Impulsiveness Scale.** The Barratt Impulsiveness Scale (BIS; Patton et al., 1995) is a 30-item instrument with a four-point Likert scale to

measure the construct of impulsivity. The scale has gone through eleven revisions and found to be effective in examining the impulsivity personality trait in clinical and non-clinical settings (Stanford et al., 2009). The BIS-11 assesses nine factors across two broader dimensions (Patton et al., 1995). Six of the factors (i.e., *attention, motor, self-control, perseverance, cognitive complexity,* and *cognitive stability*) have been identified as first order factors (Stanford et al., 2009). Sample items include "I plan tasks carefully" (*self-control*) and "I act on the spur of the moment" (*motor*). Second order factors (i.e., *attentional impulsiveness, motor impulsiveness, and non-planning impulsiveness*) include items such as "I spend or charge more than I earn" (*motor impulsiveness*) and "I don't pay attention" (*attentional impulsiveness*). According to Stanford et al. (2009), total scores of 72 or above should be used to indicate high impulsivity. The BIS-11 has shown well-established concurrent validity in college samples in comparison to other measures of impulsivity and that the measure had acceptable internal consistencies ranging from .71 to .83.

**Internal Control Index.** The Internal Control Index (ICI; Duttweiler, 1984) is a 28-item instrument used to measure internal versus external locus of control. The ICI measures two factors (internal and external) addressing an individual's expectancy for reinforcement. Sample items of Factor 1 include "When faced with a problem I try to forget it," and "Whenever something good happens to me I feel it is because I earned it." Factor 2 includes such items as "I need encouragement from others for me to keep working at a difficult task," and "I prefer to learn the facts about something from someone else rather than have to dig them out for myself.". These items are all scored through Likert-type responses of rarely, occasionally, sometimes, frequently, or usually. Possible scores range from 28 to 140 with higher scores indicating internal locus of control. The ICI has very good internal consistency (.84) and the instrument has been found to have higher reliability than other instruments measuring locus of control (Duttweiler, 1984).

**Suicidal Behaviors Questionnaire-Revised.** The Suicidal Behaviors Questionnaire-Revised (SBQ-R; Linehan, 1981) is a four-item, instrument used to measure past and future suicidal behavior (Osman et al., 2001). In particular, the SBQ-R asks three questions about past suicidal behavior (e.g., "Have you ever thought or attempted to kill yourself") and the fourth item is

future-oriented (i.e., "How likely is it that you will attempt suicide someday?"). Linehan (1981) developed the original version of the SBQ to be used as a structured interview to assess suicide risk. The SBQ-R has been normed using clinical and non-clinical samples. The non-clinical sample included high school students and undergraduate general psychology students. The SBQ-R has shown acceptable internal consistency among undergraduates (.76). Furthermore, Osman et al. (2001) determined that the SBQ-R scores was useful to determine risk factors for suicidal behaviors. A cutoff score of seven is recommended to be used for both non-clinical, adult samples (Osman et al. 2001). The SBQ-R has shown concurrent validity when compared to other measures of suicide risk (Cotton, Peters, & Range, 1995).

## Results

Sums, means, standard deviations, and internal consistencies are provided for the TAS-20 (Bagby, Parker, & Taylor, 1994a), BIS-11 (Patton et al., 1995), ICI (Duttweiler, 1984) and SBQ-R (Osman et al., 2001). Furthermore, each instrument showed good internal consistency, ranging from .80 to .84.

Table 1. *Scale Sums, Means, Standard Deviations, and Internal Consistencies*

| Scale | Sum Score | *M* | *SD* | A |
|---|---|---|---|---|
| TAS-20 | 48.39 | 2.42 | .52 | .83 |
| BIS-11 | 63.30 | 2.11 | .32 | .80 |
| ICI | 98.73 | 3.54 | .46 | .84 |
| SBQ-R | 48.25 | 4.63 | 2.53 | .80 |

### Alexithymia

The TAS-20 sum scores ranged from 20 to 100. The overall mean was 48.39 (*SD* = 10.33), indicating low to moderate (or nearly moderate) scores. Mean scores were also computed by calculating the average score of individual items on the TAS-20. The overall mean score was 2.42 (*SD* = .52) on a five-point scale. Males had significantly higher alexithymia scores (*M* = 2.50, *SD* = .49) than females (*M* = 2.34, *SD* = .53), where $t = 3.67$, $df = 548$, $p < .001$. Examining mean differences across the samples, alexithymia was significantly higher among students at University 1 (the large public

university) ($M$ = 2.46, $SD$ = .50), $t$ = 4.05, $df$ = 548, $p$ < .001. Mean alexithymia at University 2 was 2.22 ($SD$ = .54).

Using the Taylor et al. (1992) alexithymia cut-off scores, 326 participants were in the low range (59.5%), 152 were in the medium range (27.7%), and 70 participants were in the high range (12.8%). Frequencies of participants in low, medium, and high ranges differed across university samples. In University 1, the breakdown was 56.8%, 29.9%, and 13.3%, respectively. In comparison, the percentages at the private university were 73.3%, 16.7%, and 10.0%, indicating a higher-than-expected frequency of students with medium and high alexithymia at University 1 ($X^2$ = 8.88. $df$ = 2, $p$ = .012). Given the large difference in the proportion of males and females in the two universities, the gender breakdown of alexithymia scores was examined. It was found that males had significantly higher rates of high and medium alexithymia scores (15.6% and 32.2%, respectively) compared to females (10.1% and 23.4%; $X^2$ = 11.81. $df$ = 2, $p$ = .003). These findings suggest that gender may account for the differences in alexithymia scores across universities.

**Impulsivity**

The results indicated sum scores on the BIS-11 ranged from 36.3 to 93.9 with a mean score of 63.3 ($SD$ = 9.6). This was comparable to Stanford et al.'s sample mean of 62.3 ($SD$ = 10.3). The findings indicated 72 participants (22.2%) who scored above 71 (i.e., denoted high impulsivity) and 428 participants (77.8%) who scored below 71 (i.e., denoted normal impulsivity). The mean score for the BIS-11 was 2.11 ($SD$ = .32) on a four-point scale. Males were slightly more impulsive ($M$ = 2.15, $SD$ = .31) than females ($M$ = 2.07, $SD$ = .33), $t$ = 2.82, $df$ = 548, $p$ = .005.

**Locus of control**

The range of ICI sum scores in this sample was 63 to 135 with a mean sum score 98.7 ($SD$ = 13.81). This mean sum score was significantly lower than the mean found by Duttweiler (1984) for similarly aged respondents ($M$ = 103.7, $SD$ = 12.20), $t$ = -8.85, $df$ = 549, $p$ < .001. The ICI mean score was 3.54 on a four-point scale (Table 2). Higher scores on the ICI indicate greater internal locus of control. Female participants had higher internal locus of control ($M$ = 3.60, $SD$ = .47) than male participants ($M$ = 3.48, $SD$ = .45), $t$ =

-2.91, *df* = 548, *p* = .004. ICI scores at University 1 (*M* = 3.51, *SD* = .46) did not differ significantly from scores at University 2 (*M* = 3.66, *SD* = .46).

**Suicide risk**

The average SBQ-R score in this sample was 4.63 (*SD* = 2.5). Females showed a higher suicide risk (*M* = 4.86, *SD* = 2.70) than males (*M* = 4. 39, *SD* = 2.33), where *t* = -2.19, *df* = 539.3, *p* = .029. The Levene's test for equality of variances showed significantly higher variability in female suicide risk scores (*F* = 4.02, *p* = .046). Table 2 compares SBQ-R suicide risk of the two university samples. The range of SBQ-R scores in the current sample was 3 to 17. The recommended cutoff score for clinical samples is greater than or equal to 7 (Osman et al., 2001). In this sample, 99 college student participants had scores indicating suicide risk (18.0%).

Table 2. *SBQ-R Suicide Risk Rates (N = 550)*

| Variable | < 7 | % | ≥ 7 | % | Total |
|---|---|---|---|---|---|
| University 1 | 381 | 82.8 | 79 | 17.2 | 460 |
| University 2 | 70 | 77.8 | 20 | 22.2 | 90 |
| Total | 451 | 82.0 | 99 | 18.0 | 550 |

**Multiple Regressions**

When evaluating the total scores of TAS-20, BIS, and ICI with the variables of Age, Gender, University, and Race in a multiple regression with the dependent variable as the SBQR total, the overall regression model was significant, F(8, 137.39) = 2.85, p < .004, $R^2$ = .048, and adjusted $R^2$= .031 (see Table 3). A closer evaluation of the variables within the regression model indicated Age, and TAS-20 total score as being considered significant in regards to the SBQR total. In addition, Gender was also very close to the cutoff score with a .058.

Table 3. *Coefficients[a] of Multiple Regression Analysis with Total Scores of TAS20, BIS, and ICI*

| | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | Model | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | -1.021 | 2.119 | | -.482 | .630 |
| | University | .105 | .322 | .015 | .326 | .744 |
| | Gender | .455 | .239 | .091 | 1.900 | .058 |
| | Age | .085 | .035 | .127 | 2.429 | .016 |
| | Race | .039 | .134 | .014 | .294 | .769 |
| | Class | -.131 | .140 | -.049 | -.934 | .351 |
| | TAS-20 SUM | .044 | .013 | .183 | 3.495 | .001 |
| | ICI SUM | .006 | .011 | .030 | .525 | .600 |
| | BIS SUM | .014 | .014 | .056 | 1.020 | .308 |

a. Dependent Variable: SBQR_Total

To provide a more thorough analysis, a multiple regression of the subscales of the TAS-20, BIS, and ICI were also examined. Utilizing the findings of the previous multiple regression, non-significant variables were eliminated (e.g., university affiliation, race, etc.). The overall regression model was significant, $F(12, 367.65) = 5.48$, $p < .001$, $R^2 = .13$, and adjusted $R^2 = .11$ (see Table 4). The variables considered as significant in regards to SBQR total within the regression model were Age, TAS-20 Difficulty Identifying Feelings, TAS-20 Externally Oriented Thinking, BIS Motor, and BIS Self-Control.

Table 4. *Coefficients[a] of Multiple Regression Analysis with Subscales of TAS20, BIS, and ICI*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | T | Sig. |
| 1 | (Constant) | 1.888 | 1.976 | | .955 | .340 |
| | Age | .074 | .032 | .109 | 2.314 | .021 |
| | TAS20 DIF | .141 | .028 | .298 | 4.996 | <.001 |
| | TAS20 DDF | -.033 | .034 | -.057 | -.951 | .342 |
| | TAS20 EOT | -.070 | .032 | -.117 | -2.186 | .029 |
| | BIS Attention | .016 | .055 | .017 | .296 | .768 |
| | BIS Motor | -.107 | .041 | -.134 | -2.627 | .009 |
| | BIS Self-Control | .108 | .045 | .147 | 2.399 | .017 |
| | BIS Cognitive Complexity | -.017 | .054 | -.017 | -.312 | .755 |
| | BIS Perseverance | .026 | .077 | .018 | .342 | .733 |
| | BIS Cognitive Stability | .103 | .077 | .070 | 1.346 | .179 |
| | ICI Autonomous Behavior | -.011 | .018 | -.033 | -.609 | .543 |
| | ICI Self-Confidence | .016 | .018 | .053 | .880 | .379 |

a. Dependent Variable: SBQR_Total

As the Barrett Impulsivity Scale also has second order factors of attentional impulsiveness, motor impulsiveness, and nonplanning impulsiveness, a regression analysis was performed using these variables with TAS-20 in regards to the dependent variable of SBQR total. The overall regression model was significant, $F(7, 339.03) = 8.73$, $p < .001$, $R^2 = .12$, and adjusted $R^2 = .10$ (see Table 5). In this model, Age, TAS-20 Difficulty Identifying Feelings, TAS-20 Externally Oriented Thinking, BIS Nonplanning Impulsiveness, and BIS Motor Impulsiveness were significant. In addition, BIS Attentional impulsiveness was also very close to the cutoff score with a .059.

Table 5. *Coefficients[a] of Multiple Regression Analysis with TAS20 and BIS Second-Order Factors*

| | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | Model | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 5.268 | 1.403 | | 3.756 | .000 |
| | Age | .068 | .030 | .101 | 2.258 | .024 |
| | TAS20 DIF | .147 | .027 | .312 | 5.498 | <.001 |
| | TAS20 DDF | -.029 | .033 | -.050 | -.880 | .380 |
| | TAS20 EOT | -.078 | .028 | -.132 | -2.817 | .005 |
| | BIS Nonplanning Impulsiveness | -.084 | .030 | -.133 | -2.767 | .006 |
| | BIS Motor Impulsiveness | -.070 | .032 | -.107 | -2.215 | .027 |
| | BIS Attentional Impulsiveness | .088 | .046 | .095 | 1.895 | .059 |

a. Dependent Variable: SBQR_Total

To further illustrate the relationship between alexithymia and suicide risk, alexithymia categories (low, medium, high) were cross-tabulated with suicide risk. Overall, 18% of students were at risk for suicide, but the percentage of those classified at risk was highest among students with high alexithymia ($n$ = 70; 30%), followed by 19.7% of those with moderate alexithymia ($n$ = 152), and 14.7% in the low alexithymia group ($n$ = 326; $X^2$ = 9.48, $p$ = .009).

## Discussion

The current study examined alexithymia, impulsivity, and locus of control as possible predictors of suicide risk in college students. When the alexithymia subscales were examined separately, *Difficulty Identifying Feelings* and *Externally Oriented Thinking* were the subscales most strongly associated with suicide risk recurrently throughout every multiple regression analysis. Impulsivity first-order subscales of Motor and Self-Control and second-order subscales of Motor Impulsiveness and Nonplanning Impulsiveness were found to be a significant variables of suicide risk. Locus of control subscales

were not significant with suicide risk. Examination of the four covariates indicated that age was a significant variable. In particular, for every year increase in age, suicide risk was .06 points higher. These results suggest that among these participants, alexithymia and impulsivity may better explain suicide risk in college students.

**Psychoeducational Implications**

Dealing with a suicidal student brings out anxiety in even the most seasoned mental health clinicians yet alone educators and academic staff (Rudd, 2006). Therefore, any empirical data that can help identify directions for risk assessment and referral are cogent. One study found that only 16%_of university students with suicidal ideation were actually receiving treatment (Garlow et al., 2008). In another university study, only 20% to 25% of students that died by suicide had contacted campus counseling centers (Schwartz, 2006). Conversely, college students who utilized campus counseling centers were 18 times more at risk of suicide. This might indicate that more severely emotionally disturbed students are more apt to use campus counseling services. Nevertheless, the point remains that only about one in four college students who die by suicide contacted campus counseling centers. The vast majority do not receive any form of treatment. At this time, no statistics are available in regards to how many college students contact their professors, instructors, or advisors with these concerns.

In this study, nearly one in five students (18%) received SBQ-R scores highlighting that they were at risk of suicide. A large national sample of undergraduate college students indicated that 8% had attempted suicide at least once in their lives (Drum, Brownson, Denmark, & Smith, 2009). Our results indicated 2.2% of students reported a previous suicide attempt. Accurately predicting suicide is improbable, but the importance of identifying risk factors cannot be ignored (Bryan & Rudd, 2006). Discovering such risk factors is important if there is any hope to reduce suicide risk in college students. Our findings indicated the subscales of difficulty identifying feelings and externally oriented thinking of alexithymia, the first-order subscales of motor and self-control, and the second-order subscales of motor and nonplanning of impulsivity showed significance in relation to suicide risk.

More research needs be done to examine alexithymia and impulsivity, and the conditions in which these factors may contribute to suicidality.

If a college student comes to an educator or academic staff and is unable to identify their feelings, externally orient, and struggle with motor, self-control, and nonplanning impulsivity, our findings suggest the value of the educator referring to a mental health professional. In particular, motor impulsive responses such as "I do things without thinking" and "I act on impulse," coupled with self-controlled and non-planning impulsive statements of "I don't plan tasks carefully" and "I say things without thinking" would be important to note. In addition, these previous type of comments with an inability to identify how he or she feels with statements such as "I am often confused about what emotion I am feeling" and "I have physical sensations that even doctors don't understand" with externally-oriented comments like "I prefer talking to people about their daily activities rather than their feelings" or "I prefer to watch "light" entertainment shows rather than psychological dramas" could make an individual more at-risk for suicide ideation or behaviors, and therefore, may warrant additional evaluation from a mental health professional..

In spite of the fact that suicide is one of the leading causes of death on college campuses, few college students report receiving information about suicide from their college or university. As cited in our literature review, a majority of college students (65.9%) report that they have not received information about suicide prevention from their college or university (American College Association, 2011). If this held true in the current sample, only 33 of the 99 participants who had significant suicide risk would have received information from their respective institutions about suicide prevention. The study also referenced that colleges and universities were much better about providing information concerning other topics, such as violence prevention, sexually transmitted disease/infection prevention, and stress reduction rather than suicide prevention. Our findings suggest support towards this end, as many of our participants appear that they could benefit from psychoeducational activities of support groups, transfer of information, self-care, and provision of a safe place to identify and describe emotions.

**Limitations**

This study has several important limitations. First, the sample was fairly homogeneous, with 81% of participants identifying themselves as White or Caucasian. The university samples differed little in demographics, which suggests homogeneity of sub-groups (i.e., in spite of the relative size difference). Both universities were liberal arts schools in the southeast United States. As such, the results may not be generalized to other regions. Furthermore, the sample was drawn from psychology and business classes, based on convenience and access. The samples were not representative of the student bodies as a whole at either university.

**Recommendations and Future Directions**

There is a tremendous need for suicide risk assessment instruments to have good sensitivity (correctly identifying suicidal risk) and specificity (high accuracy in ruling out non-suicidal individuals). Schiepek et al. (2011) found that specificity is easier to determine than sensitivity; for the most part, however, investigation of risk factors has been conducted using linear models. Simply adding more variables to explanatory models may not overcome problems achieving sensitivity. According to Schiepek et al., the course of suicidality is nonlinear, requiring dynamic statistical analyses to model these processes. If variables such as alexithymia are to be used in models of suicide risk, they must earn their place by proving their predictive power, and future research needs to employ periodic assessment of at-risk samples to assess the veracity of these traits and their relationship to suicide risk.

Multiple attempters of suicide pose the greatest risk for eventual death by suicide (Joiner, 2005). Our findings identified a small percentage (2.2%) of college students who were previous attempters. Future research should focus on how and why alexithymia and impulsivity are linked, as college students who scored highest on these traits appear to be at higher risk for completed suicide. Joiner's model of suicide risk includes three elements: belongingness, burdensomeness, and acquired ability to enact lethal harm. We recommend that future studies should examine alexithymia in the context of Joiner's model (i.e., especially belongingness and burdensomeness), as well as how impulsivity relates to the act of self-harm.

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# Developing Academic Persistence in the International Baccalaureate: Educational Strategies, Associated Personality Traits and Outcomes

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**Abstract**

The aim of the study was to investigate the relationships between certain educational strategies and students' personality traits, on the one hand, and students' academic performance, on the other, respectively between the latter and two types of outcomes (i.e. students' academic performance and intentions to drop out of high school). These relationships were examined in two educational settings: in the Diploma Programme (DP), a two-year college-preparatory curriculum offered by the International Baccalaureate (IB), an international private educational system, and the traditional Romanian schools. A sample of IB students in 3 Eastern and Central European countries, and a comparison sample of non-IB students in Romania participated in the research. Results reveal several educational strategies and personality traits among those suggested by previous investigations that significantly sustain IB DP students' academic persistence. Also, IB students' academic performance and dropout intentions are influenced by these traits and educational strategies, and these effects are fully or partially mediated by academic persistence. A different pattern of associations emerged in the non-IB sample, with independent work style as the most important determinant of academic persistence, suggesting that relative to the traditional Romanian schools, the IB programme promotes a climate that better supports students in completing their education.

**Keywords:** academic persistence, academic performance, drop-out, personality, educational strategies, International Baccalaureate


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# Desarrollo de la Persistencia Académica en Programa Diploma y Bachillerato Internacional: Estrategias Educativas, Rasgos de Personalidad y Resultados

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**Resumen**

El objetivo principal de este estudio fue investigar, por una parte, la relación entre ciertas estrategias educativas y los rasgos de personalidad de los estudiantes y, por otra, la práctica educativa de los estudiantes, entre la última y dos tipos de resultados (la práctica educativa de los estudiantes y la intención de abandonar el curso). Ambas relaciones fueron analizadas en diferentes entornos: en el Programa Diploma (DP), un currículo de dos años de preparatorio para la universidad ofrecido por el Bachillerato Internacional (IB), un sistema educacional internacional privado, y las escuelas tradicionales rumanas. Una muestra consta de estudiantes IB procedentes de tres países de Europa del Este y Central y, la otra muestra, para comparar, de estudiantes de Rumanía no pertenecientes al IB. Los resultados muestran que algunas estrategias educativas y los rasgos de personalidad sugeridos por investigaciones previas sostienen significativamente la persistencia académica de los estudiantes del IB DP. Asimismo, el rendimiento académico y las intenciones de abandono de los estudiantes del IB están influenciados por estos rasgos y estrategias educativas, efectos total o parcialmente mediados por la persistencia académica. En cuanto a la muestra de no estudiantes de la IB, emerge un patrón diferente de asociaciones, siendo un estilo de trabajo independiente el factor más determinante en la persistencia académica. Esto sugiere que, en comparación con las escuelas rumanas tradicionales, el programa IB promueve un ambiente que sostiene, de manera más exitosa, la finalización de la educación de los estudiantes.

**Palabras clave:** persistencia académica, rendimiento académico, abandono, personalidad, estrategias educativas, International Baccalaureate


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Academic persistence represents a paramount concern for instructional systems attempting to provide high graduation rates, together with instilling the skills needed by students to succeed. Completing secondary education is not only mandatory for ensuring access to higher levels of instruction and is responsible for several adjustment indicators. For instance, its reverse phenomenon, dropout, is a predictor of future placement problems and unemployment (Rumberger & Lamb, 2003). Identifying the variables that explain and predict persistence and achievement is thus a high stake for educational institutions and policy makers.

The main premise of our investigation is that participation in a specific educational program - the International Baccalaureate (IB) - may contribute to the traits, skills and attitudes that allow students to persist in short- and long-term goals. Persistence is related to multiple achievement outcomes (Hardre & Reeves, 2003; Reason, 2003, 2009). Many authors maintain that motivation affects the intention to persist in educational programs (Astin, 1984; Rumberger, 2006) and some models stress the need for an integrative approach of the phenomenon. In this respect, educational psychologists tried to conceptually articulate integrative and comprehensive models. For instance, Tinto's (1993) model of student attrition describes several factors contributing to student departure, including the pre-enrolment attributes of students (socio-demographic traits), family background, and prior schooling experiences, in terms of both social adjustment and academic performance. Understanding who leaves school and why is necessary for creating preventive school support mechanisms, since dropout is considered an insidious, continuous process of disengagement (Finn, 1989; Rumberger, 2000), thus finding the levers of this process for deactivating them early is crucial. Research has shown that dropout is associated to various factors, such as low identification with school and feeling of belongingness (Finn, 1989), aggressiveness (Crain-Dorough, 2003), substance abuse (Freudenberg &Ruglis, 2007), or truancy and discipline problems (Rumberger, 2000). Factors related to school and teaching practices have also been diagnosed: low level of teacher commitment or attendance (Crain-Dorough, 2003), teaching staff turnover (Voicu, 2010), minimal support in transitional stages from one level to another (Blue & Cook, 2004), teasing and bullying victimization

(Cornell, Gregory, Huang & Fan, 2013). Other structural characteristics of the institutions, such as the magnitude of schools and classes, reflected in student-teacher ratios (Andrei, Profiroiu, Profiroiu, & Iacob, 2011), deficient evaluation systems (Govindaraju & Venkatesan, 2010), or bureaucratized and rigid structures and policies (Angus & Mirel, 1999), seem to be other factors determining low attrition rates.

Positive effects on persistence have been shown by higher budgetary allocation to student services, low student-teacher ratio (Chen, 2012), perceived institutional support for all demands of the students, including social and emotional needs (LanRong & Preissle, 2009), support and encouragement offered by teachers (Hu & Ma, 2010), practicing active teaching pedagogies (Braxton, Bray& Berger, 2000), promoting positive attitudes, such as civic engagement, curiosity, initiative, deep action learning (Allen, 2011), and fostering a culture of collaboration, open dialogue, teamwork and constructive debate (AlKandari, 2012).

Pre-enrolment attributes have gained preferential attention, with focus on personality factors that act as advantages, namely the malleable ones, which can add to fostering the right type of academic motivation. Among these, scholars have highlighted the following: self-efficacy beliefs (Zimmerman, Bandura& Martinez-Pons, 1992), ability beliefs or growth mindsets (Blackwell, Trzesniewski, &Dweck, 2007), academic engagement (Fredricks, Blumenfeld, & Paris, 2004), autonomous academic motivation (Deci& Ryan, 1987), student engagement (Martin, 2007), academic resilience (Alva, 1991), willful self-control, tenacity and grit (Duckworth, Peterson, Matthews, & Kelly, 2007).

**The International Baccalaureate Educational System**

The International Baccalaureate Organization (IBO) is an international educational foundation. In 2014, it reported almost 5,500 programs offered in more than 4,000 schools around the world. The IBO offers four educational programmes, one of which is the Diploma Programme (DP) for students aged 16 to 19 years. The IB DP represents a two-year pre-university curriculum leading to a qualification welcomed by leading universities around the world. (IBO, 2013). In Romania, the program has been implemented since 1997;

currently there are three schools in Bucharest that offer IB programmes, including the DP.

Comparatively, the state-managed traditional Romanian school system includes 12 grades, out of which the first 10 are mandatory. The high school system, regulated by a distinct set of laws, includes grades 9 to 12, with no demarcation between them, in contrast to the 2-years IB DP enrolling students in their final two years of high school. Students graduating from the 12$^{th}$ grade are required to pass the national baccalaureate examination, which represents an important criterion in the admission to higher education institutions. Around 700.000 students are currently enrolled in the high school state system.

Particular to the IB Program are the college-preparatory curricula and the high academic standards (VanTassel-Baska, 2003), reflected in the teachers' continuous professional development and peer collaboration. Also central to IB philosophy is the active promotion of the stated values, namely the educational objectives contained by the IB Learner Profile, which are embedded in practices and visible in everyday academic experiences (International Baccalaureate Organisation, 2012), among which the most prominent are the emphasis on intercultural understanding, critical thinking and active citizenship. Besides the active promotion of these mission elements, the reputation of the IB Program consists in designing a system based on the particularities of young learners that is managing - despite multiple challenges and elevated stress - to shape dedicated, balanced, and academically prepared students (Shaunessy et al., 2006). In this respect, some studies indicate that following the IB DP contributes to the formation of cognitive and non-cognitive skills required for academic success (Brunold-Conesa 2010; Wright & Lee, 2014). Also, the beneficiaries of the educational program are allowed to make academic choices and set learning goals according to their interests, within a consistent instructional framework that pays close attention to cross-discipline integration.

Holman et al. (2015) reported a qualitative investigation of the relevant IB documents and the IB DP teachers' perspective onthe educational strategies through which the IB programme fosters students' academic persistence and on the personality traits that might contribute to IB students' academic

persistence. Their results indicated ten strategies through which the IB DP intends to foster academic persistence in its students, namely a) applicability of knowledge, b) clear framework, c) independent work style, d) teachers' involvement, e) focusing on the student, f) intense collaboration and partnership with the teachers, g) small class size, h) updated curricula, i) comprehensive curricula, j) curricula focused on students' real, practical needs. Moreover, six personality traits were also assumed in the IB official documents and by the IB DP teachers to be strongly related to academic persistence and, consequently, targeted by the IB educational strategies, namely proactive attitude, self-efficacy, mastery goals, academic resilience, restraint and critical thinking.

The present study aimed to explore the actual relationships between these two sets of factors (i.e. educational strategies and students' personality traits) and students' academic performance, respectively two types of outcomes (students' academic performance and intentions to drop out of high school). The first aim of the study was to identify, among the educational and personality factors perceived as relevant by the IB representatives, those that actually support academic persistence, in an IB DP student sample from three European countries. The second aim was to investigate the relations between students' traits, IB strategies, academic persistence and its presumed outcomes. In this respect, we hypothesized that academic persistence has a mediating role in the relationships between certain educational strategies (as perceived by students) and personality traits, on the one hand, and certain outcomes, namely academic persistence and dropout intentions. The third aim of our research was to explore the differences between IB students and equivalent non-IB students from regular Romanian schools in what regards the relationships between the variables under scrutiny (academic persistence, its associated traits and educational mechanisms, and its relevant educational outcomes),thus examining whether the IB educational environment generates a distinctive set of influences in this area in comparison to the traditional Romanian school system.

## Method

### Participants

The study was approved by the Research Ethics Committee of the faculty where the authors are affiliated, permissions for the study were obtained from the schools' authorities, and all participants gave written informed consent. The questionnaire was distributed to 554 high school students; 30 did not fill in the items concerning the outcomes of academic persistence, hence they were eliminated from the final sample. The final IB sample includes 226 students enrolled in the IB DP (141 or 62.4% females) in schools located in three Eastern European countries (104 from Romania, 100 from Poland, and 22 from the Czech Republic). The final non-IB sample includes 328 students (234 or 71.3% females) in the $11^{th}$ and $12^{th}$ grade in top-ranking Romanian high schools. Participation in the research was voluntary; all students we approached accepted to participate. All students were informed about the purpose of the study and they were assured that no personal data would be disclosed. Students completed the questionnaires in their classroom, under the supervision of a teacher.

The two samples (IB and non-IB) are comparable given the fact that parental educational level is similar in the two samples; neither the difference between the students in the IB sample and those in the non-IB sample on the mother's educational level ($p=.42$) nor the difference on the father's educational level ($p=.57$) are significant as indicated by the Mann-Whitney test.

### Measures

**Educational strategies presumed to foster academic persistence**. We built short (3-item) scales evaluating students' perceptions concerning each of the 10 aforementioned strategies, which required participants to estimate the degree to which each strategy is reflected in their daily academic experience. The items of these instruments were derived from the qualitative data reported in Holman et al. (2015). The response scale for each instrument ranged from 1 = "strongly disagree" to 6 = "strongly agree". For each scale, we computed

both the mean inter-item correlation (MIIC) and Cronbach's alpha as reliability indices. All scales showed satisfactory levels of reliability.

a.1. Applicability of knowledge (Cronbach's alpha = 0.78; MIIC=.50) refers to the degree to which the theoretical knowledge transmitted in school is applied to practical issues; sample item: "We are often required to apply the theoretical knowledge to various practical situations".

a.2. Clear framework (Alpha Cronbach=0.57, MIIC=.30) refers to the perceived transparency and clarity of obligations and responsibilities, tasks and assignments of the evaluation system; sample item: "We always know why we received a certain mark".

a.3. Independent work style (Alpha Cronbach=0.59, MIIC=.23) regards the presence of opportunities and encouragements offered by the school to develop and maintain independent work habits in their students; sample item: "We are often assessed based on the projects we carry out independently".

a.4. Teachers' involvement (Alpha Cronbach=0.72; MIIC=.47) addresses the perceptions on about the degree of teacher engagement in the instructional process; sample item: "I believe that teachers are not involved enough in our education."

a.5. Focusing on the student (Alpha Cronbach=0.51; MIIC=.50) refers to the degree to which teachers take into consideration students' needs and preferences; sample item: "I would like to receive more guidance from my teachers"– reverse coded.

a.6. Intense collaboration and partnership with the teachers (Alpha Cronbach=0.79; MIIC=.50) describes the general evaluation of the quality of the teachers-students relationship; sample item: "Teachers are a real support for me".

a.7. Student class size (Alpha Cronbach=0.44; MIIC=.20) measures the views regarding the adequacy of class sizes for the achievement of educational goals, or whether they should be adjusted in order to serve every student's needs appropriately; sample item: "During the courses, teachers always have enough time to offer me further explanations or support when I need it".

a.8. Updated curricula (Alpha Cronbach=0.52; MIIC=.27) refers to the novelty and appropriateness of the educational contents and technologies to students needs and demands; sample item: "The topics we studystudy often seem obsolete to me" – reverse coded.

a.9. Comprehensive curricula (Alpha Cronbach=0.51; MIIC=.27) refers to the broadness of the subjects and the degree to which they satisfy all the knowledge demands of students; sample item: "The disciplines I study at school cover my knowledge needs".

a.10. Curricula focused on the real, practical needs of students (Alpha Cronbach=0.63; MIIC=.37) refers to the perceived applicability and utility of the knowledge that the students usually attach to their academic work; sample item: "The topics I study at school will be useful for me in the future".

**Personality traits presumed to foster academic persistence.** We selected from the traits revealed by the qualitative results a set of six traits that, based on the literature, are assumed to be strongly related to academic persistence. Then, we identified in the scientific literature the optimal previously validated instruments that evaluate these traits, as follows.

b1. Proactive attitude scale (Schmitz &Schwarzer, 1999), an 8-item scale evaluating a factor with large implications for goal-directed behavior, namely the dimension of ambition (academic goal setting and pursuit). The reliability coefficients of the scale in the present sample were: Cronbach's alpha = 0.69; MIIC=.22.

b2. General Self-Efficacy Scale (Schwarzer& Jerusalem, 1995), tapping the dimension of self-confidence, evaluates broad positive beliefs in one's ability to manage difficulties and cope with challenges and stressful situations (Cronbach's alpha = 0.81; MIIC=.30).

b3. Mastery Goals Scale from the Motivated Strategies for Learning Questionnaire(MSLQ) (Pintrich et al., 1993, validated also by Daniels et al., 2009), tapping the dimension of self-development academic purposes, orstudents' tendency to choose goals and tasks in a way that allows them to focus on growth and development of their skills (Cronbach's alpha = 0.60; MIIC=.34).

b4. Academic resilience scale (Martin & Marsh, 2006) is a 6-item scale measuring students' ability to cope with stressors and school pressure, enabling them to persist in achieving their academic goals (Cronbach's alpha = 0.81; MIIC=.42).

b5. Critical Thinking scale from the Motivated Strategies for Learning Questionnaire (Pintrich et al., 1993) represents a subset of 5 items from the above-mentioned MSLQ that taps the higher order set of skills and strategies employed in applying information and knowledge to new problems or when critically evaluating new concepts and ideas (Cronbach's alpha = 0.76; MIIC=.39).

b6. Restraint subscale from the Brief Self-Control Scale (Tangney et al., 2004, validated also by Maloney et al., 2012), is a 4-item scale evaluating the dimension of self-discipline or individual ability to resist temptations and not succumb to momentary desires and impulses, in other words, to delay gratification (Cronbach's alpha = 0.50; MIIC=.20).

**Academic persistence** was addressed through a 4-item scale we adapted from the subscales *Degree Commitment, Institutional Commitment* and *Academic Consciousness* in the *College Persistence Questionnaire* (Davidson et al., 2009). Institutional commitment measures the loyalty and trust the student invests in the academic institution he or she is enrolled in, deriving from the satisfaction with the choice to pursue that specific educational program, while degree commitment refers to the importance or the strength of intentions to earn a degree. Academic Consciousness refers to the efforts the student invests in academic work in respecting deadlines, participating in school activities and completing required assignments (Cronbach's alpha = 0.82; MIIC=.50).

**Outcomes of academic persistence.** d1. Academic performance was measured through students' overall average grade on the previous semester, which they were required to write in the questionnaire.

d2. Intention to dropout scale (Hardre& Reeve, 2003) is composed of three items focused on the present academic aspirations including future schooling intentions, early indicators of persistence and dropout (Cronbach's alpha = 0.79; MIIC=.50).

e. The set of items covering participants' *socio-demographic characteristics:* gender, age, length of experience in the IB programs, grade, country of residence, parents' level of education (high school/university/master studies/PhD), ethnicity, nationality, and native language.

## Results

### Educational Strategies Significantly Associated to Academic Persistence in the IB Sample

In the IB sample, 9 out of the 10 educational mechanisms are significantly and positively correlated to academic persistence, and the tenth was marginally significant. The actual correlations of each mechanism were: applicability of knowledge: $r$=.34, $p$<.01, clear framework: $r$=.29, $p$<.01, independent work style: $r$=.29, $p$<.01, teachers' involvement: $r$=.23, $p$<.01, focusing on the student: $r$=.19, $p$<.01, intense collaboration and partnership with the teachers: $r$=.29, $p$<.01, students class size: $r$=.34, $p$=.06, updated curricula: $r$=.30,$p$<.01, comprehensive curricula: $r$=.39, $p$<.01, curricula focused on the real, practical needs of students: $r$=.46, $p$<.01.

Second, we introduced students' scores concerning their perceptions of the educational mechanisms as predictors in a multiple stepwise regression analysis (with academic persistence as criterion) in order to determine those with the strongest relationship to this variable. The regression model was significant ($F(2,223) = 32.21$, $p < .001$), with two significant predictors: curricula focused on the real, practical needs of students ($\beta = .35$, p<.001), and comprehensive curricula ($\beta = .16$, p<.05).

### Personality Traits Significantly Associated to Academic Persistence in the IB Sample

All six traits are significantly and positively correlated to academic persistence: general self-efficacy: $r$=.39, $p$<.01; proactive attitude: $r$=.34, $p$<.01; academic resilience: $r$=.33, $p$<.01; critical thinking: $r$=.30, $p$<.01; mastery goals: $r$=.40, $p$<.01; restraint: $r$=.34, $p$<.01.

Second, we introduced the 7 traits as predictors in a multiple stepwise regression analysis (with academic persistence as criterion) in order to determine those with the strongest influence on this variable. The regression model was significant ($F(3,222) = 27.24$, $p < .001$) and included three significant predictors: mastery goals ($\beta = .28$, p<.001), restraint ($\beta = .22$, p<.001) and general self-efficacy ($\beta = .22$, p<.01).

In order to assess the joint influence of the educational mechanisms and the psychological traits on academic persistence, we tested the model including all the five predictors that emerged as significant from the previous two analyses. We performed a hierarchical multiple regression analysis, also controlling for age, class, parents' educational level, country, years of IB education and gender. In the regression model that already included the control variables, we introduced at each step each of the five predictors (two perceived educational mechanisms and three personality traits) in a fixed order, to check whether they significantly increase the predictive power of the model. The addition of four predictors (curricula focused on the real, practical needs of students; mastery goals; restraint; and general self-efficacy) significantly improves the prediction power of the regression model (in all four cases, the *F*-change statistic was significant, $p < .05$). In the case of the fifth predictor (comprehensive curricula), its inclusion did not significantly increase the percentage of variability of academic persistence explained by the model ($p = .45$ for its *F*-change).

To conclude, the joint statistical evaluation of both categories of factors – educational mechanisms and psychological traits – indicates that the strongest predictors of IB students' academic persistence are: curricula focused on the real, practical needs of students; mastery goals; restraint; and general self-efficacy. All the relationships between these predictors and academic persistence are positive, in the sense that the higher the score on these measures, the higher the level of academic persistence.

**The Mediation Effect of Academic Persistence in the Relationships Between Educational Strategies and Psychological Traits, respectively Outcomes in the IB Sample**

We performed separate sets of mediation analyses concerning each of the two outcomes. In each set we used as predictors the four factors that emerged in the previous analysis as the most important determinants of academic persistence. In accordance with Baron and Kenny (1986), mediation is first indicated by the significant relationships between the three variables (predictor, outcome and mediator). Then, two regression analyses should be performed, with the outcome as dependent variable: one that includes only the respective predictor, and one including both the predictor and the presumed

mediator. Mediation is indicated by the reduction of the effect of the predictor on the outcome when the mediator is included in the model.

**Outcome 1: Academic performance (overall average grade on the previous semester).** First, we examined the relationship between the presumed mediator - academic persistence - and student's overall average grade, through linear regression. Results show that academic persistence significantly predicted the overall average grade ($\beta$ = .23, $p$<.01). Then, we verified the effect of each of the four factors of academic persistence on the overall average grade and the mediation effect of academic persistence in these relationships. Table 1 presents the standardized regression weights resulted in the two regression analyses performed for each predictor, including academic performance as criterion. It can be noticed that while all 4 predictors are significantly associated to this outcome in the first analysis, two of them (Curricula focused on the real, practical needs of students and Restraint) are no longer significant in the second analysis (which also includes academic persistence as predictor). According to Baron & Kenny (1986), this pattern of results (the lowering of predictive power, as indicated by $\beta$–below significance in the model with the addition of the mediator) indicates that the influence of these predictors on the criterion (overall average grade) is fully mediated by the mediator (academic persistence). In the other two cases, results indicate partial mediation, since the respective predictors remain significantly associated to the outcome even when the mediator (academic persistence) is added. Thus, these predictors (Mastery goals and General self-efficacy) also exert other types of influence on the overall average grade besides the effect mediated by academic persistence.

Table 1. *Results of the mediation analysis with Academic performance as outcome in the IB sample*

| Predictor | Only the predictor included in regression analysis | Predictor and academic persistence included in regression analysis |
|---|---|---|
| Curricula focused on the real, practical needs of students | β = .15* | Predictor: β = .005 (ns.)<br>Academic persistence: β = .21** |
| Mastery goals | β = .25*** | Predictor: β = .19**<br>Academic persistence: β = .17* |
| Restraint | β = .20** | Predictor: β = .13 (ns.)<br>Academic persistence: β = .19** |
| General self-efficacy | β = .26*** | Predictor: β = .20**<br>Academic persistence: β = .17* |

*p<.001; **p<.01; *p<.05

**Outcome 2: Dropout intentions.** The relationship between the presumed mediator (academic persistence) and students' dropout intentions is significant and negative ($\beta$ = -.41, $p$<.001), showing that students with high academic persistence are less likely to drop out of school. Table 2 presents the main results of the two regression analysis performed in order to test the mediating role of academic persistence in the influence of the four predictors on dropout intentions. Results show that all these predictors are significantly related to this outcome, and that in the case of two predictors (Mastery goals and Restraint) their influence is fully mediated by academic persistence, while in the other two cases the latter only partially mediates their effect on dropout intentions.

Table 2. *Results of the mediation analysis with Dropout intentions as outcome in the IB sample*

| Predictor | Only the predictor included in regression analysis | Predictor and academic persistence included in regression analysis |
|---|---|---|
| Curricula focused on the real, practical needs of students | β = -.33*** | Predictor: β = -.17*<br>Academic persistence: β = -.33*** |
| Mastery goals | β = -.16* | Predictor: β = -.001 (ns.)<br>Academic persistence: β = -.41*** |
| Restraint | β = -.25*** | Predictor: β = -.13 (ns.)<br>Academic persistence: β = -.37*** |
| General self-efficacy | β = -.27*** | Predictor: β = -.13*<br>Academic persistence: β = -.36*** |

*$p$<.001; *$p$<.05

**Educational Strategies Significantly Associated to Academic Persistence in the non-IB Sample**

In the non-IB sample, 7 out of the 10 educational strategies are significantly associated with students' academic persistence, with lower correlations than those in the IB sample: applicability of knowledge: $r$=.18; $p$<.01, clear framework: $r$=.19; $p$<.01, independent work style: $r$=.29; $p$<.01, teachers' involvement: $r$=.22; $p$<.01, intense collaboration and partnership with the teachers: $r$=.20; $p$<.01, updated curricula: $r$=.12; $p$<.05, comprehensive curricula: $r$=.20; $p$<.01. Then, we identified the strongest predictors of academic persistence in this group of educational mechanisms through a multiple stepwise regression. The regression model was significant ($F(1,326) = 30.18$, $p$< .001) and included only one significant predictor: independent work style ($\beta$ = .29, $p$<.001).

**Personality Traits Significantly Associated to Academic Persistence in the non-IB Sample**

In the non-IB sample, four traits are significantly correlated to academic persistence: general self-efficacy: $r$=.32; $p$<.01; proactive attitude: $r$=.36; $p$<.01; academic resilience: $r$=.23; $p$<.01; mastery goals: $r$=.20; $p$<.01. In the multiple regression analysis performed in order to identify the strongest predictors of academic persistence in this category, a significant regression model emerged ($F(1,326) = 48.51$, $p < .001$) which included only one predictor: proactive attitude ($\beta = .36$, p<.001).

**The Mediation Effect of Academic Persistence in the Relationships Between Educational Strategies and Psychological Traits, Respectively Outcomes in the non-IB Sample**

**Outcome 1: Academic performance.** The relationship between the presumed mediator (academic persistence) and the overall average grade is significant and positive ($\beta = .16$, $p$<.01). Then, we verified the effect of each of the two factors of academic persistence found in the non-IB sample on the overall average grade and the mediation effect of academic persistence in these relationships.

a. *independent work style* significantly predicts the overall average grade ($\beta = .15$, p<.01). In the model including both this predictor and the presumed mediator, both factors emerged as significantly predicting the overall average grade: academic persistence ($\beta = .13$, $p$<.05) and independent work style ($\beta = .12$, $p$<.05), indicating that the effect of this educational mechanism on the overall average grade is partially mediated by academic persistence.

b. *proactive attitude* is not a significant predictor of the overall average grade($\beta = .05$, $p$=.33).

**Outcome 2. Dropout intentions.** The relationship between the presumed mediator (academic persistence) and student's dropout intentions is significant and negative, high academic persistence significantly predicting low levels of dropout intentions ($\beta = -.30$, $p$<.001).

a. *independent work style* is not a significant predictor of dropout intentions ($\beta = -.06$, $p$=.28).

b. *proactive attitude* is not a significant predictor of dropout intentions ($\beta$ = .01, $p$=.07).

## Discussion

The general objective of this study was to identify the IB instructional approaches and the individual traits that support academic persistence, and to examine their impact on two relevant academic outcomes, as well as the mediating role of academic persistence in this relationship. Wefound that the IB instructional strategies highlighted by the IB documents and IB DP teachers(Holman et al., 2015)have a significant fostering effect on academic persistence in the IB sample: students with high levels of academic persistence also tend to perceive their school as actively employing these educational mechanisms. Next, we found that among the ten strategies under scrutiny, the curricula focused on the real, practical needs of students has the greatest impact on academic persistence. Promoting civic engagement, curiosity, initiative and deep action learning has been previously shown to have an important impact on commitment in difficult tasks (Allen, 2011). Making the practical use of knowledge salient, establishing the associations between concepts, explanations and real life facts is strengthening commitment to learning. When students work to acquire knowledge and skills that they perceive as relevant, they are more persistent in their academic endeavors (Eccles et al., 1983). Also important are the links between the academic contents and the personal interests and values of the learner, this correspondence leading to enhanced academic performance (Hulleman & Harackiewicz, 2009). On the other hand, inadequate curricula and instructional practices, coupled with lack for support in transitional stages from a level to another (Blue & Cook, 2004), and poor school practices and policies (Rumberger, 2000) predispose students to dropout.

We also found that the students' individual traits that we tested in relationship with academic persistence (i.e. proactive attitude, self-efficacy, mastery goals, academic resilience, critical thinking, and restraint) are significantly associated with academic persistence in the IB sample. Further analysis revealed that three traits that have the strongest effect on academic

persistence: mastery goals, restraint and general self-efficacy. Mastery goals refer to students' tendency to choose goals and tasks in a way that allows them to focus on growth and development of their skills, not only achieving formal acknowledgment and rewards for their work (Pintrich et al., 1993; Daniels et al., 2009). Our results show that students oriented towards self-development, who approach learning situations as opportunities and, thus, perceive their educational efforts as investments towards mastery goals, have higher levels of academic persistence, in line with the dominant conceptualizations of this type of motivation (Harter, 1978). Restraint reflects the students' capacity to engage in long term tasks by avoiding being sidetracked by momentary distractions and temptations, with minimum adult supervision (Tangney, Baumeister, & Boone, 2004). As the learning process frequently requires the capacity to delay immediate gratification, exercising effortful self-control in avoiding temptation predicts higher test scores (Mischel, 2014). Previous results also show that conscientiousness, a related trait, is a predictor of effort across disciplines and achievement, such as GPA (Noftle & Robins, 2007). General self-efficacy covers the beliefs and confidence in the ability to face difficult and challenging tasks (Schwarzer& Jerusalem, 1995). Its positive connection with self-confidence and self-efficacy beliefs has been frequently reported in the educational literature (Brown et al., 2008). Such beliefs predict the effort invested in academic activities and, consequently, students' persistence (Trautwein, et al., 2009).

The importance of academic persistence among the educational effects of the IB programme has also been highlighted by previous studies, although only at an implicit level. For instance, Wright (2014), in a synthetic overview of the long term outcomes of the IB programmes, shows that their mission and instruction focus on enhancing people with an integrated personal system of social values and dispositional orientations that ensure long-lasting effects in their life by becoming lifelong learners. Our study reveals some of the actual mechanisms of those effects, as well as the role of academic persistence and the educational strategies that can enhance it.

Concerning the relationships between the components of the IB DP, the individual traits, academic persistence and its outcomes, results show that IB DP students' academic performance and intention to dropout are related to the traits and educational strategies under consideration, and that these effects are

fully or partially mediated by academic persistence. Students with intense mastery goals, who also believe in their abilities to successfully overcome academic obstacles and attain their objectives, and who are able to engage in effortful restrained behaviors and delay gratification are those with high academic persistence. Furthermore, their commitment leads to higher academic performance and lower intentions to drop out. A similar influence on the two outcomes is that exerted by the perception of the curricula as focused on the real practical needs of the student, an effect that is also mediated by academic persistence. Previous investigations revealed the importance of some of these dimensions in the educational setting; for instance, general self-efficacy was shown to have a potentially preventive role in academic dropout (Shannon & Bylsma, 2005), while other studies have concluded that personal beliefs about one`s capabilities of succeeding can explain educational outcomes (Zajacova, Lynch, &Espenshade, 2005). Our results add more depth to the understanding of to these relationships by revealing that they are at least partially mediated by academic persistence, thus pinpointing one of the psychological mechanisms of these effects: the aforementioned psychological and educational variables foster students' academic persistence, which in turn are associated with more positive educational outcomes.

Our final research question refers to the comparison between IB students and equivalent non-IB students in Romanian schools in what regards the relationships of academic persistence and its associated traits and educational strategies with the relevant educational outcomes. We found that the effects of the educational strategies on students' academic persistence are weaker than in the IB environment. Thestrategy that emerged as having the strongest effect on non-IB students' academic persistence is independent work style. In the Romanian educational system, students seem to be most persistent when they are encouraged to work on their own, when their success or failure is contingent only on their own work. Several authors state that students need an environment in which they do not feel controlled but are stimulated to work freely (Kohn, 2011). However, the primary use of this strategy, to the detriment of others, may lead to long term negative effects such as low school engagement, associated with decreased academic persistence (Appleton,

Christenson & Furlong, 2008). Moreover, previous studies have shown that students' academic persistence is best stimulated through a synergy of school strategies. For instance, in a meta-analysis of over 800 papers, Hattie (2013) underlines the importance of classroom size and management, teacher-student relationships, teacher's specific teaching strategies and curricula on students' educational achievement.

Similarly, as opposed to the IB students, in which all individual psychological traits analyzed were found to be associated with academic persistence, in the non-IB students only four such associations were significant. Critical thinking and restraint, which are among the most important individual personality traits associated with increased academic persistence in the IB group, did not correlate with academic persistence in the non-IB group. This finding is also in accordance with previous studies that have found that the Romanian traditional school system lacks the means to encourage student's curiosity and mostly rewards memorization (Nita, 2013). In such a context that discourages students' originality and values the exact reproduction of learnt material, the students' academic persistence seems to be associated with other personality traits. Specifically, as our result show, non-IB students' academic persistence is most associated with their proactive attitude. Students with a proactive attitude have a sense of control over their education and believe that they are solely responsible for their success or failure. They prefer to work independently, setting their own goals, and they believe that school has limited influence on their future (Harvey, Blouin & Stout, 2006). It seems that, in the context of a traditional educational system that still overuses coercive measures, and does not support students' creativity and where students' perceive their teachers as being disengaged (Nita, 2013), the most persistent are those students who are used to work on their own and who believe that they are solely responsible for their education and future.

In our mediation analyses, we found that the only educational strategy associated with non-IB students' academic performance was independent work style and this relationship was mediated by students' academic persistence. This result further suggests that the students who have the capacity to work on their own and develop various skills independently are the ones most likely to thrive in the Romanian public schools. On the other hand, students' proactive attitudes, although significantly predicting their

academic persistence, have no further effect on their academic performance, a result suggesting the traditional educational system does not reward proactive individuals. Somehow paradoxically, the most academically persistent non-IB students also tend to have the most proactive attitudes, but this attitude doesn't translate into higher school grades. This pattern of results suggests that the Romanian traditional school system is not consciously assuming the mission of developing students' proactivity, since this psychological trait is not externally reinforced through higher grades.

The generalizability of our findings is limited by the fact that we only used Romanian students as a control group; further studies could test the cultural variability of these effects by comparing IB students to non-IB students enrolled in traditional school systems in other countries. Overall, our results show that the IB DP programme fosters students' academic persistence to a higher degree than the traditional educational system (at least the Romanian one) does. This effect is mostly due to a set of distinct strategies that stimulate this trait both directly and indirectly, especially through the development of certain psychological skills supporting academic persistence, as well as through its curricula.

To conclude, our results suggest that IB DP students' academic performance and intention to dropout are associated to a complex set of educational strategies promoted in this environment, especially the curricula focused on the real, practical needs of students, as well as to certain personality traits, among which students' mastery goals, restraint and general self-efficacy were found to be especially conducive to academic performance. Moreover, these influences of the two types of factors on the two academic outcomes, i.e. performance and dropout intentions, were fully or partially mediated by academic persistence. The pattern of relationships that emerged in the traditional Romanian schools is quite different, with fewer significant relationships between these dimensions and with independent work style as the sole educational strategy influencing students' academic persistence and its consecutive outcomes. Thus, our findings could be relevant in providing specific guidelines in the process of designing educational policies and strategies. Among others, they suggest that the traditional Romanian school system would strengthen the support they offer to students' academic

persistence and, consequently, their academic success by enlarging its set of instructional approaches applied in the classroom setting and by emphasizing the strategies that our results from the IB DP environment pinpoint as highly effective in this endeavor.

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# Fostering Learner Autonomy among Pre-Service EFL Teachers: A Mixed-Method Study

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# Fostering Learner Autonomy Among Pre-Service EFL Teachers: A Mixed-Method Study

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**Abstract**

This study reports on the process how pre-service EFL teachers developed as autonomous learners during a 14-week period in a Turkish higher education context. The participants included 25 freshman pre-service teachers, 11 males and 14 females, studying at an English language teacher education program of a state university. A course, specifically designed to improve students' autonomy was taken by the participants and multiple forms of data collection tools were employed throughout the study. The Autonomous Learning Scale (ALS) developed by Macaskill and Taylor (2010) was used at the beginning and the end of the course, the participants were asked to write reflection reports and they were also interviewed at the end of the process. The findings demonstrated a significant change in the autonomy level of participants, specifically a dramatic change in their independence of learning. Besides, it was found that being more aware of the self, taking charge of their own learning and changing perspectives towards the notion of learning were the biggest gains of the process for the participants. In line with literature, the findings were discussed and several suggestions were made on how to integrate autonomy practices into teacher education programs.

**Keywords:** Learner autonomy, pre-service teachers, teacher education


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# Fomento de la Autonomía de los Docentes en Formación Inicial de Inglés como Lengua Extranjera: un Estudio de Método Mixto

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**Resumen**

Este estudio informa sobre el proceso de cómo los docentes en formación inicial de inglés como lengua extranjera se desarrollaron como estudiantes autónomos durante un período de 14 semanas en un contexto de educación superior turco. Los participantes incluyeron a 25 maestros de primer, 11 hombres y 14 mujeres, que estudiaban en un programa de educación docente de inglés de una universidad estatal. Los participantes participaron en un curso, diseñado específicamente para mejorar la autonomía de los estudiantes, y se emplearon múltiples formas de herramientas de recolección de datos durante todo el estudio. La Escala de Aprendizaje Autónomo (ALS) desarrollada por Macaskill y Taylor (2010) se utilizó al principio y al final del curso, se les pidió a los participantes que escribieran informes de reflexión y también se les entrevistó al final del proceso. Los resultados demostraron un cambio significativo en el nivel de autonomía de los participantes, específicamente un cambio dramático en su independencia de aprendizaje. Además, se descubrió que estar más conscientes de sí mismos, hacerse cargo de su propio aprendizaje y cambiar las perspectivas hacia la noción de aprendizaje fueron las mayores ganancias del proceso para los participantes. En línea con la literatura, se discutieron los resultados y se hicieron varias sugerencias sobre cómo integrar las prácticas de autonomía en los programas de formación docente

**Palabras clave:** Autonomía de los aprendices, docentes en formación inicial, formación del profesorado


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With the advent of communicative approach, learner autonomy has gained a lot of importance and priority in language classrooms (Paiva & Braga, 2008). The emergence of learner autonomy has led to a move from teacher-centered classrooms to learner-centered classrooms (Dam, 1995), and there exist several definitions of learner autonomy in the literature. To begin with, Holec (1981, p. 3), coining the term learner autonomy, defined it as "the ability to take charge of one's own learning". For Camilleri (1999), learner autonomy is regarded as an important concept that gives learners chances to take responsibility in the learning process, and they also have the opportunity to swap their ideas, feelings and knowledge. They are encouraged to learn to monitor and evaluate their own progress as well. Additionally, Little (1996) voiced that learner autonomy is an indicator of long-term success of learners, and autonomous learners are more involved in planning, monitoring and evaluating their learning. Naizhao and Yanling (2004) also stated that learners' willingness is also a prerequisite for learner autonomy. Embracing all the definitions mentioned above, Oxford (1999, p. 111) came up with a broader definition of learner autonomy and defined it as "the (a) ability and willingness to perform a language task without assistance, with adaptability related to the situational demands, with transferability to other relevant contexts, and with reflection, accompanied by (b) relevant action (the use, usually conscious and intentional, of appropriate learning strategies) reflecting both ability and willingness", and further suggested that there exist five A's for the definition of learner autonomy that are "Ability, attitude, + action = autonomy → achievement".

As seen in all these definitions, learners have to possess certain features to be accepted as autonomous and to keep up with the required changes communicative approach has brought to language classrooms. Learners, being in the center of learning, are expected to engage in meaningful tasks for long-term learning (Harmer, 2007), and classroom atmosphere has gained utmost importance because learners should feel stress-free when they speak and express their ideas (Holden & Usuki, 1999). Dickinson (1993) came up with three characteristic features that autonomous learners have, which are easily identifying what they have learnt, setting certain objectives and being aware of learning strategies and utilizing them efficiently. As learners take the

responsibility of their own learning and are in the center of their learning processes, their intrinsic motivation increases in turn (Deci & Ryan, 1985). However, in formal education, learner autonomy is not enough itself, and teacher autonomy is required as well since there is a strong relationship between learner autonomy and teacher autonomy and the teachers who wish to have autonomous learners should begin from themselves and should reflect their own beliefs and practices as role models (Little, 1991; Tort-Moloney, 1997; McGrath, 2000). In other words, the teachers who are not autonomous themselves may not help their learners be autonomous learners, and autonomous teacher is a prerequisite to autonomous learner. Thus, teachers as role models have great importance for the development of learner autonomy, and teachers should guide their learners how to be more autonomous as autonomy is not inborn, rather it could be developed and improved through formal education with the guidance of teachers as role-models creating the appropriate classroom atmosphere (Clemente, 2001; Masouleh & Jooneghani, 2012).

There are several studies investigating learner autonomy with various foci. To start with, Chan (2001) investigated learners' perceptions of learner autonomy. The participants were 20 students in Hong-Kong, and a questionnaire was utilized to gather data from the learners. The findings revealed that they had a positive attitude towards being autonomous learners, and they were really aware of the fact that both they themselves and their teachers had various roles. This study also indicated that learners' involvement and activity type were important factors in fostering learner autonomy. In another study, Chu (2004) looked for how Taiwanese learners and teachers perceived learner autonomy in EFL conversation classrooms. 446 students and eight teachers at a university in Taiwan took part in the study. The results demonstrated that both teachers and students had positive attitudes towards learner autonomy. It was also revealed the learners' willingness to take responsibility, low motivation, lack of learning goals of the course, and lack of learner training on learning strategies were found as the factors affecting learners' expectations of learner autonomy.

When it comes to the studies conducted in Turkish setting, Yıldırım (2005) identified the perceptions and behaviors of ELT students as both learners and future teachers related to learner autonomy. The other focus of this study was

to investigate the possible effects of education at ELT department on their perceptions of learner autonomy. The participants were 179 first and fourth year university students, and they were asked to respond to two questionnaires. Follow-up interviews were held as well. The results indicated that they had positive attitudes towards learner autonomy, and they were willing to take responsibility and control of their own learning as learners of English. Next, Barlas (2012) investigated 252 learners' perceptions regarding learner autonomy. The participants were ELT learners at a state university in Turkey, and for the data collection, a learner autonomy questionnaire was utilized to gather data from them. According to the findings, these learners found that certain areas such as finding their own learning methods, formulating their own explanations, interaction pattern, course content, self-assessment and course objectives were regarded as more suitable ones for fostering learner autonomy; on the other hand, record keeping and classroom management were considered as less suitable aspects for learner autonomy. Another study belongs to Demircan Yıldırım (2014) who aimed to find out the beliefs and practices of 64 EFL instructors at a state university in Turkey regarding learner autonomy. The data were collected through questionnaires and interviews. It was found that the participants' opinions were positive towards learner autonomy, and they were eager to help their learners be more involved in learning process. Thus, they were fond of fostering learner autonomy; however, they thought that the learners did not have many efforts to be more autonomous. Finally, Sofracı (2016) investigated the perceptions of EFL instructors and Turkish EFL pre-service teachers regarding learner autonomy. A questionnaire was given to 123 instructors and third and fourth-year pre-service teachers. The findings indicated that the majority of the participants found themselves supportive in relation to promoting learner autonomy. When in-service and pre-service teachers were compared, it was found that pre-service teachers were more supportive of involving learners in the decision of time, place and pace of the lesson, record keeping, course objectives, course content, selecting course materials, interaction pattern, classroom management and homework tasks.

As seen, studies in the literature mainly focus on the perceptions of learners and teachers regarding autonomy or how autonomous they perceive themselves. However, research examining the term autonomy in pre-service

teacher education is scarce and the impact of any practices or content to foster autonomy among student-teachers is yet to be discovered. For this reason, the study aims to investigate the impact of a course specially designed to foster learner autonomy among pre-service teachers and their opinions regarding this process. The following research questions were addressed throughout the study:

1. Is there a significant difference in the autonomy level of pre-service EFL teachers after getting the course learner autonomy?
2. In what aspects does the course contribute to learner autonomy among pre-service EFL teachers?

## Methodology

### Research Context

The study was conducted at the English language teacher education department of a state university in Turkey. Pre-service EFL teachers receive a four-year education in these programs which consist of skill courses in the target language, pedagogical courses, subject matter courses and the practicum process. For this study, the learner autonomy course which student-teachers had to take as a must course in their second semester was chosen. This course specifically aimed to train pre-service teachers to become autonomous learners who are aware of their own strengths and weaknesses as learners and able to monitor their own learning process through learning skills and strategies. The content of the course included certain topics such as creative/reflective learning, multiple intelligence, learning styles and strategies, time management, motivation/anxiety, and critical thinking, and this content are covered through certain methods such as lecturing, student-oriented tasks, reflective writings and presentations.

### Research Design

This study employs a mixed-method research design in which both qualitative and quantitative data collection elements were utilized. According to Creswell (2012), the combination of both qualitative and quantitative methods provides a better understanding of the phenomenon under investigation. For this reason,

examining the development of learner autonomy among freshmen pre-service teachers through the combination of these methods was thought to provide a deeper perspective.

Considering the sequence and the dominance of data collection elements throughout the study, the mixed-method design was based on the QUAN ➔ qual combination among the nine types proposed by Dörnyei (2007). This design is also labelled as sequential exploratory design which is easy to implement, analyse and enrich the final finding of the research matter (Creswell, 2012). Based on this, first the quantitative data were collected through a questionnaire and based on the findings derived from the quantitative data, qualitative data collection tools were employed to get a richer understanding of the participants' learner autonomy.

**Participants**

The participants of the study included 25 pre-service EFL teachers, 11 males and 14 females, and their age ranged between 18-21. Pre-service EFL teachers are appointed to English language teacher education programs based on their scores in a nation-wide university entrance exam which includes multiple-choice questions mainly measuring the grammar, vocabulary and compression level of students in the target language, and at university, they receive a four-year program. The participants were in their second semester in the program and taking several skills courses such as academic reading, listening and note-taking, a course on educational psychology and the learner autonomy course.

**Data Collection Tools**

The quantitative data for this study were collected through the Autonomous Learning Scale (ALS) developed by Macaskill and Taylor (2010) with a satisfactory inner consistency of .81. The scale is a 12-item measure composed of two factors, independence of learning and study habits. The responses on the scale are recorded on a 5-graded Likert format ranging from 1 (very unlike me) to 5 (very like me), "with higher scores indicating greater levels of autonomy, more independence and more positive attitudes to learning" (Macaskill and Taylor, 2010, p. 355).

The qualitative data, on the other hand, were collected through reflection reports and semi-structured interviews. The reflection reports ,which included

their general opinions on the effect the learner autonomy course and in what aspects the course contributed to their development were written by all the participants. In addition to this, five participants were also interviewed to get more specific and detailed information regarding their opinions on how they developed their learner autonomy throughout the process.

**Data Collection and Analysis**

At the beginning of the semester, in the first session of the Learner Autonomy course, the ALS was administered as a pre-test to get the initial learner autonomy level of the participant pre-service teachers. The course lasted 14 weeks, 3-hours weekly, in which students were taught the content of the course through in-class tasks and discussions, lecturing, presentations and assignments based on them. The topics in the course included learning strategies, learning styles and multiple intelligences, time management, reflective and critical thinking etc, which were supposed to create awareness among learners to take charge of and monitor their own learning processes. At the end of the 13$^{th}$ week, the ALS was administered again as a post-test to see whether there occurred a significant change in their autonomy level. On the last week of the semester, the student teachers were asked to write reflection reports stating their general opinions regarding the effectiveness of the course, and five students were also interviewed through face-to-face interviews based on the findings derived from ALS.

The quantitative data were analyzed through a statistical package program. Since the quantitative data were based on a pre-test and post-test sequence, the paired samples t-test was administered to identify the difference between the initial and final autonomy levels of the participants. Besides, the qualitative data derived from the reflection reports and interviews were analyzed based on the qualitative content analysis scheme of Creswell (2012). First, the data were transcribed and checked if there were any missing points. Then, the familiar chunks were code labelled initially and concurrent codes were emerged as themes at the end of the analysis. This process was assisted by a colleague with a PhD in English language teaching to ensure the inter-rater reliability of the data.

## Findings

The first research question of the study examined whether there was a significant difference in the autonomy level of the participant pre-service teachers after taking the course learner autonomy. The following table presents the findings derived from the paired samples t-test.

Table 1. *The change in the autonomy level of the participants*

| | | M | N | SD | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|
| Pair 1 | pre_total | 39,52 | 25 | 3,29292 | -4,933 | 24 | ,000* |
| | post_total | 44,32 | 25 | 3,56745 | | | |
| Pair 2 | pre_independence_of_learning | 22,72 | 25 | 2,42418 | -6,231 | 24 | ,000* |
| | post_independence_of_learning | 26,60 | 25 | 1,77951 | | | |
| Pair 3 | pre_study_habits | 16,80 | 25 | 2,69258 | -1,426 | 24 | ,167 |
| | post_study_habits | 17,72 | 25 | 2,47521 | | | |

* $p < .05$

The statistical findings revealed that when their pre and post answers were taken into consideration, the learner autonomy level of the participant pre-service teachers significantly changed at the end of the semester after taking the course learner autonomy. When their total mean score was 39,52 at the beginning of the semester, it was increased to 44,32 leading to a significant increase. Besides, it can be seen that the course was also influential on changing their independence of learning significantly whereas no significant change was identified in their study habits at the end of the semester.

After getting those findings based on the ALS, all the participants were asked to write reflection reports and five of them were also interviewed to get in-depth data on what aspects their autonomy level changed and how the learner autonomy course contributed to their understanding. Reflection

reports and the transcription of the interviews were analyzed through the qualitative content analysis scheme (Creswell, 2012) and the findings revealed that this process contributed to the learner autonomy of the pre-service teachers in three main aspects; awareness of the self, taking charge of his/her own learning and changing perspectives towards learning. The following table presents the frequency of the codes and themes at the end of the analysis process.

Table 2. *Findings derived from the reflection reports and interviews*

| Themes | Codes | Frequency |
|---|---|---|
| Awareness of the self | *Awareness of his/her weaknesses | 17 |
| | *Awareness of his/her strengths | 14 |
| | *Discovering his/her learning style | 12 |
| | *Being informed about the appropriate techniques for learning | 11 |
| | *Awareness of his/her own potential | 11 |
| Taking charge of his/her own learning | *Setting learning goals | 8 |
| | *A critical eye on the performance | 6 |
| | *Evaluating his/her own learning | 3 |
| Changing perspectives on learning | * Learning as a multidimensional process | 5 |
| | * Misconception as the transmission of knowledge | 3 |

The first issue emerged as the main aspect on which the course contributed to pre-service teachers was about their self-awareness. Based on their reflection reports and the interviews, it was revealed that the student-teachers got more aware of their weaknesses and strengths as learners, discovered their learning styles, got informed about the ways and techniques that would make them better learners, and became more aware regarding their potentials as

individuals. The sentences from one of the interviews below demonstrates how this contributed to the student teachers' awareness of their weaknesses:

> Honestly, I have always been a good student, you know a hardworking one, but I have never questioned myself in terms of my weak or strong sides.....For instance, my anxiety, it has always been a problem for me but at the end of this process, now I know how to cope with it. (ST-12, interview)

Another point regarding their self-awareness was the participants' discovery of their learning styles. Most of them expressed that they learnt a lot about their own learning styles during the course and this process helped them discover the ways in which they learnt better. One of the participants touched upon this point in her reflection report:

> Visual things have always attracted my attention and even during my high school years, I learnt better through mappings, or charts or with visual staff…… Thanks to this course, now I know that, there is something as visual learners and there are certain ways through which they learn better. This is something very important for myself, to know myself better." (ST-4, reflection report)

In addition to this, some of the participants thought that the course was beneficial for them in terms of their discovery of their own potential. In other words, it was revealed that some of the student teachers were able to see their own capacity after learning about their anxiety, motivation types, learning style, dominant intelligence type etc. The following opinions of ST-3 in his reflection report presents a good summary regarding their thoughts.

> "The course motivated me a lot, I mean, in general, it helped me know myself better and taught me the things which I might be good at or bad at. So far, I have been quite introvert in terms of these issues, but now I am more conscious, I feel much better and I believe in my potential thanks to such a content and the help of my instructor" (ST-3, reflection)

The second important theme derived from the reflections and interviews was that student teachers gained the awareness on how to take charge of their own learning. It was revealed that the learner autonomy course helped the participants set their own learning goals, have a critical eye on their own performance throughout the semester and evaluate their own performance at the end of the process. During the interviews, one of the student-teachers elaborated on how this process was beneficial for her in setting learning goals:

> It was probably one of my biggest problems as a learner, not being able to create a purpose for myself. I was always studying, but for what, I never questioned it…… That was probably the biggest benefit for me, to learn how to set clear and rational goals for myself, in accordance with my strong sides and capacity (ST-6, interview)

Having a critical eye on their performance was expressed as another important gain of this process related with the student-teachers' taking charge of their own learning. With the help of the learner autonomy course, the participants learned the importance of monitoring their performance and gained this attitude with the help of a critical eye as learners. The following sentences taken from the reflection report of a participant show how the course was influential in terms of this critical eye.

> The biggest impact on me was that I started to monitor own learning, not only in this course but also in the others. I constantly think about my performance, make self-criticism about my mistakes and try not to do them again, and if something goes wrong, I can take instant decisions to change……I hope I will keep on doing this because I believe that this monitoring eye will help me a lot from now on till my graduation (ST-17, reflection)

The last finding of the qualitative part was about the participants' changing perspectives on learning. It was found out that at the end of this process, some of the participants' perspectives on learning considerably changed and they began to conceptualize a different perspective towards the nature of learning. The utterances below illustrate this new conceptualization of learning in the eyes of student-teachers:

> I will be a teacher in the future and I am very happy to learn that much information about the nature of learning. I mean I have never thought that it includes so many things, so many variables connected with each other, or learning styles, intelligences etc. I benefited a lot from this course and now I know what real learning is. (ST-4, reflection)

In some of the reflection reports, it was also seen that the participants had developed the conception of learning as the transmission of knowledge based on their previous learning experiences, and this conception changed with the course learner autonomy:

> May be it is because of our education system but I used to think that learning is something transferred. I mean, there is a teacher who is more knowledgeable, he/she teaches and we simply learn. However, with this course, I see that learning is more than this. It is not a simple transition from teachers to students, but a more detailed process with its own elements (ST-7, interview)

Based on these excerpts and the findings of the qualitative data, it can be clearly seen that the learner autonomy course had a considerably positive impact on student-teachers' awareness of their selves as learners, especially their weaknesses and strengths, their monitoring of the learning process with a critical eye and changing their perspective on the nature of learning.

## Discussion

The current study examined the impact of the learner autonomy course on pre-service EFL teachers and aimed to find out in what aspects the participant student-teachers benefited during the course process. The quantitative findings revealed that the autonomy level of the participants increased significantly at the end of the course which lasted 14 weeks. More specifically, they got more aware regarding their independence of learning and gained this skill. In this regard, this finding shows parallelism with the literature since it was also demonstrated by previous research that pre-service EFL teachers had positive attitude and perception regarding the concept of autonomy. For instance, in his study with 112 student-teachers in an English Language

teaching department, Balçıkanlı (2010) found out the participants were enthusiastic and positive about integrating autonomy principles into their current learning and future teaching practices. In another study with a similar context, Çakır and Balçıkanlı (2012) examined the impact of the European Portfolio for Student Teachers of Languages (EPOSTL) on 25 participants and they also revealed that such applications had a positive effect on student-teachers' self-awareness and initial attempts towards being more autonomous. Similarly, as stated by Manzano Vázquez (2018), initiatives that intend to create familiarity among the per-service teachers with the concept of autonomy lead positive attitudes and improvement of autonomy, which is also demonstrated with the current study.

In the second phase of the study, the participants were asked to write reflection reports and some of them were also interviewed to find out in what aspects they benefited from the learner autonomy course. Their responses showed that they became more aware of themselves, their perspectives towards learning changed and they began to take charge of their own learning. Such a positive change among the perspectives and attitudes of teachers or teacher candidates towards being more autonomous were also demonstrated by research in the field. For instance, Fabela-Cárdenas (2012) reported the positive effect of a training course on in-service teachers' perspectives towards learner autonomy derived from a mixed-method study. In another context, Kojima (2008) implemented certain collaborative and reflective tasks to promote autonomy among teacher trainees and observed that the participants tended to be more self-directed and autonomous towards the end of the process and such applications were perceived quite positively by teacher candidates. Parallel to these findings , Gabryś-Barker (2017) came up with the conclusion that pre-service teachers' perceptions towards autonomy is quite positive and creating opportunities for pre-service teachers to help them be responsible for their own learning experiences and being alert about their own selves will contribute to the quality of teacher education practices.

Autonomy is currently regarded a sine qua non of any educational context. However, it is hard to say that the term can actually be realized in real life due to the paucity of teacher education or training programs that will address to both teacher and learner autonomy as valid constructs (Manzano Vázquez, 2018). However, the findings of the current study put forward that integrating

autonomy-related elements into pre-service teacher education programs to promote learner autonomy among teacher candidates might be practically achievable. Developing instructional content or courses specifically for learner autonomy, integrating certain documents and procedures such as European profile for language teacher education (EPLTE) or The European portfolio for student teachers of languages (EPOSTL) that will foster learner and teacher autonomy among pre-service teachers might positively influence their perceptions and attitudes toward this phenomenon as well.

## Conclusion

Investigating the effect of a course content aiming to promote learner autonomy among pre-service EFL teachers in a Turkish higher education context, the current study found that the participants' level of autonomy significantly changed at the end of the course. A significant difference was identified in their independence of learning whereas their study habits revealed no statistically significant difference at the end of the semester. As for the main aspects the participants benefited, they expressed that being more aware of their strengths and weaknesses as learners, a positive perspective change towards the notion of learning and taking more responsibilities during the learning process were the biggest gains.

The study was conducted in a specific context with a limited number of participants, which can relatively be regarded as a limitation. However, it is believed that the findings derived from the study provide a unique understanding of autonomy in the eyes of pre-service teachers and the aspects it is built on. It not only employs multiple forms of data collection tools getting in-depth data regarding the inner voices of participants and but also presents how a course content specifically designed to promote learner autonomy became influential of pre-service teachers' development.

As research so far mainly focused on exploring the perceptions of learners of pre-service teachers on autonomy or measuring their autonomy levels in a descriptive way, it is needless to say that more research revealing the short-term and long-term effects of trainings or course content on teacher candidates, just like the current study, is urgently needed. In that way, it might be easier to determine a pathway, informed by empirical studies, to integrate

autonomy practices into teacher education programs and increase the quality of teacher training.

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# Flocking Together. An Indigenous Psychology Theory of Resilience in Southern Africa

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# Review

Ebersöhn, L. (2019). *Flocking Together. An Indigenous Psychology Theory of Resilience in Southern Africa.* Switzerland: Springer.

Ebersöhn has harnessed the African principles of collectivism and reciprocity-of-care held within the concept of Ubuntu to highlight indigenous resilience responses to adversity. Resilience practices by communities are seen as a response to the acute and chronic adversity specific to the African experience; including health issues related to AIDs and tuberculosis, and subsequent pervasive community trauma of grief and loss. Ebersöhn provides the theoretical concept of Flocking as a relational interdependent adaptive response to the hardships experienced by indigenous African communities.

Ebersöhn alerts the reader to her close and long association with indigenous African communities, where much of her work in the field of resilience has relied on the deep set lived experienced of indigenous communities. Ebersöhn's individualistic psychological approach is coupled with her stated understanding of *her* difference, privilege and cultural disconnect; with references, footnotes and anecdotes to indigenous local African contributors to the project.

The unfolding stories of methodological challenge show how Ebersöhn has used participatory action research in sometimes unfamiliar environments; where she and the research team are differently distanced by race, ethnicity, geographic location, home language and culture. The use of personal reflexivity has been an effective tool by Ebersöhn who shows humility in her honest depictions of methodological moments between herself as a white researcher, while working with indigenous participants. Ebersöhn is able to recognise her privilege and 'outsider researcher' status that was at times offset by attempts by her research assistants to integrate


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her into the communities by introducing her as 'family'. Her accounts of data collection are peppered with stories of humility as she navigates the spaces that require collaborative responses with subsequent innovative solutions.

Ebersöhn's impressive academic standing began under the influence of apartheid, and so is a reminder of the need for extra vigilance regarding historic, current and future privilege. Researchers would do well to consider the opportunity to privilege the indigenous voice through co-authorship with African/indigenous academics, research assistants and participants. Likewise, the term 'indigenous researcher' should be used with caution due to the confusing or ambiguous meaning.

By asserting the non-indigenous lens on Ubuntu there is likelihood of creating a distorted view of complex indigenous practices that are embedded in the lived experience of adversity and lack. It is not simply a community responding to their impoverished surroundings, or through an understanding of the socio-economic conditions that presupposes the systemic poverty of a community, and that in fact Ubuntu elements are deeply embedded in the psyche of these communities. The focus on Flocking also presupposes adaptation as the only means of change, naturally limiting the exploration in the research of resistance by indigenous groups to the socio-politico-economic forces at play.

Ebersöhn descriptive professorial touch has produced a densely written work with a strong theoretical approach. The work shines with indigenous stories of lived experiences in the face of adversity. For the non-indigenous researcher venturing into work with indigenous groups, geographically remote communities, and culturally different from themselves, the multitude of reflexive methodological stories provide a how-to guide of research methods. The book would have particular appeal for non-indigenous researchers wishing to explore in advance possible pitfalls of the 'outsider researcher' with communities dissimilar to themselves, and how the reflexive process can provide successful solutions.

The resultant stories from indigenous participants also provides the reader with clear examples of the way in which communities adapt to their circumstances, and will alert researchers and community workers alike to

successful adaptive techniques that may be transferred into other environments. For those in caring professionals the stories provide exemplars of resilience to provide sources of inspiration for practitioners and their communities wishing to find new and adaptive ways to bring about transformation.

This work is a formative exploration of shaping Ubuntu principles to fit with western psychological theory. It is redolent with the African experience, the enthusiasm and humour of the author, and the uplifting ways in which the indigenous preponderance to collectively seek to transform their own lives, and that of their communities.

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