Article

Language learning investment in higher education: Validation and implementation of a Likert-scale questionnaire in the context of compulsory EFL learning

Supporting material

Table S1

Percentages of Answers Test Section 1 Motivation

Section 1 Motivation	Percentages			
	Totally disagree	Partially disagree	Partially agree	Totally agree
I am interested in having the materials prepared for the class	0.00	2.44	26.86	70.73
I am very perseverant in completing my English class activities.	0.00	14.63	63.41	21.95
I enjoy the time I spend on my English activities.	21.95	26.83	34.15	17.07
I enjoy solving the English exercises that the teacher gives us.	12.20	7.32	48.78	31.71
I think speaking English in front of my classmates makes me nervous.	17.07	9.76	26.83	46.34
I recognize that solving the English activities involves an effort that I am willing to make.	2.44	9.76	24.39	63.41
I am very enthusiastic about learning English.	9.76	7.32	41.46	41.46
I enjoy doing English activities.	7.32	12.20	48.78	31.71
I am proud to be able to conclude the class activities successfully.	2.44	2.44	19.51	75.61
I am interested in studying English more than other subjects.	9.76	26.83	46.34	17.07

I believe that the investment of time and money to learn English is well worth it.	0.00	7.32	31.71	60.98

Table S2

Percentages of Answers Test Section 2 Necessities

Section 2 Necessities	Percentages			
	Totally disagree	Partially disagree	Partially agree	Totally agree
to communicate with other people.	0.00	0.00	17.07	82.93
to interact with people from other cultures.	0.00	2.44	26.83	70.73
to be part of communities from other countries.	0.00	4.88	17.07	78.05
to obtain a scholarship.	2.44	4.88	12.20	80.49
to have access to updated information.	0.00	2.44	31.71	65.85
to get a well-paid job.	2.44	2.44	24.39	70.73
to get a job abroad	2.44	0.00	21.95	75.61
To access technology	9.76	4.88	48.78	36.59
to earn more money by demonstrating more competencies than others.	4.88	4.88	36.59	53.66

Table S3

Percentages of Answers Test Section 3 Engagement

Section 3 Engagement	Percentages			
	Totally disagree	Partially disagree	Partially agree	Totally agree
Attending English classes regularly is important to me	0.00	7.32	21.95	70.73
Having the materials I need for the classroom is a priority for me.	0.00	9.76	36.59	53.66

Doing well on the work assigned to me during class is a worthwhile endeavor.	0.00	2.44	26.83	70.73
Doing the work assigned as homework is useful for me to review.	0.00	4.88	31.71	63.44
Paying attention to the teacher's explanations is necessary for me.	0.00	0.00	12.20	87.80
Doing the written activities assigned by the teacher is useful to me.	0.00	7.32	19.51	73.13
Participating in assigned speaking activities increases my speaking confidence.	4.88	4.88	36.59	53.66
Taking notes during class gives me confidence.	2.44	7.32	14.63	75.61
Listening attentively when my fellows participate is important to me.	0.00	9.76	46.34	43.90
Copying the activities of my colleagues implies less effort to me.	9.76	19.51	26.83	43.90
Waiting for others to respond to the teacher's requests keeps me from stressing out.	39.02	26.83	24.39	9.76
I study the materials the teacher gives me, even if they are not of interest to me.	9.76	26.83	39.02	24.39
I make an effort to complete the reading exercises, even if they are difficult for me.	2.44	2.44	39.02	56.10
I do all the writing exercises, even if I have to spend a lot of time on them.	2.44	14.63	39.02	43.90
I make an effort to speak English during class even if I don't feel confident.	7.32	14.63	36.59	41.46
I do my best to understand what others say, even if it is difficult.	0.00	2.44	31.71	65.85

I speak English with my classmates outside of class, even if I don't feel confident.	56.10	29.27	7.32	7.32
I speak English with the teacher outside of class, even if it's hard for me.	48.78	29.27	19.51	2.44
Attending English classes regularly is important to me	12.20	19.51	26.83	41.46
Having the materials I need for the classroom is a priority for me.	2.44	12.20	41.46	43.90

Table S4

Percentages of Answers Test Section 4 Agency

Section 4 Agency	Percentages			
	Totally disagree	Partially disagree	Partially agree	Totally agree
To improve my English, I search for videos on the internet.	24.39	17.07	21.95	36.59
I look for readings in English (internet, magazines or books) to complement what I see in English class.	29.77	26.83	31.71	12.20
I watch movies with English subtitles to improve my listening comprehension.	17.07	9.76	31.71	41.46
I participate in online communities of video game players to practice my English.	85.37	4.88	7.32	2.44
In my free time I listen to English songs to improve my English.	17.17	4.88	29.27	48.78
I take English classes at other institutions to learn English faster.	85.37	7.32	4.88	2.44
Outside of the classroom I use applications on my cell phone with English games to improve my vocabulary.	43.90	21.95	26.83	7.32

If I use apps on mobile devices, I can improve my English grammar.	19.51	17.07	21.95	41.46
If I am involved in my learning, I will increase my proficiency level.	0.00	7.32	19.51	73.17
I have more independence if there is virtual interaction with other people.	19.51	29.27	28.63	24.39
My confidence increases as my level of performance in communicating in English improves.	7.32	7.32	26.83	58.54

Investment Questionnaire Normality Test

Table S1

Normality Test. Section 1 Motivation

Section 1 Motivation	Test Version	Kolmogorov-Smirnov[a]		
		Statistic	df	Sig.
I am interested in having the materials prepared for the class	Version 1	.440	22	.000
	Version 2	.430	19	.000
I am very perseverant in completing my English class activities.	Version 1	.350	22	.000
	Version 2	.300	19	.000
I enjoy the time I spend on my English activities.	Version 1	.265	22	.000
	Version 2	.188	19	.076
I enjoy solving the English exercises that the teacher gives us.	Version 1	.322	22	.000
	Version 2	.277	19	.000
I think speaking English in front of my classmates makes me nervous.	Version 1	.299	22	.000
	Version 2	.270	19	.001
I recognize that solving the English activities involves an effort that I am willing to make.	Version 1	.392	22	.000
	Version 2	.377	19	.000

Section 1 Motivation	Test Version	Kolmogorov-Smirnov[a]		
		Statistic	df	Sig.
I am very enthusiastic about learning English.	Version 1	.322	22	.000
	Version 2	.304	19	.000
I enjoy doing English activities.	Version 1	.318	22	.000
	Version 2	.242	19	.005
I am proud to be able to conclude the class activities successfully.	Version 1	.424	22	.000
	Version 2	.482	19	.000
I am interested in studying English more than other subjects.	Version 1	.257	22	.001
	Version 2	.275	19	.001
I believe that the investment of time and money to learn English is well worth it.	Version 1	.439	22	.000
	Version 2	.348	19	.000

Table S2

Normality Test. Section 2 Necessities

Section 2 Necessities	Test Version	Kolmogorov-Smirnov[a]		
		Statistic	df	Sig.
to communicate with other people.	Version 1	.530	22	.000
	Version 2	.456	19	.000
to interact with people from other cultures.	Version 1	.430	22	.000
	Version 2	.443	19	.000
to be part of communities from other countries.	Version 1	.463	22	.000
	Version 2	.470	19	.000
to obtain a scholarship.	Version 1	.515	22	.000
	Version 2	.437	19	.000

to have access to updated information.	Version 1	.452	22	.000
	Version 2	.360	19	.000
to get a well-paid job.	Version 1	.370	22	.000
	Version 2	.482	19	.000
to get a job abroad	Version 1	.430	22	.000
	Version 2	.482	19	.000
to access technology	Version 1	.303	22	.000
	Version 2	.256	19	.002
to earn more money by demonstrating more competencies than others.	Version 1	.315	22	.000
	Version 2	.307	19	.000

Table S3

Normality Test Section 3 Engagement

Section 3 Engagement	Test Version	Kolmogorov-Smirnov[a]		
		Statistic	df	Sig.
Attending English classes regularly is important to me	Version 1	.413	22	.000
	Version 2	.456	19	.000
Having the materials I need for the classroom is a priority for me.	Version 1	.309	22	.000
	Version 2	.360	19	.000
Doing well on the work assigned to me during class is a worthwhile endeavor.	Version 1	.416	22	.000
	Version 2	.456	19	.000
Doing the work assigned as homework is useful for me to review.	Version 1	.387	22	.000
	Version 2	.403	19	.000
Paying attention to the teacher's explanations is necessary for me.	Version 1	.530	22	.000
	Version 2	.505	19	.000
Doing the written activities assigned by the teacher is useful to me.	Version 1	.437	22	.000
	Version 2	.443	19	.000

Section 3 Engagement	Test Version	Kolmogorov-Smirnov[a]		
		Statistic	df	Sig.
Participating in assigned speaking activities increases my speaking confidence.	Version 1	.319	22	.000
	Version 2	.301	19	.000
Taking notes during class gives me confidence.	Version 1	.477	22	.000
	Version 2	.413	19	.000
Listening attentively when my fellows participate is important to me.	Version 1	.301	22	.000
	Version 2	.263	19	.001
Copying the activities of my colleagues implies less effort to me.	Version 1	.239	22	.002
	Version 2	.284	19	.000
Waiting for others to respond to the teacher's requests keeps me from stressing out.	Version 1	.245	22	.001
	Version 2	.223	19	.014
I study the materials the teacher gives me, even if they are not of interest to me.	Version 1	.212	22	.012
	Version 2	.243	19	.004
I make an effort to complete the reading exercises, even if they are difficult for me.	Version 1	.393	22	.000
	Version 2	.310	19	.000
I do all the writing exercises, even if I have to spend a lot of time on them.	Version 1	.362	22	.000
	Version 2	.262	19	.001
I make an effort to speak English during class even if I don't feel confident.	Version 1	.265	22	.000
	Version 2	.216	19	.020
I do my best to understand what others say, even if it is difficult.	Version 1	.440	22	.000
	Version 2	.376	19	.000
I speak English with my classmates outside of class, even if I don't feel confident.	Version 1	.295	22	.000
	Version 2	.358	19	.000
	Version 1	.310	22	.000

Section 3 Engagement	Test Version	Kolmogorov-Smirnov[a]		
		Statistic	df	Sig.
I speak English with the teacher outside of class, even if it's hard for me.	Version 2	.279	19	.000
I do my activities to comply, even if I have some discomfort.	Version 1	.245	22	.001
	Version 2	.245	19	.004
I study just enough to pass the exams.	Version 1	.240	22	.002
	Version 2	.296	19	.000

Table S4

Normality Test Section 4 Agency

Section 4 Agency	Test Version	Kolmogorov-Smirnov[a]		
		Statistic	df	Sig.
To improve my English, I search for videos on the internet.	Version 1	.256	22	.001
	Version 2	.235	19	.007
I look for readings in English (internet, magazines or books) to complement what I see in English class.	Version 1	.267	22	.000
	Version 2	.233	19	.008
I watch movies with English subtitles to improve my listening comprehension.	Version 1	.260	22	.000
	Version 2	.304	19	.000
I participate in online communities of video game players to practice my English.	Version 1	.477	22	.000
	Version 2	.525	19	.000
In my free time I listen to English songs to improve my English.	Version 1	.341	22	.000
	Version 2	.273	19	.001
I take English classes at other institutions to learn English faster.	Version 1	.450	22	.000
	Version 2	.538	19	.000
Outside of the classroom I use applications on my cell phone with English games to improve my vocabulary.	Version 1	.253	22	.001
	Version 2	.296	19	.000
If I use apps on mobile devices, I can improve my English grammar.	Version 1	.243	22	.002
	Version 2	.253	19	.002
If I am involved in my learning, I will increase my proficiency level.	Version 1	.440	22	.000
	Version 2	.442	19	.000
I have more independence if there is virtual interaction with other people.	Version 1	.197	22	.026
	Version 2	.173	19	.138
My confidence increases as my level of performance in communicating in English improves.	Version 1	.374	22	.000
	Version 2	.298	19	.000

Table S5

Normality Test per Dimension

Dimensions	Test Version	Kolmogorov-Smirnov[a]		
		Statistic	df	Sig.
Motivation	Version 1	.199	22	.024
	Version 2	.185	19	.086
Agency	Version 1	.241	22	.002
	Version 2	.119	19	.200*
Necessity	Version 1	.174	22	.083
	Version 2	.289	19	.000
Engagement	Version 1	.207	22	.015
	Version 2	.162	19	.200*

Appendix 2

Table S6

Non-parametric Analyses for Two Independent Samples

Stability of Answers. Kruskal-WallisTest. Section 1 Motivation

Test Statistics[a,b]			
	Kruskal-Wallis H	df	Asymp. Sig.
I am interested in having the materials prepared for the class	.178	1	.673
I am very perseverant in completing my English class activities.	.097	1	.756
I enjoy the time I spend on my English activities.	.346	1	.557
I enjoy solving the English exercises that the teacher gives us.	.518	1	.472
I think speaking English in front of my classmates makes me nervous.	.007	1	.935
I recognize that solving the English activities involves an effort that I am willing to make.	.088	1	.767
I am very enthusiastic about learning English.	.936	1	.333
I enjoy doing English activities.	.127	1	.722
I am proud to be able to conclude the class activities successfully.	.460	1	.497
I am interested in studying English more than other subjects.	.759	1	.384
I believe that the investment of time and money to learn English is well worth it.	1.060	1	.303

a. Kruskal Wallis Test

b. Grouping Variable: Test Version

Table S7

Non-parametric Analyses for Two Independent Samples

Stability of Answers. Kruskal-WallisTest. Section 2 Necessities

	Kruskal-Wallis H	df	Asymp. Sig.
to communicate with other people.	1.864	1	.172
to interact with people from other cultures.	.000	1	.988
to be part of communities from other countries.	.038	1	.846
to obtain a scholarship.	1.180	1	.277
to have access to updated information.	.904	1	.342
to get a well-paid job.	1.630	1	.202
to get a job abroad	1.298	1	.254
To access technology	.712	1	.399
to earn more money by demonstrating more competencies than others.	.058	1	.810

a. Kruskal Wallis Test

b. Grouping Variable: Test Version

Table S8

Non-parametric Analyses for Two Independent Samples

Stability of Answers. Kruskal-WallisTest. Section 3 Engagement

	Kruskal-Wallis H	df	Asymp. Sig.
Attending English classes regularly is important to me	.214	1	.644
Having the materials I need for the classroom is a priority for me.	.034	1	.853
Doing well on the work assigned to me during class is a worthwhile endeavor.	.417	1	.519
Doing the work assigned as homework is useful for me to review.	.018	1	.893
Paying attention to the teacher's explanations is necessary for me.	.011	1	.918
Doing the written activities assigned by the teacher is useful to me.	.757	1	.384
Participating in assigned speaking activities increases my speaking confidence.	.319	1	.572
Taking notes during class gives me confidence.	.016	1	.901
Listening attentively when my fellows participate is important to me.	.109	1	.742
Copying the activities of my colleagues implies less effort to me.	.075	1	.784
Waiting for others to respond to the teacher's requests keeps me from stressing out.	2.418	1	.120
I study the materials the teacher gives me, even if they are not of interest to me.	4.873	1	.027
I make an effort to complete the reading exercises, even if they are difficult for me.	1.010	1	.315
I do all the writing exercises, even if I have to spend a lot of time on them.	.730	1	.393

	Kruskal-Wallis H	df	Asymp. Sig.
I make an effort to speak English during class even if I don't feel confident.	.648	1	.421
I do my best to understand what others say, even if it is difficult.	.020	1	.887
I speak English with my classmates outside of class, even if I don't feel confident.	.005	1	.945
I speak English with the teacher outside of class, even if it's hard for me.	.375	1	.540

a. Kruskal Wallis Test

b. Grouping Variable: Test Version

Table S9

Non-parametric Analyses for Two Independent Samples

Stability of Answers. Kruskal-WallisTest. Section 4 Agency

	Kruskal-Wallis H	df	Asymp. Sig.
To improve my English, I search for videos on the internet.	.001	1	.979
I look for readings in English (internet, magazines or books) to complement what I see in English class.	4.491	1	.034
I watch movies with English subtitles to improve my listening comprehension.	2.203	1	.138
I participate in online communities of video game players to practice my English.	.074	1	.786
In my free time I listen to English songs to improve my English.	1.848	1	.174
I take English classes at other institutions to learn English faster.	2.475	1	.116
Outside of the classroom I use applications on my cell phone with English games to improve my vocabulary.	1.154	1	.283

	Kruskal-Wallis H	df	Asymp. Sig.
If I use apps on mobile devices, I can improve my English grammar.	.119	1	.730
If I am involved in my learning, I will increase my proficiency level.	.002	1	.961
I have more independence if there is virtual interaction with other people.	.033	1	.855
My confidence increases as my level of performance in communicating in English improves.	.297	1	.586

a. Kruskal Wallis Test

b. Grouping Variable: Test Version

Table S10

Non-parametric Analyses for Two Independent Samples

Stability of Answers. Kruskal-WallisTest. Per Dimension

	Kruskal-Wallis H	df	Asymp. Sig.
Motivation	.004	1	.950
Necessity	.053	1	.819
Engagement	2.078	1	.149
Agency	2.145	1	.143

a. Kruskal Wallis Test

b. Grouping Variable: Test Version

Appendix 3

Table S11

Reliability. Internal consistency. Cronbach Alpha Section 1

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.881	.885	9

Motivation	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q1 I am interested in having the materials prepared for the class	25.17	25.118	.484	.383	.880
Q3 I enjoy the time I spend on my English activities.	26.33	23.154	.370	.244	.897
Q4 I enjoy solving the English exercises that the teacher gives us.	25.86	20.808	.720	.830	.859
Q6 I recognize that solving the English activities involves an effort that I am willing to make.	25.33	21.593	.801	.757	.854
Q7 I am very enthusiastic about learning English	25.67	20.325	.801	.729	.851
Q8 I enjoy doing English activities.	25.79	20.758	.830	.875	.849

Motivation	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q9 I am proud to be able to conclude the class activities successfully.	25.14	24.125	.539	.529	.875
Q10 I am interested in studying English more than other subjects.	26.10	21.259	.723	.642	.859
Q11 I believe that the investment of time and money to learn English is well worth it.	25.29	24.551	.478	.551	.879

Table S12

Reliability. Internal consistency. Cronbach Alpha Section 2

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.779	.795	8

Necessities	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q1 to communicate with other people.	24.90	9.308	.495	.572	.762
Q2 to interact with people from other cultures.	25.07	9.141	.368	.508	.772
Q4 to obtain a scholarship.	25.02	7.731	.642	.610	.727
Q5 to have access to updated information.	25.10	9.259	.322	.236	.778
to get a well-paid job.	25.10	8.137	.540	.433	.745
Q7 to get a job abroad .	25.02	7.780	.738	.652	.715
Q8 To access technology.	25.62	7.754	.413	.320	.779
Q9 to earn more money by demonstrating more competencies than others. .	25.33	7.789	.485	.389	.757

Table S13

Reliability. Internal consistency. Cronbach Alpha Section 3

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.853	.868	12

Engagement	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q1 Attending English classes regularly is important to me	38.37	22.738	.602	.584	.837
Q2 Having the materials I need for the classroom is a priority for me.	38.56	22.202	.638	.582	.834
Q3 Doing well on the work assigned to me during class is a worthwhile endeavor.	38.32	23.172	.649	.579	.837
Q4 Doing the work assigned as homework is useful for me to review.	38.41	24.049	.397	.367	.850
Q5 Paying attention to the teacher's explanations is necessary for me.	38.12	25.310	.384	.430	.852

Engagement	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q6 Doing the written activities assigned by the teacher is useful to me.	38.34	22.180	.712	.679	.830
Q8 Taking notes during class gives me confidence.	38.37	22.388	.544	.607	.841
Q13 I make an effort to complete the reading exercises, even if they are difficult for me.	38.51	21.706	.721	.633	.828
Q15 I make an effort to speak English during class even if I don't feel confident.	38.88	21.110	.555	.577	.842
Q16 I do my best to understand what others say, even if it is difficult.	38.37	24.088	.441	.523	.847
Q19 I do my activities to comply, even if I have some discomfort.	39.02	21.924	.368	.262	.864
Q20 I study just enough to pass the exams.	38.73	21.951	.571	.455	.839

Table S14

Reliability. Internal consistency. Cronbach Alpha Section 4

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.729	.746	7

Agency	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q1 To improve my English, I search for videos on the internet. .	17.98	15.341	.333	.191	.728
Q3 I watch movies with English subtitles to improve my listening comprehension.	17.71	14.746	.472	.490	.689
Q5 In my free time I listen to English songs to improve my English.	17.62	14.485	.510	.411	.679
Q7 Outside of the classroom I use applications on my cell phone with English games to improve my vocabulary.	18.76	16.039	.359	.168	.716

Agency	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q8 If I use apps on mobile devices, I can improve my English grammar.	17.83	14.825	.417	.360	.705
Q9 If I am involved in my learning, I will increase my proficiency level.	17.05	17.266	.458	.532	.705
Q11 My confidence increases as my level of performance in communicating in English improves.	17.33	14.618	.650	.643	.653

Reliability Statistics

4 Dimensions

Cronbach's Alpha	N of Items
.923	36

Table S15

Correlation Among Dimensions

Spearman's rho		Motivation	Necessity	Engagement	Agency
Motivation	Correlation Coefficient	1.000	.179	.685**	.579**
	Sig. (1-tailed)	.	.128	.000	.000
	N	42	42	41	42
Necessity	Correlation Coefficient	.179	1.000	.434**	.486**
	Sig. (1-tailed)	.128	.	.002	.001
	N	42	42	41	42
Engagement	Correlation Coefficient	.685**	.434**	1.000	.662**
	Sig. (1-tailed)	.000	.002	.	.000
	N	41	41	41	41
Agency	Correlation Coefficient	.579**	.486**	.662**	1.000
	Sig. (1-tailed)	.000	.001	.000	.
	N	42	42	41	42

**. Correlation is significant at the 0.01 level (1-tailed).