APPENDIX S1

Scale Items

**HL Self-guides**

Whenever I think of my future career, I imagine myself using Spanish

I can imagine myself writing Spanish e-mails/letters fluently

The things I want to do in the future require me to use Spanish

I can imagine myself studying in a university where all my courses are taught in Spanish

Studying Spanish is necessary because people surrounding me expect me to do so

I consider studying Spanish important because the people I respect think that I should do it

Studying Spanish is important to me in order to gain the approval of my peers/teachers/family/boss

It will have a negative impact on my life if I don’t study Spanish

**Family Influence**

My parents/family believe(s) that I must study Spanish to be an educated person

Studying Spanish is important to me in order to bring honor to my family

Being successful in Spanish is important to me so that I can please my parents/relatives

My family put a lot of pressure on me to study Spanish

My parents encourage me to practice my Spanish as much as possible

I have to study Spanish, because, if I don’t do it, my parents will be disappointed with me

**Intended Effort**

I would like to spend lots of time studying Spanish

I would like to study Spanish even if I were not required

I would like to concentrate on studying Spanish more than any other topic

If a Spanish course was offered in the future, I would like to take it

If my Spanish teacher would give the class an optional assignment, I would certainly volunteer to do it

I am prepared to expend a lot of effort in learning Spanish

**Achievement Goal Orientations**

In Spanish class…

My aim is to avoid showing incompetence in my Spanish

My focus is to avoid showing incompetence in Spanish

My goal is to avoid demonstrating that I lack knowledge of Spanish

My focus is to show my Spanish competence

My aim is to demonstrate that I am knowledgeable in Spanish

My goal is to demonstrate my Spanish ability

My aim is to avoid becoming less competent in my Spanish

My focus is to develop my Spanish ability

My goal is to increase my Spanish competence

My goal is to avoid a decrease in my Spanish ability

My aim is to develop my Spanish knowledge

My focus is to avoid losing my Spanish knowledge

**HL Enjoyment**

I don’t get bored

I enjoy it

I’m a worthy member of the Spanish class

In class, I feel proud of my accomplishments

It’s a positive environment

It’s cool to know Spanish

It’s fun

The peers are nice

There is a good atmosphere

We laugh a lot

**HL Anxiety**

Even if I am well prepared for Spanish class, I feel anxious about it

I always feel that the other students speak Spanish better than I do

I can feel my heart pounding when I'm going to be called on in Spanish class

I don't worry about making mistakes in Spanish class

I feel confident when I speak in Spanish class

I get nervous and confused when I am speaking in my Spanish class

I start to panic when I have to speak without preparation in Spanish class

It embarrasses me to volunteer answers in my Spanish class

**Classroom Environment**

Tasks designed in this class are useful

Tasks designed in this class are attracting

I know what I am trying to accomplish in this class

Activities in this class are clearly and carefully planned

Class assignments are clear so everyone knows what to do

I work well with other class members

I am friendly to members of this class

I make friends among students in this class

I help other class members who are having trouble with their work

The instructor provides a timely response to students’ concerns

The instructor is patient in teaching

The instructor smiles at the class while talking

The instructor asks questions that solicit viewpoints or opinions

**Critical Language Awareness**

People from Spain speak the purest form of Spanish

In my opinion, people should use standard Spanish to communicate all the time

I believe Spanish-speaking Hispanics in the U.S. don’t speak correct Spanish

I feel speaking Spanish is less prestigious than speaking other foreign languages such as French

I believe people who speak Spanglish should switch to just Spanish or English

I don’t like it when people say ‘parquear’ instead of ‘estacionar’

I don’t like it when people code-switch because it is not a proper way of speaking a language

I believe Spanglish should not be allowed in Spanish classes

I would tease a friend when speaking Spanish if they forget or invent words

I would try to avoid mixing Spanish and English in the same conversation as much as I can

I would not code-switch in front of my teachers because they may think I am less intelligent

APPENDIX S2

Results for Exploratory Factor Analyses

Exploratory factor analyses (EFA) were performed on items related to the possible HL selves, family influence, intended effort, HL achievement goal orientations, HL enjoyment, HL anxiety, classroom environment, and critical language awareness. Using direct oblimin as the rotation method, factors were extracted using a minimum-eigenvalue criterion of 1.0. The EFA results showed that the items for the Family Influence (Table 6), Intended Effort (Table 7), HL Enjoyment (Table 9), and HL Anxiety (Table 10), Classroom Environment (Table 11), and Critical Language Awareness (Table 12) scales loaded onto a single factor. With respect to the possible HL selves (Table 5), the analysis yielded two factors, each including four items tapping onto the Ought-to HL Self and the Ideal HL Self, respectively. The analysis for achievement goal orientations (Table 8) also revealed two factors, with items loading into the Performance and Mastery Goal Orientation factors. Standardized mean scores for each scale and subscale were used for the analyses reported in the manuscript (note that one of the items probing into Mastery Goal Orientation was excluded because it loaded slightly more strongly onto Performance Goal Orientation).

Table 4

*Tests of Sampling Adequacy and Sphericity by Scale*

|  |  |  |
| --- | --- | --- |
|  | Kaiser-Meyer-Olkin Measure | Bartlett’s Test of Sphericity |
| HL Self-guides | .796 | χ2 (28) = 813.46, *p* <.001 |
| Family Influence | .841 | χ2 (15) = 740.65, *p* <.001 |
| Intended Effort | .886 | χ2 (15) = 676.71, *p* <.001 |
| Achievement Goal Orientations | .847 | χ2 (66) = 1834.83, *p* <.001 |
| HL Enjoyment | .886 | χ2 (45) = 1342.47, *p* <.001 |
| HL Anxiety | .861 | χ2 (28) = 685.92, *p* <.001 |
| Classroom Environment | .912 | χ2 (78) = 1945.33, *p* <.001 |
| Critical Language Awareness | .868 | χ2 (55) = 895.57, *p* <.001 |

Table 5

*Factor Loadings for HL Self-guides*

|  |  |  |
| --- | --- | --- |
|  | Ought-to HL Self | Ideal HL Self |
| *Whenever I think of my future career, I imagine myself using Spanish* |  | .837 |
| *I can imagine myself writing Spanish e-mails/letters fluently* |  | .863 |
| *The things I want to do in the future require me to use Spanish* |  | .752 |
| *I can imagine myself studying in a university where all my courses are taught in Spanish* |  | .538 |
| *Studying Spanish is necessary because people surrounding me expect me to do so* | .804 |  |
| *I consider studying Spanish important because the people I respect think that I should do it* | .876 |  |
| *Studying Spanish is important to me in order to gain the approval of my peers/teachers/family/boss* | .893 |  |
| *It will have a negative impact on my life if I don’t study Spanish* | .431 |  |

*Note*. Ought-to HL Self proportion var. = .312; Ideal HL Self proportion var. = .295 (cumulative = .606).

Table 6

*Factor Loadings for Family Influence*

|  |  |
| --- | --- |
|  | Factor |
| *My parents/family believe(s) that I must study Spanish to be an educated person* | .828 |
| *Studying Spanish is important to me in order to bring honor to my family* | .767 |
| *Being successful in Spanish is important to me so that I can please my parents/relatives* | .838 |
| *My family put a lot of pressure on me to study Spanish* | .863 |
| *My parents encourage me to practice my Spanish as much as possible* | .413 |
| *I have to study Spanish, because, if I don’t do it, my parents will be disappointed with me* | .753 |

*Note*. Proportion var. = .576.

Table 7

*Factor Loadings for Intended Effort*

|  |  |
| --- | --- |
|  | Factor |
| *I would like to spend lots of time studying Spanish* | .790 |
| *I would like to study Spanish even if I were not required* | .845 |
| *I would like to concentrate on studying Spanish more than any other topic* | .652 |
| *If a Spanish course was offered in the future, I would like to take it* | .796 |
| *If my Spanish teacher would give the class an optional assignment, I would certainly volunteer to do it* | .725 |
| *I am prepared to expend a lot of effort in learning Spanish* | .783 |

*Note*. Proportion var. = .589.

Table 8

*Factor Loadings for Achievement Goal Orientation*

|  |  |  |
| --- | --- | --- |
|  | Performance Goal Orientation | Mastery Goal Orientation |
| *My aim is to avoid showing incompetence in my Spanish* | .915 |  |
| *My focus is to avoid showing incompetence in Spanish* | .915 |  |
| *My goal is to avoid demonstrating that I lack knowledge of Spanish* | .843 |  |
| *My focus is to show my Spanish competence* | .646 |  |
| *My aim is to demonstrate that I am knowledgeable in Spanish* | .583 | .321 |
| *My goal is to demonstrate my Spanish ability* | .445 | .354 |
| *\*My aim is to avoid becoming less competent in my Spanish* | .374 | .330 |
| *My focus is to develop my Spanish ability* |  | .907 |
| *My goal is to increase my Spanish competence* |  | .859 |
| *My goal is to avoid a decrease in my Spanish ability* |  | .648 |
| *My aim is to develop my Spanish knowledge* |  | .751 |
| *My focus is to avoid losing my Spanish knowledge* |  | .560 |

*Note*. Performance Goal Orientation proportion var. = .320; Mastery Goal Orientation proportion var. = .293 (cumulative = .612). \*Item was excluded from the analysis.

Table 9

*Factor Loadings for HL Enjoyment*

|  |  |
| --- | --- |
|  | Factor |
| *I don’t get bored* | .443 |
| *I enjoy it* | .827 |
| *I’m a worthy member of the Spanish class* | .582 |
| *In class, I feel proud of my accomplishments* | .714 |
| *It’s a positive environment* | .826 |
| *It’s cool to know Spanish* | .634 |
| *It’s fun* | .825 |
| *The peers are nice* | .753 |
| *There is a good atmosphere* | .900 |
| *We laugh a lot* | .616 |

*Note*. Proportion var. = .525.

Table 10

*Factor Loadings for HL Anxiety*

|  |  |
| --- | --- |
|  | Factor |
| *Even if I am well prepared for Spanish class, I feel anxious about it* | .623 |
| *I always feel that the other students speak Spanish better than I do* | .739 |
| *I can feel my heart pounding when I'm going to be called on in Spanish class* | .813 |
| *I don't worry about making mistakes in Spanish class* | .424 |
| *I feel confident when I speak in Spanish class* | .746 |
| *I get nervous and confused when I am speaking in my Spanish class* | .630 |
| *I start to panic when I have to speak without preparation in Spanish class* | .715 |
| *It embarrasses me to volunteer answers in my Spanish class* | .638 |

*Note*. Proportion var. = .456.

Table 11

*Factor Loadings for Classroom Environment*

|  |  |
| --- | --- |
|  | Factor |
| *Tasks designed in this class are useful* | .736 |
| *Tasks designed in this class are attracting* | .646 |
| *I know what I am trying to accomplish in this class* | .740 |
| *Activities in this class are clearly and carefully planned* | .810 |
| *Class assignments are clear so everyone knows what to do* | .787 |
| *I work well with other class members* | .764 |
| *I am friendly to members of this class* | .756 |
| *I make friends among students in this class* | .560 |
| *I help other class members who are having trouble with their work* | .489 |
| *The instructor provides a timely response to students’ concerns* | .784 |
| *The instructor is patient in teaching* | .775 |
| *The instructor smiles at the class while talking* | .703 |
| *The instructor asks questions that solicit viewpoints or opinions* | .703 |

*Note*. Proportion var. = .515.

Table 12

*Factor Loadings for Critical Language Awareness*

|  |  |
| --- | --- |
|  | Factor |
| *People from Spain speak the purest form of Spanish* | .368 |
| *In my opinion, people should use standard Spanish to communicate all the time* | .457 |
| *I believe Spanish-speaking Hispanics in the U.S. don’t speak correct Spanish* | .660 |
| *I feel speaking Spanish is less prestigious than speaking other foreign languages such as French* | .545 |
| *I believe people who speak Spanglish should switch to just Spanish or English* | .653 |
| *I don’t like it when people say ‘parquear’ instead of ‘estacionar’* | .777 |
| *I don’t like it when people code-switch because it is not a proper way of speaking a language* | .855 |
| *I believe Spanglish should not be allowed in Spanish classes* | .702 |
| *I would tease a friend when speaking Spanish if they forget or invent words* | .504 |
| *I would try to avoid mixing Spanish and English in the same conversation as much as I can* | .573 |
| *I would not code-switch in front of my teachers because they may think I am less intelligent* | .533 |

*Note*. Proportion var. = .382.

APPENDIX S3

Intraclass Correlation Coefficients for Classroom- and School-level Variation

We computed intraclass correlation coefficients (ICCs) to assess the proportion of variance in our variables that was attributable to HL students’ nesting within classrooms (*k* = 45) and universities (*k* = 11). In this study, the fact that HL learners belong to a particular classroom and school can cause ratings from that classroom and school to be more similar to each other. Such similarity may be connected to a multiplicity of factors, such as students’ shared classroom experiences, socialization processes, actual and/or perceived social norms about student behavior in school, or the local sociolinguistic status of the HL across different geographic locations, to name a few. The expected degree of ‘relatedness’ within the same cluster can differ based on the nature of each construct and the extent to which it is impacted by the aforementioned potential sources of variability.

The ICCs are reported in Table 13. Classroom-level clustering explained the highest amount of variance in HL Enjoyment and, to a lesser degree, Classroom Environment, Mastery Goal Orientation, and Critical Language Awareness. School-level clustering explained the highest amount of variance in Classroom Environment, closely followed by Performance Goal Orientation and HL Anxiety. In contrast, classroom- and school-level clustering effects were minimal for variables such as the Ideal and Ought-to HL Selves, Family Influence, or Intended Effort.

The higher ICCs observed for variables such as HL Enjoyment and Classroom Environment are in line with the notion that learners’ ratings for these constructs rely to some extent on common experiences across shared educational and socio-local spaces. For instance, with regards to Classroom Environment, it is interesting to note that the highest ratings were reported among students in two universities located in Florida and Texas, both of which have strong Spanish-English bilingual communities. Additionally, it is worth mentioning that the ICC for HL Enjoyment observed here is greater than what has been previously reported in L2 contexts (see Khajavy et al., 2018). We hypothesize that this may be due to differences in the scales used across studies. Specifically, the fact that the HL Enjoyment scale employed here (which was adapted from Dewaele et al., 2019; Dewaele & McIntyre, 2014) considered multiple social dimensions of enjoyment at the classroom level likely contributed to the more pronounced clustering effects.

Table 13

*ICCs for Classroom- and School-Level Variation*

|  |  |  |
| --- | --- | --- |
|  | Random Component | |
| Variable | Classroom | School |
| Ideal HL Self | <.001 | .06 |
| Ought-to HL Self | <.001 | .09 |
| Family Influence | <.001 | .03 |
| Intended Effort | <.001 | .04 |
| Mastery Goal Orientation | .14 | .02 |
| Performance Goal Orientation | <.001 | .12 |
| HL Enjoyment | .32 | .05 |
| HL Anxiety | .08 | .10 |
| Classroom Environment | .18 | .13 |
| Critical Language Awareness | .13 | <.001 |

*Note.* Classrooms, *k* = 45; Schools, *k* = 11. Except for the subsample for whom the questionnaire was not anonymous (see endnote 2), classrooms were determined based on the following information provided by respondents: university, course name, days and times class meets, and teacher initials.

APPENDIX S4

Descriptive Statistics by Variable

Table 14

*Descriptive Statistics by Variable*

|  |  |  |
| --- | --- | --- |
| Variable | *M (SD)* | Min-Max |
| Ideal HL Self | 4.68 (1.04) | 1.25-6.00 |
| Ought-to HL Self | 3.88 (1.35) | 1.00-6.00 |
| Family Influence | 3.53 (1.32) | 1.00-6.00 |
| Intended Effort | 4.32 (1.09) | 1.00-6.00 |
| Mastery Goal Orientation | 5.47 (.70) | 1.00-6.00 |
| Performance Goal Orientation | 4.72 (1.14) | 1.00-6.00 |
| HL Enjoyment | 4.48 (.53) | 1.90-5.00 |
| HL Anxiety | 2.71 (.87) | 1.00-5.00 |
| Classroom Environment | 4.41 (.54) | 1.76-5.00 |
| Critical Language Awareness | 4.85 (.85) | 1.00-6.00 |

APPENDIX S5

Nonparametric Bootstrapped Edge Weights with Y-Axis Labels

Chart

Description automatically generated

*Figure 5*. Nonparametric bootstrapped edge weights (ordered from highest to lowest), with 95% CIs depicted as grey area.

APPENDIX S6

Network Model Estimated after Applying a Nonparanormal Transformation

A picture containing watch

Description automatically generated

1. Ideal HL Self

2. Ought-to HL Self

3. Family Influence

4. Intended Effort

5. Mastery Goal Orientation

6. Performance Goal Orientation

7. HL Enjoyment

8. HL Anxiety

9. Classroom Environment

10. Critical Language Awareness

*Figure 6.* EBICglasso regularized network model estimated after nonparanormal transformation on continuous data.