

THE EFFECT OF EXTRAVERSION ON L2 ORAL PROFICIENCY

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Abstract

Various studies have investigated the relation between personality variables and second language acquisition (e.g. Moody, 1988; MacIntyre & Charos, 1996; Dewaele & Furnham, 1999) but the study of personality traits and especially the effect of extraversion on L2 speech production remains somewhat underexplored. This study builds on previous research but is innovative in three ways. Firstly, it examines learners' speech production in two rather than one L2 and thus puts to the test the hypothesis that the effect of extraversion is stable across different target languages (Dewaele & Furnham 2000). Secondly, whereas most previous studies have investigated the effect of extraversion on fluency (e.g. Rossier, 1976; Tapasak, Roodin & Vaught 1978; Busch, 1982; Dewaele, 1998) this study also looks at the potential effect of this variable on the linguistic accuracy and complexity of learners' L2 speech production. Thirdly, whereas previous studies were mostly cross-sectional in design, this study adds a longitudinal perspective by considering to what extent the effect of the extraversion-introversion

dimension on the fluency, complexity and accuracy of learners' L2 production remains stable over time. Participants are 25 Dutch-speaking secondary school students learning both English and French as foreign languages in Flanders, Belgium. Oral production data in both L2s were collected on three occasions at six month intervals (spanning grades 8 and 9) by means of a wordless picture-story retell task. Six quantitative measures for fluency, accuracy and complexity were computed for each data set. The Eysenck Personality Questionnaire RSS was used to measure the learners' degree of extraversion (Eysenck & Eysenck, 1991). Pearson correlations and regression analysis with repeated measurements tests of fixed effects were used to measure the effect of extraversion on the learners' L2 production in both languages.

Key words: extraversion, L2 speech production, fluency, Dutch, English, French

Introduction

Many factors influence the second language learning process. Yet one of the most important elements for SLA research to explain is the great individual variability SL learners obtain in their respective L2s (Gass, 1988). It has been frequently observed that different learners attain highly different levels of L2 proficiency even though the circumstances in which these learners acquire a target language are almost identical. This interindividual variation can be accounted for by learner-internal factors. Johnson (2001) divides the variables that contribute to differences between individual language learning into three categories: cognitive, affective and personality variables. Cognitive factors include various forms of mental information processing (Ellis, 1990), affective factors involve among others motivation and anxiety (Ehrman et al., 2003) and personality variables are mostly associated with a set of personality traits (Skehan, 1989). The personality attribute that has received most attention in SLA research is extraversion. The notion of extraversion stems from trait theories of personality developed in psychology. Trait theorists try to identify those elements in a human being's personality that are relatively stable, and it is believed, at least partly innate.

Personality theory

Both on a theoretical and a taxonomical level exist a plethora of approaches to the fundamental quest of reducing the myriad elements of personality to an elemental set. (For an overview of the both the more traditional and current research status of the field see Brody & Ehrlichman, 1997; Derlega, Winstead, & Jones, 1999; Funder, 2001).

Two models compete. The first, 'the Big Five', grew out of efforts by many psychologists, beginning in the first half of the 20th century with Catell's 16 Personality Factors research. By means of factor analysis Catell subtracted 16 high-order personality dimensions, each consisting of several lower-order traits. Successive reworkings of this initial model led to the first version of The Big Five (Norman, 1963) and ultimately to Costa and McCrae's Five Factor Theory (Costa & McCrae, 1985; Costa & McCrae, 1992a; McCrae & Costa, 1997) who introduced the NEO Personality Inventory to assess the following five high-order factors:

1. Extraversion: (E) An extravert displays a propensity towards social interaction, adventure, cheerfulness, activity for activity's sake. The typical introvert on the other hand, is unsociable, rather quiet, reserved and shy.
2. Agreeableness: (A) An agreeable person's orientation is toward compassion, empathy, and caring about others. A non-agreeable individual is characterized as mistrustful, headstrong and antagonistic.
3. Conscientiousness: (C) Conscientious people exhibit a high degree of organization, persistence, perfectionism and integrity. Non-conscientious people are likely to abandon the task at hand and have less problems with twisting the truth.
4. Neuroticism: (N) The neurotic tends toward negative emotionality, instability and inability to cope, whereas the emotionally stable person (Norman, 1963) is likely to own a calm, steady and relaxed disposition.
5. Openness to Experience: (O) An open person demonstrates tolerance for new ideas and new ways of doing things; contrary to people of a more 'closed' nature he or she is experientially and imaginatively oriented.

The fact that the 'The Big Five' has been used in numerous comparative personality

studies (e.g. Revelle, 1987; Briggs, 1989; Funder, 2001; Pervin, 1994) and is easily applicable to other fields than trait theory as such, have led John & Srivastava (1999) to observe that:

One of the apparent strengths of the Big Five taxonomy is that it can capture, at a broad level of abstraction, the commonalities among most of the existing systems of personality traits, thus providing an integrative descriptive model for research (John & Srivastava, 1999: 122 in: Hicklin & Widiger, 2005).

The second model stems from the work of the German psychologist Hans Eysenck, who came up with a similar set of temperament dimensions. By administering large groups of people lists of adjectives to rate themselves on, he ultimately came up with the Eysenck Personality Questionnaire (EPQ), which was re-evaluated and adjusted several times (Eysenck, 1975; Eysenck, Eysenck & Barrett, 1985; Eysenck & Eysenck, 1991). Different from the NEO personality Inventory, the EPQ is used to assess three and not five personality factors. The 'Even Bigger Three' or PEN model, consists of a range of subtraits fitted into the following three supertraits or temperament dimensions:

1. Psychoticism (P): Psychotics tend to be aggressive, assertive, egocentric, unsympathetic, manipulative, achievement-oriented, dogmatic, masculine and tough-minded.
2. Extraversion (E): Extraverted people are predisposed to be sociable, irresponsible, dominant, lack reflection, are sensation-seeking, impulsive, risk-taking, expressive and active.
3. Neuroticism (N): Inclination towards neuroticism positively relates to anxiousness, depression, guilt feelings, low self-esteem, tension, mood-swings, hypochondria, lack of autonomy, obsessiveness.

These supertraits should be interpreted as a set of bi-polar dimensions that range from one extreme disposition to another; most people fall somewhere on the spectrum between both sides of the continuum.

Although there are obvious similarities between both models, Eysenck has always maintained the PEN model to be the better alternative (Eysenck, 1992a; Eysenck, 1992b). His claim that the PEN model is superior to the Big Five is based on the assumption that the superfactors of PEN are traits that are very stable across time and situation and that the factors agreeableness and conscientiousness are in fact lower-order traits that belong to the superfactor psychoticism. Since agreeableness and conscientiousness are lower in the hierarchy of factors they might be prone to change more easily and thus be closer to a state or relatively short-term characteristic of one's personality. Aside from the fact that Eysenck considers 'The Even Bigger Three' to be psychometrically sound, he also believes these three superfactors to be related to various neuro-biological mechanisms which do not necessarily operate for all factors of the 'The Big Five' (see Eysenck 1967, 1994; Gray 1970, 1981, 1991; Matthews & Gilliland, 1999 for a full discussion of the biological mechanisms underlying the PEN model).

At the core of Eysenck's physiological explanations of the extraversion-introversion dimension lies his arousal theory (Eysenck, 1967). According to this theory, the reticulo-cortical central nervous system regulates arousal in the reticular areas of the cortex, produced by various external stimuli. This reticulo-cortical circuit produces overarousal in the brain of an introvert, whereas the prototypical extravert remains underaroused. Hence the extraverts' tendency to seek this arousal elsewhere by engaging in sensation-seeking activities and the introverts' tendency to avoid them. Both introverts and extraverts engage in this behavior to obtain a moderate state of arousal, a condition most advantageous for everyday functioning and optimal performance (Eysenck & Eysenck, 1985). Several studies have investigated Eysenck's hypothesis. Although the supposed arousal turns out to be weaker than expected, various psychophysiological measurements of nervous systems such as the electroencephalogram (EEG) and phasic electrodermal activity measures (EDA), which examine electric activity in the skin, do to a certain extent support the arousal theory of extraversion (Matthews & Gilliland, 1999).

Linked to this concept of arousability is the notion of reactive inhibition. Reactive

inhibition refers to the capacity of the brain to slow down (over)active reticulo-cortical circuits and / or protect itself from distracting external stimulation. According to Eysenck, an extravert is capable of high inhibition, whereas an introvert possesses poorer inhibition faculties. The level of cortical arousal combined with the reactive inhibition mechanism makes for a complex picture with regard to learning in general and language learning in particular.

Extraversion and (language) learning

The proponents of Eysenck's theory have traditionally predicted introverts to be the better learners on the basis that they have more mental concentration and can thus focus more on the task at hand. Furthermore the arousal theory has also been linked to studies of memory, the processing capacity of which may well be fundamental to learning. In order to explain the link between the level of arousal and the effect of extraversion on memory Eysenck & Eysenck (1985) make use of Walker's (1958) 'Action Decrement Theory':

High arousal produces an active memory trace of longer duration; this in turn leads to consolidation and long-term memory. However, during the time that the process of consolidation is continuing, there is a transient inhibition of retrieval (referred to as "action decrement") which protects the active memory trace from disruption. As a consequence, although high arousal is beneficial for long-term retention, it impairs short term retention for periods of time up to several minutes after learning (Eysenck & Eysenck, 1985: 260).

Although introverts' short-term memory is inhibited up to 5 minutes after information input, they can, because of their higher reticulo-cortical arousal, code new material more efficiently into long-term memory. This stratagem, according to Eysenck, makes them the prime candidates for successful learning.

These predictions seem contrary to the predictions of many SLA theorists, who have traditionally claimed that extraverts are the better language learners. Extraverts, who tend to be sociable, are more likely to join groups, more inclined to engage in

conversations both inside (Cook, 1991) and outside the classroom (Swain, 1985). As such they take full advantage of language-use opportunities. The putative superiority of extraverts as L2 learners, then, centres around the assumed positive impact of input and output on L2 learning, extraverts being higher input and output generators than introverts (Krashen, 1985; Brown, 1987; Swain, 1993). In recent years a more nuanced perspective on the relationship between extraversion and SLA has emerged. In reviewing the literature on effects of extraversion on second language acquisition, Ellis (1994: 520) identified two major positions. The first advocates that “extroverted learners will do better in acquiring basic interpersonal communication skills”. The second maintains that: “introverted learners will do better at developing cognitive academic language ability”.

Although extraverted learners have a limited long term-memory, they possess a more efficient short-term or working memory. They might, then, be worse at explicit (academic) learning, but outperform the introverts on more communicative oral skills, where retrieval from long-term memory through working memory and parallel processing capacities play a crucial role (Dewaele & Furnham, 1999). Despite the fact that the effect of extraversion on speech production remains underexplored, this hypothesis has been supported by some of the studies in the field. In their survey of the literature on the relation between language acquisition and extraversion Dewaele and Furnham (1999) noticed that whereas extraversion scores hardly ever correlated with written language data, significant correlations appeared between extraversion and oral linguistic material. Nevertheless these authors also report many contradictory or non-significant relationships between extraversion scores and speech variables across studies and point at the numerous methodological problems due to lack of inherent reliability of the selected personality and linguistic measures. (Dewaele & Furnham, 1999).

It is not surprising, then, that even those studies concerned with the effect of extraversion on one or more dimensions of *oral* speech production show mixed results. Since extraversion is considered to be a stable personality variable its effect should appear in both L1 and L2 languages. Most studies reveal a positive relation between degree of extraversion and various measures of L1 fluency (Siegman & Pope, 1965; Siegman,

1978; Ramsay, 1968; Sloan & Felstein, 1977; Tapasak et al., 1978). Studies looking at the relationship between extraversion and L2 speech production, however, are less consistent in their findings. Rossier (1976) revealed a positive relationship between extraversion and oral fluency as measured by a pictorial stimulus test on a sample of Spanish speaking adolescents learning English as a second language. Dewaele (1995b, 1996b, 1998), and Dewaele and Furnham's (2000) studies on variation in French interlanguage likewise found positive correlations between extraversion scores (EPI) and utterance length, amount of filled pauses and speech rates. Bush (1982) on the other hand, looking at the written and oral L2 production of a group of 39 Japanese learners of English, found a negative correlation between extraversion (EPI) and expert ratings of fluency in nonspontaneous speech. And Ely (1986) assessing risk-taking and sociability as the functions of extraversion for 75 English speaking adult learners of Spanish, found no correlations with fluency measured by means of an oral interview. Studies looking at the effect of extraversion on L1 lexical complexity, operationalized as total number of words found mostly positive correlations with degree of extraversion (Carment, Miles, & Cervin, 1965; Campbell & Rushton, 1978; Gifford and Hine 1994). Dewaele and Furnham (2000), however, noticed that the French interlanguage of their respondents was characterized by lower L2 lexical complexity (Uber Index) in formal situations. With regard to morpholexical and lexical accuracy, Ely (1986) and Dewaele (1998) found no correlations with extraversion and Dewaele and Furnham (2000) reported a negative correlation with amount of semantic errors in formal situations.

The research findings of the limited amount of studies in this vein and especially those that are looking at the effect extraversion on various dimension of L2 proficiency remain tentative and cannot be generalized. In line with Dewaele & Furnham's recommendations (2000) this study incorporated a set of highly validated linguistic measures for language indicators in spoken language. Furthermore it adopts both a cross-sectional and longitudinal research design and looks at the effect of extraversion on two rather than one L2. The following main research questions will be addressed:

- 1.a. Does degree of extraversion have an effect on the level of oral fluency, complexity and accuracy of English-FL and French-FL by the same learners?
- 1.b. Are these effects the same for both target languages?
- 2.a. Are there effects of extraversion on the development of oral fluency, accuracy and complexity of English-FL and French-FL learners?
- 2.b. Are these effects the same for both target languages?

Methodology

Participants

Participants are 25 Dutch-speaking adolescent secondary school students learning both English and French as a foreign language, in secondary school in Flanders, Belgium. Their progress in English was tracked over a period of twelve months, starting when the children were in the 3rd year of secondary school (age 14). Their proficiency in both L2s was measured on three occasions at six months intervals. At the onset of this study respondents had received 390 hours of French instruction input and 180 hours of English classroom instruction. Nevertheless the educational authorities in Flanders hold the assumption that from year 3 onwards, students should have comparable levels of proficiency in French and English. Consequently the participants were selected on the basis of the amount of English-FL and French-FL instruction they received in year 3 and 4. The programmes they were enrolled in are oriented towards languages and human sciences.

Materials used for testing

The pupils' oral speech production in both L2s was tapped by means of an oral retell task based on a wordless picture story. A retell narrative was selected involving the creation of a story based on 9 different versions of a sixty picture strip (Lewis

Trondheim's *Monsieur O*). All versions included several protagonists and similar plot lines.

Pupils' degree of extraversion was measured by the Eysenck Personality Questionnaire-RSS (Eysenck & Eysenck, 1991), a concise version of the EPQ which computes an individual's degree of Psychoticism, Extraversion and Neuroticism by means of self-reported answers to 48 yes or no questions. Examples of the questions concerning degree of extraversion include the following:

Do you usually take the initiative in making new friends?

Are you inclined to keep in the background on social occasions?

Do you like mixing with people?

Do you like going out a lot?

The higher one scores on the 12 items of the extraversion-introversion scale, the more one tends towards the extraversion personality trait. In theory an introvert will obtain a score of 0 to 6 and an extravert would score between 7 and 12. In practice, extraversion scores in the normal population approximate a normal curve with averages ranging between 6 and 8 (Sanderman et al., 1995; Matthew & Deary, 1998). According to Dewaele & Furnham (1999: 512-513) 'these people will share characteristics of both extraverts and introverts and they are sometimes labeled "ambiverts" '.

Procedure

The oral retell-task was administered three times in both languages with a six month interval. During each data collection a team of two researchers visited the school where they were assigned two quiet rooms easily accessible to the students so as not interfere with regular school activities. From the moment students entered the interview room,

they were addressed in either English or French. After a brief introduction, they were asked to turn one of the papers lying in front of them. Once the interviewer had established that the respondent was not yet acquainted with the task at hand, they were given instructions to describe the series of drawings immediately and under a time pressure of five minutes. This procedure was created to reduce the effects of pre-task and online planning. Each story was audio-recorded and researchers intervened as little as possible during the time of narration. Only when a complete break down of fluency occurred or in the case of explicit pupil generated questions, did they encourage the participant to resume the narrative. After having completed the task, students returned to their regular classes. The exact same strategy was employed for the other target language.

During the second data collection pupils were administered the EPQ-RSS collectively in class. Following the EPQ-RSS manual, pupils were asked not to think about the questions too long and to answer each question truthfully by circling either ‘yes’ or ‘no’. They were assured that there were no wrong answers or trick questions and that the information they provided would be treated with discretion.

Analytical Procedures

Each recorded oral retelling was transcribed and coded for errors in basic CHAT format (MacWhinney, 1998). The fluency, complexity and accuracy of each recording was determined by calculating six linguistic measures. Oral fluency was measured using “Speech Rate A” (Siegman, 1987; Dewaele & Furnham, 2000) and “Speech Rate B” , the average number of syllables per minute (Ellis & Yuan, 2003). “Speech Rate A” includes all syllables into the count, “Speech Rate B” only computes meaningful syllables per minute and consequently leaves out all those phenomena that are related to hesitation. For the complexity and accuracy dimensions a distinction was made between variables related to the interlanguage lexicon and the interlanguage grammar. Lexical complexity was measured by means of Giraud’s Index (Vermeer, 2000) in which the total number of word types are divided by the square root of the total number of word tokens. The square root is included to eliminate differences in text length. For syntactic

complexity the Sub Clause Ratio (Foster and Skehan 1996) was computed by dividing the total number of subclauses by the total number of clauses. The accuracy dimension, finally, was likewise evaluated by means of two ratio measures: both Lexical and Grammatical Accuracy take the total amount of errors (lexical and grammatical respectively) in the nominator and the total amount of clauses in the denominator (Wolfe-Quintero, Inagaki & Hae-Young, 1998).

The statistical analysis consisted of Pearson correlations and regression analysis with repeated measurements tests of fixed effects (Littell et al., 1996). The six linguistic measures and the EPQ-RSS scores were brought in as the independent variables, explanatory variables were 'measure', 'period' and 'measure x period'. Due to the multiple evaluations the variable 'student' was introduced as a repeated effect, making use of autoregressive¹ correlation structures (Verbeke and Molenberghs, 2000). Degrees of freedom were calculated by means of the Kenward-Roger method (Kenward and Roger, 1997). All analyses made use of the SAS 8.1 proc MIXED module (SAS Institute, 1999).

Hypotheses

With regard to the dimensions of linguistic proficiency selected in this study, i.e. fluency, accuracy and complexity, the findings of psycholinguistic studies of memory capacity should be taken into account. Both on a momentary and a developmental level learners have limited processing capacities and cannot attend to all aspects of speech production at the same time, resulting in a positive correlation between high short term capacity and fluent L2 production (Ellis, 1994; Rosen & Eagle, 1997; Conway et al. 2002. Although extraverts have a more elaborate short term memory, are better at parallel processing and thus more fluent than the overaroused introverts (Eysenck 1981), it seems likely that they too have a hard time conforming to target language norms when engaging in L2 language production. The oral register as such might bring about an additional trade-off effect between fluency and accuracy Skehan

(1992, 1996), Skehan and Foster (1999). Furthermore extraverts are believed to be prone to risk-taking and are likely to try out a larger amount and variety of different word types and grammatical structures at a higher speech rate.

Based on the limitations in language processing and the higher propensity towards risk-taking of extraverted learners, evaluation of the research questions is pursued through the following three hypotheses:

H1: There will be an effect of degree of extraversion on L2 oral production which will be manifested in a higher fluency, a higher lexical and a higher grammatical complexity for extraverts than introverts. Lexical and grammatical accuracy on the other hand are expected to be lower for extraverts (Shekan, 1989).

H2: Given the fact that extraversion is considered to be a stable personality trait rather than a state (Eysenck, 1981; Dewaele & Furnham, 2000), we expect the effects of extraversion, if any, to be constant across the two different TLs French and English (i.e. language independent) and to be stable over time (i.e. from session 1 to 2 to 3).

Results

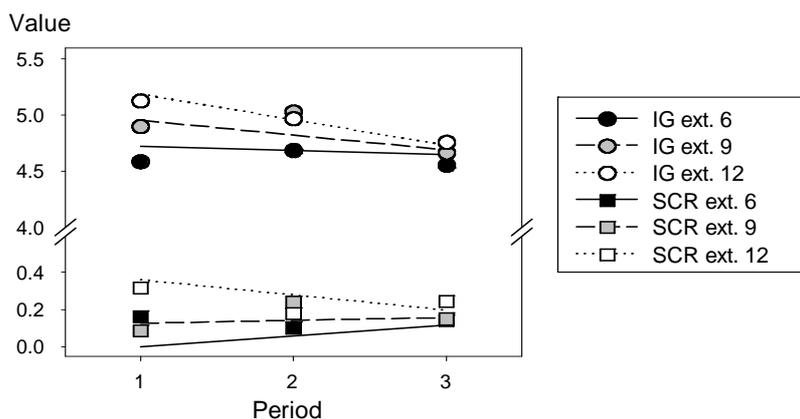
A Pearson correlation analysis was performed to evaluate the effect of extraversion on the level of L2 oral fluency, accuracy and complexity at the beginning of the study. The results indicate that only the measure for lexical complexity (Giraud's Index) correlated positively with the extraversion variable. Extraverts in this study seem to outperform the introverts when the ratio of word types over word tokens is considered. However, while significant for French ($r=0.44$, $p<0.03$) the correlation is only near-significant for English ($r=0.35$, $p<0.09$). Although extraversion seems to significantly affect only one of the selected L2 variables, the general effect appears to be stable across languages.

The following table illustrates these findings.

		SRA	SRB	SCR	IG	LA	GA
ENG	EPS-RSS	0.3062 p=0.14	0.2039 p=0.33	0.1416 p=0.50	0.3541 p=0.09	-0.2951 p=0.16	0.0707 p=0.74
FR		0.2886 p=0.17	0.3270 p=0.17	0.2166 p=0.31	0.4367 p=0.03	0.0068 p=0.97	-0.0530 p=0.80

(SRA = Speech Rate A, SRB= Speech Rate B, SCR= Sub Clause Ratio, IG = Giraud's Index, LA = Lexical Accuracy, GA = Grammatical Accuracy)

So as to establish whether the above effect of extraversion is also stable over time and to investigate whether degree of extraversion influences the development of the selected linguistic variables in both TLs, regression analysis with repeated measurements tests of fixed effects was performed. Firstly, the analysis revealed that the effect of extraversion on lexical complexity does not remain constant across the three testing periods. For the French interlanguage data the effect totally disappears ($F_{1,118} = 0.45$, $p = 0.50$) and for English a near-significant decrease over time ($F_{1,117} = 3.14$, $p = 0.079$) is observed. The following graph illustrates the effect of extraversion on the development of both complexity measures in English. For reasons of perceptual clarity only respondents' average extraversion scores of 6, 9 and 12 and the independent linguistic variables Giraud's Index (lexical complexity) and Subclause Ratio (syntactic complexity) were incorporated.



At the onset of the study, during period one, high extraverts have higher scores for the lexical complexity measure but as time goes by they score increasingly lower on Giraud's Index and the difference between scores for high and low extraverts almost disappears.

The regression analysis revealed no effect of extraversion on the development of fluency and accuracy measures in either English or French, and no effect of extraversion was found on the development of either lexical and syntactic complexity in French.

Singling out only the developmental patterns of the linguistic variables as such, some interesting results were found. In summary, both fluency measures significantly improved over time both in English ($F_{1,23} = 5.74, p = 0.025$) and French ($F_{1,23} = 9.45, p = 0.005$). The development of complexity measures in English is different for both linguistic measures. Whereas the lexical complexity measure improves over time the syntactic complexity variable remains constant ($F_{1,117} = 4.21, p = 0.049$). In French both complexity measures remain unchanged ($F_{1,117} = 0.13, p = 0.722$). Lexical and grammatical accuracy measures in both languages are positively correlated. In English scores for both accuracy variables decrease from period 1 to 2 and increase to the highest obtained level from period 2 to 3 ($F_{1,117} = 3.14, p = 0.079$), in French a near-significant tendency for both lexical and grammatical complexity to improve over time ($F_{1,60} = 3.08, p = 0.084$) is revealed.

Discussion

This study sought to investigate the effect of the extraversion personality variable on the level and the development of oral fluency, complexity and accuracy of Dutch speaking L2 learners of French and English.

The first hypothesis tested in this study claimed that there would be an effect of extraversion on L2 oral production manifested in a higher fluency, a higher lexical and a

higher grammatical complexity and a lower lexical and grammatical accuracy for extraverts than introverts.

No effect of extraversion on any of the linguistic measures except for the Giraud's Index, tapping lexical complexity was revealed. This effect reached a significant level in French and remained a trend in English. Our first hypothesis, then, is only partly confirmed. As was postulated before, extraversion did have an effect on lexical complexity in both target languages and did not influence accuracy measures in either language, but extraversion did not affect syntactic complexity and oral fluency measures. Although the selected personality scale and linguistic variables are highly validated by previous research, this particular outcome can be due to other methodological issues. Firstly, the lack of effect on fluency might be due to the fact that our sample displays high extraversion scores on average (9.5 on 12 as opposed to averages ranging from 6 to 8). The sample is highly extravert, as a consequence of which the differences between introverts and extraverts might be blurred. Secondly, the choice of a narrative over other oral task-types, plus the oral register per se, may have caused trade-off effects between accuracy, complexity and fluency measures. In comparison with personal-information exchange and decision-making tasks, the oral narrative seems to produce more complex and less accurate linguistic output (Foster & Skehan 1996; Bygate, 1999), an effect that might have influenced our research findings. Thirdly, the task conditions might not have been formal enough for the extravert's superior inhibitional faculties (i.e. resilience to stressful situations) to manifest themselves. Dewaele and Furnham (2000) found that the positive effect of extraversion manifests itself most clearly in a highly formal situation. Although seemingly stressful to some respondents, the setting in this study may have been too neutral in that there was not (enough) time pressure, the pupils were familiar with the type of task at hand and no consequences were attached to their performance. Fourthly, at the onset of this study, the pupils seemed to enjoy the disruption of their regular school activities and might have found the task very stimulating. Under high levels of stimulation, however,

‘a protective “transmarginal inhibition” (TMI) may lead to paradoxically reduced arousal [and] introverts may be higher, lower or equal to the arousal level of extravert’ (Matthews & Gilliland, 1999: 584).

The operation of this physiological mechanism in introverts, together with the fact that extraverts seem to vary their arousal levels with the time of day (Revelle et al., 1980) may have blurred the personality distinctions between subjects of our sample.

In spite of these possible explanations, the fact remains that an effect of extraversion on the exact same linguistic variable, namely lexical complexity was found in both target languages. This seems to confirm our second hypothesis that the influence of extraversion as a stable personality trait remains unvarying across different languages. The second part of that hypothesis; that the effect of extraversion is stable over time, is not confirmed in this study.

The regression analysis revealed that the effect of extraversion on the lexical complexity measure in English tended to decrease over time resulting even in a negative effect on the development of high extraverts’ lexical complexity in English. This ‘instability’ can be attributed to the fact that our more extravert than average and therefore highly novelty-seeking sample grew bored with the testing situation and invested increasingly less effort with each testing session. This assumption is partly confirmed by the observation that narratives grew increasingly shorter after the first data collection. Although on average both the English and French interlanguage of our sample is characterized by increasing fluency and accuracy rates, these developments are not related to degree of extraversion.

Conclusion

The personality variable extraversion has long been neglected in linguistic research in general and research into L2 oral proficiency in particular. Due to a number of methodological and conceptual divergences, the limited amount of research findings in

this area could and cannot not be generalized. This study tried to contribute to the research field by making use of a validated personality scale and sensitive linguistic measures for L2 oral fluency, accuracy and complexity. Furthermore the study adopted both a cross-sectional and longitudinal design and incorporated L2s rather than one. Contrary to the hypotheses underlying this study, our findings suggest that, extraversion has little effect on the oral speech production of Flemish L2 learners of French and English. Although extraverted pupils outperformed introverted learners in terms of lexical complexity in both languages at the beginning of the study, no effects were found for fluency measures. The influence of extraversion on lexical complexity disappeared for French and was even reversed for English. Although the consistent findings for lexical complexity at the onset of the study lend some support to the presumed stability of the extraversion trait, this assumption is undermined by the fact that effects were inconsistent over time.

References

- Brown, D. (1987), *Principles of Language Learning & Language Teaching*. Englewood Cliffs: Prentice Hall.
- Briggs, S. R. (1989), The optimal level of measurement for personality constructs. In: D. M. Buss and N. Cantor (eds.), *Personality psychology: Recent trends and emerging direction*, pp. 246-260. New York: Springer-Verlag.
- Brody, N. & Ehrlichman, H. (1997), *Personality Psychology: The Science of Individuality* Prentice Hall.
- Busch, D. (1982), Introversion-extraversion and the EFL proficiency of Japanese students. *Language Learning*, 32 (1), pp. 109-132.
- Bygate, M. (1999), Quality of language and purpose of task: Patterns of learners' language on two oral communication tasks. *Language Teaching Research*, 3, pp. 185–214.
- Campbell, A. and Rushton, J. (1978), Bodily communication and personality. *British Journal of Social and Clinical Psychology*, 17, pp. 31–36.

- Carment, D. W., Miles, C. G., and Cervin, V. B. (1965), Persuasiveness and persuasibility as related to Intelligence and Extraversion. *British Journal of Social and Clinical Psychology*, 4, pp. 1–7.
- Conway, A. R. A., Cowan, N., Bunting, M. F., Theriault, D. J., and Minkoff, S. R. B. (2002), A latent variable analysis of working memory capacity, short-term memory capacity, processing speed, and general fluid intelligence. *Intelligence*, 30, pp. 163–183.
- Cook, V.J. (1991), *Second Language Learning and Language Teaching*, London:Edward Arnold.
- Costa, P.T., & McCrae, R.R. (1985), *The Neo Personality Inventory Manual*. Odessa, FL: Psychological Assessment Resources.
- Costa, P.T., & McCrae, R.R. (1992a), Four ways five factors are basic. *Personality and Individual Differences*, 13, pp. 653-665.
- Dewaele, J.-M. (1995b), Variation dans la longueur moyenne d'énoncés dans l'interlangue française [Variation in the mean length of utterances in French interlanguage]. In Beheydt, L. (ed.), *Linguistique appliquée dans les années 90. ABLA Papers*, 16, pp. 43-58.
- Dewaele, J.-M. (1996b), Les phénomènes d'hésitation dans l'interlangue française: Analyse de la variation interstylistique et interindividuelle [Hesitation phenomena in French interlanguage: An analysis of interstylistic and interindividual variation]. *Rassegna Italiana da Linguistica Applicata*, 28 (1), pp. 87-103.
- Dewaele, J.-M. (1998), Speech rate variation in 2 oral styles of advanced French interlanguage. In: Regan, V. (ed.), *Contemporary approaches to second language acquisition in social context: Crosslinguistic perspectives*, pp. 113-123. Dublin, Ireland: University College Academic Press.
- Dewaele, J.-M. and Furnham, A. (1999), Extraversion: the unloved variable in applied linguistics research, *Language Learning*, 49 (3), pp. 509-544.
- Dewaele, J.-M. and Furnham, A. (2000), Personality and speech production: a pilot study of second language learners. *Personality and Individual Differences*, 28, pp. 355–365.

- Derlega, V., Winstead, B.A. and Jones, W.H. (1999), *Personality: Contemporary Theory and Research*. Chicago: Nelson Hall.
- Ehrman, M., Leaver, B. L. and Oxford, R. (2003), A brief overview of individual differences in second language learning. *System* 31, pp. 313-330.
- Ellis, R. (1990), *Instructed Second Language Acquisition*. Oxford: Basil Blackwell.
- Ellis, R. (1994), *The Study of Second Language Acquisition*. Oxford: Oxford University Press.
- Ellis, R. & Yuan, F. (2003), The Effects of Pre-Task Planning and On-Line Planning on Fluency, Complexity and Accuracy in L2 Monologic Oral Production. *Applied Linguistics*, 24, pp. 1-27.
- Funder, D.C. (2001), Personality. *The Annual review of Psychology*, 52, pp. 197-221.
- Ely, C.M. (1986), An analysis of discomfort, risk taking, sociability and motivation in the L2 classroom, *Language Learning*, 36, (1), pp. 1-25.
- Eysenck, H.J. (1967), The biological basis of personality. *Springfield: Thomas*.
- Eysenck, H.J. (1975), *Planets, stars and personality*. *New Behaviour*, 29, pp. 246-249.
- Eysenck, H.J. (1992a), *Four ways five factors are not basic*. *Personality and Individual Differences*, 13, pp. 667-673.
- Eysenck, H.J. (1992b), *A reply to Costa and McCrae: P or A and C—the role of theory*. *Personality and Individual Differences*, 13, pp. 867-868.
- Eysenck, H.J. (1994), Personality: Biological foundations. In: Vernon, P.A. (ed.), *The neuropsychology of individual differences*. London: Academic Press.
- Eysenck, H.J. and Eysenck, S.B.G., (1985), *Personality and Individual Differences*. Newyork: Plenum.
- Eysenck, H.J., and Eysenck, S.B.G. (1991), *Manual of the Eysenck Personality Scales (eps Adult)*. London: Hodder & Stoughton.
- Eysenck, M.W. (1981), Learning memory and personality. In: Eysenck, H.J. (ed.), *A model for personality*, pp. 168-209. Berlin: Springer Verlag.
- Foster, P., & Skehan, P. (1996), The influence of planning and task type on second language performance. *Studies in Second Language Acquisition*, 18, pp. 299–323.
- Funder, D. C. (2001), Personality. *Annual Review of Psychology*, 52, pp. 197–221.
- Gass, S. (1988), Integrating research areas: a framework for second language studies'. *Applied Linguistics* 9, pp 198-217.
- Gifford, R. and Hine, D. W. (1994), The role of verbal behaviour in the encoding and

- decoding of interpersonal dispositions. *Journal of Research in Personality*, 28, pp. 115–132.
- Gray, J.A. (1970), The psychophysiological basis of introversion-extraversion. *Behavior Research and Therapy*, 8, p.249-266.
- Gray, J.A. (1981), A critique of Eysenck's theory of personality. In: H.J. Eysenck (ed.), *A model for personality*. Berlin: Springer-Verlag.
- Gray, J.A. (1991), Neural systems, emotion and personality. In Madden, J. (ed.), *Neurobiology of learning, emotion and affect*. New York: Raven Press.
- Hicklin J. and Widiger, T. A. (2005), Similarities and Differences Among Antisocial and Psychopathic Self-Report Inventories from the Perspective of General Personality Functioning. *European Journal of Psychology*, 19, pp. 325-342.
- John, O. P., & Srivastava, S. (1999), The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In: Pervin, L. A. and John O. P. (eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). New York: Guilford
- Johnson, K. (2001), *An introduction to foreign language learning and teaching*. Harlow: Pearson Education.
- Kenward, M. G. & Roger, J. H. (1997), Small sample inference for fixed effects from restricted maximum likelihood. *Biometrics* 53, pp. 983–997.
- Krashen, S. (1985), *The Input Hypothesis*. London: Longman.
- Littell, R. C., Milliken, G. A., Stroup, W. W. & Wolfinger, R. D. (1996), *SAS system for mixed models*. Cary, North Carolina: SAS institute Inc.
- MacIntyre, P.D. & Charos, C. (1996), Personality, attitudes, and affect as predictors of second language communication, *Journal of Language and Social Psychology*, 15, (1), pp. 3-26.
- MacWhinney, B. (1998), The CHILDES system. In: Ritchie W. and Bhatia T. (eds.), *Handbook of child language acquisition*, pp. 457-494. New York: Academic Press.
- Matthews G., & Deary, I. (1998), *Personality traits*. Cambridge: Cambridge University Press.

- Matthews G. and Gilliland, K. (1999), The personality theories of H.J. Eysenck and J.A. Gray: a comparative review. *Personality and Individual Differences* 26, pp. 583-626.
- McCrae, R. R., and Costa, P. T. (1997), Personality trait structure as a human universal. *American Psychologist*, 52, pp. 509–516.
- Moody, R. (1988), Personality preferences and foreign language learning, *The Modern Language Journal*, 72 (4), pp. 389-401.
- Norman, W.T. (1963), Toward an adequate taxonomy of personality attributes: Replicated factor structure in peer nomination personality ratings. *Journal of Abnormal Social Psychology*, 66, pp. 574-583.
- Pervin, L. A. (1994), A critical analysis of current trait theory. *Psychological Inquiry*, 5, pp. 103-113.
- Ramsay, R.W. (1968), Speech patterns and personality. *Language and Speech*, 11, pp. 54-63.
- Revelle, W. (1987), Personality and motivation: Sources of inefficiency in cognitive performance. *Journal of Research in Personality*, 21, pp.436-452.
- Revelle, W., Humphreys, M. S., Simon, L. and Gilliland, K. (1980), The interactive effect of personality, time of day and caffeine: A test of the arousal model. *Journal of Experimental Psychology: General*, 109, pp. 1-31.
- Rosen, V. M., & Engle, R. W. (1997), Forward and backward serial recall. *Intelligence*, 25, pp. 37–47.
- Rossier, J. (1976), *Extroversion-introversion as a significant variable in the learning of oral English as a second language*. Unpublished doctoral dissertation, University of Southern California, Los Angeles.
- Sanderman, R., Arrindell W.A., Ranchor, A.V., Eysenck, H.J. and Eysenck S.B.G. (1995), Het meten van persoonlijkheidskenmerken met de *Eysenck Personality Questionnaire: Een handleiding*.
- SAS Institute (1999), *SAS/STAT user's guide*, Version 8. Cary, North Carolina: SAS Institute Inc.
- Siegmán, A.W. (1978), The meaning of silent pauses in an interview. *The Journal of Nervous and Mental Disease*, 166, pp. 642-654.

- Sieglman, A.W. (1987), The tell-tale voice: Nonverbal messages of verbal communication. In: Sieglman, A.W. and Feldstein, S. (eds.), *Nonverbal behaviour and communications*, pp. 351-434. hillsdale, NJ:Erlbaum.
- Sieglman, A. and Pope, B. (1965), Personality variables associated with productivity and verbal fluency in the initial interview. In Compton, B. (eds.), *Proceedings of the 73rd Annual Conference of the APA*. Washington, DC: American Psychological Association.
- Skehan, P. (1989), *Individual differences in second-language learning*. London: Edward Arnold.
- Skehan, P. (1992), Strategies in second language acquisition. *Thames Valley University Working papers in English Language Teaching 1*, pp. 178-208.
- Skehan, P. (1996), A Framework for the implementation of task-based instruction. *Applied Linguistics 17*, pp. 33-62.
- Skehan, P. and Foster, P. (1999), The influence of task structure and processing conditions on narrative retellings. *Language Learning 49*, pp. 93-120.
- Sloan, B. And Felstein, S. (1977), *Speech tempo in introversion and extraversion*. Paper presented at a meeting of the American Psychological Association, San Francisco.
- Swain, M. (1985), *Communicative competence: Some roles of comprehensive input and comprehensive output in its development*. Rowley, MA: Newburry House.
- Swain, M. (1993), The output hypothesis: Just speaking and writing aren't enough. *The Canadian Modern Language Review, 50*, (1), pp.158-164.
- Tapasak R.C., Roodin P.A. & Vaught G.M. (1978), Effects of extraversion, anxiety, and sex on children's verbal fluency and coding task performance, *Journal of Psychology, 100*, pp. 49-55.
- Trondheim, L. (2002), *Mister O*. Paris: Delcourt.
- Verbeke, G. and Molenberghs, G. (2000), *Linear mixed models for longitudinal data*. Springer:Verlag.
- Vermeer, A. (2000), Coming to grips with lexical richness in spontaneous speech data. *Language Testing, 17*, 1, pp. 65-83.
- Walker, E.L. (1958), Action decrement and its relation to learning, *Psychological Review, 66*, pp. 132-142.

Wolfe-Quintero, K. , Inagaki, S. & Hae-Young, K. (1998), *Second Language Development in Writing: Measures of Fluency, Accuracy and Complexity*. Honolulu: University of Hawai'i Press.