

**RESEARCH**

# Foreign language learning in the third age: A pilot feasibility study on cognitive, socio-affective and linguistic drivers and benefits in relation to previous bilingualism of the learner

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While there is a growing body of research on second language acquisition in children and prime-of-life learners, much remains to be explored about how older adults learn a new language and how good additional language learning is for *them* (see e.g. Mackey & Sachs, 2012). In this study we present the findings of a longitudinal pilot study in which 12 German-speaking subjects, half of them German-Slovenian bilinguals, between 63 and 90 years of age attended a four-week intensive English course for beginners, and were tested in a pre-/post-test design on a range of linguistic, cognitive, and socio-affective parameters. The results of non-parametric statistical tests and qualitative analyses suggest that: (1) the learning of an additional language in the third age can contribute to healthy and active aging, as it has a positive effect on executive function, (linguistic) self-confidence, autonomy, communicative skills and overall well-being, irrespective of age and prior language knowledge (bilingualism); and (2) age-related social, psychological and contextual factors seem to play as significant a role as strictly maturational factors. Such research promises in due course to inform adult educators about the establishment of relevant third-age learner profiles as well as the design of individualized third-age language training.

**Keywords:** Third Age Learners; Individual Differences; Bilingual Advantage; Age Factor; Foreign Language Learning

## 1. Introduction

In fewer than 13 years the number of people worldwide aged 60 or over is projected to grow by 56%, reaching 1.4 billion (United Nations, 2015). At the same time, international migration will continue to impact on the demographics of numerous countries in Europe and elsewhere. Furthermore, in many European countries, age 65 marks the end of an individual's professional activity, introducing them to retirement as an era of "personal achievement and fulfillment" (Laslett, 1987, p. 134). Such individuals may occupy their time in retirement in ways such as traveling, taking up new hobbies and learning new – and potentially complex – skills.

The growth of professional, educational and individual mobility internationally creates the desire for travelers and migrants to communicate comfortably in languages not well known to them – for which the present-day third-age generation is on the whole ill-equipped (Gabrys-Barker, 2018). Meanwhile, in cognitive psychology, second

language (L2) learning is signaled as a promising way of contributing to healthy and active aging, promoting neural plasticity and fostering social interactions and individual mobility and autonomy (e.g. Antoniou et al., 2013; Green, 2018).

Although interest in the topic of language learning in the third age dates back to the 1970s (e.g. Kalfus, 1977), little attention has been paid to individual differences in older adults' ability to acquire a new language, particularly in the L1 community. Additionally, research methodologies vary greatly, including, e.g.: case studies (e.g. Mackey & Sachs, 2012; Swain & Lapkin, 2011); qualitative interviews and surveys (e.g. Castañeda, 2016); and laboratory studies that either compare young adults with older adults or focus on older adult learning only (e.g. Lenet et al., 2011). These studies have mostly been conducted in North America, Asia and Latin America, although the topic is also gaining momentum in Europe (e.g. Kliesch et al., 2018; Pot et al., 2018; Ware et al., 2017).

Having in mind the goal of motivating further research into third age foreign language (FL) learning in Europe, we conducted a small-scale pilot study exploring whether age-advanced EFL learners would show FL gains, cognitive benefits and increased overall well-being following

four weeks of EFL training in a school context in the L1 community, and whether this might be related to biological age or previous language-learning experience (bilingualism). We made use of an equal-status concurrent mixed methods design (see Singleton & Pfenninger, 2015), systematically integrating qualitative content analyses with quantitative approaches. Our goal was to identify the factors that determine the FL learning success of 12 older adults, on the one hand, and the question of how language learning benefits *them* on the other. Data from such a longitudinal investigation<sup>1</sup> would make a substantial contribution to research on late FL learning as well as cognitive aspects of healthy aging; it would also help crucially in establishing learner profiles and in optimally designing individualized language training.

## 2. Literature review

### 2.1. Neurocognitive aspects of additional language acquisition in the third age

Age-related declines are widely believed to continue across the lifespan. This kind of account often refers to a slowing of processing speed (Salthouse, 2000), reduced working memory capacity (e.g. Engle & Kane, 2004), reduced learning and recall of new information (e.g. Lindenberger, 2014), a decrease in attention (e.g. Park & Reuter-Lorenz, 2009), an increase in reaction times (e.g. Goral et al., 2007), poorer encoding of contextual information in memory (e.g. Naveh-Benjamin & Old, 2008), and deficits in inhibitory control (e.g. Verhaeghen & Cerella, 2008), but also to changes in speech production and perception (e.g. Wingfield & Grossmann, 2006). Such age-related decline has been reported to be preceded by structural changes, such as a loss of functional brain connectivity, cortical thinning or the decline of white matter integrity (e.g. Damoiseaux et al., 2008).

There are also counter-arguments. On the one hand, the neurocognitive aging literature on the whole suggests that the brain preserves large parts of its plasticity even at an advanced age and remains receptive towards new languages (e.g. Park & Reuter-Lorenz, 2009). Furthermore, attention and cognitive control capacities have been shown to distinguish individuals on the basis, for example, of previous L2 experience and social class (Bialystok & Poarch, 2014), which raises the question: what do age-related declines in scores on neuropsychological tests really reveal? The above evidence may not necessarily index *aging* or *decline* but may simply reflect the predictable outcome of the *cumulative experience of learning* i.e. *increased knowledge*. An accumulating body of evidence in the domain of linguistic cognition (e.g. Ramscar and colleagues 2014) indicates no neurobiological evidence for any declines in the processing capacities of healthy older adults, except where there is evidence of pathology. Ramscar et al. showed in computational simulations that older adults' changing performance on many neuropsychological and psychometric tests, often attributed to cognitive information-processing capacities declining through adulthood, may simply reflect experience-related performance differences such as memory-search demands, which escalate as experience grows.

### 2.2. The bilingual advantage in older adults learning an additional language

Bilingualism from early in life has been linked to an enhancement of domain-general executive control abilities in adults, such as monitoring (the ability to update information in working memory), shifting (the ability to switch between tasks), and/or inhibition (the ability to suppress dominant responses) (e.g. Antoniou et al., 2013). There thus seems to be a relationship between early bilingualism and more efficient later language learning, owing to a wider availability of language-learning strategies and the consequent capacity to attain both general language proficiency (e.g. Pfenninger & Singleton, in press) and literacy skills (e.g. Adesope et al., 2010). It is also suggested that early bilingualism is associated with a substantial retardation of Alzheimer's disease and a decreased risk of senile dementia, possibly owing to a so-called 'cognitive reserve', which results from the use of multiple languages (see Bialystok et al., 2016).

However, substantial evidence questioning this bilingual advantage at the behavioral and neural level has emerged, relating to the multifaceted experience of the bilinguals in question, including lifestyle factors, but also to methodological inconsistencies (e.g. Paap et al., 2015). Thus, it has been suggested that the bilingual advantage reported is a finding circumscribed by specific and unclear situations, and that it does not extend in general to lifelong bilingual third agers or to neo-bilingual third agers (see e.g. Bak et al., 2014). In one of the sparse studies on this topic, Keijzer and Schmid (2016) investigated executive function advantages among 29 elderly, long-term, immersed Dutch bilinguals (aged 71+), who all started using their L2 English after puberty (mean AoA 27.23). This late bilingual experience seemed to result in an advantage for some and an overloading effect for others; i.e. no general bilingual advantage was attested.

Only one (training) study has investigated the effects of bilingualism on language learning *in* the third age (and in the participants' L1 community), namely Cox's (2017) analysis of differential effects of computer-mediated instruction in 45 older adults (aged 61–82), who were either monolingual or bilingual, learning novel Latin morphosyntax. While all participants showed significant gains in accuracy on tasks that required interpretation (written and aural), grammaticality judgment, and production (written), bilinguals showed an advantage over monolinguals, regardless of instructional condition. Even more important for our study is the (still open) question of whether the effects of long-term bilingual experience on executive functions are comparable to those of short-term FL training in a school context.

### 2.3. Socio-affective aspects of L2 acquisition in the third age

Besides neurocognitive factors, our understanding of the L2 learning process in older adults should also take into consideration the cognition-affect interface (see Schuller's (2004) Three Capitals framework), i.e. the influence of changes in lifestyle, L2 learning motivation, overall well-being, self-esteem, different life and learning histories,

present-day conditions, general communicative skills, construction of third age identity, and sense of purpose.

Addressing the effect of motivation in older adults in a school context, scholars have observed apprehension and bewilderment in relation to the learning environment (Brändle, 1986) and low coping potential plus a lack of self-confidence (Ramírez Gómez, 2016). Additionally, the impact of ageist views and social stereotypes vis-à-vis the elderly has been found to lead to self-defeating preconceptions among older learners regarding learning abilities (e.g. Andrew, 2012). If third agers accept ageist stereotypes from the culture (including community or family) as valid, self-stereotyping occurs, which may occasion physical, emotional, and cognitive declines (see Knowles et al., 2011; Oxford, 2018).

By contrast, some scholars have remarked that many older students – whatever their subject matter of choice – return to the classroom with excitement and very high motivation levels, which may lead to a substantial increase in well-being (Ware et al., 2017). Brändle (1986) and Johnstone (2002) comment particularly favorably on older learners' general command of reading skills, their understanding of grammatical principles and the way in which they cope with lexical learning.

#### **2.4. How older adults may benefit from second language learning**

Cognitive capacities such as those outlined above not only vary as a function of age and genetics, but also in large part of lifestyle and the extent to which intellectually stimulating experiences are encountered (see Stern & Munn, 2010). However, there are only a few behavioral and neurocognitive studies investigating the impact of (intensive) L2 language training on cognitive or socio-affective functions in older adults and vice versa. First results of such intervention studies suggest that:

1. cognitive fitness constitutes a major factor explaining the variance in FL development as a function of L2 training in a school context (Kliesch et al., 2018);
2. participants' cognitive capacities (e.g. working memory capacity) seem to be more predictive of individuals' L2 progress in later life than age in naturalistic settings (Mackey & Sachs, 2012);
3. even a short period of intensive language learning (e.g. a one-week course with 14 hours of language classes) can modulate attentional functions (e.g. attention switching) from which both older and younger learners can benefit (Bak et al., 2016) – although the opposite has also been reported (see Ramos et al., 2017);
4. there are advantages in additional (instructed) language learning for late bilinguals compared to monolinguals regardless of type of instruction (explicit computer-mediated instruction vs. non-EI) (Cox, 2017);
5. effects measured during sentence comprehension using EEG become more similar between native speakers and adult L2 learners as a function of proficiency (e.g. Dowens et al., 2010);

furthermore, for older learners who make more L2 gains, switching between the L1 and the L2 is less effortful than for those with lower L2 proficiency (Kliesch et al., 2018; Van Der Meij et al., 2011);

6. learner investment is likely to interact with the cognitive capacities of older learners: high cognitive demand leads to exhaustion, which in turn may increase self-defeating conceptions of one's learning abilities and tiredness, and eventually reduce motivation (Ware et al. 2017);
7. L2 learning plays a key role inasmuch as it tackles socio-affective issues – i.e. by preventing isolation, fostering linguistic flexibility, self-esteem and autonomy (Antoniou et al. 2013; Pot et al., 2018).

Within this context, we can now consider the research questions pertinent to this study.

### **3. Research questions**

This study aims to begin to address the following research questions:

1. To what extent does an intensive, four-week EFL training in a school context impact on (a) FL gains, (b) general performance of cognitive skills known to deteriorate as a function of age, and (c) (linguistic) self-confidence, FL learning motivation, general communicative skills and overall well-being?
2. What is the impact of long-term bilingual experience on these linguistic, cognitive and socio-psychological outcomes?

The main goal of the study is to provide preliminary data to promote further investigations in this area and to test the feasibility of EFL training and a variety of measures. Cognitive pre- and posttests will enable us to test Antoniou et al.'s (2013) hypothesis of the cognitive benefit of additional language learning in older adults, and provide an indication regarding the relationship between learner profiles and cognitive benefits.

### **4. Methodology**

#### **4.1. Research design**

We seek to integrate qualitative and quantitative approaches by using an equal-status concurrent mixed methods design (see Singleton & Pfenninger, 2015) – both at the data collection and the analysis level, deriving corroboration (triangulation) as well as elaboration of the quantitative results with results from the qualitative dimension (complementarity).

#### **4.2. Participants**

We considered as “older” adult learners individuals between 63 and 90 years of age, roughly following Mackey & Sachs (2012). In order to address the various learner differences in the context of SLA and senescence, two groups of right-handed healthy participants were recruited who had no previous English-learning experience. Initially 19 participants signed up for the course, but only 12 of these (8 F, 4 M) completed the four-week intensive English course.

The experimental group consisted of six individuals (aged 74, 84, 89, 84, 87, and 88) who grew up as German/Slovenian sequential bilinguals. The second group was our active control group of six older adults (aged 63, 65, 72, 72, and 84), raised in a monolingual Austrian context with no more than school knowledge of any language other than German. Participants in both groups voluntarily signed up for the language course. They were retired by the time they took part in the study, did not report any musical training, neurological disease, language disorder or learning disability, and had no cerebral degradation (as measured by the concentration test for geriatric patients, see below).

Two points are important to emphasize here. On the one hand, studies involving cognitive training programs ideally include a passive control group, in order to be able to test the efficacy of the training and also to dissociate the effects of different cognitively demanding types of training and to explore repetition effects (Ramos et al., 2017). However, we believe that the lack of such an additional control group does not diminish the impact of the current findings, given the nature of our research questions (e.g. relating to the impact of previous bilingualism). Also, it is important to note that it was not the objective of this study to recruit as large a sample as possible. Psycholinguistic and SLA researchers, both quantitative and qualitative, have a tendency to restrict themselves to just one particular notion of generalizability – namely, a statistical, sampling-based notion – whilst ignoring theoretical generalizability, that is, the effort to shed empirical light on theoretical concepts or principles, thus yielding insights of potentially wider relevance and theoretical significance. Theoretical generalization seeks depth rather than breadth in its scope and analysis, an approach that is much needed in this area of SLA. In this sense, our focus is not so much on determining how L2 learning differs, such as in older adults versus younger adults, as on exploring the factors (e.g. previous bilingualism) that account for individual differences among older learners.

### 4.3. Teaching intervention

In one of our earlier pilot studies (Kliesch et al., 2018) we found that a training of four lessons a day over a period of three weeks was too demanding for older learners, both physically and mentally, causing self-reported fatigue and demotivation. On the basis of these results, we hypothesized that an intensive English training of four weeks, with three lessons of two hours a week (i.e. 24 hours in total), would be sufficient to achieve measurable differences in general FL proficiency.

All participants began the study by giving informed consent and completed a comprehensive language background questionnaire. The language course was taught by only one tutor (the second author of this paper); hence, it is unlikely that potential differences might relate to the personality and/or teaching style of individual tutors. The course book *Headway A1* (Soars & Soars, 2007) served as a guideline for the course. However, the lesson plans needed continual adjustment. To this end, suitable teaching materials and methods were created, and the teaching pace was constantly adapted.

The main goal was to teach the comprehension and use of familiar everyday expressions and very simple phrases to communicate basic needs. Best practice in older adult language education has developed little since the 1980s, when Joiner (1981) devised an optimal, goal-driven learning program (building communicative competence) with individualized, self-paced instruction at its core, and the inclusion of real-world materials to link learning to practice and boost motivation (an “immediate payoff” (1981: 33)).

Finally, it is important to mention that the participants in the experimental group wrote down and repeated the new vocabulary not only in English (FL) and German (L1), but also in Slovenian (their other L1).

### 4.4. Tasks

Data collection generally took place at three points of time: at the beginning of the course (T1), after two weeks (T2) and at the end (T3), although some tests were administered before and after each class. As pre- and post-tests, we used predominantly written FL proficiency tasks and cognitive tests that have either been successfully used before in studies on older populations and/or measure skills that are known to deteriorate with increasing age. There are two advantages in using the written modality to test general L2 skills in third age learners: first, the performance in listening comprehension tasks is likely to be affected by individual differences in hearing loss, which are known to affect even language comprehension in L1 (see e.g. Giroud et al., 2017), and would therefore be biased towards learners with better hearing. Second, both speech comprehension and production rely heavily on processing speed and working memory capacity, both of which have been shown to be reduced in older adults (see literature review). At each measurement, all tests were pseudo-randomized between individuals and performed in one session.

#### 4.4.1. FL proficiency tasks

Different versions of language tests were used to assess skills that were trained in the course and could therefore be expected to improve with time. The tests were administered at T2 and T3 and addressed both language production and language reception, as well as both aspects that are susceptible to aging (e.g. morpho-syntax) and those that are less vulnerable to age-related changes (e.g. lexico-semantics) (see e.g. Johnstone, 2002).

We administered the C-Test to assess grammatical production skills (e.g. Aguado et al., 2007). It has been validated and found to correlate with self-evaluation procedures, school grades, and other language tests and batteries (Raatz & Klein-Braley, 2002) and has been used successfully in previous studies of third age language learners (e.g. Keijzer & Schmid, 2016); furthermore, it is able to track differences in performance even after a short FL training period (see Kliesch et al., 2018). At T1 the test included 70 gaps; the participants were given three points for correct answers (meaning a max. of 210 points was possible) and zero points for wrong answers. Two points were given for an answer with an orthographic (spelling) error (e.g. *peopl* instead of *people*), and one point

for a response with a phonological error (e.g. *vilis* instead of *village*). At T3 the participants had to fill in 111 gaps (max. score: 333 points).

Receptive vocabulary was assessed using an odd-one-out task as well as an association task in both post-tests. In the odd-one-out task eight words and 10 words respectively were presented visually at T2 and T3, and participants were asked to identify the odd-one-out lexical item. In the association task participants had to underline all the words that did not fit the umbrella term.

#### 4.4.2. Cognitive tasks

The Stroop Task (Stroop, 1935) was administered at T1 and T3 to measure verbal and non-verbal inhibition skills, respectively, while attention and concentration were assessed via the concentration test for geriatric patients ("Alters-Konzentrations-Test A-K-T", Gatterer, 1989) at T1, T2 and T3. In the latter test, the participant has to focus on the position and pattern of symbols on a sheet of paper and has to find and mark every symbol that has the same position and pattern as the symbol given at the top of the sheet. The time needed as well as the correctly and incorrectly marked symbols are assessed. The test also provides information regarding the different stages of dementia; a criterion for a cerebral deterioration process would be a change in the ability to concentrate. In Kliesch et al. (2018) computerized tests proved too complicated and confusing for older participants, which is why in this study it was decided to forego computer tests to avoid confounds based on different PC-skills among older learners.

#### 4.4.3. Socio-affective tasks

In order to account for the socio-affective dimension of FL learning in a classroom setting, we administered a questionnaire with 27 open-ended items, one closed-ended item and one question that required drawing a motivation curve so as to evaluate learning experiences, motivation, attitudes, overall well-being, personal goal-setting, age negotiations, the construction of aging identities, autonomy, L2 awareness, anxiety, expectations, self-confidence and learning strategies. The questionnaire was administered at T3 and consisted of the following main dimensions:

- motivation to participate in a FL course;
- motivation to persevere in the course;
- overall subjective well-being (in class and in everyday life);
- impact of teaching method on autonomy,

- communicative skills and self-efficacy;
- learning atmosphere in the classroom;
- importance of the course instructor;
- nature of the language training.

To add a further quantitative dimension, we administered a FL learning questionnaire and the Multidimensional Mood State Questionnaire (*Mehrdimensionaler Befindlichkeitsfragebogen* MDBF) before and after each class. The latter consists of 24 items with a five-point Likert-scale, which assess a bipolar dimension of the mental state: good/bad mood (Steyer et al., 1997). A high score indicates a positive mood; the person feels comfortable, cheerful and satisfied. Low scores indicate a bad mood and the person feels uncomfortable; s/he is bad-tempered, gloomy and dissatisfied.

#### 4.5. Data analysis

Because of inherent task differences, performance can differ across tasks (see Bak et al., 2016). For this reason, we did not calculate a composite score for the subtests, but rather analyzed each subtest separately.

The data were analyzed in accordance with their properties by Wilcoxon tests and Mann-Whitney *U*-tests. Bonferroni corrections were used where appropriate ( $p < .05$ ). Furthermore, effect sizes were calculated for the difference between two median values (suitable for the Mann-Whitney *U*-test and the Wilcoxon test) from the standardized test statistics of tests ( $z$ ) and the number of cases ( $n$ ). Judging effect sizes was based on Cohen's (1988) guidelines ( $r = 0.1$  small,  $r = 0.3$  medium,  $r = 0.5$  large).

In the qualitative analysis we pursued an inductive, bottom-up approach, performing a content/theme analysis using the method proposed by Braun and Clarke (2006). At the first step, the responses were read separately multiple times. Second, the ideas expressed in the written responses were regrouped into themes. Afterwards, the responses were read again to check theme accuracy. Finally, the quotes selected from the participants' interviews were translated from German to English by the second author.

## 5. Results

### 5.1. Impact of EFL training on EFL gains

The results of the odd-one-out test indicated a significant difference from the unilateral test level between both measurement times (see **Table 1**); after Bonferroni correction, however, this result was no longer significant ( $p = 0.017$ ). The effect sizes, however, are large for both groups.

**Table 1:** Summary of the results in the EFL tests.

Tasks			Wilcoxon-Test		
	T2 (n = 12)	T3 (n = 12)	Z	$p_{unilateral}$	Effect size $r$
	M (SD)	M (SD)			
Odd-one-out	68.83 (12.48)	80.91 (9.44)	-2.051	0.02	-0.618
Association	87.50 (12.51)	92.73 (6.47)	-0.971	0.16	-0.293
C-test	75.19 (16.14)	81.46 (7.86)	-0.978	0.16	-0.295

In the association test and the C-test, there was no significant growth either, although all participants, i.e. bilinguals in the experimental group and monolinguals in the control group, improved their scores (see **Figure 1** for the C-test). The effect sizes were relatively small for both tests.

That said, a finer-grained analysis revealed that while the participants did not make any significant gains with respect to overall correct scores in the C-test, they produced significantly fewer incorrect answers – unfilled gaps and incorrect answers ( $Z = -2.845$ ,  $p_{unilateral} = 0.002$ ,  $r = -0.859$ ), fewer orthographic errors ( $Z = -1.779$ ,  $p_{unilateral} = 0.037$ ,  $r = -0.536$ ) and fewer phonological errors ( $Z = -2.937$ ,  $p_{unilateral} = 0.001$ ,  $r = -0.886$ ), with large effect sizes throughout. Also, with time, the groups became more homogeneous (less variance between the mean and the standard deviation).

As **Table 1** above shows, there seemed to be a tendency for the control group (monolinguals) to learn faster at the beginning (after two weeks), while the experimental (bilingual) group made faster progress after two weeks, i.e. they were able to catch up with the monolingual group. Mann-Whitney  $U$ -tests, however, revealed no significant differences between the bilinguals and the monolinguals for any of the tasks: odd-one-out test (T2:  $Z = -0.512$ ,  $p_{unilateral} = 0.304$ ,  $r = -0.154$ ; T3:  $Z = -0.873$ ,  $p_{unilateral} = 0.191$ ,  $r = -0.263$ ); association test (T2:  $Z = -1.152$ ,  $p_{unilateral} = 0.125$ ,  $r = -0.347$ ; T3:  $Z = -0.512$ ,  $p_{unilateral} = 0.305$ ,  $r = -0.154$ ); C-test (T2:  $Z = -0.365$ ,  $p_{unilateral} = 0.396$ ,  $r = -0.110$ ; T3:  $Z = -0.365$ ,  $p_{unilateral} = 0.356$ ,  $r = -0.110$ ).

### 5.2. Impact of FL training on cognitive abilities

The FL training had a significant impact on inhibition and interference, as measured by the Stroop test (see **Figure 2** below), but not on cognitive control and attention (as measured by the A-K-T) (see **Figure 3**),

although many participants (66%) reported noticing some changes in their ability to focus and concentrate (see qualitative results below).

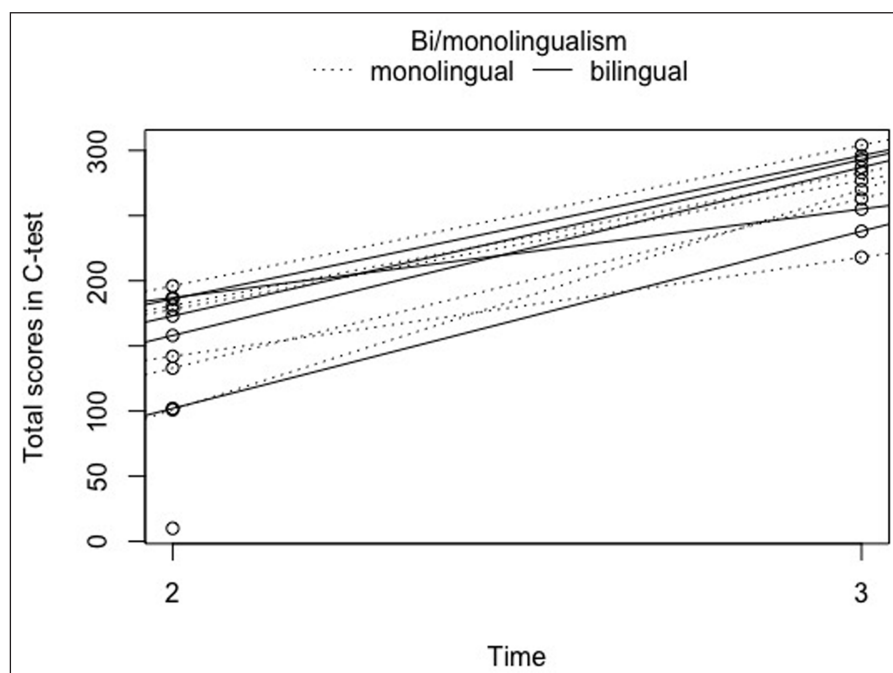
**Tables 2** and **3** summarize these results.

While both groups made significant gains on the Stroop test, the inhibitory performance was better in monolinguals (control group) than bilinguals (experimental group) at both data collection times. What is more, the control group (monolinguals) self-corrected on average 60.58% of the errors at T1 ( $SD = 41.02$ ), while at T3, 90.88% ( $SD = 10.50$ ) were detected and corrected. This difference of proportionally corrected errors in relation to the total errors within both measurement times was statistically significant ( $Z = -1.826$ ,  $p_{unilateral} = 0.034$ ,  $r = -0.746$ ). At T3, the experimental group (bilinguals) also identified and self-corrected a higher percentage of errors; however, this group showed no statistically significant improvement ( $Z = -0.674$ ,  $p_{unilateral} = 0.250$ ,  $r = -0.275$ ). Likewise, while the experimental group showed no significant growth on the concentration test (A-K-T) ( $Z = -1.219$ ,  $p_{unilateral} = 0.223/2 = 0.112$ ,  $r = -0.545$ ), the control group were able to improve their scores significantly, with large effect size ( $Z = -1.782$ ,  $p_{unilateral} = 0.0375$ ,  $r = -0.728$ ).

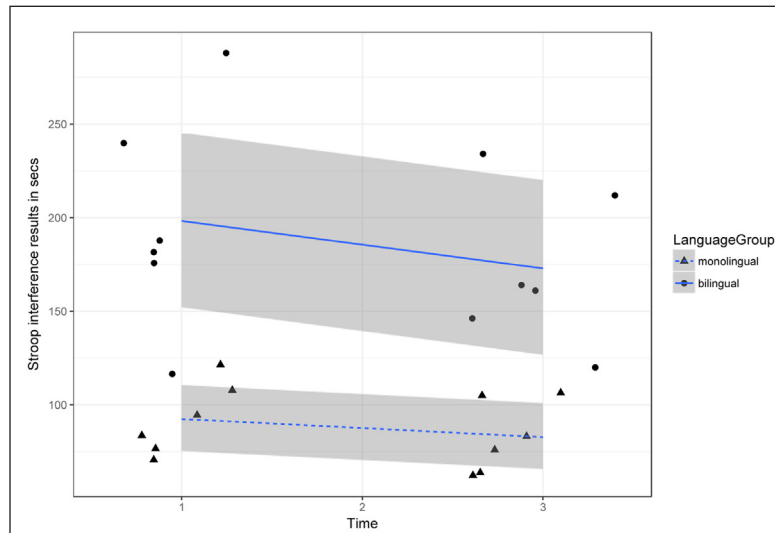
### 5.3. Impact of L2 training on socio-affective factors

In the first dimension of the questionnaire, the participants were asked about their motivation to participate in an English language course (see **Figure 4**).

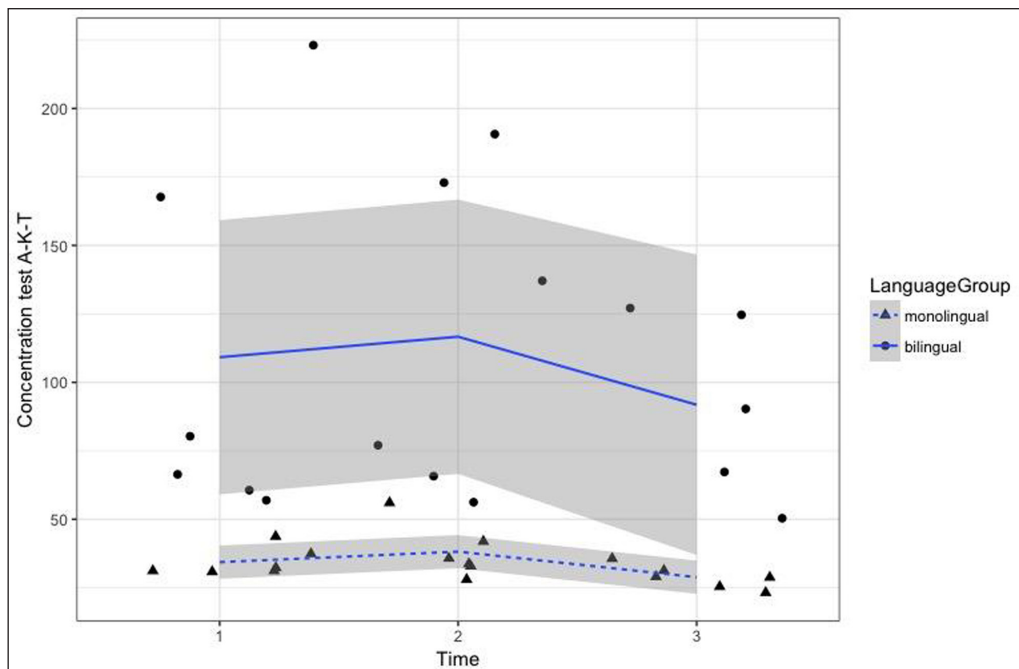
In contrast to the bilinguals, the main motivation for all participants in the monolingual group was a general interest in the English language and the English course, as well as a desire to understand texts in English; other motivations were: communicating with English-speaking people, travelling, and facing a new challenge. The main motivation for the bilingual participants was to communicate with English-speaking people.



**Figure 1:** Individual trajectories for the C-test.



**Figure 2:** Mean group scores in the Stroop Test.



**Figure 3:** Mean time required for each group in the geriatric concentration test (AKT) (in secs).

All 12 participants developed a personal goal over time, such as “keep learning/mutual learning”, “being able to communicate with others”, “knowing another language”, “ambition and thirst for knowledge”, “curiosity”, “fun”, “reading”, “thinking”, “writing” and “laughing”.

83% of the monolinguals claimed that the English course had a positive effect on their social life. They observed an increase in conversations with other people (family, friends, neighbors); two participants mentioned that they had told others about the course and that “it was well received”. Four participants reported that they “had fun” and “were praised by others” for attending the course; and also four of them remarked that their perspectives had changed, for example, in that they got new ideas such as travelling to an English-speaking

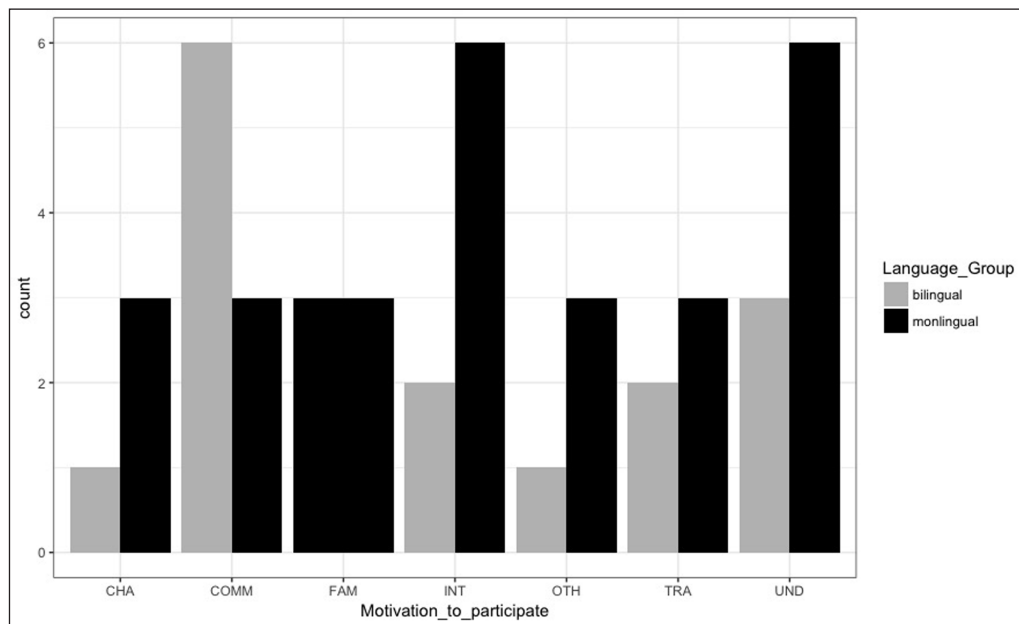
country; communicating with other people was facilitated on vacation; 66% expressed a desire for another English-language program in the future. One participant reported trying to approach and greet people in English in his daily life. Four participants noted that their personal well-being improved in that their “time management in their everyday life was better”; they “felt much better”, were “very content” with themselves and “proud” that they “persevered”; they “felt more comfortable” also because of their personal impression of being able to “remember more things”. Furthermore, they considered it a “personal enrichment and valuable experience”. Only one participant “did not notice any change” in his well-being. The participants highlighted that their “self-confidence improved drastically”

**Table 2:** Summary of group performances in the Stroop test.

Groups	T1 (n = 6)		T3 (n = 6)		Wilcoxon-Test	
	M (SD)	M (SD)	Z	p <sub>unilateral</sub>	Effect size r	
bilingual	198.23 (58.86)	172.93 (42.38)	-1.992	0.023	-0.813	
monolingual	92.45 (19.34)	82.77 (19.37)	-2.201	0.014	-0.897	

**Table 3:** Summary of group performances in the A-K-T.

Groups	T1 (n = 6)		T3 (n = 6)		Wilcoxon-Test	
	M (SD)	M (SD)	Z	p <sub>unilateral</sub>	Effect size r	
bilingual	118.80 (73.13)	91.80 (34.03)	-1.219	0.112	-0.545	
monolingual	34.33 (5.28)	28.83 (4.58)	-1.782	0.038	-0.728	

**Figure 4:** Participants' motivation to participate in the FL classroom (count of participants per dimension).

*Note:* CHA = new challenge; COM = communicate in English; FAM = motivated by friends and family; INT = general interest in the English language and the course; OTH = other; TRA = traveling; UND = understanding texts in English.

inasmuch as they felt “more attentive and stronger” and “content and proud of the progress” they had made. One participant reported a “higher stress level” due to her busy lifestyle.

The English course also had a positive influence on all participants in the bilingual group. In particular, they reported establishing strong social ties with one another; they had “fun within the group”, “fun with other elderly people” and the “conversations with other people in the house increased”. They found the language course cognitively stimulating in that they had gained insights into “new learning perspectives”. All participants reported an overall “boost in emotional well-being”; they “felt much better and optimistic”, with one participant

highlighting that she “did not have any depressions any more”. The course had had a “positive influence” on five out of six participants’ “self-confidence”, as well as on their “self-esteem”. Two participants reported that the “family supported” them, and it seemed to be important that their relatives were “proud” of them.

All participants in the monolingual group preferred teaching methods such as group discussions, reading and playing games; five participants also enjoyed writing dialogues. In the bilingual group, four participants preferred activities such as group discussions, reading, watching YouTube videos and teacher-centered instruction. The participants “did not feel old”, they felt “taken seriously”, and the course was “encouraging” and “positively demanding”.



Asked about what personality traits a course instructor should have for a course with elderly people (60+) and what he/she should consider, the answers were the following: “speak slowly and loudly”, “repeat often”, “give simple instructions”, be “funny”, “cheerful”, “patient”, “friendly”, “empathetic”, “encouraging”, “positively demanding”, “determined”, “respectful”, “humorous” and “not give the feeling that we are old”; and that he/she should have “stamina” as well.

The results from the closed-ended item in the motivation questionnaire, administered in each class, corroborated these positive findings: between T1 and T2 (first and last teaching unit) a statistically significant result could be observed, with a large effect size ( $Z = -2.677$ ,  $p_{unilateral} = 0.007/2 = 0.0035$ ,  $r = -0.847$ ). As **Figure 5** shows, learning motivation kept increasing with time.

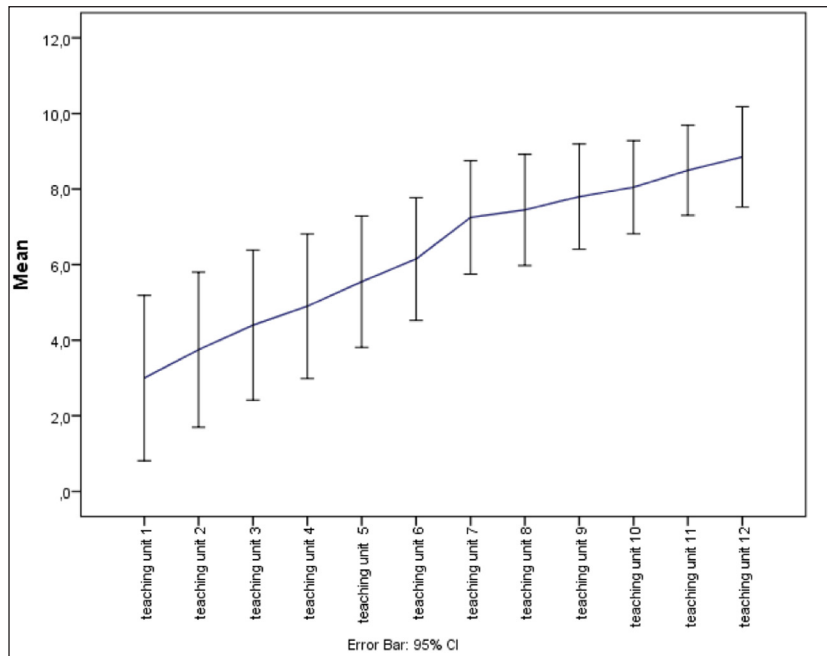
Interestingly, these observations are not reflected in the quantitative findings yielded by the Multidimensional Mood State Questionnaire (MDBF). Between T1 and T12

(first and last teaching unit) no significant difference could be detected ( $Z = -0.211$ ,  $p_{unilateral} = 0.417$ ;  $r = -0.063$ ). **Figure 6** illustrates the descriptive statistics for both groups before and after each English lesson.

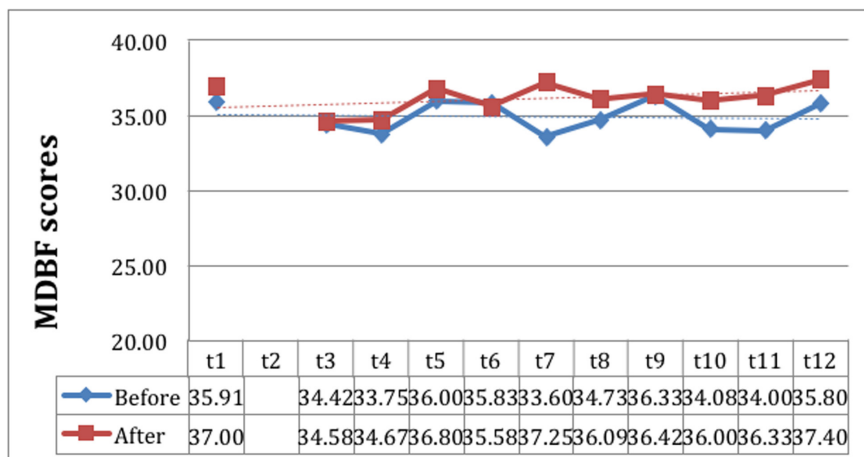
### 6. Discussion

Our results demonstrate a significant improvement in a range of linguistic, cognitive and socio-affective tasks as a function of a four-week intensive English course. Although we could not observe any gains in the receptive language tasks, all participants were able to fill in significantly more gaps in the C-test after the language course, and significantly fewer errors were made in each error domain. Moreover, the improvement neither depended on biological age nor on bilingualism, which stands in contrast to Cox’s (2017) study, in which bilinguals consistently outperformed monolinguals.

The language training also led to measurable improvements on executive tasks (inhibition, interference)



**Figure 5:** FL learning motivation over time (mean motivation score).



**Figure 6:** Scores in the Mood State Questionnaire across all participants before and after each class.

but not on focus and concentration – although there was a *perceived* increase in focus and attention on the part of the participants. These findings expand on the results of previous research (e.g. Bak et al., 2016) by demonstrating a language learning-related attentional and socio-affective improvement longitudinally *within the same participants*: the improvements were noted across all age-groups, from 63 to 89 years old, and among monolinguals and bilinguals. Hence, the current study is of help in ascertaining whether third-agers' cognitive abilities can be improved by teaching them a new language, which is important considering the contradictory outcomes of studies on the bilingual advantage with respect to domain-general cognitive abilities (see literature review). However, since the knowledge and skills that are inevitably accumulated as experience grows are not controlled for in these tests, scientific prudence indicates that the way the results of these tests are interpreted should be tempered.

In line with predictions from social psychology and SLA (e.g. Ware et al., 2017), language training has been shown to lead to measurable improvements beyond the practiced tasks, with gains in the realm of (linguistic) self-confidence, communicative skills and subjective well-being, independent of the age of participants and bilingualism. Although the Multidimensional Mood State Questionnaire did not reveal any significant improvement in terms of overall well-being from T1 to T12, the quantitative results displayed consistently high ratings on subjective well-being scales before and after each English class, with minimally higher ratings at the end of each course. On the basis of the second author's classroom observations we speculate that this might have to do with the fact that participants were already very excited at the beginning of each class so that the training could not improve their mood greatly. The responses in the open-ended questionnaire, on the other hand, clearly suggest that language learning is perceived not only as a social activity but also as cognitive stimulation and connection with society. Participants in our study expressed their motivations for learning English in terms of the use of new behaviors and practices, the development of communicative strategies and desire to continue the program. These are discourses of positive aging (see Andrew 2012): their remarks advocate accepting aging as a fact of life and finding a sense of life satisfaction. Learning English is one way they have found to remain active and to continue to advance personally. More importantly, it is a major source of prestige for them in view of all that English signifies in terms of cultural capital. While they very much enjoy the academic challenge of learning, this undertaking has much more to do with their life in the world beyond the classroom. The participants often pointed to the importance of the approval and acknowledgment of their family members; they also had a tendency to compare themselves with other older adults (inside and outside their language classes). Similarly, Sigelman and Rider (2012) note that older adults can maintain self-esteem by comparing themselves socially or physically with other older adults, rather than with younger adults. Oxford (2018) reasons that when third agers apply ageist stereotypes (learned as early as childhood in some

cultures, Levy, 2003) to themselves, their self-esteem suffers, but if they attach these stereotypes to other older adults, they feel better about themselves – a hypothesis supported by our findings.

## 7. Conclusion

Both the applied linguistics-related and the cognitive study of third-age additional language learning are at points where the topic is gaining traction, and we are at a juncture to take stock of what has been investigated, to what extent efforts have been fruitful, and how we should proceed. This pilot study focused on the effects of FL learning on older adults who *begin* the relevant language learning process *in* old age in a school context in the L1 community – a novel undertaking in SLA research.

Our findings not only present some initial support for the hypothesis that FL learning in older adults yield cognitive, linguistic and socio-affective benefits; they also highlight the importance of learning a completely new language in the third age not just as a goal in itself but as a means of promoting social interaction and integration – an important finding considering that it is partly through the stimulation of social well-being that its cognitive effects may be observed (Pot et al., 2018).

Our results are relevant not only for Austrian geragogy but for any country where third-age universities and courses are on the increase (for a further discussion of critical FL geragogy, see Ramírez Gómez (2016)). Understanding how cognition and motivation are involved in FL learning in older adults is essential for adult educators, policy-makers and designers of course materials and syllabi to develop teaching materials which cater for the needs of this learner group and to make decisions about type and impact of late additional language instruction. It is important to bear in mind that since there are multiple differences both within and between populations of older adults, there is no “one-size-fits-all” solution when teaching this age group; therefore, investigation into different approaches in diverse contexts is essential at this point.

The findings presented in this article are preliminary and the conclusions drawn from this study must be considered against the background of the methodological constraints inherent in the design (e.g. small sample sizes, high individual variation, etc.). In continuing this line of research, it will be critical for us to include a passive control group and, possibly, another active control group engaging in another type of training that does not involve the use of language, e.g. playing with a computer-based strategy game that has been shown to yield significant cognitive improvement in older adults (see e.g. Basak et al., 2008). Furthermore, research designs of existing explorations of these issues are typically case studies and “one-shot” group studies. Dense longitudinal studies will enable us to reach clear conclusions on the effects of third-age language learning. Finally, as Lenet et al. (2011) argue, older learners might profit more from implicit L2 training (but cf. Cox, 2017), while Brill-Schuetz and Morgan-Short (2014) demonstrate that only learners with high procedural memory show an advantage in implicit L2 learning conditions. Thus, future studies could investigate individual L2/FL progress under each

learning condition, taking into consideration differences in cognitive capacities, such as procedural memory.

As we see it, one of the biggest challenges in this line of research is the prevalent ‘deficit view’, i.e. the fact that the ageism of vernacular representations of older people is inadvertently included in the representation of research findings:

- evaluating older language learners against “young learner” competence;
- prioritizing the concept of ‘successful ageing’ over the idea of ‘harmonious ageing’ in age-based discourse (Liang & Luo, 2012);
- participating in a rhetoric of age as an ingredient of persons, an internal causal factor, thereby de-socializing age (Rughiniş & Humă, 2015);
- estimating aging effects in the aggregate, i.e. grouping third agers into cohorts according to their age (e.g. the 65–75-year-olds vs. the 75–90-year-olds), thus dismissing people’s agency in shaping their lives (Rughiniş & Humă, 2015);
- using childish or patronizing teaching materials (e.g. course books explicitly labeled as course books for “older learners”);
- using tasks that do not take account of the statistical skew of human experience, or the way knowledge increases with experience, which paints a misleading picture of cognitive development (see Ramscar et al., 2014);
- speaking about the third age learner as a failure for not being like a younger learner and about life-long learning “as a practice to battle against old age” (Isopahkala-Bouret, 2015, p. 2); and, finally,
- anticipating, through the statistical parlance about “age effects”, age matter-of-factly and reporting it as a cause of deficient behavior (Rughiniş & Humă, 2015).

Removing debilitating stereotypes in research design, task design and data analysis is a fundamental step towards understanding age-related changes and age parameters, and, by extension, encouraging and aiding older language learners.

#### Note

- <sup>1</sup> Since our study includes participants at successive levels of language ability within the same language users, we refer to it as ‘longitudinal research’. Note, however, that the short-span length of investigation chosen here suffers in comparison with those of at least several months, which is more typical of longitudinal design in SLA research.

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#### Editor’s Note

Winner of the best JESLA paper for 2018.

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