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**IS ENGLISH A MALE LANGUAGE AND SPANISH A FEMALE LANGUAGE?  
AN EXPLORATIVE STUDY OF GENDER AND SECOND LANGUAGE ACQUISITION AT A  
HIGHER EDUCATION INSTITUTION IN SERBIA**

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The differences in first language usage between men and women have been studied for many years. However, the impact of gender with regard to second language acquisition has not been frequently studied. Therefore, this paper offers an explorative study whose aim is to clarify whether male or female gender of students affects their second language acquisition, i.e. their final examination results at a university level, and if yes, in which amount. The research focuses on English and Spanish as second languages at a private university in Belgrade, Serbia. It also offers a statistical overview of the learning outcomes of Italian, German, Chinese, Russian and French language. The paper includes both quantitative analysis, studying numerous variables which are relevant in language acquisition, and qualitative analysis, with the aim of additionally explaining, analysing and comparing quantitative results. Research results show that male students have higher grades in English, whereas female students outperform in Spanish, which proves gender to be one of the relevant factors in second language acquisition.

**Keywords:** language acquisition, grades, male students, female students

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## 1. Introduction

According to psychologists Gardner and MacIntyre (1992), there are about 10 attributions that affect the learning of second languages<sup>1</sup>. Those variables can be grouped into three broad categories: cognitive variables, affective variables and miscellaneous factors such as age, gender and social position (Gardner and MacIntyre, 1992:211). Nevertheless, Nyikos (1990) highlights the impact of learners' gender on language learning, which can influence both language learning and the verbal learning tasks performed by second language students. This study found gender was a factor in students' academic results and final grades in second language courses. Nonetheless, to our knowledge, no studies regarding this topic have been completed in Serbia to date. Therefore, the aim of this explorative research was to analyse and interpret final grades in second languages (English and Spanish)<sup>2</sup> and to assess whether these grades were affected by students' gender and/or some other factors at a higher education institution in Serbia – Singidunum University<sup>3</sup>. The nature of this research is mostly explorative, as its aim is to clarify which issues need to be addressed with reference to language acquisition and gender, i.e. which additional studies, either quantitative or qualitative, need to be taken into consideration in order to determine whether there is a strong correlation between second language acquisition and gender. Also, the purpose of this paper is to open a discussion and motivate other studies regarding the question of the connection between male/female gender and second language learning outcome.

## 2. Second Language Acquisition (Background and Motivation)

According to previous studies, it is believed that second language acquisition can be affected by several factors, which are usually divided into three groups:

- a) **Cognitive variables**, which cover different aspects of cognition: from intelligence to language skills, language learning strategies and previous experiences. For instance, Mitchell, Myles and Marsden (2013) analyse cognitive approaches to second language

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<sup>1</sup> The term 'second language' will be used in this article to refer to any language other than the native language. Thus, it will be used as synonymous with 'foreign language'

<sup>2</sup> Even though there is only a slight difference in the number of students who study Spanish (3391), German (3148) and Italian (2906), whereas the number of those who study English is absolutely beyond compare (17688), this study investigates the differences between Spanish and English as those are the two languages which are among most spoken languages in the world. Also, Spanish is one of the most chosen languages by students at Singidunum University throughout the years, while English is mandatory. Furthermore, Spanish as a Romance language shows similar results in this research as other Romance languages (Italian or French) in comparison with English language, which is why it has been chosen as a representative language in this study. On the other hand, German, which belongs to the same language group as English, shows similar tendencies and results as English. Despite the slight difference in research sample, given the sample size, this choice of languages should not and does not bring the results into question.

<sup>3</sup> The sample from one university is chosen as the most convenient, due to the fact that all authors of the paper work in this institution, which is the biggest private university in Belgrade, Serbia: [www.singidunum.ac.rs](http://www.singidunum.ac.rs). The research sample covers a large number of students who come from all regions of Serbia.

learning such as implicit learning mechanisms, the role of memory systems and conscious learning, explicit knowledge, information processing and skill acquisition, awareness and attention, as well as conscious learning. They note that those learners who demonstrate higher intelligence than average tend to learn a second language better, especially when learning takes place in a classroom, within a formal (traditional) learning process.

- b) Affective variables**, which are related to the individual characteristics of a learner. These factors include attitudes such as motivation, anxiety, the feeling of self-esteem regarding learning languages, learning styles and personal characteristics of learners. The attitudes towards a second language are of particular importance, as the greater the interest of the learner in the language and its culture, the easier it will be to learn the target language (Gardner and MacIntyre, 1992). This implies that the attitude of a learner is very related to motivation. In that context, self-confidence, or the willingness to communicate, enables a learner to acquire a second language in a better way (Lightbown and Spada, 2013), whereas the last decisive affective factor is anxiety about languages, a phenomenon that has been studied and documented by many authors. Anxiety about languages refers to learners' predetermined opinions about language learning, which influence a learner's effectiveness in the classroom. For example, ineffective learning experience could lead a learner to conclude that special skills are necessary to acquire a second language, which can have a negative impact on language performance (Horwitz, 1988: 283). Gardner and MacIntyre (1992), who understand motivation as the desire to achieve a goal, the effort made to reach that goal, and the satisfaction obtained to achieve the goal, noted a significant correlation between the motivation of learners to learn a language and their achievement in language acquisition.
- c) Miscellaneous factors**, which Gardner and MacIntyre (1992: 211) described as including learners' age, gender and/or socio-cultural experiences that can have cognitive or affective implications for learners. The sociocultural context in learning a second language should be considered because the purpose of learning is based on social interactions: we learn a second language in order to communicate and interact with people in that language. Regarding age as a factor, contrary to what is generally believed, adults make progress faster than children, and older children acquire a second language faster than young children. According to Cummins (1979), adult students acquire cognitive and academic skills faster than younger learners because [cognitive academic language proficiency](#) in their mother tongue is already developed.

Based on different studies, Collier (1987:4) affirmed that older students are faster, more efficient acquirers of academic language than younger students.

### **2.1 Gender and Second Language Acquisition**

As gender categorizations have a vast influence on attitudes, behaviour, and language usage, the relationship between language and gender is most certainly significant. This relationship can be defined via language ideology, which is a term used for habits, attitudes and beliefs of speakers of a language, based on previous interactive experience and socialization of speakers (Boskovic, 2016). According to Filipovic (2011), ideologies are directly correlated with social influence, hierarchy and gender, whereas Woolard and Schieffelin (1994) state that language ideology is an important bridge between language and social theories. One of the main language ideologies is the belief that there is a clear and constant difference in language usage between men and women (Holmes, Meyerhoff, 2003: 450), which is an issue many linguists have been trying to explain for years. Starting from Labov's 1972 study which discovered that women were more prone to language change and accepting new forms of a language than men, the new field of sociolinguistics emerged: the study of language and gender (Boskovic, 2016).

Models of behaviour connected with gender are all-pervasive in communication and they can affect vocabulary, topic, intonation etc. (Tannen, 1999: 222). One study claims, based on documented research by Slik et al. (2015), that women are better than men in language learning when it comes to both written and oral skills, while men are better than women in reading skills (in: Guervós y Fernandez, 2017: 778). Furthermore, stereotypes describe women as more suitable for and having a more positive attitude towards learning languages.

Some key factors which influence communication differences between men and women in the English language include: the length of sentence, interruptions, intonation, politeness, indirect requests and questions, discourse markers and emphasis (Tannen, 1990). Particularly, some authors (Tannen, Lakoff, etc) have concluded that women use longer and more complex sentences, while men interrupt more and use shorter and simple sentences. Furthermore, male speakers of English do not pay attention to proper grammar usage and they use language varieties more often than female speakers, who tend to follow all grammar rules in all types of communication, both written and oral. Also, female speakers are said to have better English vocabulary and they are more fluent (Eckert & McConnell-Ginet, 2003: 294).

However, the reasons for these statements regarding gender differences in language usage are not always statistically proven and they might not refer to all English speakers.

Therefore, further studies are necessary in the underlying cognitive and linguistic processes in the brains of men and women (Guervós and Fernandez, 2017:779).

In order to conduct further investigation of the correlation between language and gender, especially with reference to second language acquisition, the questions that we have addressed are the following:

1. Is there a difference in the second language learning outcomes based on the gender of students? The authors specifically studied English and Spanish, as these two second languages are the most widely spoken and studied at Singidunum University.
2. Is the variation in students' grades in English and Spanish influenced by their gender and, if yes, in which amount?
3. What are some other factors that influence variations in students' grades when it comes to English and Spanish?
4. Are quantitative results in compliance with the aforementioned affective variables, which are considered to be the factors of second language acquisition at university level? In other words, do students' perceptions and attitudes regarding English and Spanish correlate with statistical data?

### 3. Research Methodology

#### 3.1 Quantitative Analysis: Data

Data on students and final second language examination outcomes are from three departments (Business Administration, Information Technology and Tourism and Hospitality Management) within Singidunum University in Belgrade, Serbia. During 2012-2019, 28,490 second language courses were completed with final exams. Table 1 summarizes exams by course and by year.

*Table 1 – Final second language examinations by year and course<sup>4</sup>*

\* Numbers after the course title refer to the study year

Second language course	2012	2013	2014	2015	2016	2017	2018	2019	Total
Chinese Language 1*	2	3	9	1	5	4	0	0	24
Chinese Language 2	0	1	1	6	5	3	2	0	18
Chinese Language 3	0	0	2	2	9	2	0	0	15

<sup>4</sup> Seven second languages are studied at Singidunum University, i.e. English (mandatory), Standard Chinese, French, German, Italian, Russian and Spanish. Final grades are from 5 to 10, where 5 is a fail (less than 51% of correct answers), 6 is a pass (at least 51% of correct answers), and 10 denotes at least 91% of correct answers.

<b>Chinese Language 4</b>	0	0	0	0	1	0	0	0	<b>1</b>
<b>English Language 1</b>	478	601	776	770	915	972	996	1	<b>5,509</b>
<b>English Language 2</b>	193	421	749	791	882	852	1,004	5	<b>4,897</b>
<b>English Language 3</b>	79	181	471	777	786	879	913	11	<b>4,097</b>
<b>English Language 4</b>	22	57	189	583	804	779	741	10	<b>3,185</b>
<b>French Language 1</b>	23	27	40	30	44	52	43	1	<b>260</b>
<b>French Language 2</b>	0	24	29	33	32	56	36	0	<b>210</b>
<b>French Language 3</b>	0	0	23	35	33	26	17	0	<b>134</b>
<b>French Language 4</b>	0	0	2	14	16	10	24	0	<b>66</b>
<b>German Language 1</b>	62	136	202	91	242	274	272	5	<b>1,284</b>
<b>German Language 2</b>	29	69	157	188	93	231	256	1	<b>1,024</b>
<b>German Language 3</b>	5	29	82	151	196	78	80	0	<b>621</b>
<b>German Language 4</b>	7	3	21	39	37	62	49	1	<b>219</b>
<b>Italian Language 1</b>	99	134	182	88	202	199	171	2	<b>1,077</b>
<b>Italian Language 2</b>	28	64	159	191	92	196	183	1	<b>914</b>
<b>Italian Language 3</b>	8	18	70	137	214	94	83	0	<b>624</b>
<b>Italian Language 4</b>	2	3	19	54	87	80	46	0	<b>291</b>
<b>Russian Language 1</b>	2	34	46	24	27	47	40	0	<b>220</b>
<b>Russian Language 2</b>	0	1	47	35	31	33	52	0	<b>199</b>
<b>Russian Language 3</b>	0	1	2	44	42	17	17	0	<b>123</b>
<b>Russian Language 4</b>	0	0	1	2	39	25	20	0	<b>87</b>
<b>Spanish Language 1</b>	101	168	210	122	178	202	198	0	<b>1,179</b>
<b>Spanish Language 2</b>	60	80	194	203	123	183	190	1	<b>1,034</b>
<b>Spanish Language 3</b>	22	36	110	190	222	132	85	0	<b>797</b>
<b>Spanish Language 4</b>	3	12	29	70	100	85	82	0	<b>381</b>
<b>Total</b>	<b>1,225</b>	<b>2,103</b>	<b>3,822</b>	<b>4,671</b>	<b>5,457</b>	<b>5,573</b>	<b>5,600</b>	<b>39</b>	<b>28,490</b>

As it can be seen throughout tables in the text and in the Appendix, the groups of four related language courses are treated as distinct subjects, rather than considered as one subject. The reason behind this is that, despite sharing the common subject (the English language), courses named English 1, 2, 3 and 4 are distinct courses, which use different textbooks of increasing complexity and which are often taught by different professors. Therefore, merging the four different courses into one subject named 'English language' would be inconsistent with the effort to control the effect of the individual professors and their respective criteria on the grade (due to the fact that they are quite often not taught by the same professors).

The overall gender frequency of students sitting exams is shown in Table 2. Gender frequency for English exams did not vary significantly, and it shows the frequency of genders enrolled at this university, as English is a mandatory course. German and Russian were more often chosen by male students, while Spanish, Italian and French were more often chosen by female students, which should also be taken into consideration when analysing these results.

*Table 2 – Final second language examinations by gender and course*

<b>Exam</b>	<b>Females</b>	<b>Males</b>	<b>Females %</b>	<b>Males %</b>
<b>Chinese Language 1</b>	10	14	42	58
<b>Chinese Language 2</b>	9	9	50	50
<b>Chinese Language 3</b>	10	5	67	33
<b>Chinese Language 4</b>	1	0	100	0
<b>English Language 1</b>	2,694	2,815	49	51
<b>English Language 2</b>	2,396	2,501	49	51
<b>English Language 3</b>	2,061	2,036	50	50
<b>English Language 4</b>	1,627	1,558	51	49
<b>French Language 1</b>	135	125	52	48
<b>French Language 2</b>	109	101	52	48
<b>French Language 3</b>	67	67	50	50
<b>French Language 4</b>	41	25	62	38
<b>German Language 1</b>	537	747	42	58
<b>German Language 2</b>	435	589	42	58
<b>German Language 3</b>	249	372	40	60
<b>German Language 4</b>	104	115	47	53
<b>Italian Language 1</b>	570	507	53	47
<b>Italian Language 2</b>	491	423	54	46
<b>Italian Language 3</b>	307	317	49	51
<b>Italian Language 4</b>	154	137	53	47
<b>Russian Language 1</b>	88	132	40	60
<b>Russian Language 2</b>	88	111	44	56
<b>Russian Language 3</b>	56	67	46	54
<b>Russian Language 4</b>	44	43	51	49
<b>Spanish Language 1</b>	743	436	63	37
<b>Spanish Language 2</b>	650	384	63	37
<b>Spanish Language 3</b>	490	307	61	39
<b>Spanish Language 4</b>	241	140	63	37
<b>Total</b>	<b>14,407</b>	<b>14,083</b>	<b>51</b>	<b>49</b>

The differences of the effects of male gender on examination outcomes for pairs of English and other second language courses in the same year of studies were also studied and they are presented in Tables in the Appendix.

### 3.2 Model Specification

Student's grades at the level of individual examinations were modelled using Bayesian Mixed Effects modelling technique. The model specified using the classification notation (Browne, Goldstein, & Rasbash, 2001), as follows:

$$\begin{aligned}
 Grade_i = & \beta_0 + Exam\_year\_2013 \times \beta_1 + Exam\_year\_2014 \times \beta_2 + Exam\_year\_2015 \times \beta_3 \\
 & + Exam\_year\_2016 \times \beta_4 + Exam\_year\_2017 \times \beta_5 + Exam\_year\_2018 \times \beta_6 \\
 & + Exam\_year\_2019 \times \beta_7 + Department\_Tourismandhospitality \times \beta_8 \\
 & + Department\_IT \times \beta_9 + Student\_male\_gender_i \times \beta_{10} + u_{Student\_id(i)}^{(2)} \\
 & + u_{Professor\_id(i)}^{(3)} + u_{Subject\_id(i),0}^{(4)} + u_{Subject\_id(i),1}^{(4)} Student\_male\_gender_i \\
 & + u_{Secondary\_school\_type\_id(i),0}^{(5)} + \varepsilon_i
 \end{aligned}$$

where  $\beta_0$  is the grand intercept, coefficients  $\beta_1$  through  $\beta_7$  capture the fixed effects of examination year (year 2012 is the reference level). Coefficients  $\beta_8$  and  $\beta_9$  capture the fixed effects of departments (Business Administration department is the reference level). Coefficient  $\beta_{10}$  captures the fixed (average across all courses) effect of students' male gender on the examination outcome. Random (group-level) effects are denoted by  $u$  with superscripts indicating the corresponding classifications (level 1 is omitted by convention);  $i$  indexes the observation level (individual examinations);  $Student\_id(i)$ ,  $Professor\_id(i)$ ,  $Subject\_id(i)$  and  $Secondary\_school\_type\_id(i)$  are functions that return the unit number of the student, the professor, the course and the students' secondary school type, respectively, that are associated with the  $i^{\text{th}}$  examination;  $\varepsilon_i$  is the lowest level residuals. The random intercepts are assumed to be normally distributed, independent across classifications and independent of any predictor variables included in the model (Rasbash et al. 2010). The term  $u_{Subject\_id(i),1}^{(4)} Student\_male\_gender_i$  captures varying effects (slopes) of students' male gender across different subjects.

The rationale behind the choice of fixed versus random effects in the context of research design can be explained in several manners. As explained by Lewis (1989): 'Bayesian analysis treats all unknown parameters as random variables. Thus, the distinction between fixed and random effects is less fundamental in a Bayesian than



in a sampling theory framework.' Further clarification is offered by Gelman and Hill (2007): 'Fixed effects can be viewed as special cases of random effects, in which the higher-level variance is set to 0 or  $\infty$ '. Thus, the frequentist view that the effects of main interest should be modelled as fixed, while random effects are reserved for integrating the nuisance parameters out of likelihood is not fully applicable to this study. For the purposes of this research, the most relevant difference between fixed effects and random effects is the procedure of 'shrinking' (i.e. regularization) that takes place within random effect models. The procedure 'shrinks' coefficient estimates toward zero for clusters with small number of observations, thus producing more conservative coefficient estimates for those clusters. Therefore, as a general rule, we have modelled the effects including large number of clusters that stem from the same larger superpopulation of clusters, some of which may have small number of observations (students, professors, course subjects, and the secondary schools included in the study were only samples of each of these categories) by using random effects.<sup>7</sup>

Another benefit of the random effect technique is the interesting insights gained from the variance component analysis. We would not be able to learn that around 35% of the total variation in the grades is attributable to students' characteristics, that courses and professors' identities account for around 4% of the variation each etc. without the use of random effect technique.

The effects including small numbers of clusters, all of which have large number of observations per cluster, have been modelled as fixed effects. Thus, the temporal effects are modelled as fixed effects because the number of observations per year is rather big (between 1800 and 30558). Due to the size of the data available for estimating their magnitudes, the estimates of these effects would be identical to those produced by random effect procedure. This approach is also used in the case of departments. When it comes to the issue of the gender-by-subject interactions which has also not been specified as fixed, its representation in the study correlates with the number of observations per group/effect/coefficient for *Subject\_id* variable. Once the authors determined that the right modelling choice for courses is random effects, the only way to interact the random variable with a fixed effect of gender was through

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<sup>7</sup> Some foreign language courses, which are of (secondary) interest for this study, have small number of observations (e.g. Chinese 1, 2, 3 and 4 each have less than 30 observations). Discarding those datapoints would be wasteful, and may even introduce some bias in the sample, while treating the effects of the individual courses as fixed, without the shrinkage effect that takes place in the random effects estimation, would lead to estimates that include too much sampling variation, hence resulting in inflated effects for courses with small number of observations. The same explanation can be given regarding students, professors and secondary schools.

varying slopes (i.e. varying effects). The reported magnitudes of interactions are more conservatively estimated than if they were estimated using the fixed-effects modelling framework, because the shrinkage takes place across interaction terms as well. Although the fixed effects of examination year and university departments were not the focus of this analysis, they were included in the model as control variables, as they also had a significant influence on examination outcome.

All computations and modeling were conducted within the R software environment (R Core Team, 2019). R's package for Bayesian Multilevel Models using Stan named 'brms' (Bürkner, 2017) was used for Bayesian Mixed Effects modeling, and R's package 'sjPlot' (Lüdtke, 2018) was used for tabular presentation of the model estimates.

### **3.3 Results and Discussion**

Fixed and random effects explained around 52% of the overall variation in exam outcomes. The other 48% of variation could not be explained by the studied variables. Unexplained variation could include the intensity of studying and students' dedication to studies, affinity towards certain courses or languages, examination questions and unclear questions.

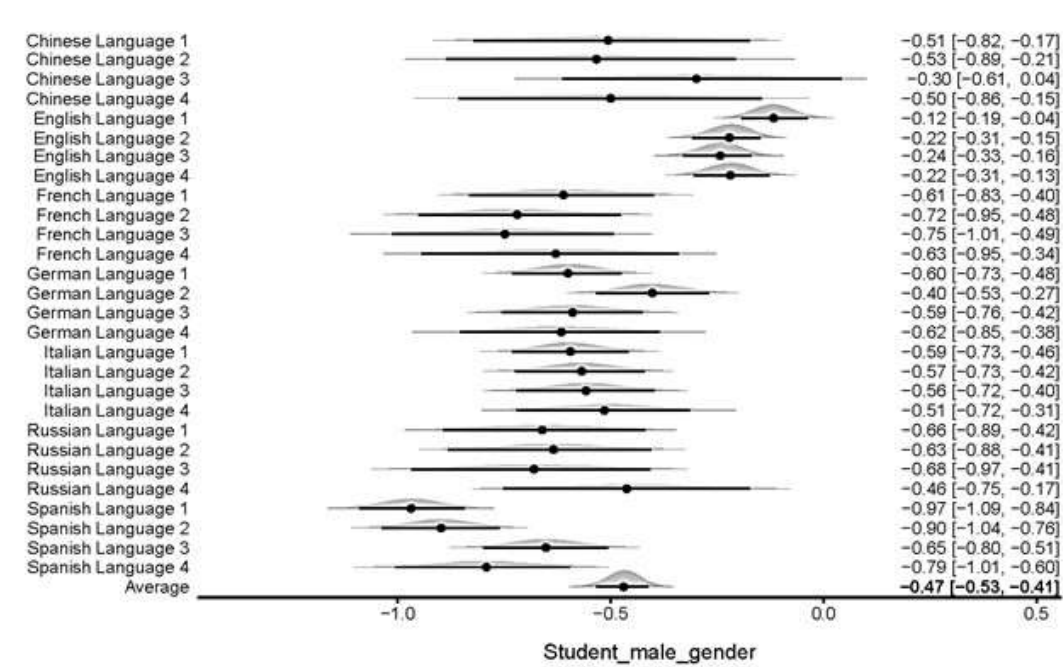
Expectedly, the biggest individual source of variation in grades (according to random effect analysis) was the identity of the student. Student identity accounted for around 35% of the overall variation in grades. Other relevant factors were the effects of individual professors and courses, which triggered around 4% of the variation (the criteria demanded by professors varied significantly, as did the course materials), while high school background of students produced around 2.5% of the variation in grades. Our additional analysis (data not shown) showed the best students came from grammar schools, and the weakest students came from vocational schools; this is due to the fact that grammar school students have previous wider knowledge, and the criteria for these students are higher than for vocational school students.

Student gender (according to fixed effect analysis) contributed >1% of the overall variation in grades. Male gender had a very significant negative influence on final grades, and this influence was, on average, -0.47 % (95% CI: -0.49 – -0.45). This is consistent with findings from previous studies about the difference in examination outcomes between genders in high schools and college (Downey & Vogt Yuan, 2005; Fischer, Schult, & Hell, 2013; Hadjar, Krolak-Schwerdt, Priem, & Glock, 2014; Spinath, Eckert, & Steinmayr, 2014). The effect of male gender on final grades

varied somewhat among courses, but it was more or less visible, depending on the course. Estimates of the model parameters can be found in the Appendix.

Figure 1 presents varying overall male gender effects on the examination outcomes for second language courses (the average effect -0.47 is given at the bottom of the figure) and corresponding credible intervals.

*Figure 1– Varying effects of students’ male gender on examination outcome by individual second language course*



The effect of male gender on final grade is negative and statistically different from the average effect referring to all Spanish language courses. On the other hand, it is positive and statistically significant referring to all English language courses. The effects of gender on examination outcomes for Spanish and English as second languages were substantial when compared to other languages (note the effects of male gender across all language courses are in the Appendix; Spanish and English courses have extreme values of effects compared to the other languages). Regarding the effect of male gender, in a ranked list of 229 courses, courses of Spanish language 1, 2 and 4 are the three courses with the highest negative effect of male gender on final exam grade. For instance, the overall effect of male gender on examination outcome for Spanish language 1 is -0.97, which means that, after controlling for the other relevant factors which affect the examination outcome, the expected result of a male student is almost one grade lower than the expected result of a female student.

On the other hand, all four English language courses are among the 13 courses least affected by male gender. For example, the overall effect of male gender on examination outcome for English language 1 is only -0.12, which is significantly lower than the average negative effect of male gender on all second language examination outcomes (-0.47).

When such a systematic difference in overall student performance between genders exists (i.e. female students typically receive a grade that is 0.47 higher than a grade which is obtained by male students), comparing raw (unadjusted) average grades can be misleading. For instance, if female students on average (in all courses) receive grades 0.47 higher than male students do, which has been demonstrated to be the case, then females performing the same (or even slightly worse; see Table 1) than males in the English language 1 course does not mean that they are equally predisposed for this subject, but rather that male students have a comparative advantage in this particular subject. If this were not true, they would perform 0.47 worse than female students, like they do in the rest of the courses. Since the sample size for this course is rather large, the vanishing of the negative differential in performance between male and female students requires careful examination and explanation. Nevertheless, this is just a raw difference, which is not adjusted for other relevant factors that can affect student grades, such as the type of secondary school attended, professors' criteria, students' overall performance during their studies, the examination period and department. As such, the observed difference should not be over-interpreted.

The varying effects presented in Table 3 show performance of males relative to females, even though females do not have their own coefficients. Hence, if an effect of male gender is positive (such as it is for English language), it means that males perform less worse (or even slightly better), relative to females in that particular course than they do in other academic courses. If the effect is negative (such as it is for Spanish), it implies that, relative to males, females perform even better in that particular course than they do in other courses. What we can conclude is that male students are more successful in English and female students are more successful in Spanish, as all the other relevant causes of the observed differences have been ruled out within this model.

*Table 3 – Varying effects of students’ male gender on examination outcome (estimate errors, and 95% confidence intervals) by individual second language course*

<b>Course</b>	<b>Estimate</b>	<b>Estimate Error</b>	<b>Q2.5</b>	<b>Q97.5</b>
Spanish Language 1	<b>-0.4995</b>	0.0601	-0.6199	-0.3846
Spanish Language 2	<b>-0.4289</b>	0.0674	-0.5644	-0.3009
Spanish Language 4	<b>-0.3224</b>	0.1040	-0.5237	-0.1284
French Language 3	<b>-0.2789</b>	0.1297	-0.5484	-0.0223
French Language 2	<b>-0.2501</b>	0.1157	-0.4698	-0.0167
Russian Language 3	<b>-0.2109</b>	0.1417	-0.4962	0.0624
Russian Language 1	<b>-0.1913</b>	0.1235	-0.4204	0.0414
Spanish Language 3	<b>-0.1826</b>	0.0723	-0.3229	-0.0407
Russian Language 2	<b>-0.1650</b>	0.1135	-0.3934	0.0599
French Language 4	<b>-0.1595</b>	0.1494	-0.4573	0.1218
German Language 4	<b>-0.1467</b>	0.1183	-0.3744	0.0763
French Language 1	<b>-0.1414</b>	0.1121	-0.3643	0.0603
German Language 1	<b>-0.1310</b>	0.0618	-0.2536	-0.0115
Italian Language 1	<b>-0.1252</b>	0.0663	-0.2535	0.0010
German Language 3	<b>-0.1202</b>	0.0844	-0.2860	0.0393
Italian Language 2	<b>-0.0988</b>	0.0744	-0.2459	0.0474
Italian Language 3	<b>-0.0884</b>	0.0790	-0.2442	0.0652
Chinese Language 2	<b>-0.0641</b>	0.1675	-0.4141	0.2619
Italian Language 4	<b>-0.0452</b>	0.1031	-0.2464	0.1532
Chinese Language 1	<b>-0.0368</b>	0.1626	-0.3523	0.2847
Chinese Language 4	<b>-0.0306</b>	0.1798	-0.3938	0.3244
Russian Language 4	<b>0.0068</b>	0.1412	-0.2726	0.2845
German Language 2	<b>0.0674</b>	0.0634	-0.0509	0.1881
Chinese Language 3	<b>0.1707</b>	0.1681	-0.1414	0.5142
English Language 3	<b>0.2266</b>	0.0363	0.1565	0.2986
English Language 2	<b>0.2482</b>	0.0350	0.1792	0.3166
English Language 4	<b>0.2504</b>	0.0405	0.1716	0.3307
English Language 1	<b>0.3521</b>	0.0337	0.2854	0.4160

Finally, Table 4 presents mean grades by foreign language course and gender.

*Table 4- Mean grades by foreign language course and gender*

<i>Foreign language course</i>	<i>Females</i>	<i>Males</i>
<i>Chinese language 1</i>	8.50	7.86
<i>Chinese language 2</i>	8.00	6.67
<i>Chinese language 3</i>	6.40	7.00
<i>Chinese language 4</i>	10.00	NA
<i>English language 1</i>	7.16	7.18
<i>English language 2</i>	7.11	7.00
<i>English language 3</i>	7.01	6.85
<i>English language 4</i>	6.99	6.85
<i>French language 1</i>	8.13	7.54
<i>French language 2</i>	7.80	6.82
<i>French language 3</i>	7.76	6.51
<i>French language 4</i>	7.66	6.56
<i>German language 1</i>	7.90	7.40
<i>German language 2</i>	7.42	7.16
<i>German language 3</i>	7.55	7.07
<i>German language 4</i>	7.65	6.96
<i>Italian language 1</i>	7.63	6.93
<i>Italian language 2</i>	7.27	6.57
<i>Italian language 3</i>	7.22	6.40
<i>Italian language 4</i>	7.13	6.51
<i>Russian language 1</i>	8.08	7.21
<i>Russian language 2</i>	7.60	6.68
<i>Russian language 3</i>	7.91	6.93
<i>Russian language 4</i>	7.45	6.79
<i>Spanish language 1</i>	7.76	6.74
<i>Spanish language 2</i>	7.39	6.44
<i>Spanish language 3</i>	6.98	6.33
<i>Spanish language 4</i>	7.70	6.61

### **3.4 Qualitative Analysis: Focus Group**

In order to further analyse the results of our quantitative analysis and to compare students' perception and attitudes with their final grades, we conducted additional qualitative analysis in the form of research using a focus group. The participants in the focus groups were ten students (five male, five female) from the departments of Tourism and Hospitality Management, Business Administration, and Information

Technology. The participants shared various common characteristics that relate them to the topic of the research: they were the students of Singidunum University, of similar age and consumers of the same 'product': learners of both Spanish and English as their second languages. The students were highly motivated to participate in the focus group, as the topic was of interest and they had an opportunity to freely express their opinions about issues that concerned them.

The discussion questions were:

1. What words or expressions do students associate with the English language/the Spanish language?
2. Spanish is a female language vs. English is a male language. True or false? Why?
3. If students would have to choose to study only one of the two languages at university, which one would it be: English or Spanish?
4. Why have they decided to learn Spanish as a second foreign language and not any other language at University?

Regarding question 1 about their associations with the English language, the participants were mostly cohesive in their answers: words or expressions associated with this language are business, communication, Internet, work and the United States. Students agreed that English is a necessary language, something they must know, and that they have been exposed to this language since they were children.

When asked the same question about Spanish, i.e. what words or expressions they associate with the Spanish language, students indicated culture, music, art, people, travel, food and the Spanish way of life. They also highlighted that Spanish language sounds beautiful.

All participants disagreed with the question 2 statement that Spanish is a female language, whereas English is a male language. They affirmed that it is impossible to distinguish or classify languages according to the gender of their students, and they also confirmed they had never thought about that kind of gender distinction before. They felt both languages are important at a global level, regardless of the gender of its speakers.

In answer to question 3, if they could choose only one of the two languages at university, their choice would be Spanish (6 of the 8 responses), because they claimed that English is an essential foreign language which should have been learned before university level, while Spanish is also a very important language that they would prefer

to learn as a second foreign language. Furthermore, they claimed that the learning of the English language obviously has not stopped gaining increasing popularity in the world. English is the language of technology, business and science, so speakers of other languages in different countries understand learning English as the key to the entry requirements for their studies, jobs, various opportunities and higher incomes.

The answer to question 4 (why did they opt for Spanish as a second foreign language at university) was that this language sounds very beautiful and it does not seem to be difficult to learn. Participants said Spanish seems to have growing popularity in the world, and it is very useful nowadays, as it is the second most commonly spoken language in the world. According to their comments, it is also very pleasant to the ear, unlike German, for example. However, according to focus group members, that does not mean that Spanish is a female language. On the contrary, participants claimed that it is a very important language in the areas of their interest, especially in tourism and hospitality and business and economy sectors.

Regarding the progressive increase in numbers of Spanish language students in countries such as Serbia, which does not have geographical or economical proximity with Spain, we found that practically all the participants, including those who had no previous, pre-university experience in Spanish, thought Spanish would be easier to learn than other second languages, and they believed they would achieve higher grades. They also confirmed they chose this language because they like Spanish and because they would like to visit Spain. Both gender groups of students consider English to be the language of business and a necessary tool for world-wide communication, while Spanish is the language of students' interest due to its importance in their professional careers, but also due to the attractive music and culture the Hispanic world has to offer. In another study in Portugal, with its geographical proximity to Spain, students perceived more professional opportunities would arise if they learned Spanish, while the similarity of Portuguese and Spanish languages was the main reason students chose Spanish as a second language (Santiño Grelo, Rodríguez García, Hinojo Lucena: 2017).

#### **4. Final considerations**

As there are no previous studies of the differential effect of gender on second language examination outcomes at university level in Serbia, the scientific contribution of this paper is significant, as it opens numerous questions for future studies regarding the correlation between gender, second language acquisition and learning outcomes.



The current research results show that, according to fixed effect analysis, student gender contributes >1% of the overall variation in grades, which basically means that male gender has a very significant negative influence on final grades with reference to English and Spanish. In other words, there is a statistically proven difference in the English and Spanish language learning outcomes based on the gender of students. However, the variations in students' grades are affected not only by gender, but by other factors as well. These other factors may include the type of secondary school attended, professors' criteria, students' overall performance during their studies, the examination period, faculty department, etc. Furthermore, around 35% of the total variation in the grades is attributable to students' characteristics, whereas courses and professors' identities account for around 4% of the variation each. Therefore, even though it does represent one of the factors, student gender is not the only and most important factor for variations in students' grades in English and Spanish.

On the other hand, focus group results show that students, irrespective of their gender, perceive English and Spanish as a second language course in the same way and that they agree that gender does not play a significant role in second language choice at university level. This leads to the conclusion that the results of qualitative and quantitative analysis are not the same, as students do not find gender to be of relevance when learning English or Spanish language, whereas gender proves to be of relevance in statistical data regarding the learning outcomes of these two languages.

As the varying effects of gender are regularized by good teaching and examination methods at university level, these effects were likely conservatively measured, so the real values of these effects could be higher in other spheres of language learning. To understand which factors can really have an impact on effective learning, it will be necessary to use the available resources more efficiently in order to achieve an effective teaching-learning process of second language. This implies more thorough studies of cognitive, affective and miscellaneous variables which can affect second language learning processes and learning outcomes. Also, this research should be conducted in other countries and institutions, using a larger sample, in order to determine whether the effect of gender is the same around the world. Finally, the nature of this gender effect should be analysed and explained both in theory and in practice in various educational contexts, as there are numerous factors yet to be discovered that could influence second language acquisition.

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**APPENDIX A: PAIRWISE TESTS FOR DIFFERENCES IN VALUES OF RANDOM EFFECTS**

*Table 5 - Pairwise tests for differences in values of random effects: Chinese vs other languages*

<b>Difference tested</b>	<b>Estimate</b>	<b>Est. Err.</b>	<b>CI. Lower</b>	<b>CI. Upper</b>	<b>Evid. Ratio</b>	<b>Post. Prob</b>	<b>Sign. 0.05</b>
Chinese Language 1 - Spanish Language 1	<b>0.46</b>	0.17	0.18	Inf.	1199.	1	*
Chinese Language 2 - Spanish Language 2	<b>0.36</b>	0.18	0.08	Inf.	53.55	0.98	*
Chinese Language 3 - Spanish Language 3	<b>0.35</b>	0.19	0.07	Inf.	56.14.	0.98	*
Chinese Language 4 - Spanish Language 4	<b>0.29</b>	0.21	-0.04	Inf.	12.33.	0.92	*
Chinese Language 1 - French Language 1	<b>0.10</b>	0.20	-0.21	Inf.	2.26	0.69	
Chinese Language 2 - French Language 2	<b>0.19</b>	0.20	-0.14	Inf.	4.5	0.82	
Chinese Language 3 - French Language 3	<b>0.45</b>	0.21	0.13	Inf	108.09	0.99	*
Chinese Language 4 - French Language 4	<b>0.13</b>	0.22	-0.23	Inf	2.56	0.72	
Chinese Language 1 - Russian Language 1	<b>0.15</b>	0.20	-0.17	Inf.	3.34	0.77	
Chinese Language 2 - Russian Language 2	<b>0.10</b>	0.20	-0.23	Inf.	2.19	0.69	
Chinese Language 3 - Russian Language 3	<b>0.38</b>	0.22	0.02	Inf.	25.67	0.96	*
Chinese Language 4 - Russian Language 4	<b>-0.04</b>	0.22	-0.41	Inf.	0.74	0.42	
Chinese Language 1 - Italian Language 1	<b>0.09</b>	0.17	-0.19	Inf.	2.20	0.69	
Chinese Language 2 - Italian Language 2	<b>0.03</b>	0.18	-0.28	Inf.	1.37	0.58	
Chinese Language 3 - Italian Language 3	<b>0.26</b>	0.19	-0.03	Inf.	12.48	0.93	
Chinese Language 4 - Italian Language 4	<b>0.01</b>	0.21	-0.33	Inf	1.10	0.52	
Chinese Language 1 - German Language 1	<b>0.09</b>	0.18	-0.20	Inf.	2.36	0.70	
Chinese Language 2 - German Language 2	<b>-0.13</b>	0.18	-0.42	Inf.	0.30	0.23	
Chinese Language 3	<b>0.29</b>	0.18	-0.01	Inf.	16.39	0.94	

- German Language 3							
- Chinese Language 4	<b>0.12</b>	0.21	-0.21	Inf	2.50	0.71	
- German Language 4							

*Table 6 - Pairwise tests for differences in values of random effects: German vs other languages*

<b>Difference tested</b>	<b>Estimate</b>	<b>Est. Err.</b>	<b>CI. Lower</b>	<b>CI. Upper</b>	<b>Evid. Ratio</b>	<b>Post. Prob</b>	<b>Sign. 0.05</b>
German Language 1 - Spanish Language 1	<b>0.37</b>	0.08	0.23	Inf.	Inf.	1	*
German Language 2 - Spanish Language 2	<b>0.50</b>	0.09	0.35	Inf.	Inf.	1	*
German Language 3 - Spanish Language 3	<b>0.06</b>	0.11	-0.12	Inf.	2.48	0.71	
German Language 4 - Spanish Language 4	<b>0.18</b>	0.16	-0.07	Inf.	6.64	0.87	
German Language 1 - French Language 1	<b>0.01</b>	0.13	-0.20	Inf.	1.08	0.52	
German Language 2 - French Language 2	<b>0.32</b>	0.13	0.11	Inf.	132.33	0.99	*
German Language 3 - French Language 3	<b>0.16</b>	0.15	-0.09	Inf	5.9	0.86	
German Language 4 - French Language 4	<b>0.01</b>	0.19	-0.28	Inf	1.08	0.52	
German Language 1 - Russian Language 1	<b>0.06</b>	0.13	-0.15	Inf.	1.18	0.65	
German Language 2 - Russian Language 2	<b>0.23</b>	0.13	0.01	Inf.	23	0.96	*
German Language 3 - Russian Language 3	<b>0.09</b>	0.16	-0.17	Inf.	2.44	0.71	
German Language 4	<b>-0.15</b>	0.18	-0.46	Inf.	0.24	0.19	

- Russian Language 4							
German Language 1 - Italian Language 1	<b>-0.01</b>	0.09	-0.15	Inf.	0.88	0.47	
German Language 2 - Italian Language 2	<b>0.17</b>	0.10	0.02	Inf.	25.67	0.96	*
German Language 3 - Italian Language 3	<b>-0.03</b>	0.11	-0.22	Inf.	0.63	0.39	
German Language 4 - Italian Language 4	<b>-0.10</b>	0.16	-0.36	Inf	0.35	0.26	

Table 7 - Pairwise tests for differences in values of random effects: Russian vs other languages

Difference tested	Estimate	Est. Err.	CI. Lower	CI. Upper	Evid. Ratio	Post. Prob	Sign. 0.05
Russian Language 1 - Spanish Language 1	<b>0.31</b>	0.13	0.09	Inf.	91.31	0.99	*
Russian Language 2 - Spanish Language 2	<b>0.26</b>	0.13	0.05	Inf.	41.86	0.98	*
Russian Language 3 - Spanish Language 3	<b>-0.03</b>	0.16	-0.29	Inf.	0.73	0.42	
Russian Language 4 - Spanish Language 4	<b>0.33</b>	0.18	0.04	Inf.	36.5	0.97	*
Russian Language 1 - French Language 1	<b>-0.05</b>	0.16	-0.32	Inf.	0.60	0.38	
Russian Language 2 - French Language 2	<b>0.09</b>	0.15	-0.17	Inf.	2.51	0.72	
German Language 3 - French Language 3	<b>0.07</b>	0.19	-0.25	Inf	1.73	0.63	
Russian Language 4 - French Language 4	<b>0.17</b>	0.20	-0.17	Inf	3.88	0.8	
Russian Language 1 - Italian Language 1	<b>-0.07</b>	0.14	-0.29	Inf.	0.49	0.33	
Russian Language 2 - Italian Language 2	<b>-0.07</b>	0.14	-0.30	Inf.	0.48	0.32	
Russian Language 3 - Italian Language 3	<b>-0.12</b>	0.16	-0.38	Inf.	0.27	0.21	
Russian Language 4 - Italian Language 4	<b>0.05</b>	0.17	-0.24	Inf	1.70	0.63	

Table 8 - Pairwise tests for differences in values of random effects: Italian vs other languages

Difference tested	Estimate	Est. Err.	CI. Lower	CI. Upper	Evid. Ratio	Post. Prob	Sign. 0.05
Italian Language 1 - Spanish Language 1	<b>0.37</b>	0.09	0.23	Inf.	Inf.	1	*
Italian Language 2 - Spanish Language 2	<b>0.33</b>	0.10	0.17	Inf.	1199	1	*
Italian Language 3 - Spanish Language 3	<b>0.09</b>	0.10	-0.08	Inf.	4.33	0.81	
Italian Language 4 - Spanish Language 4	<b>0.28</b>	0.15	0.03	Inf.	29.77	0.97	*
Italian Language 1 - French Language 1	<b>0.02</b>	0.13	-0.20	Inf.	1.18	0.54	
Italian Language 2 - French Language 2	<b>0.15</b>	0.13	-0.06	Inf.	6.36	0.86	
German Language 3 - French Language 3	<b>0.19</b>	0.15	-0.07	Inf	8.6	0.9	
Italian Language 4 - French Language 4	<b>0.11</b>	0.18	-0.17	Inf	2.79	0.74	

Table 9 - Pairwise tests for differences in values of random effects: French vs other Spanish

Difference tested	Estimate	Est. Err.	CI. Lower	CI. Upper	Evid. Ratio	Post. Prob	Sign. 0.05
French Language 1 - Spanish Language 1	<b>0.36</b>	0.12	0.15	Inf.	1199	1	*
French Language 2 - Spanish Language 2	<b>0.18</b>	0.13	-0.04	Inf.	11	0.92	
French Language 3 - Spanish Language 3	<b>-0.10</b>	0.14	-0.33	Inf.	0.35	0.26	
French Language 4 - Spanish Language 4	<b>0.16</b>	0.18	-0.13	Inf.	4.58	0.82	



Table 10- *Pairwise tests for differences in values of random effects of male gender:  
 English vs other second languages*

<b>Difference tested</b>	<b>Estimate</b>	<b>Est. Err.</b>	<b>CI. Lower</b>	<b>CI. Upper</b>	<b>Evid. Ratio</b>	<b>Post. Prob</b>	<b>Sign. 0.05</b>
English Language 1 - Spanish Language 1	<b>0.85</b>	0.07	0.74	Inf.	Inf.	1	*
English Language 2 - Spanish Language 2	<b>0.68</b>	0.07	0.56	Inf.	Inf.	1	*
English Language 3 - Spanish Language 3	<b>0.41</b>	0.07	0.29	Inf.	Inf.	1	*
English Language 4 - Spanish Language 4	<b>0.57</b>	0.11	0.40	Inf.	Inf.	1	*
English Language 1 - French Language 1	<b>0.49</b>	0.12	0.31	Inf.	Inf.	1	*
English Language 2 - French Language 2	<b>0.50</b>	0.12	0.30	Inf.	Inf.	1	*
English Language 3 - French Language 3	<b>0.51</b>	0.14	0.28	Inf.	Inf.	1	*
English Language 4 - French Language 4	<b>0.41</b>	0.16	0.16	Inf.	Inf.	1	*
English Language 1 - Russian Language 1	<b>0.54</b>	0.13	0.33	Inf.	Inf.	1	*
English Language 2 - Russian Language 2	<b>0.41</b>	0.12	0.21	Inf.	Inf.	1	*
English Language 3 - Russian Language 3	<b>0.44</b>	0.14	0.21	Inf.	1199.	1	*
English Language 4 - Russian Language 4	<b>0.24</b>	0.15	-0.01	Inf	16.14	0.94	
English Language 1 - Italian Language 1	<b>0.48</b>	0.07	0.36	Inf.	Inf.	1	*
English Language 2 - Italian Language 2	<b>0.35</b>	0.08	0.22	Inf.	Inf.	1	*
English Language 3 - Italian Language 3	<b>0.31</b>	0.08	0.17	Inf.	Inf.	1	*
English Language 4 - Italian Language 4	<b>0.30</b>	0.11	0.11	Inf	399	1	*
English Language 1 - German Language 1	<b>0.48</b>	0.07	0.37	Inf.	Inf.	1	*

English Language 2 - German Language 2	<b>0.18</b>	0.07	0.07	Inf.	239.	1	*
English Language 3 - German Language 3	<b>0.35</b>	0.09	0.21	Inf.	Inf.	1	*
English Language 4 - German Language 4	<b>0.40</b>	0.13	0.20	Inf	399	1	*
English Language 1 - Chinese Language 1	<b>0.39</b>	0.17	0.12	Inf.	91.31	0.99	*
English Language 2 - Chinese Language 2	<b>0.31</b>	0.17	0.03	Inf.	32.33	0.97	*
English Language 3 - Chinese Language 3	<b>0.06</b>	0.17	-0.23	Inf.	1.78.	0.64	
English Language 4 - Chinese Language 4	<b>0.28</b>	0.18	-0.02	Inf	15.22	0.94	

Table 11- Model estimates

<i>Predictors</i>	<b>Grade</b>		
	<i>Estimates</i>	<i>HDI (50%)</i>	<i>HDI (95%)</i>
Intercept	7.59	7.52 – 7.65	7.39 – 7.77
Examination year 2013	0.04	0.03 – 0.05	0.00 – 0.07
Examination year 2014	-0.14	-0.15 – -0.13	-0.17 – -0.10
Examination year 2015	-0.56	-0.57 – -0.54	-0.61 – -0.52
Examination year 2016	-0.64	-0.66 – -0.63	-0.69 – -0.60
Examination year 2017	-0.63	-0.64 – -0.61	-0.68 – -0.58
Examination year 2018	-0.69	-0.71 – -0.68	-0.75 – -0.64
Examination year 2019	-0.60	-0.63 – -0.58	-0.68 – -0.53
Department_IT	0.34	0.31 – 0.37	0.26 – 0.42
Department_Tourism_and_Hospitality Management	-0.07	-0.09 – -0.05	-0.12 – -0.01
Student_male_gender	-0.47	-0.49 – -0.45	-0.53 – -0.41

### Random Effects

$\sigma^2$	1.14
T00 Professor_id	0.14
T00 Secondary_school_type_id	0.10
T00 Student_id	1.05
T00 Subject_id	0.14
T11 Subject_id . Student_male_gender	0.03
ICC Professor_id	0.06
ICC Secondary_school_type_id	0.04
ICC Student_id	0.41
ICC Subject_id	0.06
Observations	147.219
Bayes R <sup>2</sup> / Standard Error	0.523 / 0.001

Table 12 – Final second language examinations according to department and course

Second language course	Business administration	Information Technology	Tourism and hospitality management	Total
<b>Chinese Language 1</b>	13	6	5	<b>24</b>
<b>Chinese Language 2</b>	10	4	4	<b>18</b>
<b>Chinese Language 3</b>	12	1	2	<b>15</b>
<b>Chinese Language 4</b>	0	0	1	<b>1</b>
<b>English Language 1</b>	2,236	1,188	2,085	<b>5,509</b>
<b>English Language 2</b>	2,200	822	1,875	<b>4,897</b>
<b>English Language 3</b>	2,002	572	1,523	<b>4,097</b>
<b>English Language 4</b>	1,609	417	1,159	<b>3,185</b>
<b>French Language 1</b>	98	40	122	<b>260</b>
<b>French Language 2</b>	83	30	97	<b>210</b>
<b>French Language 3</b>	41	11	82	<b>134</b>
<b>French Language 4</b>	0	0	66	<b>66</b>
<b>German Language 1</b>	529	289	466	<b>1,284</b>
<b>German Language 2</b>	438	195	391	<b>1,024</b>
<b>German Language 3</b>	206	116	299	<b>621</b>
<b>German Language 4</b>	3	3	213	<b>219</b>
<b>Italian Language 1</b>	484	52	541	<b>1,077</b>
<b>Italian Language 2</b>	386	45	483	<b>914</b>

<b>Italian Language 3</b>	215	15	394	<b>624</b>
<b>Italian Language 4</b>	1	2	288	<b>291</b>
<b>Russian Language 1</b>	72	22	126	<b>220</b>
<b>Russian Language 2</b>	61	14	124	<b>199</b>
<b>Russian Language 3</b>	23	5	95	<b>123</b>
<b>Russian Language 4</b>	0	0	87	<b>87</b>
<b>Spanish Language 1</b>	435	75	669	<b>1,179</b>
<b>Spanish Language 2</b>	361	45	628	<b>1,034</b>
<b>Spanish Language 3</b>	215	32	550	<b>797</b>
<b>Spanish Language 4</b>	4	3	374	<b>381</b>
<b>Total</b>	<b>11,737</b>	<b>4,004</b>	<b>12,749</b>	<b>28,490</b>