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The Power to Improve: Effects of Multilingualism and Perceived Proficiency on Enjoyment and Anxiety in Foreign Language Learning

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Abstract: The study examines whether already knowing several languages and feeling proficient in a new foreign language (FL) has an effect on positive and negative emotions during the learning. The emergence of positive psychology in language acquisition studies has led to the examination of positive emotions in the FL learning process, such as Foreign Language Enjoyment (FLE). FLE is a positive emotional state where psychological needs are met and was introduced as the positive emotion counterpart to the oft studied negative emotion, Foreign Language Anxiety (FLA). A international sample of 1622 FL learners were analysed utilising multivariate tests of variance, examining the level of multilingualism and the level of self-perceived FL proficiency as independent variables, with FLE and FLA as dependent variables. Results indicated a very small, but statistically significant interaction effect between the level of multilingualism and self-perceived FL proficiency on the FLA of the language learner, but not on FLE. In addition, higher levels of multilingualism were associated with higher levels of enjoyment and lower levels of anxiety in FL learners. In turn, more self-perceived proficient FL learners indicated higher levels of enjoyment and lower levels of anxiety. Although effect sizes were in some cases very small, the results do indicate the benefits multilinguals and higher proficiency FL learners have when learning a FL.

Keywords: Foreign Language Enjoyment, Foreign Language Anxiety, Multilingualism, Self-Perceived Proficiency, Individual Differences in Language Learning

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Zusammenfassung: In dieser Studie wird der Einfluss von bereits beherrschten Fremdsprachen und selbsteingeschätzten Sprachkenntnissen in einer neu zu lernenden Fremdsprache (FS) auf positive und negative Emotionen beim Erlernen der FS untersucht. Die Einflüsse der positiven Psychologie in der Sprachlernforschung führten zur Untersuchung positiver Emotionen im Fremdsprachenlernprozess, wie zum Beispiel Freude an Fremdsprachen (Foreign Language Enjoyment, FLE). Dem gegenüber steht die häufiger erforschte negative Emotion der Fremdsprachenängstlichkeit (Foreign Language Anxiety, FLA). Untersucht wurde eine internationale Stichprobe mit *N*=1622 Fremdsprachenlernenden mit einer MANOVA, mit den unabhängigen Variablen *Mehrsprachigkeit* und *selbst eingeschätzte Fremdsprachenkenntnisse* und den abhängigen Variablen FLE und FLA. Die Ergebnisse zeigen einen sehr kleinen, aber statistisch signifikanten Interaktionseffekt zwischen Mehrsprachigkeit und selbst eingeschätzten Fremdsprachenkenntnissen auf FLA des Lernenden, aber nicht auf FLE. Darüber hinaus hing stärker ausgeprägte Mehrsprachigkeit mit höherer FLE- und niedrigerer FLA-Ausprägung zusammen. Auch zeigten Lernende mit höheren selbst eingeschätzten Fremdsprachenkenntnissen mehr Freude (FLE) und geringere Ängstlichkeit (FLA) beim Fremdsprachenlernen. Trotz der in einigen Fällen sehr kleinen Effektgrößen deuten die Ergebnisse dennoch auf einen Vorteil von vorhandener Mehrsprachigkeit und Sprachkenntnissen beim Erlernen von Fremdsprachen hin.

Schlüsselwörter: Freude an Fremdsprachen, Angst vor Fremdsprachen, Mehrsprachigkeit, Selbst-wahrgenommene Kompetenz, Individuelle Unterschiede beim Lernen von Sprachen

Résumé: La présente étude se penche sur la question si la connaissance de plusieurs langues et un haut niveau de maîtrise dans une nouvelle langue étrangère a un effet sur les émotions positives et négatives lors de l'apprentissage. L'émergence de la Psychologie Positive dans le domaine d'acquisition des langues étrangères a mené à l'inclusion d'émotions positives telle la joie en langue étrangère (FLE). Il s'agit d'un état émotionnel positif où les besoins psychologiques de l'apprenant sont atteints. FLE complémente la recherche plus classique sur l'anxiété en langue étrangère (FLA). Les données d'un échantillon international de 1622 apprenants ont été analysées à l'aide de test multivariés de variance, afin d'établir l'effet du niveau de multilinguisme et le niveau de maîtrise dans une nouvelle langue étrangère sur FLE et FLA. Un petit effet significatif d'interaction a été trouvé entre les deux variables indépendantes et FLA, mais aucun effet n'a été détecté entre les variables indépendantes et FLE. En outre, un plus haut niveau de multilinguisme était associé à plus de FLE et moins de FLA. Finalement, un plus haut niveau de maîtrise dans la nouvelle langue étrangère était lié à plus de

FLE et moins de FLA. Bien que la taille des effets était souvent modeste, les résultats suggèrent que les apprenants plus multilingues et ceux avec une maîtrise plus avancée dans une nouvelle langue étrangère disposent d'un avantage émotionnel lors de l'apprentissage.

Mots-clés: Plaisir en langue étrangère, Anxiété en langue étrangère, multilinguisme, perception de compétence, différences individuelles dans l'apprentissage des langues

1 Introduction

Positive psychology and the focus on positive emotions in the foreign language classroom has led to a recent "positive renaissance" in FL studies (Dewaele et al. 2019; Dewaele & MacIntyre 2014; MacIntyre, Gregersen & Mercer 2019; MacIntyre & Mercer 2014). Positive psychology with its three fundamental pillars of focusing on positive character traits, enabling institutions, and positive emotions to help individuals and communities thrive and flourish (Seligman & Csikszentmihalyi 2014), has been introduced as a 'meta-theory' in FL studies (MacIntyre, Gregersen & Mercer 2019).

This 'meta-theory' of focusing on positive emotions has led to an expansion of the known repertoire of emotional variables in FL learning. However, the most commonly studied emotion in FL learning is still an emotion that involves a negative state, namely Foreign Language Anxiety (FLA). FLA can be defined as a situation-specific anxiety unique to the FL learning context (MacIntyre 2017). FLA originated as a unique variable independent from general anxiety in the seminal study of Horwitz, Horwitz, and Cope (1986). Three decades of research on the topic of FLA has resulted in a thorough understanding of the debilitating effect of anxiety in the FL classroom (see MacIntyre 2017 for a comprehensive overview). More recently, a positive emotion counterpart to FLA was introduced: Foreign Language Enjoyment (FLE), which encapsulates a positive emotional state where psychological needs are met during the FL learning process (Dewaele & MacIntyre 2014). Although FLE and FLA were designed to represent positive and negative emotions in the FL classroom, it should be noted they are not two ends of one continuum and should not be considered opposites of one and the same emotional state. Rather, FLE and FLA can be considered the left and right feet of the language learner (Dewaele & MacIntyre 2016).

The introduction of FLE and its accompanying research instrument has been met by the research community with enthusiasm. The Foreign Language Enjoyment Scale introduced by Dewaele and MacIntyre (2014) remains the most popu-

lar measure used for FLE, although adaptions and shortened versions have recently been introduced (see Li, Jiang & Dewaele 2018). The majority of studies have compared and contrasted FLE and FLA, by examining correlation coefficients and regression analyses between the two variables, linking both variables to each other as well as to established constructs in the field. FLA has been found to have negative correlations with FL learning variables, and is associated with lower levels of academic achievement, self-perceived proficiency and willingness to communicate (Dewaele 2019; Dewaele & Pavelescu 2019; MacIntyre 2017; Horwitz 2001; Horwitz 2010). In addition, differences in levels of FLA across levels of multilingualism have been found, with language learners proficient in more languages demonstrating lower levels of FLA (Dewaele 2010; Thompson & Khawaja 2016). FLE, in turn, has been positively associated with motivation in FL learning, with research findings indicating positive correlations between FLE and proficiency (Jin & Zhang 2018), willingness to communicate (Dewaele 2019; Dewaele & Pavelescu 2019); and multilingualism (Dewaele & MacIntyre 2014).

This study proposes to expand and build on previous research by reanalysing the dataset used in Dewaele and MacIntyre (2014). This comprehensive data set contains the level of multilingualism (operationalised as number of languages known), level of self-perceived FL proficiency and scores of FLA and FLE of $n = 1622$ language learners from across the world. As not only the number of languages spoken has been found to affect FL learning, but also the growing mastery of the FL (Dewaele 2010), the possibility of an interaction effect between the level of multilingualism and the level of self-perceived FL proficiency influencing the positive (FLE) and negative (FLA) emotions of the FL learner will be investigated. Thus, in addition to two main effects of level of multilingualism and level of self-perceived proficiency in the FL, respectively, this study looks at their interaction and its effect on FLE and FLA.

Literature review

The positive psychology movement in FL learning studies is built on the foundation that positive emotions have the capacity to facilitate the learning process. The concept of FLE is therefore theoretically grounded in the broaden-and-build theory (Fredrickson 2001), in that enjoyment of FL learning could lead to the broadening of interest in the target language and the subsequent building of language skills (Li, Jiang & Dewaele 2018). FLE can be described as a broad, overarching positive emotional variable that is designed to encapsulate a positive disposition towards the FL learning process, towards peers, and towards teachers.

This concept of an overarching positivity is reflected in the known sources of FLE, as learning contexts, target language attitudes, and student-teacher interactions have all been connected to higher levels of FLE. FL learning practices such as content and language integrated learning, frequent use of the target language in the classroom, and non-traditional teaching techniques have all been associated with higher levels of enjoyment (Dewaele & Dewaele 2017; De Smet et al. 2018; Coffman 2018; Li, Jiang & Dewaele 2018). In addition, the attitude towards the target language and target language community may also contribute towards the level of enjoyment experienced by the language learner (Dewaele & Dewaele 2017; De Smet et al. 2018). However, the factors that have been found to explain the largest amount of variance in FLE are not so much learner-related but rather teacher-related (Dewaele, Magdalena-Franco & Saito 2019). Indeed, teacher friendliness, positive interactions with the teacher, and a positive attitude towards the teacher are all associated with higher levels of enjoyment in the FL classroom (Dewaele & Dewaele 2017; Dewaele & MacIntyre, 2019; Jiang & Dewaele 2019).

In contrast to FLE, which is strongly related to the learning context, FLA has been found to be rather predicted by learner-internal variables (Jiang & Dewaele 2019). FLA has been defined as a "situation-specific anxiety that students experience in the classroom which is characterized by self-centered thoughts, feelings of inadequacy, fear of failure, and emotional reactions in the language classroom" (Oh 1990: 56). Several learner-internal variables have been linked to higher levels of FLA, namely lower FL learning aptitudes (Olivares-Cuhat 2010), weaker first language skills (Sparks & Ganschow 1995), neuroticism (Dewaele 2013; Dewaele & MacIntyre 2019), lower levels of autonomy (Ghorbandordinejad & Ahmadabad 2016), and personal and interpersonal anxieties (Young 1991). However, that is not to say that certain classroom contexts and teacher-related variables have not been pinpointed as sources of FLA as well. Indeed, strictness in the language teacher, an overt focus on grammar, and an overly competitive classroom are all associated with higher levels of FLA (Young 1991; Jiang & Dewaele 2019). Yet, there is most likely a ceiling effect at play in terms of the contribution that could be made by teacher-related factors in both reducing and increasing FLA, as demonstrated in the study of Dewaele, Witney, Saito and Dewaele (2018). They found that FL learning anxiety is more strongly related to learner-internal variables and the effect of teacher-variables in decreasing anxiety is limited. The study went on to advise that FL learning classrooms ought to strive to increase enjoyment in the learning process and not overly focus on decreasing FLA, as both emotions will be present in the FL classroom (Dewaele et al. 2018).

The theoretical stance regarding FLA and FLE is therefore that the two emotions are derived from different sources that may at times overlap, but in general they are unique and separate concepts. Enjoyment and anxiety in FL learning has

been likened to the right and left feet of the language learner (Dewaele & MacIntyre 2016) and empirically speaking the variables have been found to share moderate negative correlations (Dewaele & MacIntyre 2014). On an individual level, a FL learner can therefore experience both, either, or neither FLE and FLA during the process of learning a FL. Thus, FLE and FLA co-occur in the FL classroom. In fact, a recent study into the dynamic relationship between the two variables demonstrated that these emotions have both converging and diverging trajectories on a moment-to-moment basis in a FL activity (Boudreau, MacIntyre & Dewaele 2018).

FLE and FLA have both been individually associated with multilingualism and proficiency (Dewaele & MacIntyre 2014; Li 2019; Liu 2013). Since the inception of FLA, the variable has been investigated in conjunction with performance in the FL learning class and gaining proficiency in the target language. FLA itself is also related to performance anxieties such as test anxiety and fear of negative evaluation (Horwitz, Horwitz & Cope 1986). FLA and achievement have been found to share moderate negative correlations (Horwitz 2001). The relationship between FLA and achievement can be described as a "vicious circle" (Cheng, Horwitz & Schallert 1999: 437), with low achievement contributing to heightened anxiety and heightened anxiety in turn contributing to the lower achievement, with a long-term lower proficiency in the target language. In addition, language anxiety has been theorised to cause irrelevant task cognition that affects the processing of FL stimuli (MacIntyre 1995). FLA has also been found to have a negative relationship with self-perceived proficiency and self-perceived competence in the FL (Dewaele & MacIntyre 2014; Liu 2013; Zhao & Whitchurch 2011). In turn, FLE has also been positively associated with real and self-perceived proficiency in the FL. This strengthens the argument as to the broadening and building power of positive emotions (Dewaele & MacIntyre 2014; Li 2019). Based on the prevailing findings in the literature, which has utilised the data set re-examined within this study, it is therefore expected that self-perceived FL proficiency will positively influence FLE and negatively influence FLA.

Knowledge of more languages has been linked to lower levels of FLA when attempting to learn an additional language (Dewaele, Petrides & Furnham 2008; Dewaele 2007). In addition, higher levels of multilingualism are also associated with higher levels of enjoyment (Dewaele & MacIntyre 2014). However, few studies have examined multilingualism as an empirical variable in the context of emotions in FL learning. The current study will, therefore, attempt to provide further depth of understanding of the effect that the level of multilingualism can have on the FLE and FLA experienced by FL learners.

Furthermore, the impact of multilingualism may vary depending on the proficiency of the language being learned – as Dewaele (2010) found that when the proficiency is either high or very low, the impact of multilingualism on FLA is

minimal. However, at an intermediate level, knowledge of additional languages can assist the language learner and "serve as a crutch" (Dewaele 2010: 105). In a previous study, Dewaele (2007: 404) found lower levels of anxiety among more proficient multilinguals and reasoned that "trilinguals and quadrilinguals have become better communicators as a result of their multilingualism and their self-confidence, as well as self-perceived competence has grown as a result". Indeed, Thompson and Lee (2013) have also found different affective profiles between high-level and low-level multilingual language learners. The findings of Dewaele (2007, 2010), and Thompson and Lee (2013) therefore raise the possibility of an interaction effect between the level of multilingualism and the level of proficiency in the target language of the language learner.

The current study therefore aims to further the knowledge in the field by assessing the possibility of an interaction effect between the level of multilingualism and the level of self-perceived FL proficiency positively influencing FLE and negatively influencing FLA as the two dependent variables. Furthermore, as a prerequisite to examining such an interaction effect, the main effects between FLE and FLA and their respective relationships with the level of multilingualism and the level of self-perceived FL proficiency will be individually examined and confirmed. The examination of the main effects is by no means a novel finding and has been confirmed in numerous studies utilising the dataset in question (Dewaele & MacIntyre, 2014, 2016), however the confirmation of group-level differences in the dependent variables are needed as a first step in order to obtain a full understanding of the possible interaction effect. The hypotheses to be tested are therefore as follows:

H_1: The level of multilingualism (bilingual, trilingual, quadrilingual, and pentalingual) will positively influence the FLE and negatively influence the FLA of the language learner.
H_2: The level of self-perceived FL proficiency (beginner, low-intermediate, intermediate, high-intermediate, and advanced) will positively influence the FLE and negatively influence the FLA of the language learner.
H_3: The interaction effect between the level of multilingualism the level of self-perceived FL proficiency will influence the FLE and FLA of the language learner.

2 Methods

2.1 Participants

The sample consisted of n = 1622 FL learners from across the world. The average age of the sample was 23.97 years (SD = 8.03), with 79.28 % of the sample being female. The majority of participants were learning English (n = 761), followed by

French (n = 279) and Spanish (n = 218). In total 43 different languages were being learned by the sample group. Data were collected in 2012 via an online questionnaire with the necessary ethics approval from Birkbeck College, University of London. Snowball sampling was used to attract participants and expand the reach of the online questionnaire.

The data were made available from a previous study examining FLE and FLA (Dewaele & MacIntyre 2014). Thus, in the current study the data were reanalysed in order to further examine research questions regarding multilingualism and perceived FL proficiency. The dataset has been previously used to examine the relationships between multilingualism and self-perceived proficiency in the FL and FLA and FLE, however, to a different extent than the current paper. More specifically, the interaction between multilingualism and emotions in FL learning has been examined utilising this dataset with one-way ANOVAs between the level of multilingualism and FLE and FLA separately calculated (Dewaele & MacIntyre, 2014). Similarly, one-way ANOVAs were conducted between the level of self-perceived FL proficiency and FLE and FLA separately (Dewaele & MacIntyre, 2014). The current study extends this research through examining FLA and FLE simultaneously through the use of a two-way MANOVA in order to examine the possible interaction effect between the level of multilingualism and the level of self-perceived FL proficiency as independent variables, and the level of FLA and FLE of the language learner as dependent variables. In addition, it should be noted that the categorisation of groups differs between this study and the Dewaele and MacIntyre (2014) study, with the previous study including sextalinguals as an additional category in the levels of multilingualism. However, the decision was made to exclude the group in the current sample due to its significantly smaller sample size (n = 70) in comparison to other multilingual groups. In addition, the self-perceived FL proficiency analysed in the Dewaele and MacIntyre (2014) study grouped beginner and low-intermediate learners into a single grouping, whereas the current study examines the two categories separately. Thus, the new and unique contribution of the current study is to provide significant insights by examining the possibility of an interaction effect between multilingualism and self-perceived FL proficiency on both FLE and FLA and to investigating the effects found by Dewaele and MacIntyre (2014) with a somewhat different methodology.

2.2 Materials

FLE and FLA were measured through self-report questionnaires, whereas multilingualism and self-perceived FL proficiency were measured through single items in the demographics section of the online questionnaire (Dewaele & MacIntyre 2014):

Multilingualism. A single question was included in the questionnaire in which participants listed the number of languages known. For the purposes of this study, participants were grouped into bilinguals (n = 454), trilinguals (n = 554), quadrilinguals (n = 412), and pentalinguals (n = 202). Individuals professing to have competence in six or more languages were excluded from the analysis as groups were too small to effectively examine group level differences.

Self-Perceived Proficiency. Participants were asked to rate their mastery of the language they were currently learning. Thirty-six participants indicated they were beginner proficiency learners, 164 lower-intermediate proficiency, 731 intermediate proficiency, 590 high-proficiency and 101 advanced proficiency language learners.

Foreign Language Classroom Anxiety Scale. This 8-item measure is a shortened version of the original 33-item scale developed by Horwitz, Horwitz, and Cope (1986) and used in MacIntyre (1992). Items are scored on a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. The scale yielded an acceptable internal reliability (a = .86) (Dewaele & MacIntyre, 2014).

Foreign Language Enjoyment Scale. This 21-item scale was the first to be developed in order to examine emotions in FL learning holistically. The items were rated on a 5-point Likert scale from 'strongly disagree' to 'strongly agree'. An acceptable internal reliability of a = .86 was found (Dewaele & MacIntyre, 2014).

2.3 Data analysis

Descriptive results and correlation coefficients were calculated for all four variables (i.e., multilingualism, self-perceived FL proficiency, FLA, FLE) in the study. All hypotheses were examined via a two-way between-groups multivariate test of variance (MANOVA) with multilingualism, self-perceived FL proficiency and their interaction as independent variables, and FLA and FLE as dependent variables. The use of a two-way MANOVA provides several advantages in that a linear combination is formed for each main effect and interaction, thus improving the understanding of the resultant changes in FLA and FLE due to both the independent variables separately and in conjunction (Tabachnick & Fidell 2007). In addition, the two-way MANOVA does, to some extent, protect against a possible inflated Type 1 error by taking into account the multiple tests of correlated dependent variables (Field 2005; Tabachnick & Fidell 2007).

The two-way MANOVA was followed-up by two separate two-way analysis of variance (ANOVAs) with FLA and FLE as separate independent outcome variables (Field 2005). It should be noted that in addition to the two-way ANOVAs analysed, discriminant function analysis would also provide further insight into the interaction effect of the independent variables, however such an analysis is out of scope of the current study (Yu & Chick 2009). The examination of the two-way ANOVAs provided additional insight regarding the interaction effect of multilingualism and self-perceived FL proficiency on FLA and FLE by examining the dependent

variables as independent entities, and not as a linear combination (Field 2005). The two ANOVAs were subsequently followed-up by standard post-hoc tests in order to gain a full understanding of the main effects and proposed interaction effect, which included examining group-level differences, estimated marginal means, and a linear trend analysis. The Statistical Package for the Social Sciences (SPSS 25) was used for all analyses.

3 Results

3.1 Descriptive statistics and correlation coefficients

The descriptive statistics of all four variables can be found in Table 1. A correlation coefficient matrix was calculated for all four variables (see Table 2). Table 2 indicates an expected and significant moderate negative correlation between FLE and FLA (r = -.366; p < .001), meeting the collinearity requirement in order to conduct a MANOVA.

Table 1: Descriptive Statistics

	M	SD	Max	Min	Skewness	Kurtosis
FLA	22.18	6.58	8	40	.19 (.06)	-.55 (.12)
FLE	80.08	9.60	27	105	-.53 (.06)	1.3 (.12)
Multilingualism	3.22	.991	2	5	.31 (.06)	-.97 (.12)
Self-Perceived FL Proficiency	3.34	.828	1	5	-.29 (.06)	.29 (.12)

Table 2: Correlation Coefficients.

	1.	2.	3.	4.
1. FLA	·	-.366***	-.158***	-.340***
2. FLE		·	.120***	.245***
3. Multilingualism			·	.067**
4. Self-Perceived FL Proficiency				·

Note. *p < .05 **p < .01 ***p < .001

A normality test of all four variables returned significant results (p < .05) for all variables for both the Kolmogorov-Smirnov test and the Shapiro-Wilkes test. The

results therefore indicate that the data is non-normally distributed. However, this result does not deter further parametric analyses with these variables, as normality tests are susceptible to sample size (Field 2005). Indeed, with the large sample size of n = 1622 in the current study, the central limit theorem can be invoked which implies that "as the sample size gets bigger the assumption of normality matters less because sampling distribution will be normal regardless" (Field 2005: 185). A further visual inspection of the distribution of data (see Appendix), indicated negligibly small to moderate violations of normality. This is also reflected in the skewness and kurtosis of variables (see Table 1). Furthermore, the F-test utilised in ANOVAs and MANOVAs has been found to be robust in terms of moderate violations of normality in the raw data (Blanca et al. 2017). Therefore, due to the large dataset at hand and the confidence provided by a visual inspection of the distribution of data, MANOVAs and ANOVAs will be utilised to test the hypotheses within this study – in spite of the significant normality test results.

3.2 Multivariate analysis of variance

In order to examine the three hypotheses proposed in this study, a two-way MANOVA was conducted with multilingualism and self-perceived FL proficiency as independent variables in conjunction, and FLA and FLE as dependent variables.

Several assumptions are required to be met in order to conduct a MANOVA (see Field 2005), including homogeneity of covariance matrices. This assumption was tested via Box's M test, which yielded a significant result ($p < .001$), indicating that the matrices may be dissimilar. However, it should be noted that Box's M is notoriously sensitive in cases of unequal group sizes as well as moderate to large samples (Field 2005; Tabachnick & Fidell 2007). Indeed, Tabachnick and Fidell (2007) recommend utilising Box's M rather as an indication of how conservative or liberal probability findings should be interpreted, as larger samples produce greater variance and covariances which result in more conservative probability findings. As the current analysis includes unequal group sizes as well as a moderate to large sample ($n = 1622$), a MANOVA will be utilised to analyse the data in spite of the significant Box's M finding. In addition, the Pillai-Bartlett's trace (V) test statistic will be interpreted as it shows the greatest robustness to violations of test assumptions (Field 2005).

The results of the two-way MANOVA indicate significant main effects between multilingualism and the two dependent variables (Pillai's trace $V = .025$; $F (6, 3204) = 6.68$; $p < .001$), as well as between self-perceived FL proficiency and the dependent variables (Pillai's trace $V = .122$; $F (8, 3204) = 25.91$; $p < .001$). The overall results indicated a small, but statistically significant interaction effect be-

tween the level of multilingualism and self-perceived FL proficiency on the 2 outcome variables (Pillai's trace V = .024; F (24, 3204) = 1.6; p < .05). However, it should be noted that the significant effect is small, and will be conservatively interpreted as the assumption of homogeneity of covariance matrices was violated.

Two individual two-way ANOVAs were subsequently calculated, with multilingualism and self-perceived FL proficiency as independent variables and FLA and FLE as dependent variables in separate analyses for the two dependent variables.

The separate two-way ANOVA with FLA as dependent variable indicated a statistically significant main effects of the level of multilingualism on FLA (F (3, 1602) = 10.78; p < .001), as well as the level of self-perceived FL proficiency on FLA (F (4, 1602) = 47.43; p < .001). In addition, a statistically significant interaction effect between multilingualism and self-perceived FL proficiency on the FLA of the language learner (F (12, 1602) = 1. 97; p < .05) was found.

The separate two-way ANOVA with FLE as dependent variable resulted in significant main effects of the level of multilingualism on FLE (F (3, 1602) = 5.81; p < .001), as well as the level of self-perceived FL proficiency on FLE (F (4, 1602) = 20.81; p < .001). However, a non-significant interaction effect between multilingualism and self-perceived FL proficiency (F (12, 1602) = 1.74; p = .053) was found.

Generally speaking, the results of the overall MANOVA and ANOVA tests confirmed the following:

- Statistically significant main effects indicated that the level of multilingualism of the language learner was related to FLA and FLE (Hypothesis 1). This result was expected as it was previously confirmed with the dataset in question in Dewaele and MacIntyre (2014).
- The main effects further indicated that the level of self-perceived FL proficiency was related to FLA and FLE (Hypothesis 2), which was also previously confirmed in Dewaele and MacIntyre (2014).
- A statistically significant interaction effect between multilingualism and self-perceived FL proficiency influencing both FLA and FLE was indicated by the two-way MANOVA (Hypothesis 3). However, further analyses examining the possible interaction effect on the dependent variables individually via two-way ANOVAs indicated a significant interaction effect of the independent variables on FLA (p < .001), but no significant interaction effect was found influencing FLE (p = .054).

In order to gain greater understanding with regard to the main effects and interaction effect, additional post-hoc analyses were conducted following these gen-

eral analyses. These post-hoc analyses included examining the Tukey-Kramer multiple comparisons, the estimated marginal means, and the statistical significance of the linear trend.

3.3 Multilingualism and FLA/FLE of the language learner (Hypothesis 1)

The first hypothesis regarding the level of multilingualism of the language learner (bilingual, trilingual, quadrilingual, and pentalingual) negatively influencing FLA and positively influencing FLE, was confirmed through the significant main effect results found. Further analyses were conducted in order to investigate the group level differences between the levels of multilingualism and FLA and FLE. The Tukey-Kramer multiple comparisons indicate significant mean differences of FLA for the majority of group-level comparisons of multilingualism (see Table 3). However, no significant differences in FLA mean differences were found between bilingual-trilingual groups and trilingual-quadrilingual groups. The results indicated incremental increases between levels of multilingualism, with a clear differentiation in levels of FLA in the lowest level of bilingualism and the highest level of pentalingualism. This trend to an increase of the level of multilingualism resulting in lower levels of FLA is also demonstrated in Figure 1.

Table 3: Multiple comparisons of multilingualism and FLA.

			B			
	Mean Differences (A – B)	Group Mean	1.	2.	3.	4.
A	1.Bilingual	23.35	·	.862	1.78**	3.365**
	2.Trilingual	22.49		·	.917	2.502**
	3.Quadrilingual	21.57			·	1.585*
	4.Pentalingual	19.98				·

Note. * $p < .05$ ** $p < .01$

Thus, the results indicate that lower-level multilinguals had higher average FLA than their higher-level multilingual counterparts. Bilinguals, for example, indicated statistically significantly higher FLA compared to quadrilinguals ($p < .01$) and pentalinguals ($p < .01$). As the estimated marginal means of FLA across the levels of multilingualism seem to indicate a linear trend, a linear contrast analysis was conducted in order to examine whether the means increase or decrease

across groups in a linear way. There was a significant linear trend in the data (F (1, 1618) = 41.824; $p < .001$), indicating that an increase in the level of multilingualism of the foreign language learner is accompanied by a linear decrease in FLA.

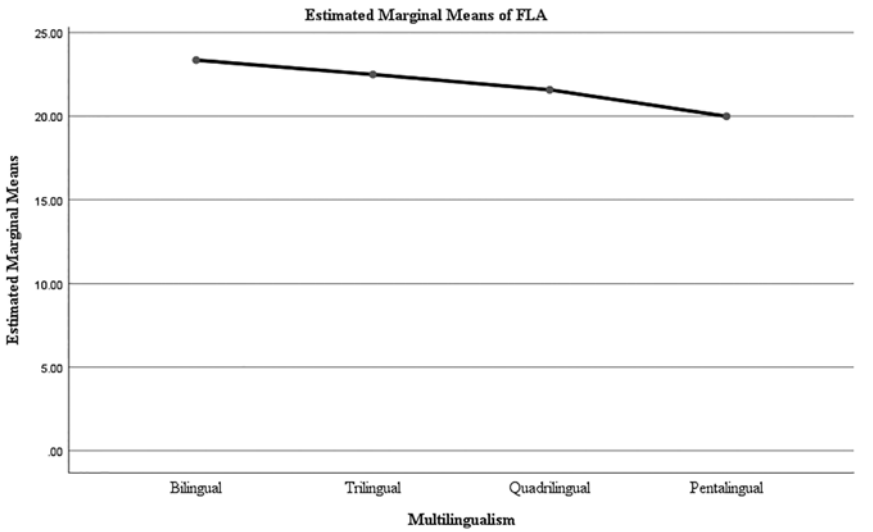

Figure 1: Estimated marginal means of FLA and levels of multilingualism.

Similar results regarding the influence of the level of multilingualism on the FLE of the language learner were found. Results indicated significant mean differences of FLE for the majority of group-level comparisons of multilingualism (see Table 4). The Tukey-Kramer multiple comparisons therefore clearly indicate a trend of increased multilingualism resulting in increased enjoyment in language learning. Here, pentalinguals indicated significantly higher levels of FLE compared to bilingual ($p < .01$) and trilingual ($p < .01$) FL learners. However, similarly to FLA, the increase in FLE between levels of multilingualism is incremental, with no significant difference being found between groups of bilingual-trilingual and quadrilingual-pentalingual. This difference in the marginal means of the lower levels of multilingualism as compared to higher levels is indicated in Figure 2. Similarly to FLA, the results of the estimated marginal means of FLE across levels of multilingualism seem to indicate a linear trend, which was confirmed with a linear contrast analysis indicating a significant linear trend in the data (F (1, 1618) = 20.977; $p < .001$). Therefore, the results indicate that an increase in the level of multilingualism of the language learner results in a linear increase in the level of FLE experienced.

Table 4: Multiple comparisons of multilingualism and FLE.

			B			
	Mean Differences (A – B)	Group Mean	1.	2.	3.	4.
A	1.Bilingual	78.76	·	-.851	-2.451**	-3.279**
	2.Trilingual	79.61		·	-1.599*	-2.428**
	3.Quadrilingual	81.21			·	-.828
	4.Pentalingual	82.03				·

Note. * $p < .05$ ** $p < .01$

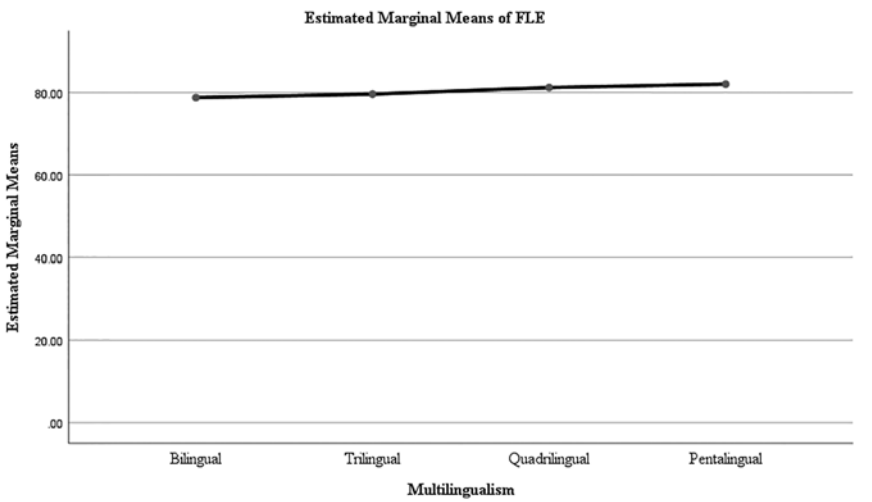

Figure 2: Estimated marginal means of FLE and levels of multilingualism.

2.2.2 Self-perceived FL proficiency and FLA/FLE of the language learner (Hypothesis 2)

The second hypothesis regarding the level of self-perceived FL proficiency (beginner, low-intermediate, intermediate, higher-intermediate, and advanced) influencing FLA and FLE was confirmed through the significant main effects found. Akin to the multilingualism post-hoc results, the Tukey-Kramer multiple comparisons yielded similar results between the levels of self-perceived FL proficiency (beginner, low-intermediate, intermediate, high-intermediate, and advanced), and FLA.

Significant mean differences of FLA were found for the majority of group-level comparisons of self-perceived FL proficiency (see Table 5).

Table 5: Multiple comparisons of self-perceived FL proficiency and FLA.

			B				
	Mean Differences (A – B)	Group Mean	1.	2.	3.	4.	5.
A	1. Beginner	27.50	·	2.42	3.79**	7.722**	8.896**
	2. Low-Intermediate	25.08		·	1.369	5.301**	6.475**
	3.Intermediate	23.71			·	3.932**	5.106**
	4.High-Intermediate	19.78				·	1.174**
	5.Advanced	18.60					·

Note. * $p < .05$ ** $p < .01$

The results therefore indicate that an increased self-perceived FL proficiency resulted in decreased FLA (see Figure 3), with a remarkable difference in levels of FLA between the upper levels of proficiency (high-intermediate and advanced) and the lower levels (beginner and low-intermediate). The data indicated a linear trend which was confirmed by a statistically significant linear trend analysis ($F(1, 1617) = 88.65$; $p < .001$) between the level of self-perceived FL proficiency and FLA experienced by the foreign language learner.

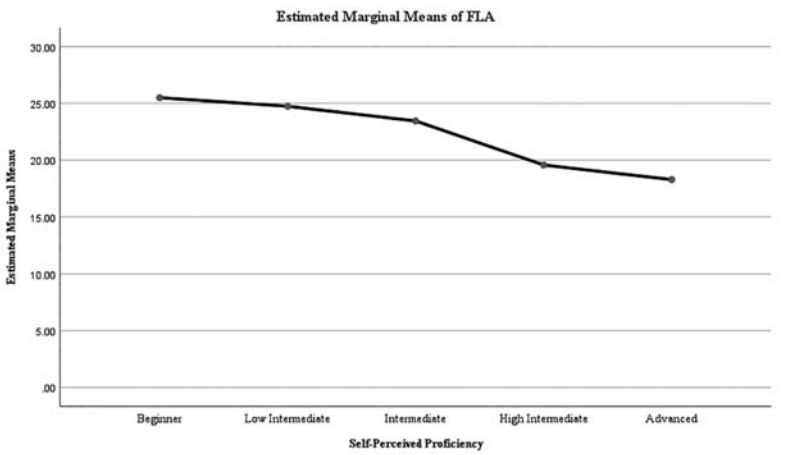

Figure 3: Estimated marginal means of FLA and self-perceived FL proficiency.

In turn, significant mean differences of FLE and levels of self-perceived FL proficiency were found for the majority of groups (see Table 6). A linear trend is again indicated with increased FLE as a result of increased self-perceived FL proficiency also emerging (see Figure 4), which was confirmed as a statistically significant linear trend analysis ($F(1, 1617) = 58.867$; $p < .001$).

Table 6: Multiple comparisons of multilingualism and FLE.

			B				
	Mean Differences (B – A)	Group Mean	1.	2.	3.	4.	5.
A	5.Beginner	73.06	·	-3.17	-6.058**	-8.978**	-11.32**
	6.Low-Intermediate	76.23		·	-2.888**	-5.808**	-8.151**
	7.Intermediate	79.11			·	-2.92**	-5.263**
	8.High-Intermediate	82.03				·	-2.342**
	6.Advanced	84.38					·

Note. * $p < .05$ ** $p < .01$

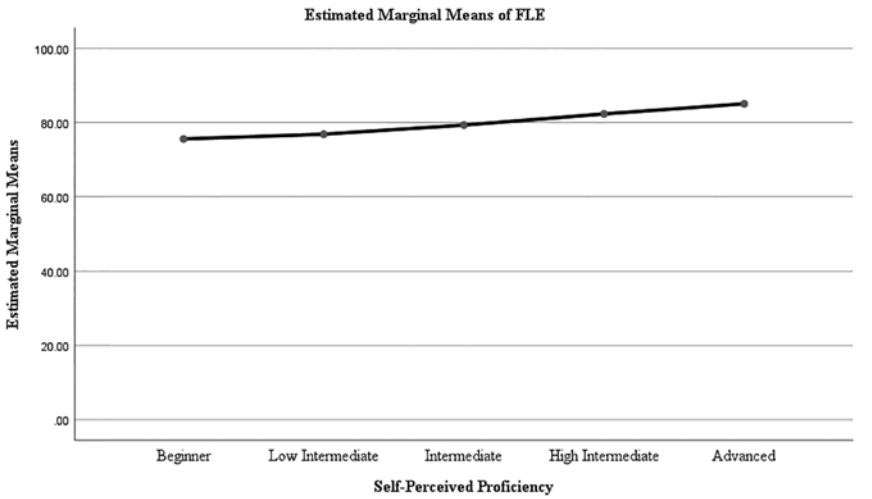

Figure 4: Estimated marginal means of FLE and self-perceived FL proficiency.

2.2.3 Interaction effect between multilingualism and self-perceived proficiency (Hypothesis 3)

The third hypothesis regarding the interaction effect of the level of multilingualism and the level of self-perceived FL proficiency on FLA and FLE was substantiated in the results of the two-way MANOVA ($p < .05$), and partially substantiated with statistical significant results of the two-way ANOVAs on FLA ($p < .05$) and a non-significant result on FLE ($p = .052$).

To gain additional insight into the nature of the interaction effect between multilingualism and self-perceived FL proficiency, the estimated marginal means of the main effects were re-examined on a group-level. The estimated marginal means of self-perceived FL proficiency and FLA depicted with separate lines for each level of multilingualism can be seen in Figure 5.

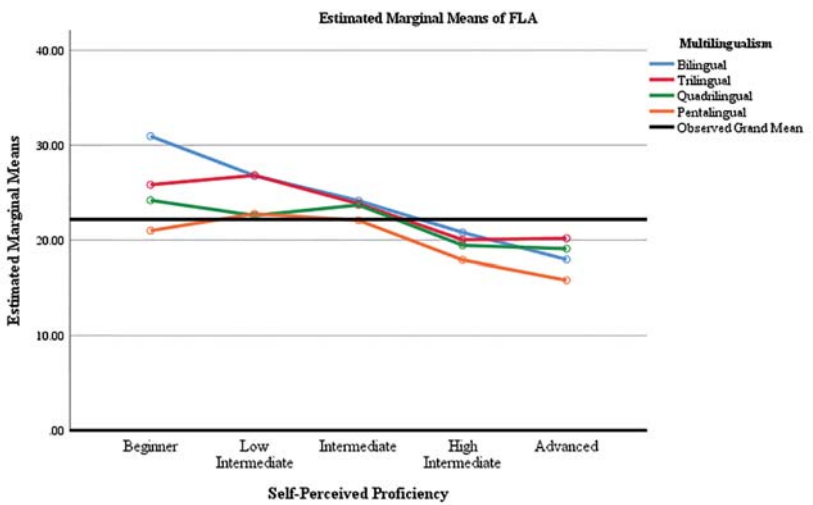

Figure 5: Estimated Marginal Means of Self-Perceived FL Proficiency and FLA by Multilingualism.

A significant interaction effect is indicated in Figure 5 by the differing slopes and crossing lines of the different levels of multilingualism (Field 2005). Bilingual and trilingual FL learners especially indicate differing slopes across the levels of self-perceived FL proficiency. However, it should be noted that trilingual and pentalingual lines ran mostly parallel across the levels of multilingualism indicating a non-influence of the interaction effect (Field 2005).

The estimated marginal means of FLE and self-perceived FL proficiency as depicted by separate lines for the level of multilingualism confirms a lack of a

clear interaction effect (see Figure 6). The bilingual and trilingual groups indicated differing slopes, which may be an indication for a small interaction effect, however the quadrilingual and pentalingual lines ran mostly in parallel.

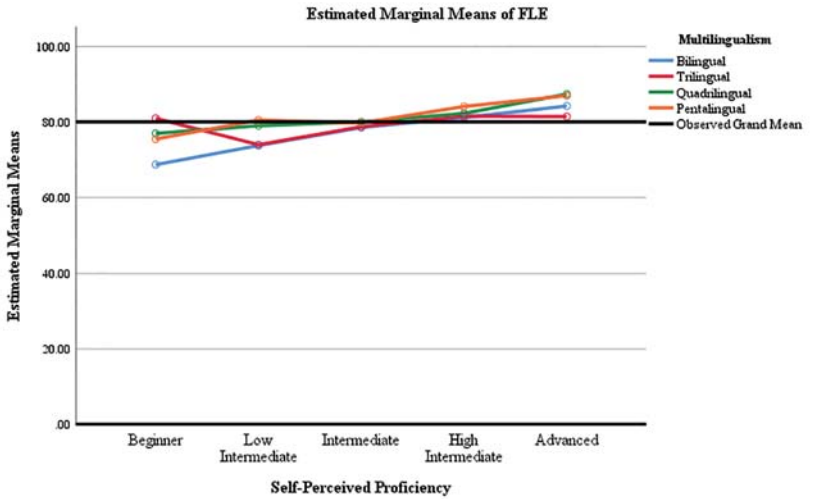

Figure 6: Estimated Marginal Means of Self-Perceived FL Proficiency and FLE by Multilingualism.

In summary, the main effects between the level of multilingualism (H_1) and the level of self-perceived FL proficiency (H_2) influencing the FLA and FLE of the language learner was confirmed as expected. Most notably, a small, but statistically significant interaction effect was found between the level of multilingualism and the level of self-perceived FL proficiency influencing FLA, although this interaction effect was only marginally substantiated with FLE (H_3).

5 Discussion

The results of the study shed light on the effects of multilingualism, self-perceived FL proficiency, and their combined interaction on positive and negative emotions in FL learning. The study confirmed the influence of multilingualism and the influence of self-perceived FL proficiency on the emotion variables separately (Hypothesis 1 and 2). Furthermore, to the authors' knowledge, the study was also the first the address the gap in the prevailing literature regarding the proposed interaction effect between the level of multilingualism and the level of self-perceived FL proficiency positively influencing FLE and negatively influencing FLA (Hy-

pothesis 3). Hypothesis 1 and 2 yielded statistically significant results and were confirmed as expected, in turn Hypothesis 3 was partially substantiated with a statistically significant interaction effect influencing FLA, but not FLE.

The first hypothesis confirmed the main effects between the level of multilingualism and FLA (F (3, 1602) = 10.78; $p < .001$), and the level of multilingualism and FLE (F (3, 1602) = 5.81; $p < .001$). As the hypothesis had previously been examined using this dataset, the statistically significant finding was expected and confirms previous findings regarding the positive impact that knowledge of more languages can have on the anxiety inherent in learning additional languages (Dewaele, Petrides & Furnham 2008; Dewaele 2007). It is probable that a high degree of multilingualism is linked to a better understanding of communication in general (Dewaele et al. 2008), of greater meta-linguistic awareness and of a wider array of strategies to absorb a new FL more quickly (Kemp 2007). This phenomenon undoubtedly extends to other areas where new skills have to be acquired. For example, trained classical ballet dancers have developed specific body abilities and have acquired specific skills such as visual, auditory, and kinesthetic awareness (Brodie & Lobel 2011), which would allow them to master a totally different style of dance such as ballroom or modern dance faster than somebody who has never danced before.

The findings of testing the second hypothesis regarding the level of self-perceived FL proficiency influencing the FLE and FLA of the FL learner, echoed previous results with ANOVAs confirming the significant effect of self-perceived FL proficiency on FLA (F (4, 1602) = 47.43; $p < .001$) and on FLE (F (4, 1602) = 20.81; $p < .001$). The statistically significant findings of the hypothesis 2 was to be expected with the dataset as it had previously been examined in Dewaele and MacIntyre (2014), and also replicates findings made regarding the positive impact higher self-perceived FL proficiency has on the emotional profiles of FL learners (Liu 2013; Li 2019). The finding that advanced-level FL learners reported higher levels of FLE and lower levels of FLA than their beginner-level peers probably also applies outside FL learning. Anyone who has started playing an instrument will have struggled with anxiety of not being able to produce beautiful music from the start, and the scratching sounds from the violin will have given little pleasure to the player and listeners. However, with increased skill comes increased confidence and enjoyment at the emerging ability to produce sound that is music to the ears. The same applies to sports where mastery and performance are strong predictors of enjoyment of the sport (Ashford, Biddle & Goudas 1993).

The testing of the third hypothesis regarding the interaction effect between the level of multilingualism and the level of proficiency influencing FLE and FLA as examined by the two-way MANOVA resulted in a very small, statistically significant interaction effect ($V = .024$; F (24, 3204) = 1.6; $p < .01$). Therefore, knowl-

edge of additional languages and a higher level of perceived FL proficiency does result in positive outcomes in terms of the emotional profile of the FL learner – however, to a very small extent. Indeed, the effect size, even if statistically significant, may be described as negligible. As such, emphasis will not be placed on the result of the two-way MANOVA as the result may be statistically significant, but practically insignificant. Instead, the results of the two-way ANOVAs should be emphasised as it sheds greater light on the influence of the interaction effect of the independent variables on FLA and FLE.

The two-way ANOVA examining the interaction effect between the level of multilingualism and the level of self-perceived FL proficiency on FLA yielded statistically significant results ($F (12, 1602) = 1.97$; $p < .05$). The influence of the interaction effect can be seen at the two extreme ends of the independent variable groups as beginner bilingual FL learners showed considerably higher levels of FLA than their advanced pentalingual counterparts (see Figure 5). However, the influence of the interaction effect is less clear across the intermediary proficiency levels, where there is little difference to be seen between bilingual and trilingual learners. Nevertheless, the differing slopes and cutting lines observed in Figures 5 and 6 speaks favourably towards a significant interaction effect between the levels of multilingualism and self-perceived FL proficiency on FLA (Field 2005).

In contrast, there is little evidence to support a significant interaction effect of the level of multilingualism and the level of self-perceived FL proficiency on FLE ($F (12, 1602) = 1.74$; $p = .054$). The estimated marginal means of FLE as shown in Figure 7 display a pattern with higher levels of multilingualism resulting in higher levels of FLE, regardless of FL proficiency – as can be seen in the near-parallel lines of self-perceived FL proficiency. The only FL proficiency level that goes against the grain is the beginner FL proficiency group, where the highest enjoyment is observed in trilingual FL learners (see Figures 6). Research examining the acquisition of a third language have predominantly focused on examining the cognitive development, metalinguistic awareness, and communicative skills of the language learner (Cenoz 2003, 2013). However, the results of the estimated marginal means of FLE does indicate that fruitful research may be carried out in examining the effect of specifically acquiring a third language may have on the FLE of the FL learner.

The post-hoc tests examining the main effects does strengthen the case for different emotional profiles depending on the level of multilingualism and self-perceived FL proficiency (see Figures 1–4). A clear downward trend is visible in the estimated marginal means of FLA in both the level of multilingualism (see Figure 1) and the level of self-perceived FL proficiency (see Figure 3). In contrast, a clear upward trend is visible (if less linear than FLA) for the estimated marginal means of FLE and the level of multilingualism (see Figure 2), as well as the level

of self-perceived FL proficiency (see Figure 4). However, it should be emphasised that the linear trends in favour of higher levels of multilingualism and higher levels of self-perceived FL proficiency are at times incremental, with little to no statistically significant differences being found between subsequent levels. Nevertheless, the value of having a higher level of multilingualism and self-perceived FL proficiency on the emotional profile of the FL learner, does again become apparent when comparing group extremes. Pentalingual FL learners are more likely to present lower levels of anxiety and higher levels of enjoyment in FL learning than their bilingual counterparts. In turn, advanced-proficiency learners are also more likely to have lower levels of anxiety and higher levels of enjoyment in FL learning than their beginner-proficiency peers.

The current study is not without limitations. Firstly, it utilised self-report measures, which do not necessarily reflect the true proficiency of the FL learner (Takahashi 2009). Utilising actual proficiency scores and a more granular measure of proficiency in multiple languages, such as the "global proficiency" measure in Dewaele and Li Wei (2013) that is the sum of Likert scale scores for listening, speaking, reading and writing skills in each language, might be considered. Secondly, we realise that measures of multilingualism and self-perceived proficiency are at best approximate snapshots of dynamic constructs as some languages may attrite while others grow, and oral and written proficiency in certain languages may shift slowly in certain discourse domains. The measurement of multilingualism as a self-reported number of languages that the participant is proficient in, may also in itself be considered a limitation. Participants were asked the number of languages in which they were proficient, and their approximate proficiency in a single language that they were currently actively learning. However, the proficiency levels of all the languages in each participants repertoire were not taken into account. A more granular and complete measure of multilingualism, the global proficiency score, was used in Dewaele and Wei (2013). It was based on actual self-rated ability in two oral and two written skills in all the multilinguals' languages. This measure explained slightly more variance than the number of languages but the patterns were identical. A more granular measure of multilingualism would probably not have produced different results in relation to FLE and FLCA. But it may have explained more variance. Because multilingualism was only one of many independent variables in the current corpus, the authors opted for the single item on the number of languages known, rather than up to 20 items for up to five languages. Finally, other aspects of multilingualism may need to be taken into account such as the linguistic distance of the languages reported, dialects, or non-verbal languages such as sign language. The third limitation is the difficulty of pinpointing the direction of the causality between the variables. In his study on the relationship between bilingual proficiency, psycho-

logical and social factors, Schrauf (2013) argued that the causal pathway is multidirectional, where proficiency is both a cause and an effect. Similarly, in the present study we assumed that multilingualism and self-reported proficiency might affect the emotions experienced by FL learners. However, the emotions could well be the causal factors too, as relatively low FLA and high FLE might push learners to master the target language really well, and might convince them to add extra languages to their repertoire.

Further research may also use more sophisticated statistical tools such as discriminant function analysis, structural equation modelling, or response surface modelling. Especially a more dynamic approach regarding moment-to-moment changes in self-perceived FL proficiency and its influence on emotions in FL learning may provide nuance to the overall effect sizes reported in this study (Dewaele & Dewaele 2017; MacIntyre & Legatto 2011).

6 Conclusion

The study investigated the effects of multilingualism and perceived FL proficiency on emotions in FL learning. It confirmed the importance of individual-learner variables, such as self-perceived proficiency in the FL, in influencing the level of FLA experienced by the learner, and confirmed the influence such variables have on cultivating positive emotions in the FL learner. Metaphorically, once could compare multilingualism and self-perceived proficiency with a small turbo-compressor in an engine, providing a noticeable boost in FL learners' FLE and controlling their FLA, after a short initial lag. Since the causality could also go in the other direction, it is possible that learners' initial FLE and FLA influenced their desire to become proficient multilinguals.

The finding that the effect of the interaction between the level of multilingualism and the level of self-perceived FL proficiency on FLA is statistically significant, as opposed to its positive emotion counterpart, also furthers the argument that an expansion of the known repertoires of variables is needed in applied linguistic studies in order to truly break away from a diagnostic approach to a positive psychology approach. More emphasis should be placed in future research on determining the positive character traits and enabling institutions (Seligman & Csikszentmihalyi 2014) that may nurture positive emotions in FL learning.

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Appendix

Distribution of data by variable

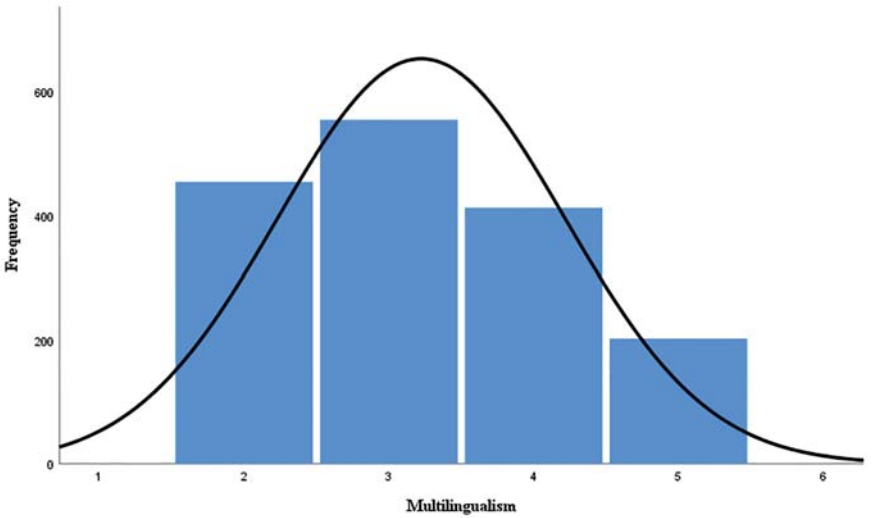

Figure 7: Normal distribution of Multilingualism.

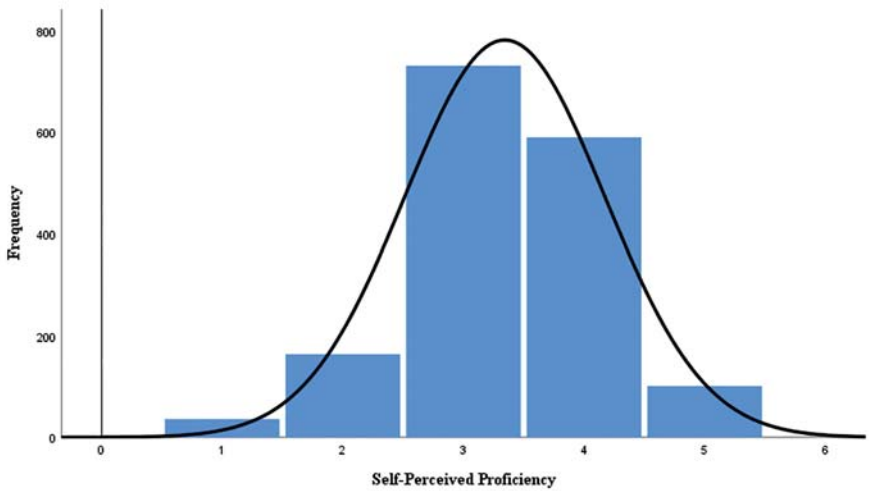

Figure 8: Normal distribution of Self-Perceived Proficiency.

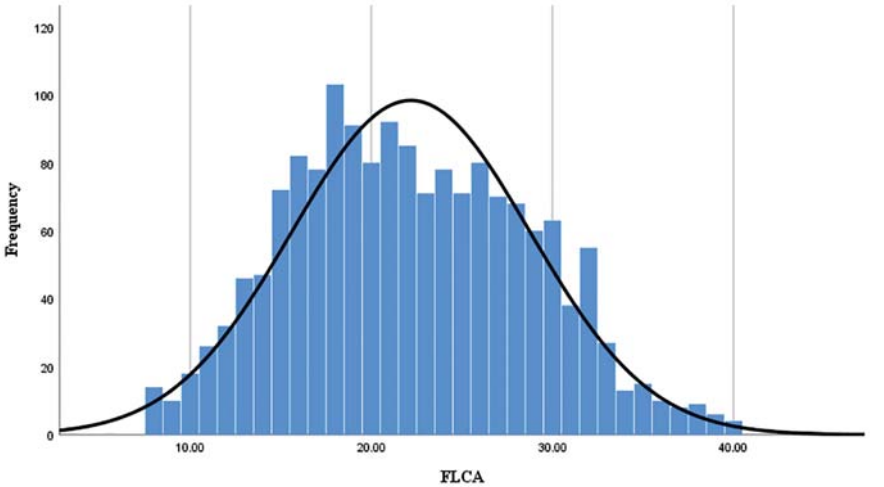

Figure 9: Normal distribution of FLCA.

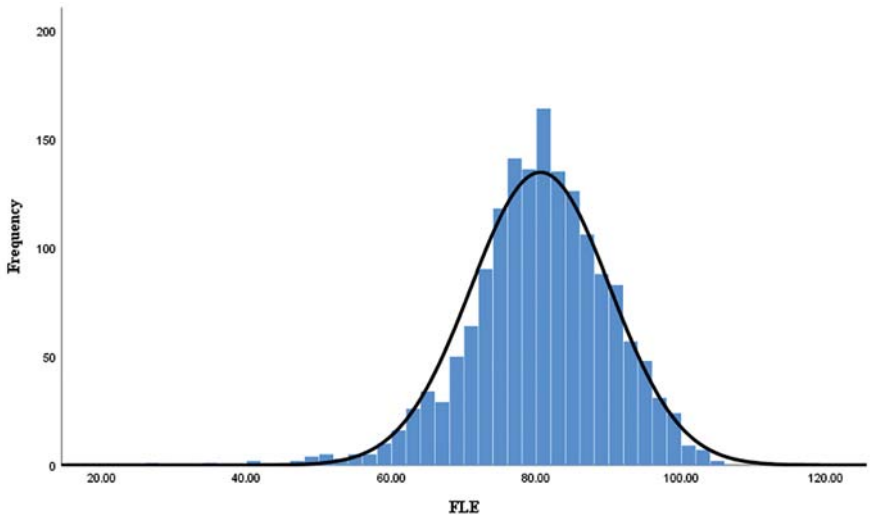

Figure 10: Normal distribution of FLE.