# BUSUU SIX-LANGUAGE EFFICACY STUDY

# 2025

## **RESEARCH TEAM**

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#### **EXECUTIVE SUMMARY**

The Research Team independently conducted this study from July to December 2024. A random representative sample of 1205 Busuu users participated in the study.

The participants took one set of language vocabulary/grammar and oral proficiency tests in the beginning of the study, then studied foreign language with Busuu for two months and took the same tests again. Six study languages were included: English, French, German, Italian, Spanish, and Japanese and 3 different Busuu versions: Free version, Busuu Premium only, and Busuu Premium and Live Lessons.

#### **MAIN RESULTS**

#### **Overall Vocabulary/Grammar Proficiency Gain:**

- 63.1% of all participants improved their vocabulary/ grammar proficiency.
- Novice users need on average 15.6 hours of study in a two-month period to cover the requirements for the first college semester of language placement.

#### **Overall Oral Proficiency Gain:**

 72.5% of all study participants with 8 or more hours of study improved their oral proficiency.

# Both Vocabulary/Grammar and Oral Proficiency Gain:

 88.7% of all participants improved either their vocabulary/grammar or oral proficiency, or both.

#### **Busuu Version Groups Comparison:**

- Premium version is better than Free version for both vocabulary/grammar and oral proficiency.
- Premium Only version is slightly better than Premium and Live Lessons version for language proficiency. The reason is that live lessons have threshold for effect; users need to take at least 1.25 live lessons a week to receive significant improvement in proficiency.

# Most Important Factors for Language Proficiency Improvement

- Initial language proficiency level: beginner/novice users gain proficiency faster than more advanced learners.
- Increased study time is beneficial to language proficiency gain. Machine learning model determined the threshold of at least 1 hour a week for better chances of oral proficiency improvement.
- Taking at least 1.25 live lessons per week improves the oral proficiency gain.
- Taking any AI Speaking lessons is beneficial for improving oral proficiency. There is a threshold of the number of AI Speaking lessons: doing 1-6 lessons is beneficial for improving but more than 6 is not (for 8 weeks period).

#### **User Satisfaction:**

- Most participants thought that Busuu was: easy to use (96.1%), helpful (93.2%), enjoyable (94.0%), and satisfying (88.8%).
- Busuu received a positive Net Promoter Score of +56.9 from the participants.
- Participants' motivation was very high with average level of 76%.

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#### INTRODUCTION

This is the 16th study of the Research Team testing the efficacy of different language learning apps (Vesselinov et al., 2009-2023). Our previous studies² evaluated Rosetta Stone, Duolingo, Busuu, Babbel, Mango Languages, Pimsleur, Hello English, italki, and Language Zen. Statistical design and methodology are comparable for all studies. This study was designed to evaluate the efficacy of Busuu.

The cost for this study was covered by Busuu, but the data collection and the analysis were carried out independently by the Research Team. The language tests used in the study were designed and developed by an external independent testing company<sup>3</sup>.

#### **RESEARCH DESIGN**

The random sample for this study was drawn from existing Busuu users from around the world. There were some requirements for the potential participants who had to:

- be willing to study one foreign language (English, French, German, Italian, Spanish, or Japanese) using only Busuu for two months.
- take two sets of vocabulary/grammar and oral proficiency language tests.
- be at least 18 years of age.

#### Sample Size and Power Analysis

We based our power and sample calculations on the typical results from our previous studies. We designed the study to test the hypothesis of proportions of 0.6 or more for statistical significance, corresponding to the lowest expected proportion of participants that improve their oral proficiency. We considered a 5% statistical significance level (Alpha=0.05) and at least 80% statistical power. Under these assumptions we would need a sample of 40 people or more to test for statistical significance of improvement. Our initial sample size was set to 150 per study group to reflect possible dropouts from the study and reduce the impact of outliers.

Six study languages were selected for this study: English, French, German, Italian, Spanish, and Japanese. Our previous research was mostly on Spanish for other language learning apps (Vesselinov et al., 2009-2023<sup>4</sup>).

The study lasted approximately 8 weeks and was conducted between July and December 2024. Participants who successfully completed the study were given 12 months free Busuu Premium subscription, or 6-months for 2 people. No other incentives were offered to the participants.

#### STUDY INSTRUMENTS

# Test 1. WebCAPE: Vocabulary/Grammar Proficiency

We used a college placement test called the Web based Computer Adaptive Placement Exam (WebCAPE). This is an established university placement test and is offered in English, Spanish, French, German, Russian and Chinese. It was created by Brigham Young University and is hosted by Emmersion Learning<sup>5</sup>.

The WebCAPE test has a very high validity correlation coefficient (0.91) and a very high reliability (test-retest) value of 0.816. The test is adaptive so the time for taking the test varies with an average time of 20-25 minutes. The WebCAPE test gives a score (in points) and, based on that score places the students in different group levels (college semesters; see **Table 1**).

**Table 1. Spanish WebCAPE Test Cut-off Points** 

WebCAPE Test Points	College Semester Placement
0 - 2697	Semester 1
270 – 345	Semester 2
346 - 428	Semester 3
429 – 1000	Semester 4+

#### Test 2. TrueNorth Proficiency Test (TNT)<sup>8</sup>

This is a recently developed oral proficiency test based on Elicited Imitation (EI) as a testing method in which participants hear an utterance in the target language and are prompted to repeat the utterance as accurately as possible. The TNT test gives an incremental score from 0.0 to 10.0 with 0 being the lowest level and 10 being the highest.

<sup>2.</sup> http://comparelanguageapps.com/

<sup>3.</sup> https://emmersion.ai/

<sup>4.</sup> Except Hello English study in 2017, and TNT study in 2020.

<sup>5.</sup> Currently at https://emmersion.ai/.

<sup>6.</sup> Personal correspondence with Dr. Jerry Larson, Professor of Spanish Pedagogy at Brigham Young University.

<sup>7.</sup> The same threshold of 270 points was used for all our previous language studies (Vesselinov et al., 2001-2023).

<sup>8.</sup> Currently at https://emmersion.ai/

#### **EFFICACY MEASURE**

The WebCAPE and TNT scores alone cannot give a clear picture of the efficacy of a language learning app because they do not account for the time spent studying. We are therefore relying on a direct and objective measure of efficacy, which is defined as follows:

$$Efficacy = \frac{Effect}{Effort} = \frac{Improvement of language skills}{Study time} = \frac{Final-Initial test score}{Hours of study}$$

$$Efficacy = Improvement per one hour of study.$$

Separate efficacy measures will be computed for vocabulary/grammar and oral proficiency.

The efficacy measure includes both the amount of progress made and the amount of effort invested by each study participant. This is a direct and objective measure of efficacy: direct, because it directly includes the effect and the effort; objective, because the effect is measured by independent language tests (instead of our own test) and the effort is measured by the time recorded on computer servers (instead of self-report).

#### STATISTICAL METHODS

Descriptive statistics were reported as means and standard deviations for most continuous measures, and number and percent for categorical variables. For some continuous measures with extreme values, we report the median and the first (Q1) and third (Q3) quartile.

Chi-square test and Fisher's exact test were used to test for difference in proportions and relationships between two categorical variables. Standard 95% Confidence Intervals (CI) were built for the means and for the 95% CI for proportions we used the Agresti-Coull correction (Agresti & Coull, 1998). Simple linear regression was used for presenting the effect of the initial language proficiency level.

Machine Learning (ML) techniques, specifically the Classification and Regression Tree (CART) models were used to determine the cut-off points for the effect of some continuous variables like the number of live lessons taken, etc. CART is a nonparametric recursive partitioning method, and it uses 10-fold cross validation to prevent the overfitting of the data.

#### **STUDY SAMPLE**

This study started in July of 2024 when emails were sent to existing Busuu users with an invitation to participate in a language study for two months. They were directed to an online survey designed by the Research Team. This survey collected demographic information, and self-evaluation of their language proficiency level. We received complete responses from 8105 people which constituted the initial pool for the study (see Figure 1). From this pool we excluded people who lived in the study language-speaking countries or were younger than 18 years of age; the remainder formed the eligible pool (N=6582) for this study.

We randomly selected 1800 people from the eligible pool of participants and 1635 of them completed the initial language tests; they constituted our initial random sample (N=1635). The Busuu study continued for approximately two months (8 weeks), starting first with the English group, followed by the other language groups. During the study, the Research Team sent weekly e-mail reminders to the participants with information detailing the amount of time they had used Busuu each week. The final study sample consisted of 1205 people who had taken at least one of the final language tests.

All participants were instructed at the beginning of the study that they could use only Busuu to study one foreign language for the duration of the study. Occasional use of translation websites and internet dictionaries was allowed in this study as part of the usual learning process. In the exit survey some participants reported regularly using additional language apps, tutors, or language courses, and their results were excluded from the analysis (about 50 cases).

# FINAL STUDY SAMPLE VERSUS NOT COMPLETED

From the initial random sample (N=1635), 430 people (28.1%) did not complete the study because they did not take the final tests. This dropout rate is below the average in this line of research (Vesselinov et al., 2009-2023).

We compared the two groups, the final sample of 1205 people and the 430 people who did not complete the study by gender, age and initial knowledge of the study language. There were no statistically significant differences (at p<0.05), which means that participants who did not complete the study were not very different from the ones that did.

8583 people Viewed invitation page 8105 people 478 people **Initial Pool** Did not complete Entry Survey Completed Entry Survey 6582 people 1523 people **Eligible Pool** Ineligible Eligible 1635 people 4947 people **Initial Random Sample** Not selected Completed initial test 430 people 1205 people **Final Sample** Did Not Complete (dropped)

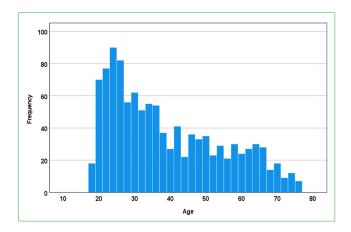
**Figure 1. Busuu Sample Selection Tree** 

#### **SAMPLE DESCRIPTION**

In the final study sample (N=1205°), 43.1% were Female and 56.1% were Male. The age of participants varied from 18 to 75 years of age, with a mean age of 38.5 years (Figure 2). About 18% of the participants had a High School diploma or equivalent; about 30% had some college but did not graduate, and 52% had college undergraduate or graduate degree (BA, MA, MD, JD, or PhD).

<sup>9.</sup> Some participants declined to answer some survey questions, so the number of observations can vary.

Figure 2. Age Distribution (N=1205)



The participants in the final sample included people from 97 countries (see Appendix, Table A1). The largest group was from the U.S. (112, 9.3%), followed by Brazil (103, 8.5%), Mexico (80, 6.6%), Germany (70, 5.8%), Poland (66, 5.5%), UK (61, 5.1%), etc.

About 29% of the participants had a spouse, partner, or close friend who spoke the study language and about 9% had had parents, grandparents, or greatgrandparents who spoke the study language.

About 70% of the final sample declared that they could converse in another language. About 27% of the participants had lived in a foreign language country for more than 6 months. The primary reason for studying foreign language was personal interest (55%), followed by business/work (19%), travel (13%), school (9%), and other reason (3%).

Participants' employment was very diverse: Full Time (37%), Part Time (7%), retired (10%), students (21%), etc. (see Appendix, Table A2.)

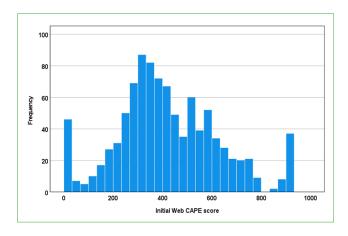
#### **INITIAL LANGUAGE TESTS**

# Test 1. Vocabulary/Grammar proficiency: WebCAPE

All participants<sup>10</sup> took an initial vocabulary/grammar proficiency test (WebCAPE) and the results are as follows<sup>11</sup>.

As expected, a small portion of the participants had a very low WebCAPE score. The overall median WebCAPE score was 390 (Q1=290<sup>12</sup>, Q3=560) which is well above second college semester threshold (WebCAPE=275).

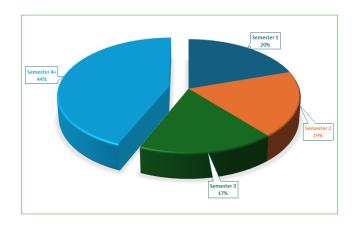
Figure 3. Initial WebCAPE Score (N=985)



The initial WebCAPE semester level of the participants is presented on the figure below.

More than half (61%) of the participants were intermediate to advanced level (Semesters 3 and 4+).

Figure 4. Initial WebCAPE College Semester Placement



#### **Test 2. Oral Proficiency:**

#### **TNT Score.**

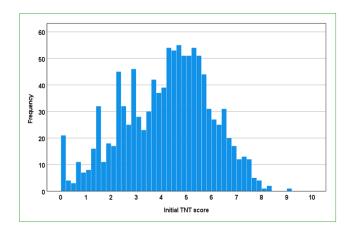
The TNT score can vary from 0.0 to 10.0, and the initial test scores ranged from 0.1 to 9.1. The overall median value was 4.4 (Q1=2.9, Q3=5.4).

<sup>10.</sup> There is no WebCAPE test available for Japanese.

<sup>11.</sup> The English test score was rescaled from 0-10 to 0-1000 to match the WebCAPE for the other language groups.

<sup>12.</sup> Q1= First Quartile (25%), Q3= Third Quartile (75%).

Figure 5. Oral Proficiency: **Initial TNT Score (N=1109)** 



#### **MOTIVATION**

All participants completed a motivation survey to evaluate their motivation level.

We adopted a motivation scale approach based on the second language (L2) motivational self-system (Dörnyei, 2005, 2009), which stems from the concepts of possible selves and self-discrepancy theory. The model proposes that language learners are guided by visions of 'second language selves', one which attracts them toward becoming an idealized L2 user (ideal L2 self) and one which motivates them from societal obligation or a fear of failure (ought-to L2 self).

In our study we used 33 question/6 factor version of the L2 Motivational Self System created by Kong et al. (2018). Kong et al. (2018) offer the following descriptions of the motivation scale elements:

- 1. Ideal L2 self: "The ideal L2 self refers to a positive future image of the L2 self. For example, learners who have developed a vivid ideal L2 self are likely to endeavor to learn an L2 by imagining themselves communicating fluently using the L2 in the future."
- 2. Ought-to L2 self: "(This element) pushes people from societal obligation or a fear of failure."
- 3. International posture: "It captures a tendency to relate oneself to the international community rather than any specific L2 group. The key characteristics of international posture are described as an interest in global issues or international affairs, a willingness to travel, stay, or work abroad, and a readiness to interact with foreigners or foreign cultures."

Competitiveness: "Competitiveness can be described as the desire to excel in comparison to others and contends that a learner constantly compares oneself with one's idealized self-image or with other learners, feels pressured to out-do other students."

- 5. L2 learning Experience or Attitudes: "L2 learning experience is related to the learners' environment including teachers, peer groups, curriculum, and their attitudes toward L2 learning."
- 6. Learners' Intended Effort or Motivated Behavior in L2 Learning: This motivation element evaluates how much effort users are determined to make and how hard they are ready to study.

The scale dimensions were recoded, so the maximum motivation is equal to 100.

The average level of overall motivation was high (Median=76%). From the motivation elements, the highest average level (85%) belongs to "Learning Attitude" which indicates that the participants were extremely eager to learn a new language and "Ideal Self" which indicates a positive future image of themselves. The element "Ought-to-Self" has the lowest motivation level of all (54%) which suggests that the participants were not very afraid of failure, or they were not that susceptible to pressure from societal obligation.

Figure 6. Overall Motivation Level (N=894)

# Percent

Table 2. Motivation Levels (N=894) %

Motivation Dimensions	1 <sup>st</sup> Quartile <sup>13</sup>	Median <sup>14</sup>	3 <sup>rd</sup> Quartile <sup>15</sup>
1. Ideal Self	70	85	95
2. Ought-to-Self	40	54	69
3. International Posture	67	77	83
4. Competitiveness	67	77	87
5. Learning Attitude	80	85	95
6. Intended Effort	70	80	88
Overall Motivation	68	76	83

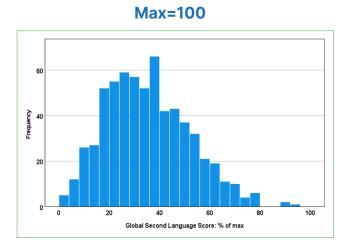
# SECOND LANGUAGE PROFILE

We asked participants to complete an adapted version of the Bilingual Language Profile (Birdsong et al., 2012) for their second (foreign) language. The profile provides a Global Language Score (GLS) for foreign languages spoken by the participants. GLS is based on separate modules for evaluating language history, language use, language proficiency and language attitudes. GLS can vary from 0 to 218, and we rescaled it, so the maximum GLS is equal to 100.

A GLS score of 218 (or rescaled as 100) in English would be appropriate for participants born into an English-speaking family, in an English-speaking country, who started studying English immediately, for whom all classes at school were in English, who speak only English all the time with family, friends, and at work. Their language history and language use are entirely English- based. They feel totally proficient in English, and they identify themselves with an English-speaking culture.

More than 600 participants felt confident of their knowledge of a second language and completed the GLS questionnaire, and the results are shown below.

Figure 7. Second Language Profile (N=639)



The median GLS score for second language was 34.2 (Q1=23, Q3=47) which corresponds to the intermediate level proficiency.

#### **STUDY TIME**

We measured the study time objectively by the actual server time on a weekly basis and we reported the time to the participants regularly via e-mail in order to encourage them to keep studying. Because of some advanced features of the Busuu app there were two possibilities: online and offline study time. Most participants studied online either using the Busuu app or the Busuu website and the study time is the real time spent studying.

<sup>13.</sup> First 25% of the sample.

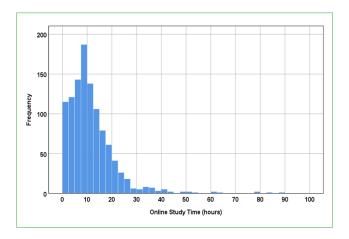
<sup>14. 50%</sup> middle point.

<sup>15.</sup> First 75% of the sample.

Some participants downloaded lessons and studied off-line. If they did not go back to the app or online soon this study time could not be measured accurately. About 10% of the participants (n=122) had only offline time which prevented us from using some measures that require real study time. In addition, it is also quite possible that some of the other participants with recorded online study time, at some point, have studied offline. Hopefully, in the future with further technological advancement this problem could be resolved.

The median online study time for the final study sample was about 9.7 hours, or a little over an hour a week. The total online study time ranged from less than an hour to 90 hours (Q1=5.8, Q3=15.0). Our usual lower limit for language studies is at least 2 hours of study but because there is a possibility of off-line study we could not exclude them.

Figure 8. Online Study Time Distribution in Hours (N=1083)



#### LANGUAGE STUDY GROUPS

There were 6 study language groups: English, French, German, Italian, Spanish, Japanese and 3 different Busuu apps: Busuu Free Version, Busuu Premium Version only, and Busuu Premium and Live Lessons Version. The third group of participants was given the opportunity to book 2 live lessons per week for free (a total of 16). For Italian and Japanese at the time of the study, there was no live lessons available. The German sample was not large enough and the Busuu Free version was excluded as an option.

The final sample for the 2024 Busuu study was 1205 participants. The sample groups by study language and Busuu version are presented in the table below.

**Table 3. Sample Distribution (Number of participants).** 

Study Group	Study Language	Busuu Free Version	Busuu Premium Only	Busuu Premium and Live Lessons	Total
1	English	70	142	72	284
2	French	60	94	53	207
3	German	n/a	62	30	92
4	Italian	98	134	n/a	232
5	Spanish	35	94	62	191
6	Japanese	87	112	n/a	199
Total		350	638	217	1205

For two of the study groups (Italian and Japanese) the oral proficiency part of Busuu Free version and Busuu Premium were practically the same.

A third of the participants (n=113 out of 330, or 34.2%) who were offered free live lessons decided not to use them, which reduced the number of participants in the third group. We asked them why they did not want to use the free live lessons. There were two main reasons. The first and main reason was that some participants did not feel that they were advanced enough to participate in live lessons. The second reason was that they did not have enough time for live lessons. In future it should be explained to the Busuu users more convincingly that live lessons are very beneficial even for true beginners.

One participant stated that they preferred talking to Al to talking to human, because Al is not judgmental. We investigate the Al use effect later in this report.

**Table 4. Initial Language Level by Study Group** 

Initial	Semester	English	French	German	Italian	Spanish	Japanese*	Overall**
Language Level (WebCAPE)	3, 4+	67.1	41.9	55.4	71.6	63.8	10.6	61.2

<sup>\*</sup> Based on TNT score > 3.4 analogous to WebCAPE > 345.

As we can see from the table above the participants in the English, Italian, and Spanish groups are the most advanced learners with 63-72% of them starting above second college semester level. Only 10.6% of the Japanese groups are above second semester level, followed by the French group with only 41.9% above second semester level.

#### LANGUAGE IMPROVEMENT

# Test 1. Vocabulary/Grammar Proficiency Results

All participants took the initial WebCAPE test at the beginning of the study and then again at the end of the study. We measured the progress or improvement as the difference between the final test score and the initial test score.

Figure 9. WebCAPE Gain (n=984)

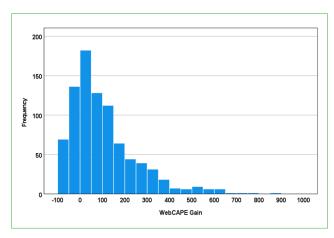


Table 5. Language Improvement (Vocabulary/Grammar)

Statistics	Initial WebCAPE	Final WebCAPE	Improvement (Final-Initial)
Mean (std)	420.1 (206.1)	481.1 (210.5)	60.6 (176.6)
95% Confidence Interval	407.2 - 432.9	468.0 - 494.3	49.6 – 71.6

The average overall improvement of 60.6 WebCAPE test points was statistically significant with a 95% confidence interval from 49.6 to 71.6 points.

Overall, 63.1% of all participants improved their vocabulary/ grammar language proficiency with a 95% confidence interval<sup>16</sup> of 60.0% to 66.1%.

Participants who did not improve their WebCAPE score studied on average less (10.6 hours) than participants who improved their score (12.1 hours).

#### **College Semester Placement**

We can measure progress by movement from an initial semester level to a final semester level with the results presented below.

Table 6. WebCAPE Semester Placement

College	Initia	l Test	Final	Test
Semester	N	%	N	%
First	197	20.0	133	13.5
Second	185	18.8	131	13.3
Third	173	17.6	168	17.1
Fourth+	430	43.7	552	56.1
Total	985	100	984	100

Participants at first semester level decreased from 20.0% to 13.5% and Forth+ semester increased from 43.7% to 56.1%.

**Table 7. Semester Improvement** 

Level (Semester Change)	lmpr	oved	Online Study Time
Level (Jeillester Gliange)	N	%	Mean Hours
-1 Decrease	112	11.4	7.3
0 Same/No Change	560	56.9	8.8
1 1-3 Semester Increase	312	31.7	11.3
Total	984	100	9.5

The above table shows the semester-level change as counts of people who moved from one to another level. About 11.4% of the participants did not improve their semester level while 31.7%, improved by at least one semester-level.

<sup>\*\*</sup> Excluding Japanese.

<sup>16.</sup> All 95% CI for proportions use Agresti-Coull correction (Agresti & Coull, 1998).

Participants who did not increase their semester placement studied on average less (7.3 hours) compared to the participants who did increase their semester level (11.3 hours).

The problem with using the semester improvement as a sole measure of proficiency gains is that first, it does not account for the effort (study time) and second, moving up a semester is dependent on the exact initial level. For example, if a person initially has 269 test points (first semester), only one-point gain is needed to move to the second semester level. Another person can start with 10 points (first semester), then gain 200 points and the new level (210 points) is still in the first semester.

#### **Test 2. Oral Proficiency Results**

We measured the participants' oral proficiency gains as the difference between their scores at the initial and final testing.

Figure 10. Oral Proficiency: TNT Score Gain in Points (n=1081)

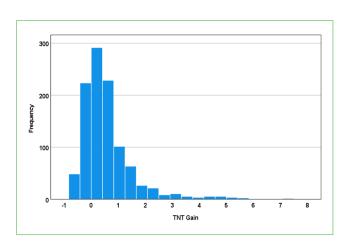


Table 8. Language Improvement.

Oral Proficiency by TNT score (n=1108)

Statistics	Initial TNT score	Final TNT score	Improvement (Final-Initial score)
Mean (std)	4.2 (1.8)	4.7 (1.8)	0.5 (1.0)
95% Confidence Interval	4.1 – 4.3	4.6 – 4.8	0.45 - 0.57

The average overall oral proficiency improvement of 0.5 TNT test points was statistically significant with a 95% confidence interval from 0.45 to 0.57 points. Overall, 71.4% of all participants improved their oral proficiency with 95% confidence interval of 68.6% to 74.0%.

# Oral Proficiency for Participants with at least 8 Hours of Study

Language Testing International, the exclusive licensee of ACTFL recommends<sup>17</sup> 8 weeks as the minimum time between test and retest for Group I languages, which includes English, French, Spanish and Italian. In our previous studies, we used the ACTFL computerized oral proficiency test (OPIc) and we required at least 8 hours for 8 weeks of study for oral evaluation. For completeness, and in order to make the results of this study comparable to the previous studies, we present similar results here. German is from Category II languages, and Japanese is from Category IV languages ("Super-hard languages" which are exceptionally difficult for native English speakers).

Table 9. Oral Proficiency for Participants with at least 8 Hours of Study (n=644)

Statistics	Initial TNT score	Final TNT score	Improvement (Final-Initial score)
Mean (std)	4.4 (1.7)	4.9 (1.8)	0.6 (1.0)
95% Confidence Interval	4.2 - 4.5	4.8 - 5.1	0.47 - 0.63

The average overall oral proficiency improvement of 0.6 TNT test points was statistically significant with a 95% confidence interval from 0.47 to 0.63 points.

Overall, 72.5% of all participants improved their oral proficiency with a 95% confidence interval of 68.9% to 75.9%.

#### **EFFICACY**

#### **Vocabulary/Grammar Proficiency**

As mentioned above, our study investigated the efficacy of the Busuu app as a function of total proficiency gains per one hour spent studying.

<sup>17.</sup> https://www.languagetesting.com/how-long-does-it-take 18. https://www.state.gov/foreign-language-training/

# Table 10. Vocabulary/Grammar Efficacy of Busuu (n=907)

Statistics	Efficacy = Improvement per one hour of study WebCAPE Test Points	Time to cover the placement requirements for the first semester of college proficiency.  Hours
Mean (std)	17.3 (151.9)	15.6 <sup>19</sup>
95% Confidence Interval	7.4 – 27.2	9.9 - 36.4 <sup>20</sup>

On average Busuu users gained 17.3 WebCAPE test points per one hour of study with a 95% confidence interval of 7.4 to 27.2 test points per one hour of study. The Busuu vocabulary/grammar efficacy measures the improvement per one hour of study. In addition, if we divide the required cut-off point (270) for WebCAPE Second Semester placement by the mean efficacy, we can construct a new measure representing the time needed to cover the requirements for the first college semester. This is one measure of efficacy that is easy to understand, given the nature of the WebCAPE placement test.

Based on this measure, Busuu users will need on average about 15.6 hours of study during a two-month period to cover the requirements for the first college semester. The transformed lower and upper limits are from 9.9 to 36.4 hours of study during a two-month period.

#### **Oral Proficiency**

Similar to the vocabulary/grammar efficacy, we estimated the oral proficiency efficacy as a function of the improvement (final TNT score minus initial TNT score) and the effort (number of study hours) and the results are presented below.

Table 11. Table 11. Oral Proficiency Efficacy for Busuu for Users with at least 8 Hours of Study (n=630)

Statistics	Efficacy = Improvement per one hour of study TNT Test Points	Time to reach maximum TNT=10.0 Hours
Mean (std)	0.04 (0.08)	250 <sup>21</sup>
95% Confidence Interval	0.03 - 0.05	200 - 333 <sup>22</sup>

Regarding oral proficiency efficacy, it will take Busuu users on average 250 hours of study in a two-month period to reach the upper limit of the TNT test. The 95% confidence interval of this estimate is between 200 to 333 hours. This estimate assumes linear improvement trajectory.

The table below presents the improvement in both vocabulary/grammar and oral proficiency.

Table 12. Improvement in both Vocabulary/ Grammar and Oral Proficiency (N=891)

Language Proficiency Improvement Vocabulary/	Impro	oved	Online Study Time	
Grammar & Oral	N	%	Mean Hours	
No improvement	101	11.3	6.4	
Improved Only Vocabulary/Grammar	142	15.9	11.3	
Improved Only Oral Proficiency	232	26.0	7.6	
Improved Both Vocabulary/ Grammar & Oral	416	46.7	9.8	
Total	891	100	9.3	

The above results show that 88.7% of the participants improved either their vocabulary/grammar or oral proficiency, or both. Only 11.3% of the participants were unable to improve their language proficiency. About 47% of the participants improved both their vocabulary/grammar and oral proficiency.

<sup>19.</sup> The threshold of 270 points divided by the mean efficacy.

<sup>20.</sup> The threshold of 270 points divided by the lower limit and the upper limit of the 95% Cl.

<sup>21.</sup> TNT=10 divided by gain per hour.

<sup>22.</sup> TNT=10 divided by the upper and lower limits of the 95% confidence interval  $\,$ 

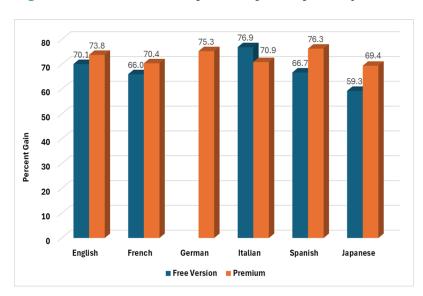
#### **RESULTS BY STUDY GROUPS**

**Table 13. Proficiency Gain: Free Version vs Premium (All participants)** 

Percent Gain

Gain	Busuu	English	French	German	Italian	Spanish	Japanese	Overall
Oral	Free Version	70.1	66.0	n/a	76.9	66.7	59.3	68.0
Proficiency	Premium/ Premium & Live	73.8	70.4	75.3	70.9	76.3	69.4	72.8
Vocabulary/	Free Version	55.9	58.6	n/a	59.6	70.6	n/a	59.8
Grammar	Premium/ Premium & Live	63.2	69.4	65.2	60.2	63.6	n/a	64.2

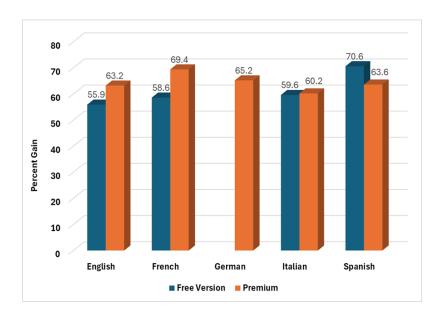
Figure 11. Oral Proficiency Gain by Study Group and Busuu Version



Overall, the Busuu Premium edition is better than the Free edition for both oral proficiency gain and the vocabulary/ grammar proficiency gain. About 72.8% of Premium edition users increased their oral proficiency compared to 68.0% for Free edition. About 64.2% of Premium edition users increased their vocabulary/grammar proficiency compared to 59.8% of Free edition users.

This relationship for oral proficiency gain is true for all study groups except Italian<sup>23</sup>. For vocabulary/grammar proficiency the relationship is true for all study groups except Spanish. German study group did not have Free edition option, so no comparison was possible.

Figure 12. Vocabulary/Grammar Proficiency Gain by Study Group and Busuu Version



The analysis for the Beginners/Novice users confirmed the finding for all users. Overall Premium edition of Busuu is better than Free edition. About 75.9% of Premium edition users improved their oral proficiency compared to 62.8% of the Free edition users. The same is true for vocabulary/grammar proficiency with 77.9% of the Premium users improving compared to 72.4% of Free edition users.

This advantage of Premium edition over Free edition is true for all study groups for oral proficiency improvement (even for Italian). For the vocabulary/grammar proficiency the Premium edition advantage is true for English and French and reversed for Italian and Spanish. German study group did not have Free edition option.

<sup>23.</sup> The oral proficiency parts of Busuu Free version and Busuu Premium for Italian are identical.

#### Table 14. Proficiency Gain: Beginners/Novice users

(WebCAPE 0 - 345, TNT 0 - 3.4 for Japanese).

Percent Gain

Gain	Busuu	English	French	German	Italian	Spanish	Japanese	Overall
Oral	Free Version	60.0	66.7	n/a	83.3	50.0	60.0	62.8
Proficiency	Premium/ Premium & Live	100.0	70.7	85.7	90.9	81.6	72.3	75.9
Vocabulary/	Free Version	66.7	61.3	n/a	81.5	85.7	n/a	72.4
Grammar	Premium/ Premium & Live	77.9	83.7	73.2	77.8	72.2	n/a	77.9

The analysis continues with comparison between Busuu Premium only and Busuu and Live Lessons groups.

Table 15. Proficiency Gain: Free Version vs Premium and Premium Live (All participants)

Percent Gain

Gain	Busuu	English	French	German	Italian	Spanish	Japanese	Overall
Oral	Free Version	70.1	66.0	n/a	76.9	66.7	59.3	68.0
Proficiency	Premium Only	75.2	74.0	79.2	70.9	79.7	69.4	74.1
	Premium & Live	71.0	65.4	67.9	n/a	71.7	n/a	69.4
Vocabulary/	Free Version	55.9	58.6	n/a	59.6	70.6	n/a	59.8
Grammar	Premium Only	62.9	72.5	64.5	60.2	66.3	n/a	64.7
	Premium & Live	63.9	64.2	66.7	n/a	59.7	n/a	63.1

Overall Premium only edition has slight advantage over Premium and Live Lessons group. About 74.1% of the Premium only group improved their oral proficiency compared to 69.4% of the Premium and Live Lessons group. For vocabulary/grammar proficiency 64.7% of Premium only and 63.1% of Premium and Live Lessons group improved their proficiency.

This advantage of Premium only for oral proficiency is true for all available study groups, while for vocabulary/grammar proficiency the results are split; Premium only is better for French and Spanish, and worse for English and German.

Comparison for Beginner/Novice users is presented below.

# Table 16. Proficiency Gain: Free Version, Premium, and Premium & Live Lessons Beginner/Novice participants

WebCAPE 0 - 345, TNT 0 - 3.4 for Japanese.

Percent Gain

Gain	Busuu	English	French	German	Italian	Spanish	Japanese	Overall
Oral	Free Version	60.0	66.7	n/a	83.3	50.0	60.0	62.8
Proficiency	Premium Only	100.0	72.3	84.6	90.9	85.0	72.3	76.3
	Premium & Live	100.0	67.9	100.0	n/a	77.8	n/a	74.5
Vocabulary/	Free Version	66.7	61.3	n/a	81.5	85.7	n/a	72.4
Grammar	Premium Only	76.9	85.7	72.4	77.8	71.4	n/a	77.9
	Premium & Live	80.0	80.0	75.2	n/a	73.7	n/a	77.9

For Beginner/Novice users Premium only version is slightly better than the Premium and Live Lessons version for oral proficiency (76.3% vs 74.5%) and exactly the same for Vocabulary/Grammar proficiency (77.9).

#### **FACTORS FOR EFFICACY**

#### **Demographic Factors**

We investigated the impact of several factors on language improvement (WebCAPE and TNT), namely age, gender, education, employment, and reason for studying Spanish. None of these potential factors had a statistically significant effect (p<0.01). This means that the Busuu app works similarly for people regardless of gender, age, education, employment status, etc.

#### **Motivation Effect**

We evaluated the effect of motivation on oral and vocabulary/grammar language improvement. There was no statistically significant effect of the motivation score (p<0.01). One possible explanation is that the people in this study are highly motivated with an average level of motivation of 76%. At this high average level, additional higher motivation does not have an effect on the results. This result is consistent with our previous studies (Vesselinov et al., 2009-2023).

#### **Language Profile Effect**

GLS of a second language does not have a significant effect (p<0.01) on language proficiency improvement.

#### **Study Time**

As expected, the more time participants studied, the better results they achieved. Participants who improved their vocabulary/grammar proficiency on average studied more (12.1 hours) than the participants that that did not improve (10.6 hours) and the difference is statistically significant (p=0.02). Similarly, participants who improved their oral proficiency on average studied slightly more (11.8 hours) than the participants that that did not improve (11.5 hours) but the difference was not statistically significant. For oral proficiency, the study time is not the only factor.

We used CART model to determine a possible threshold for the effect of study time on language proficiency gain. About 74% of users with more than 7.3 hours gain oral proficiency compared to only 64% for users with  $\leq$  7.3 hours. For practical purposes we can round up the threshold time to 8 hours. Users with less than 8 hours of study time had 66.7% chance of improving their oral proficiency gain, compared to 72.5% for users with 8 hours of more study time.

# Initial Vocabulary/Grammar and Oral Proficiency Level

As in our previous studies (Vesselinov et al., 2009-2023), this study confirmed the inverse relationship between the initial level of language proficiency and the gain in new knowledge. The biggest gain in new knowledge can be attributed to the novice/beginner users, while more advanced learners gain test points slowly, both in vocabulary/grammar and oral proficiency. The regression line in both cases is downward sloping.

Figure 13. Initial Vocabulary/Grammar Proficiency and Gain

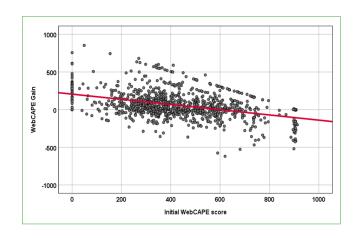
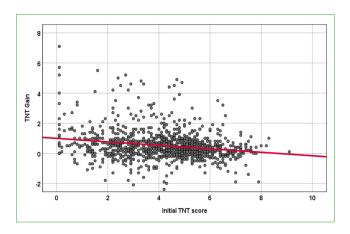


Figure 14. Initial Oral Proficiency and Gain



The vocabulary/grammar proficiency gain results by initial college semester's placement are presented below.

Table 17. Language Improvement and the Initial College Semester Placement (N=1081)

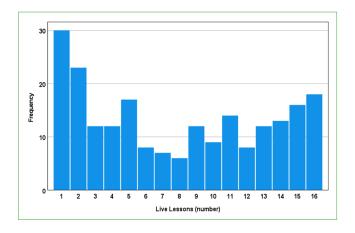
Initial College Semester Placement	Vocabulary/Grammar Proficiency Gain		
	N	%	
First	152	77.6	
Second	140	75.7	
Third	117	67.6	
Forth+	212	49.3	
Total	621	100	

The beginner/novice users (First semester placement) made the biggest progress with 77.6% of them improving their vocabulary/ grammar proficiency, followed by Second semester users with 75.7%, Third semester users with 67.6%, and Forth+ semester with 49.3%.

#### **Factor: Live Lessons Taken**

The number of live lessons is presented below.

#### Figure 15. Live Lessons (Number)



Overall, the effect of the number of live lessons taken is not very pronounced. We used CART model to find the threshold where the effect of live lessons is strong, and this threshold turned out to be 10 lessons. Overall, 63.4% of the participants who took 1 to 10 live lessons with Busuu improved their oral proficiency, compared to 79.5% of the participants with more than 10 lessons (p=0.014).

For practical purposes this means that for the live lessons to be effective, the Busuu users must take more than 1.25 live lessons a week.

#### **Factor: Al Speaking Lessons**

Some of the Premium versions of Busuu have the option of Al Speaking Lessons. Overall, users that used this option had slightly better oral proficiency gain compared to users who did not use or did not have this option (72.8% vs 71.1%) but this difference was not statistically significant.

We used CART model to determine the threshold for the strongest effect of the AI Speaking Lessons and this threshold appears to be 6 AI Speaking Lessons. About 76.2% of the participants who used AI Speaking Lessons for 1-6 times during the study improved their oral proficiency gain compared to 64.8% of participants with more than 6 AI Speaking Lessons.

For practical purposes this means that there is a ceiling effect of the Al Speaking Lessons. Using them is beneficial but using them too much (>6 times in 2 months) is not. Live lessons are a good alternative.

#### **Factor: Lessons and Reviews.**

Busuu app offers lessons, and depending on the version and language, grammar reviews, vocabulary reviews, and corrections. We expect these factors to have an incremental effect on proficiency gain.

Table 18. Effect of Lessons and Reviews on the Language Proficiency Gain

Gain		Lessons Started	Lessons Finished	Grammar Reviews	Vocabulary Reviews	Corrections
Oral Proficiency Gain	No	196 (220)	141.5 (151)	2.1 (11)	10.5 (36)	20 (61)
Odili	Yes	200 (200)	142.1 (142)	1.5 (13)	9.0 (25)	24 (64)
Vocabulary/ Grammar	No	180 (150)	128 (105)	1.90 (13)	8.8 (28)	22 (60)
Proficiency Gain	Yes	211 (232)	149 (137)	1.94 (14)	9.6 (29)	26 (71)

Busuu users who gained proficiency, both vocabulary/ grammar and oral, had higher average number of lessons started and finished, compared to used who did not gain proficiency. Users with vocabulary/ grammar gain, used more grammar and vocabulary reviews, as well as more corrections than users with no gain.

#### **USER SATISFACTION**

After the study the participants were asked for their opinion about the Busuu app; specifically, how easy it was to use, how helpful it was for learning foreign language, how enjoyable it was, and how satisfied they were with it. The 5-point Likert scale was recoded into two categories: Strongly Agree/Agree vs Strongly Disagree/ Disagree/Neutral.

Table 19. User's Satisfaction (N=939)

Percent

Do you agree with the following statement?	Agree/Strongly Agree
"Busuu was easy to use"	96.1
"Busuu was helpful in studying Spanish"	93.2
"I enjoyed learning Spanish with Busuu"	94.0
"I am satisfied with Busuu"	88.8

After two months of study, the majority of participants (88% and above) agreed with the positive statements that: Busuu was easy to use, it was helpful, they enjoyed learning with Busuu, and they were satisfied with it.

In the exit survey, a special question was included: "How likely are you to recommend Busuu to a colleague or friend?" with 11 possible answers, from 0 "Very unlikely" to 10 "Very likely". The answers to this question were used to compute the so-called Net Promoter Score (NPS). This is "a management tool that can be used to gauge the loyalty of a firm's customer relationships" (Wikipedia).

It was developed by Reichheld (2003) and it categorizes users in three categories: "Promoters" (answers 9, 10), "Passives" (answers 7, 8), and "Detractors" (answers 0-6). NPS is equal to the difference between "Promoters" and "Detractors" and in general it can vary from -100 (all detractors) to + 100 (all promoters). As a rule, a positive NPS is desirable news for the company and the higher the score, the better the indicator for the company. From our exit survey the "Promoters" were 62.5%, the "Detractors" were 5.6% and "Passives" were 31.8%. The Busuu NPS was positive, +56.9.

#### LIMITATIONS OF THE STUDY

The population of people who are seeking to study foreign languages with language apps is highly educated with most of them having some college-level education. This is true not only for the U.S.<sup>24</sup>, but also Europe<sup>25</sup> and the rest of the world<sup>26</sup>. This was confirmed by all our previous studies<sup>27</sup>. This population has a higher education level than the general population. Our current sample for the 2024 Busuu efficacy study is representative of this population, but it may not be comparable to the general population.

The independently developed tests used in this study were not tailored to any specific learning tool, including Busuu. On the one hand, some participants in the study complained that the test contained words or expressions that were not part of their regular course with Busuu. On the other hand, people insisted that they had learned a lot more than the test asked for. The test is valuable as an independent tool for evaluation which allows us to compare efficacy across different apps, however it does not provide a complete measure of the full progress of users, so the evaluation of their progress in language proficiency is generally conservative.

The Research Team sent e-mail messages every week with individualized information about the study time for the previous week. This seemed to stimulate the study process. The results of the study should be valid in a setting where users study regularly for two months and receive weekly reminders. The study's results may not be generalizable to study periods shorter than two-months.

<sup>24.</sup> Rosetta Stone (2009, 2019), Duolingo (2012), italki (2018)

<sup>25.</sup> Babbel (Germany & US), Busuu (UK and US).

<sup>26.</sup> Language Zen Efficacy Study, 2015 report, (world sample). 27. Except Hello English (2017) where the participants were of high school age.

This study results cannot be compared directly to a regular language study in a college. There are at least two limitations related to comparing the results of this study to a standard college semester of foreign language. First, progress or success in college is determined usually by one midterm exam and one final exam, plus some form of testing for oral proficiency and homework. These are typically done by the instructor and are not subject to standardized testing and both semester-long perceptions of the student progress and deep knowledge of the material that has been presented in the classroom affect the construction and evaluation of the tests. Progress is measured very differently in a college setting compared to this study. Second, study time in college is difficult to measure scientifically.

#### **Acknowledgements**

The Research Team would like to thank Ciro Annunziata and Paula Sanz Esteban for their contribution to the research study.

#### CONCLUSION

The current Busuu efficacy study is based on the same methodology as the previous 15 efficacy studies by the Research team. The biggest advantage of the current study is that it involves 6 languages and 3 different versions of the language app. This complex design allows for more comparisons than ever before. Four of the study languages are from Group I (English, French, Italian, Spanish), German is from Group II languages, and Japanese is from Group IV languages.

The results of this study confirm the efficacy of the Busuu language app and points to some advantages of the Premium edition compared to the Free edition. The addition of live lessons could be very beneficial to the users when they take live lessons every week; just occasional use of live lessons is not that beneficial according to this study.

The addition of the AI Speaking Lessons improves the efficacy of the language app but it should be used in moderation and be paired with live lessons. Too much time with only the AI lessons is not very effective based on this study.

For future studies, the participants should be informed more thoroughly about the benefits of taking live lessons even for beginner/novice language learners. Surprisingly, many participants (34%) refused to take free live lessons. The main reason was that they did not feel advanced enough for live lessons. People who seek to study languages with language apps are on average highly educated, but they may need help with the structure of their language study and the time they spend on learning vocabulary, speaking, using Al, etc.

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#### **APPENDIX**

# **Table A1. Study Participants' Geographic Distribution**

Country	N
Afghanistan	2
Algeria	1
Argentina	30
Armenia	2
Australia	14
Austria	12
Azerbaijan	2
Bahrain	1
Belgium	10
Benin	2
Bolivia	1
Brazil	103
Bulgaria	1
Burkina Faso	1
Cambodia	1
Cameroun	1
Canada	43
Chile	27
China	17
Colombia	54
Costa Rica	3
Croatia	2
Czech Republic	4
Denmark	4
Dominican Republic	3
Ecuador	7
Egypt	12
El Salvador	2
Estonia	3
Finland	3
France	51
Germany	70
Greece	4
Guatemala	3
Honduras	1
Hong Kong, China	2

Country	N
Hungary	9
India	9
Indonesia	4
Iran	2
Ireland	8
Iceland	1
Israel	4
Italy	7
Jamaica	1
Japan	4
Jordan	1
Kazakhstan	1
Kenya	3
Latvia	1
Lebanon	2
Lithuania	1
Malaysia	2
Malta	1
Mauritania	1
Mexico	80
Morocco	6
Myanmar	1
Netherlands	22
New Zealand	3
Nicaragua	1
Nigeria	2
Norway	3
Pakistan	4
Panama	1
Paraguay	2
Peru	17
Philippines	3
Poland	66
Portugal	6
Romania	4
Russia	3

Country	N
Saudi Arabia	2
Scotland	1
Senegal	1
Serbia	2
Singapore	2
Slovakia	4
Slovenia	1
South Africa	3
Spain	44
Sweden	6
Switzerland	18
Syria	1
Taiwan	3
Thailand	1
Tunisia	2
Turkey	37
UAE	4
UK	61
Ukraine	7
Uruguay	3
USA	112
Venezuela	8
Vietnam	5
Yemen	2
Unknown	90

### **Table A2.** Background Information on the Participants

Categories	N	Percent	Total N
Age: mean (std)	38.5	(15.4)	1118
Gender:			
Female	471	43.1	1004
Male	614	56.1	1094
Nonbinary, self-describe	9	0.8	1
Education			
High School diploma or equivalent	193	17.6	1005
Started college but did not graduate	333	30.4	1095
College graduate, B.A. MA, PhD degree	569	52.0	
Employment			
Student	231	21.3	
Unemployed	95	8.8	1
Part Time	79	7.3	
Full Time	406	37.4	1085
Self-Employed	116	10.7	
Retired	111	10.2	
Homemaker	20	1.8	
Other employment	27	2.5	
Can converse in a second language	787	70.4	1118
Reason for Studying Foreign Language			
<ul> <li>Business/Work</li> </ul>	213	19.1	
Travel	146	13.1	
• School	106	9.5	1116
Personal Interest	618	55.4	
• Other	33	3.0	
Have close friend or spouse who speaks the study language	324	29.0	1116
Have parents of grandparents who speak the study language	97	8.7	1117
Lived 6+ months in foreign language country	299	26.8	1114

Figure A1. L2 Motivation (Max=100) M1 "Ideal Self"

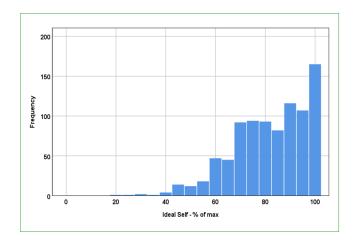


Figure A2. L2 Motivation (Max=100) M2. "Ought-to Self"

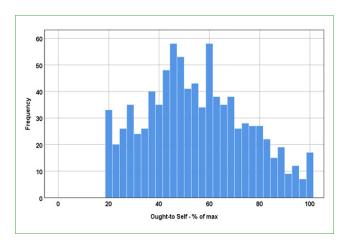


Figure A3. L2 Motivation (Max=100) M3. "International Posture"

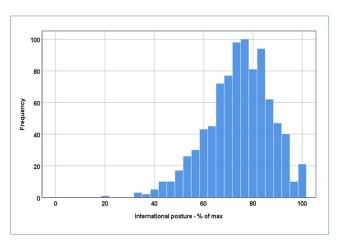


Figure A4. L2 Motivation (Max=100) M4. "Competitiveness"

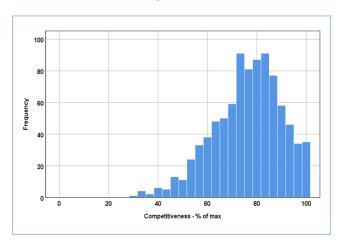


Figure A5. L2 Motivation (Max=100) M5. "Learning Attitude"

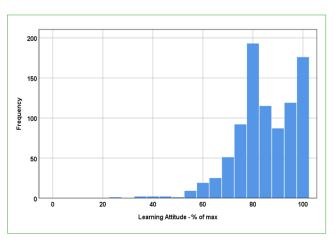
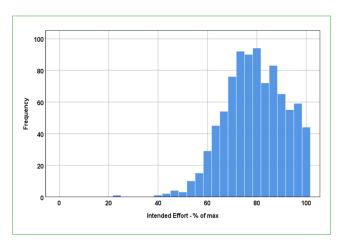


Figure A6. L2 Motivation (Max=100) M6. "Intended Effort"



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