STCS: INVESTIGATION OF THE USE OF ANGLICISM IN SPEAKERS OF QUÉBEC FRENCH

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1. Introduction

The impact of English on French is an ongoing concern for Québec French, and anglicisms are often pointed out as evidence that English is a threat to French in terms of its vitality and quality. In this study, Professor Marie-eve Bouchard recruited speakers of Québec French in an online survey to evaluate the use of anglicisms. This analysis will focus on the first two parts of the survey: examining the respondents' perception of anglicism in part I and the choices of anglicism (innovation forms vs. tradition forms) in part II. The relationship between the use of anglicism and social factors of interest will also be explored in two parts respectively.

2. Portrait of Survey Respondents

This section will provide an overview of the demographic information of 675 respondents who have completed the survey. Over three-fourths of respondents are female (514; 76.1%), and with the rest being males (149; 22.1%) and other genders (10; 1.5%). Except 8 people who did not reveal their age, the age of respondents ranges from 14 to 76. Segmenting the respondents into five groups, 141 (21.1%) are under 20 , 363 (54.4%) are between 20 and 30, 78 (11.7%) are $30-40$, 58 (8.7%) are $40-50$, and 27 (4%) people are over 50 years old. A more explicit demonstration of the age distribution can be found in A.1. Out of 670 respondents who have reported their current residence, 248 (37.0%) people live in Montréal, 125 (18.7%) people live in Sherbrooke, 60 (9.0%) people live in Québec and 237 (35.4%) live in other places. For the the city/town growing up, 237 (35.4%) people grew up in Montréal, 104 (15.5%) people grew up in Sherbrooke, 35 (5.2%) people grew up in Québec, and 294 (43.9%) people grew up in other places.

Two other factors that potentially affect the evaluation of anglicism: education level and proficiency of English are also surveyed in the questionnaire. The count and percentage of each education level are summarized in Table B.1, from which we can see that most people come from general and professional teaching colleges (45.6%), universities (30.7%), and high schools (20%). For the proficiency of English, since it is a checkbox question that allows more than one choice, some respondents report more than one level of English proficiency. To better categorize the English proficiency, only the highest proficiency in one answer would be selected for later analysis. After removing those who didn't select any pre-defined choice, the count and percentage of each proficiency level are presented in Table B.2, from which we can observe that over four-fifths of respondents self-identified as either advanced (51.5%) or intermediate (32.4%) speakers. The only person who does not speak English will be excluded in the analyses related to English proficiency.

3. Analysis of the Attitudes towards the Use of Anglicisms

In part I of the survey, respondents are asked to evaluate the use of anglicisms in 15 different sentences using a Likert scale with five points: "totally acceptable", "rather acceptable", "rather unacceptably", "totally unacceptable", and "I don't understand the meaning of this sentence." Five points will be encoded into 1 to 5 with a higher score representing higher acceptability. The research

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interest lies in exploring whether respondents' evaluation relates to any of the social factors in the demographic section. In the following subsections, the analysis of the evaluation will be conducted factor by factor.

3.1. **Gender.** Figure A.2 is a violin plot used to visualize the distribution of respondents' acceptability towards the use of anglicism. To understand the violin plot, on each side of the line is a kernel density estimation that shows the distribution shape of the data. Wider sections of the violin plot represent a higher probability that members of the population will take on the given value, and the skinnier sections represent a lower probability. Figure A.2 shows that both genders share a very similar pattern. Later, a two-sample t-test ($p = 0.8804$) confirms that overall there does not exist a significant difference between the two genders (female and male). Further correlation analysis is conducted for each sentence, and again no significant correlation is found between gender and the evaluation as well.

3.2. **Age.** For the age of respondents, we are curious whether the use of anglicism would be more welcomed by younger people or elder people. After taking the average of the evaluation scores, the association between age and the overall evaluation results is tested with Kendall's correlation coefficient, which reveals there is significant negative correlation between respondents' age and their attitudes ($r = 0.55$; $p < 2.2e - 16$). In other words, older respondents' attitudes towards anglicisms tend to be more negative. In addition, the correlation is further examined sentence by sentence. With results summarized in Table B.3, we can see that the strength of negative correlation varies across sentence. Statistically, the strength of correlation can be assessed using the following guideline in B.4. From there, we have:

- **Moderate correlation**
  - Ça m'a dead.
  - As-tu get la fille?
- **Weak correlation**
  - Je vais aller me get une bière au dép.
  - Mon jeu vient de crash.
  - On n'a pas give up.
  - J'vais share mon écran.
  - Il a été cancel.

For the rest of sentences, the correlation is very weak or even ignorable.

3.3. **Place Growing up.** Considering the potential relationship between locations and the attitudes towards anglicisms, we also explore the variation in the attitudes of people growing up different cities/towns. It is demonstrated in Figure A.4 that the kernel density of three groups *Montréal*, *Sherbrooke*, and *others* is very similar in shape, but respondents growing up in Québec chose the option "totally unacceptable" (encoding as 2) much more frequently compared to other groups. To verify whether the observed difference is statistically significant, we implement analysis of variance (ANOVA) over the grouped evaluation scores, which assesses the differences among group means by testing whether the means of at least two populations are different. After obtaining significant result in ANOVA ($p = 2.25e - 06$), we run Tukey's tests to find out which specific groups's means (comparing with each other) are different. The results in Table B.5 show that respondents growing in Montréal hold significantly more positive attitudes towards anglicism compared to those who grew up in Québec and cities categorized as "other"; respondents growing up in Sherbrooke rate anglicism significantly lower than those who grew up in Québec and other places; also people growing in Québec rate anglicism accepts significantly less anglicisms than people growing up in all other places; and the difference between the group of "Montréal" and "Sherbrooke" is not significant.

3.4. **Place Living in.** Other than childhood locations, the cities/towns that respondents currently are living in are also investigated. Figure A.3 shows that respondents living in Québec rate more sentences as unacceptable compared to other groups. By contrast, respondents from Sherbrooke give out fewest unacceptable ratings. Since the data of current residence does not satisfy the assumptions of ANOVA, the statistical test used for verifying the empirical findings would be a Kruskal Wallis test and Dunn's tests (posthoc). With the significant result from Kruskal Wallis test ($p = 5.93e - 06$), Dunn's tests find that the use of anglicism is significantly less acceptable to people living in Québec than those who are living in Montréal, Sherbrooke and other locations. Again, there is no significant difference between the residents of Montréal and Sherbrooke. More details about the posthoc analysis can be found in Table B.6.

3.5. **English Proficiency.** Since a common example of anglicism is using words borrowed form English, to what extend English impacts how people speak French may depend on how proficient they are in English. Excluding one person who does not speak English, respondents are grouped into four self-reported proficiency groups: beginner, intermediate, advanced, and English as first language. It is shown in Figure A.5 that surprisingly beginners and people with English as first languages rate anglicism as unacceptable less frequently compared to another two groups. In addition, respondents in the group of intermediate and advanced share approximately similar pattern except that people at advanced English proficiency selected the option "totally acceptable" more frequently. Since the variable English proficiency is ordinal, four levels are encoded as follows: 1 - beginner, 2 - intermediate, 3 - advanced, and 4 - English as first languages. Performing correlation analysis on encoded English proficiency and evaluation scores, we know that English proficiency are significantly correlated ($p = 0.0002$) with the attitude towards anglicisms, despite that the correlation is very weak ($r = 0.120$) based on Table B.4.

3.6. **Education Level.** The last social factor of interest would be the education level of respondents. Empirically, Figure A.6 shows that respondents from universities present far more negative attitudes towards anglicisms compared to other groups; the rating patterns of respondents from high schools and teaching colleges are alike; and the rating behavior of respondents with the background of professional training is not obvious due to its small sample size. Following the same methodology as the analysis of current residence, ANOVA is used to identify the existence of significant different and Tukey's method is used for posthoc pairwise comparisons. Along with the important results ($p = 2.52e - 19$) from ANOVA, the outcomes of Tukey's method is reported in B.7. The outcomes indicate that anglicism is significantly less acceptable to respondents educated at universities than those whose education levels are either high school or teaching college. Otherwise, no significant difference related to professional training is found.

4. Analysis of Different Uses of Anglicisms

When it comes to the part II of the survey, ten pairs of sentences were given and survey participants were asked to choose the sentence(s) that they would use. Within each pair, two sentences have a similar meaning, but they are of different uses of anglicism (one is an innovative use of anglicism, and the other is more traditional). There are two research questions that we will explore in this section:

(1) How many people used each of these sentences?
(2) Does the use of the innovative forms correlate with any of the social factors?

Before starting the analyses, the responses to each pair of sentences are sorted as follows:

- **neither**: use neither of the provided sentences
- **both**: use both of the provided sentences
- **innovative**: only use the innovative form
- **traditional**: only use the more tradition form

Please note than the free-text responses of other usages are not included in the analyses.

4.1. **Frequency of Using Different Forms of Anglicism.** To see how many people used each of these sentences, the count and percentage of different choices for each sentence are summarized in Table B.8, and for a clearer demonstration, the proportions are visualized in Figure A.7. From Figure A.7, we can see that the innovative forms are particularly widely-used in the pair of *enjoy/enjoyé*, *kick/kické*, and *pass/passé*, and for the rest, traditional forms appear to be more dominant. Especially in the pairs of *ghost/ghosté* and *skip/skipé*, no respondents would use the provided innovative forms.

4.2. **Relation between the Use of Innovative Forms of Anglicism and Different Social Factors.** Since the second research question in this section mainly focuses on the use of innovation forms, four levels of response data will be merged into two levels: using innovation forms (innovation and both) and not using innovation forms (traditional and neither). we will explore the same set of social factors as section 3 with the frequency that each respondent uses innovation forms among ten sentences. Stating from gender, no significant difference is found between two genders from two-sample t-test ($p = 0.966$) and no significant association exists between gender and the use of innovation forms ($r = -0.0017$; $p = 0.964$). For the age of respondents, a strong negative association with statistical significance is found to exist between age and the use of innovative anglicisms. In other words, younger people are more likely to use sentences with innovative forms of anglicism.

For two location-related social factors, they are both categorized into four groups after removing missing values: Québec, Sherbrooke, Montréal, and other. Statistical tests are implemented to seek significant differences in the use of anglicisms among the four groups. Grouping by the cities/town that respondents were growing up, ANOVA discovers the existence of significant differences ($p = 2.86e - 16$). Examining the results of posthoc analysis using Tukey's method in Table B.9, we get to know that respondents growing up in Québec use innovative form significantly less than people not growing in Québec. Taking a closer look at the response data grouped by places growing up at Figure A.8, we can see that most people who grew up in Québec rarely use innovative forms: no people use more than five innovative forms and the probability of using none of the innovative forms is particularly high. By contrast, people growing up in Montréal use innovative forms significantly more often than other people, which can be observed in A.8 as well. When it comes to the cities/towns they currently live in, the observations and test findings are aligned with those in the analysis of places growing up. Figure A.9 and Table B.9 together demonstrate that respondents of Montréal use significantly more innovative forms than other groups, and innovative forms are used significantly less by people living in Québec than those who are not living in Québec.

Another two social factors of interest would be English proficiency and education level. It is shown in Figure A.10 that only intermediate speakers and advanced speakers use innovative forms in more than seven sentences. Having the use of three innovative forms as a cutoff, most people use less than three innovative forms in the group of beginners, while most people in the group of English being first-language use more than three innovative forms. However, the correlation analysis tells that there is no association between English proficiency and the use of innovative forms ($r = 0.06$, $p = 0.037$), and ANOVA finds no significant difference existing among the four groups ($p = 0.078$). Despite the lack of significance, the differences shown in the graphs still need to be aware. As for the education level, Figure A.11 shows that respondents from universities appear to use innovative forms far less than people with other different educations backgrounds, and these differences are confirmed by the Kruskal Wallis test ($p = 5.87e - 24$) and posthoc Dunn's tests (Table B.11). Otherwise, no other significant difference can be found between groups.

5. **Conclusion and Discussion**

Based on the results from the analysis of the evaluation of the use of anglicism, we see that there is no gender difference existing in the attitudes towards anglicisms. Speaking of age, in general younger people hold significantly more positive attitudes towards anglicisms. However, after having a more careful examination of the correlation sentence by sentence, the negative association only exists in certain sentences and is with different magnitudes. For two location-based factors, it appears that anglicisms are significantly less acceptable to respondents who either grew up or live in Québec. Meanwhile, there is no significant difference between people who live in/grew up in Montréal and those who are from Sherbrooke. For English proficiency, a very weak association is found between to what extent respondents are proficient in English and their attitudes towards anglicism. For education level, anglicisms are significantly less acceptable to respondents educated at universities compared to other groups. The non-significant relationship between the group of university graduates and training college graduates is neither informative nor reliable because the small sample size of training college graduates may not be representative of the training college population.

Talking about the frequency of using innovative forms, innovation forms and traditional forms earn preferences in different sentences respectively. Furthermore, the findings here are mostly aligned with the results from the analysis of the use of anglicism above (except for English proficiency): no significant association is found between the use of innovative forms and gender/English proficiency. In addition, respondents growing up or living in Québec appear to use significantly less innovative forms of anglicisms, as well as respondents who were educated at universities.

In summary, the analyses we have conducted indicate that respondents' perspective and their use of anglicisms differ by specific contexts. No significant impact from gender and almost no impact from English proficiency are found, while age, location, and education background are important social factors associated the use of anglicisms. From these findings we may infer that people who may not favor the use of anglicism would have the following characteristics: greater age, highest education level being university, or growing up/living in Québec.

Appendix A. Figures

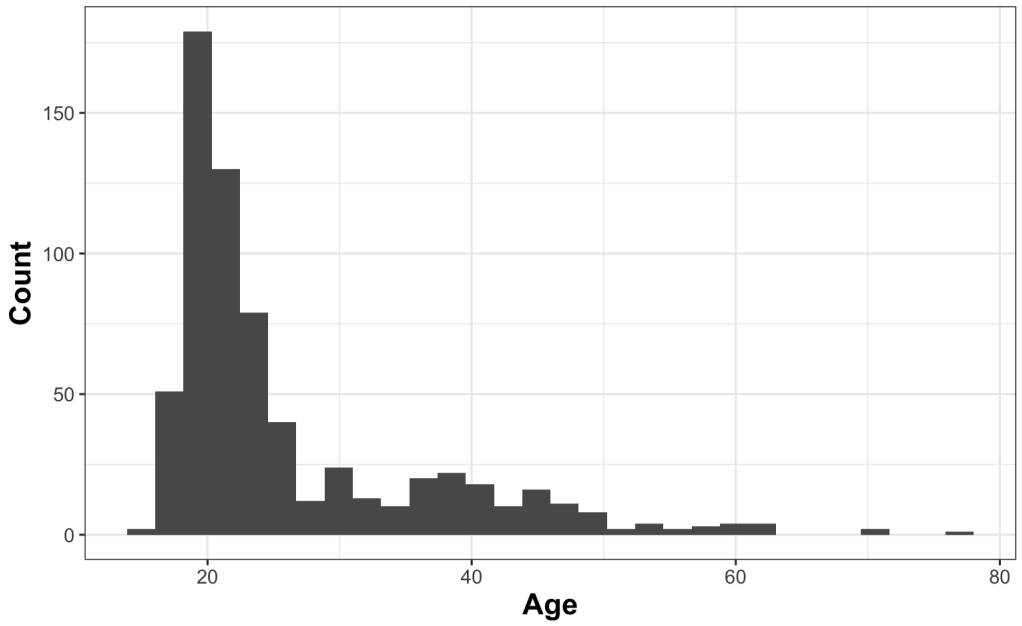

Figure A.1. Distribution of Respondents' Age

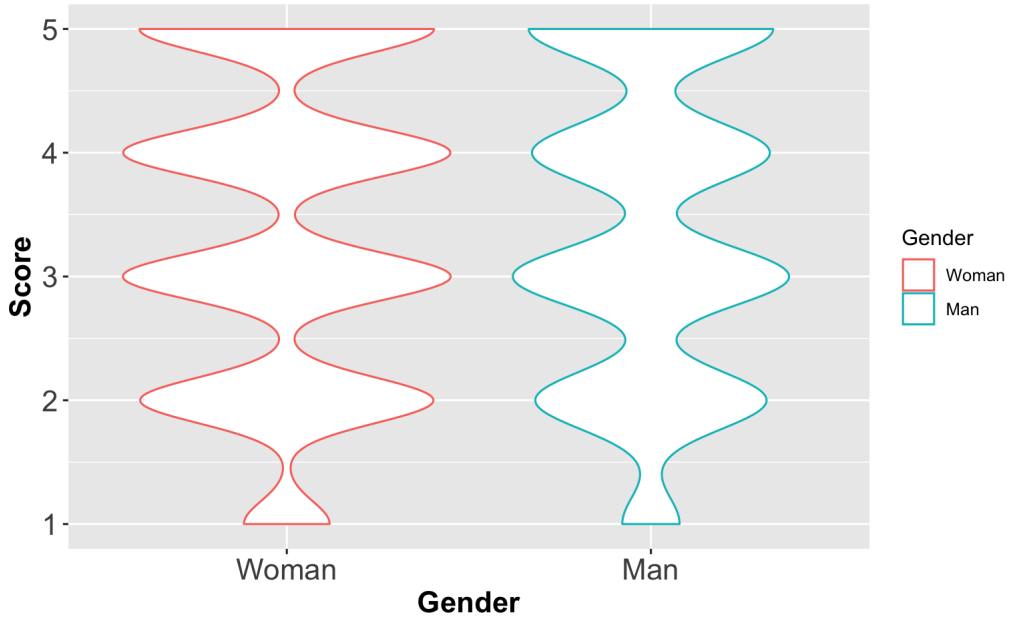

Figure A.2. Evaluation of the Use of Anglicism by Gender

FIGURE A.3. Evaluation of the Use of Anglicism by City/Town Living in

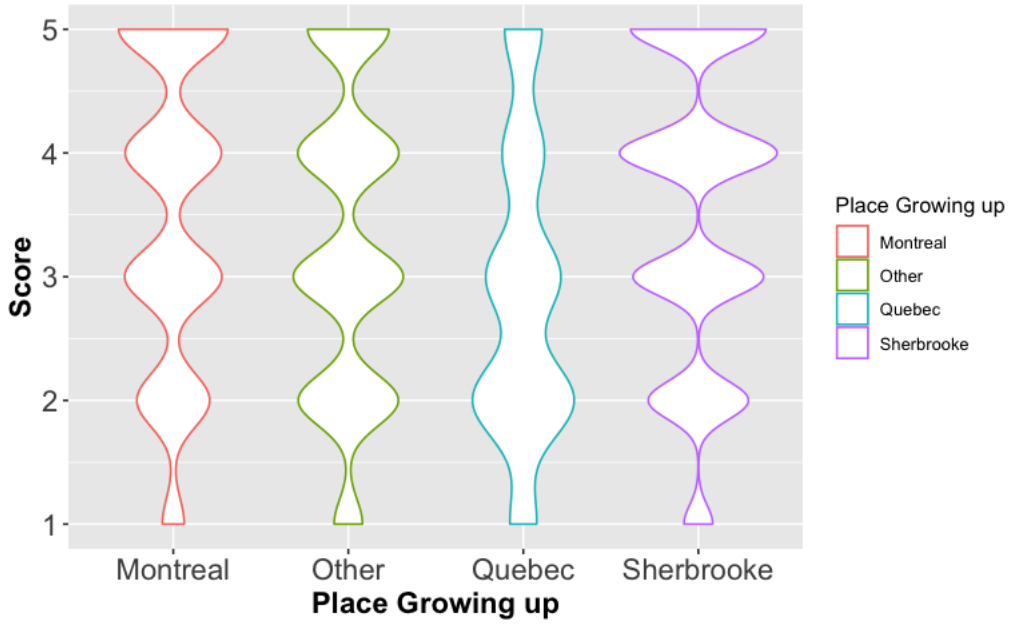

FIGURE A.4. Evaluation of the Use of Anglicism by City/Town Growing up

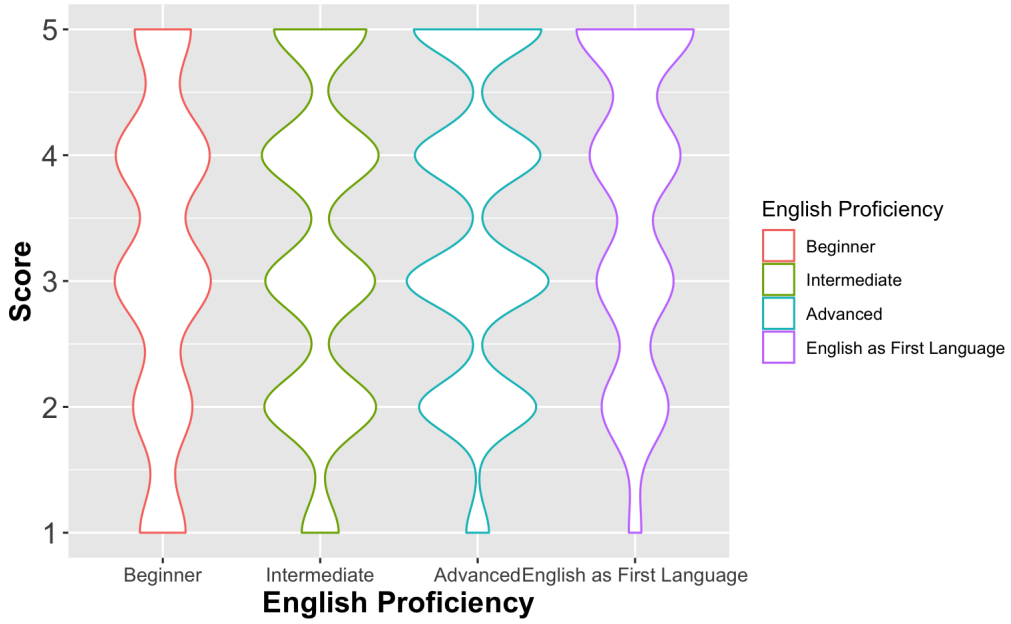

FIGURE A.5. Evaluation of the Use of Anglicism by English Proficiency

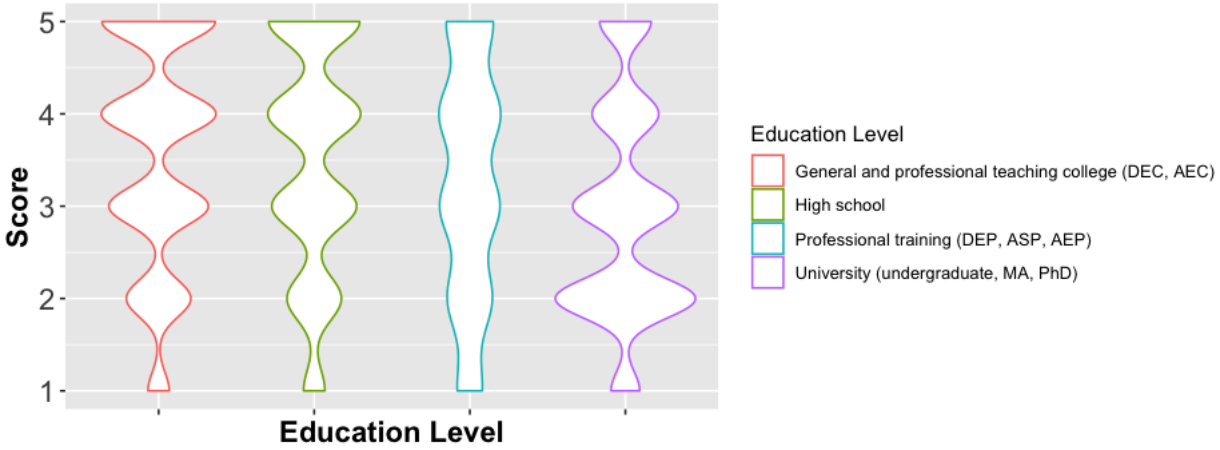

FIGURE A.6. Evaluation of the Use of Anglicism by Education Level

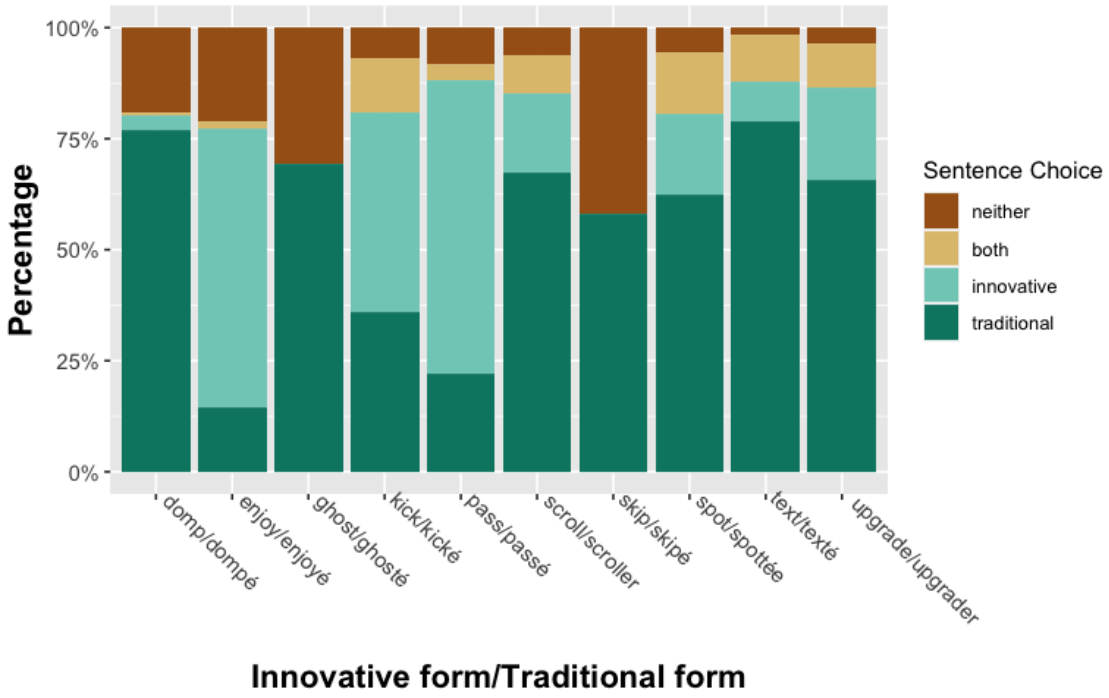

FIGURE A.7. Percentage of Use of Different Anglicism in Each Pair of Sentences

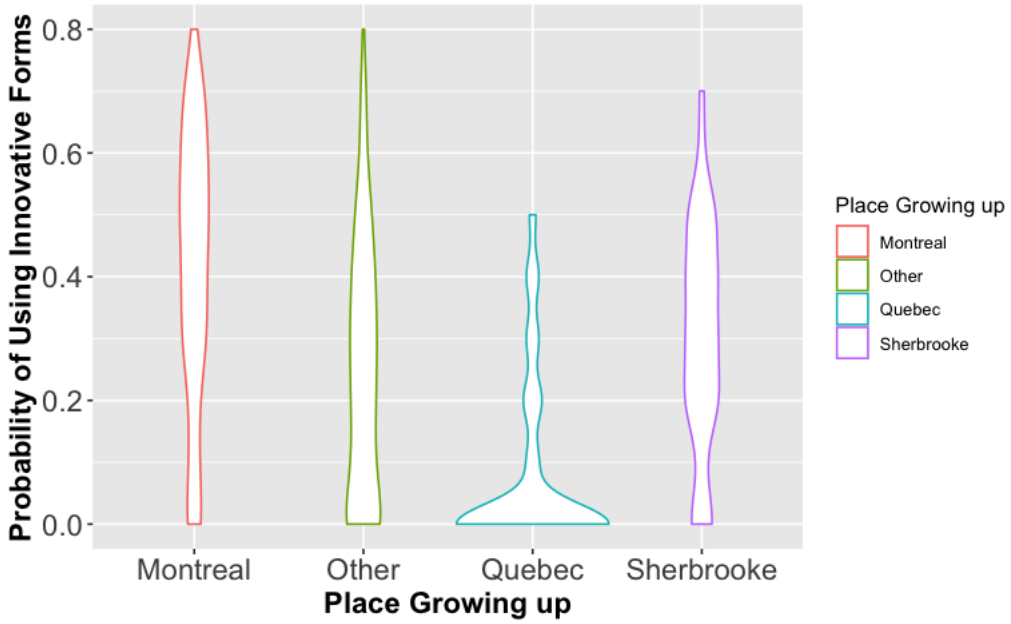

FIGURE A.8. Frequency of Using Innovative Forms by Place Growing up

FIGURE A.9. Frequency of Using Innovative Forms by Place Living in

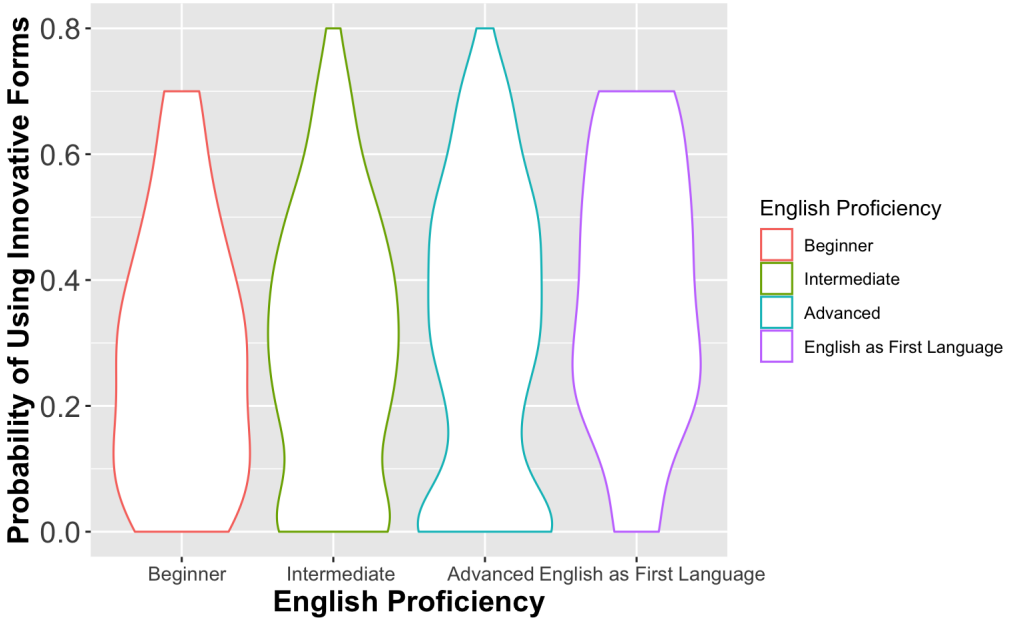

FIGURE A.10. Frequency of Using Innovative Forms by English Proficiency

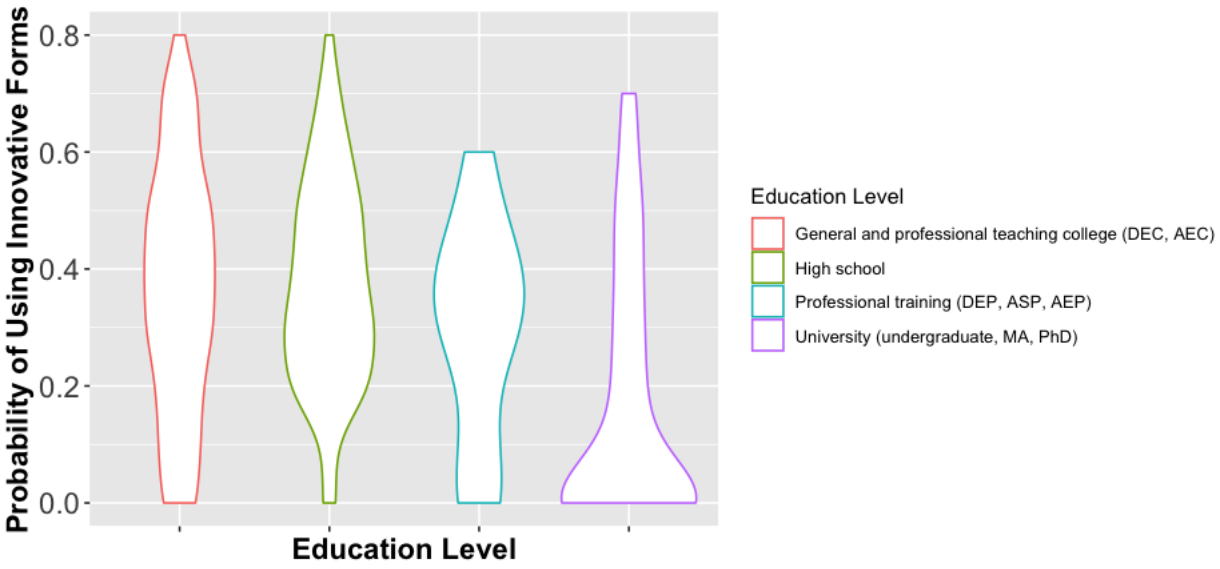

FIGURE A.11. Frequency of Using Innovative Forms by Education Level

Appendix B. Tables

Education Level	Count	Proportion
Primary school	1	0.1%
High school	135	20.0%
Professional training (DEP, ASP, AEP)	23	3.4%
General and professional teaching college (DEC, AEC)	308	45.6%
University (undergraduate, MA, PhD)	207	30.7%
I prefer not to answer	1	0.1%

Table B.1. Summary Statistics of Education Level

English Proficiency	Count	Proportion
Don't speak English	1	0.15%
Beginner	54	8.06%
Intermediate	217	32.39%
Advanced	345	51.49%
English as First Language	53	7.91%
I prefer not to answer	1	0.1%

Table B.2. Summary Statistics of English Proficiency

Sentence	Coefficient	P-Value
Sentence 1	-0.35	6.880810e-40
Sentence 2	-0.38	4.559460e-58
Sentence 3	-0.16	5.168322e-09
Sentence 4	-0.30	1.284686e-34
Sentence 5	-0.31	2.099005e-44
Sentence 6	-0.42	1.305976e-66
Sentence 7	-0.19	7.946128e-13
Sentence 8	-0.14	5.548095e-08
Sentence 9	-0.28	2.761455e-37
Sentence 10	-0.09	5.403982e-07
Sentence 11	-0.19	2.522060e-13
Sentence 12	-0.37	2.848353e-48
Sentence 13	-0.18	1.094225e-11
Sentence 14	-0.11	5.442198e-09
Sentence 15	-0.41	5.568319e-51

Table B.3. Attitudes towards the Use of Anglicisms: Correlation Analysis of Evaluation and Age by Sentence

Correlation Coefficient	Rough Explaination
0.0 - 0.2	Very weak or no association
0.2 - 0.4	Weak association
0.4 - 0.6	Moderate association
0.6 - 0.8	Strong association
0.8 - 1.0	Very strong association
1.0	Perfect negative association

TABLE B.4. Guideline of Describing Correlation Coefficient

Group 1	Group 2	Estimate	Adjusted P-Value
Montréal	Other	-0.24	1.59e-03
Montréal	Québec	-0.62	6.54e-05
Montréal	Sherbrooke	-0.01	9.98e-01
Other	Québec	-0.38	3.40e-02
Other	Sherbrooke	0.23	4.30e-02
Québec	Sherbrooke	0.61	3.86e-04

TABLE B.5. Attitudes towards the Use of Anglicisms: Results of Tukey's Test on Place Growing up

Group 1	Group 2	Estimate of Group 1	Estimate of Group 2	Adjusted P-Value
Montréal	Other	351.81	313.13	5.45e-02
Montréal	Québec	351.81	236.12	1.61e-04
Montréal	Sherbrooke	351.81	378.76	2.01e-01
Other	Québec	313.13	236.12	1.77e-02
Other	Sherbrooke	313.13	378.76	8.15e-03
Québec	Sherbrooke	236.12	378.76	1.54e-05

TABLE B.6. Attitudes towards the Use of Anglicisms: Results of Dunn's Test on Living Locations

Group 1	Group 2	Estimate	Adjusted P-Value
Teaching College	High School	-0.05	0.914
Teaching College	Professional Training	-0.31	0.203
Teaching College	University	-0.62	0.000
High School	Professional Training	-0.26	0.390
High School	University	-0.57	0.000
Professional Training	University	-0.31	0.220

TABLE B.7. Attitudes towards the Use of Anglicisms: Results of Tukey's Test on Education Level

Pair of Sentence	Both	Innovative	Neither	Traditional
domp/dompé	6 (1%)	21 (3%)	128 (19%)	520 (77%)
scroll/scroller	58 (9%)	120 (18%)	43 (6%)	454 (67%)
enjoy/enjoyé	10 (1%)	423 (63%)	143 (21%)	97 (14%)
text/texté	72 (11%)	61 (9%)	10 (1%)	532 (79%)
ghost/ghosté	207 (31%)	467 (69%)	207 (31%)	467 (69%)
skip/skipé	282 (42%)	393 (58%)	282 (42%)	393 (58%)
pass/passé	24 (4%)	446 (66%)	55 (8%)	148 (22%)
kick/ické	84 (12%)	303 (45%)	46 (7%)	242 (36%)
upgrade/upgrader	66 (10%)	142 (21%)	24 (4%)	442 (66%)
spot/spottée	94 (14%)	121 (18%)	38 (6%)	422 (63%)

TABLE B.8. Summary of the Use of Different Anglicism in Each Sentence

Group 1	Group 2	Estimate	Adjusted P-value
Montréal	Other	-0.16	0.00e+00
Montréal	Québec	-0.33	0.00e+00
Montréal	Sherbrooke	-0.11	5.01e-05
Other	Québec	-0.17	2.03e-05
Other	Sherbrooke	0.05	1.21e-01
Québec	Sherbrooke	0.22	2.13e-07

TABLE B.9. Use of Innovative Forms: Results of Tukey's Test on Place Growing up

Group 1	Group 2	Estimate	Adjusted P-value
Montréal	Other	-0.12	2.40e-09
Montréal	Québec	-0.24	0.00e+00
Montréal	Sherbrooke	-0.06	3.86e-02
Other	Québec	-0.12	5.95e-04
Other	Sherbrooke	0.06	5.58e-02
Québec	Sherbrooke	0.18	6.03e-07

TABLE B.10. Use of Innovative Forms: Results of Tukey's Test on Place Living in

Group 1	Group 2	Estimate 1	Estimate 2	Adjusted P-value
Teaching College	High school	385.63	393.46	6.92e-01
Teaching College	Professional Training	385.63	331.20	4.44e-01
Teaching College	University	385.63	217.81	1.23e-21
High school	Professional Training	393.46	331.20	4.43e-01
High school	University	393.46	217.81	5.85e-16
Professional Training	University	331.20	217.81	2.74e-02

TABLE B.11. Use of Innovative Forms: Results of Tukey's Test on Education Level