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Internal and External Variables in EFL Learning: An Exploratory Study

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Abstract
This study investigated the impact of variables affecting foreign language learning from Iranian EFL learners' perspectives and explored the patterns that arise from their responses to questions addressing these variables. At first it was taken for granted that variables affecting foreign language learning are classifiable into internal and external. Therefore, the focus of the study was not on extracting these components but on the role that the variables play in relation to them. The study was carried out by distributing copies of a 30-item Lickert-scale questionnaire among close to 140 postgraduate students of English Language Teaching (ELT) in three universities in Iran. The collected data were then subjected to Principle Component Analysis (PCA). The findings revealed that although internal and external components are identifiable, many of the variables do not heavily load on the principle component to which they theoretically belong. After separating the non-correlating variables it became clear that most of these variables are very important variables. The conclusion was that the nature of variables cannot be the basis of judgment for their importance and that excessive attention paid to internal variables should be balanced against the social and cultural issues that are reflected in external variables.
Keywords: Principle component analysis, Internal variables, External variables

1. Introduction

1.1 Overview

Lots of variables are involved in the process of learning a foreign language. Some of these variables are internal to learners and others are external. However, there are interactions between these two groups of variables and they reciprocally affect each other. For example a good teacher (an external variable) can fire students' motivation (an internal variable) or intelligence (an internal variable) can compensate for shortcomings in the curriculum (an external variable). In addition, we do not know if variables belonging to one category correlate with each other and with their respective principle component significantly or not. To know about these issues we should answer questions such as: do all variables that are theoretically considered to be internal correlate significantly with each other? Do all variables that are theoretically considered to be external correlate significantly with each other? Are there any internal and external variables that correlate significantly with each other or with the other principle component? If answers to the first two questions is NO and if answer to the third question is YES, how can they be justified? This study was an exploratory study that tried to deal with questions of this kind.

1.2 Statement of the problem and significance of the study

This survey study was designed to explore the effects of variables affecting Iranian EFL learners' success in learning English from their own points of view. Although, many learners, teachers, and administrators know about the impact of some variables and agree on their importance, they are not well aware of the influence of others or underestimate their importance. For example, teachers and administrators know a great deal about motivation, attitude and feedback and their effect on learning a foreign language but they usually have sketchy information or conflicting ideas about the characteristics of a good teacher or a good teaching program. Their judgments about the latter group of variables are usually personal and not arising from systematic study. They also usually do not react to institutional factors that might adversely affect their teaching process and their students' success. While scientifically, without concrete evidence, no one is eligible to claim that institutional, curricular, and teacher variables are less important than motivational, attitudinal and other cognitive and affective variables because, regardless of their type, almost all variables affect each other mutually and have overarching effects on all other variables. The point with respect to this particular study is that, these different types of variables have hardly ever been compared with each other in one research. This is one reason why this study is important.

On the other hand, although learners themselves might not be seen by many as reliable sources for providing information about learning issues, they have firsthand experience of what works and what does not work for them. An investigation of learners' perceptions and the marks they assign to different variables for their importance then can tell us a great deal about what matters to them in learning a foreign language. This can help

researchers to see if these variables have been given their due attention or dealt with adequately or not. An exploration of the magnitude of correlations between foreign language learning variables, both internal and external, likewise, would tell us in what sense these variables are related and if they are not related, what the reasons are, especially when they belong to the same principle component. These issues constitute the second group of reasons that make this study important.

1.3 Design of the study

The design of this study was ex post facto because the variables and their possible clustering and inter-correlations were supposed to be present prior to the beginning of the study. This means that the study involved no intervention and only attempted to extract the clustering and patterns of interactions that existed among the foreign language learning variables from the respondents' points of view. This design explains only the consequent of a condition as in experimental studies. However, it differs from experimental studies in that it does not allow the researcher to manipulate the variables of the study. It is, therefore, clear that stating research hypotheses in an ex post facto design is not a wise thing to do because the researcher's job is to explore what the state of affairs is not to project a bias by stating what the status should be. However, researchers can ask why the situation is like what it is.

2. Review of the Related Literature

2.1 Introduction

There is a problem in looking at variables affecting educational outcomes altogether or one at a time. The downside of these approaches is that either the meaning in individual or meaning in group is lost. In one situation the information gathered is sketchy and in the other it remains unrelated and vague. A logical approach seems to be classifying these factors into groups that include elements that can go together Madrid (1995). Variables affecting educational outcomes can generally be divided into two groups of internal and external.

2.2 Internal variables

Internal variables refer to cognitive and affective factors like intelligence, persistence, motivation, anxiety, risk-taking ability, etc. Among external variables one can refer to such variables as social class, first language, teachers, early start, L2 curriculum and the like. However, it is a mistaken idea to think that internal and external variables are separate. Robinson and Ellis (2008) indicate that all these variables are inextricably intertwined in a rich, complex, and dynamic way in languages. The purpose of categorization, therefore, is only to understand the situation better not to claim that these factors have nothing to do with each other.

Age, motivation, attitude, intelligence and gender are among the internal variables that have been investigated more than other variables in the literature (e.g., Cheng & Dornyei, 2007; Dornyei & Csizer, 1998; Gardner, 1985; Kinginger & Farell, 2004). Autonomous-learning has also been investigated extensively (e.g., Deci & Ryan, 1985; Nurul Islam, 2011, Warden & Lin, 2000). Little (1999, as cited in Ushioda, 2006) considers autonomy as a major element in the modern theory of constructivism meaning that learners must manage their own learning by designing their own learning plans based on their own needs. Anxiety is another internal variable that has been given enormous attention. Cheng and Dornyei (2007) quote Young (1999), for example, that stress created by tense classroom climate is a powerful negative factor that hinders students learning achievement.

2.3 External variables

Institution, teacher, curriculum, and media are among the variables that fall within the brief of external variables. Needless to say that, these variables play a significant role in providing learners with a pleasant atmosphere for learning by increasing their motivation (Cheng & Dornyei, 2007; Stipek, 2002). For example, with the development of technology the Internet is playing a more and more important role in learning English. English students are downloading English songs, films and TV shows that let them get exposure to real English at a globalized communicational level (Khanchali, & Ziadat, 2011; Nurul Islam, 2011). This is but one of the external variables. The list of internal variables affecting the learning of a foreign language referred to above is not exhaustive as is the list of external variables pointed to in this section. A lot can be said about these variables; however, the details are overlooked here because of two reasons: first, the purpose of this study was not to study the nature of these variables and second, there is a space limitation to report small details of the study.

3. Method

One of the uses of Principle Component Analysis (PCA) is to develop questionnaires (Field, 2009). The purpose is to ensure that the questions asked relate to the construct that the researcher wants to measure. In the case of EFL, a lot of questions can be asked that can roughly be divided into questions that address internal and external variables. However, the loading of each of these questions on the main construct and its subdivisions will not be

clear unless a PCA is run on the collected data. This is because responses to questions or the importance assigned to each variable in a questionnaire are situation and person specific and vary from one situation and person to the other. It is only after running a PCA that conclusive claims can be made about the importance of variables or their groupings in that context. Therefore, talking of hypotheses before running a PCA would be irrelevant even though researchers might have some speculations. On the other hand, researchers might be interested in finding out if the principle components they identify after running a PCA can be further subdivided into additional specific components. This is possible in two ways: impressionistically and by running additional PCAs. Impressionistic grouping of variables has the danger that the variables might not load on the component that the researcher thinks they should even if they are conceptually and theoretically related. Running a PCA, in contrast, increases the precision and brings to the surface things that otherwise might remain unnoticed. Following from what was said, this research, because of its exploratory nature, did not put forth claims regarding the nature of variables or their groupings, and took for granted the already mentioned groupings of internal and external variables. The thing it did in contrast was to find out if all of the variables in each category load on the principle component to which they are attributed and if not why. The study, in other words, tried to answer the questions that were raised in the introduction section, namely, do all variables that are theoretically considered to be internal correlate significantly with each other? Do all variables that are theoretically considered to be external correlate significantly with each other? Are there any internal and external variables that correlate significantly with each other or with the other principle component? If answers to the first two questions is NO and if answer to the third question is YES, how can they be justified?

3.1 Participants

The participants of this study were all Master's degree students of English Language Teaching (ELT) in three universities in the provincial city of Ardabil, and Ahar in northwest of Iran. Naturally, all of the students were above 22 years old and had an English language learning experience of at least five years. Therefore, all of the participants had firsthand experience and were quite familiar with the complexities involved in learning English as a foreign language. The proportions of male and female students responding to the questionnaire, however, were not the same with the majority of the respondents being female students. The participants' first language was either Persian or Azeri. No screening for proficiency was done before beginning of the research because the research was not intended to measure the participants' gains in proficiency over time rather to elicit their opinions about the importance of variables affecting learning English as a foreign language.

3.2 Instruments

The instruments used in this study were of three types, one used for data collection and the other ones for analyzing the data. The first instrument was a 5-point Likert scale containing 30 questions. The values of responses to each question ranged from 1 to 5. One represented the least effect while five represented the most effect. The questionnaire was designed to give the fullest possible coverage to the variables that, according to the literature on the field, affect learning English as a foreign language but the length of the questionnaire was not allowed to exceed a limit that might have discouraged the respondents from answering all of the questions with enough attention.

Another type of instrument used in this study was Microsoft Office's Excel spreadsheet that was used to calculate the means of responses to each question in the questionnaire. These means at the later stages of the study, when the variables were divided into two components, were used as distributions of mean scores to run an Independent-samples T-test between the two groups of variables to discover if according to students' responses they were significantly different from each other.

The last instrument used was the SPSS package that was used to analyze the collected data. As a prerequisite of descriptive studies, it was necessary to check for the reliability of the questionnaire. Also, it was necessary to run an exploratory PCA to find out if any variable, from participants' points of view, was exerting undue influence upon foreign language learning. The findings would be much more understandable if they could also be represented diagrammatically. SPSS was used to draw these graphs as well. It is necessary to point out that, PCA and Factor Analysis or (FA) belong to the same class of statistical testing, namely, dimension reduction, and are sometimes used interchangeably; however, in this article only PCA is used because FA and PCA are different from each other in some respects.

3.3 Procedure

The questionnaire used in this study was piloted on 10 BA students of ELT before beginning of the actual research to see if they could understand and answer all of the questions easily. If BA students were able to answer the questions, it could be concluded that MA students would have no or little problem understanding and answering them. Also, since some respondents answer questions in a questionnaire superficially, it was decided that if anyone's responses were the same for more than one-third of the questions in the actual data collection

process, that questionnaire be discarded from the study. For this reason, although initially more than 160 copies of the questionnaire were passed out among the MA students, the ultimate number of responded questionnaire copies used in the data analysis was 136.

After the questions in the questionnaire copies were answered and the data were collected, they were entered into SPSS. At the first stage a Chronbach Alpha reliability test was run to find out if the questionnaire was reliable. The test proved that the questionnaire was at an acceptable level of reliability with r=.803. After that, a PCA with two principle components was run with Scree and Component plots on the overall data to explore how the variables clustered around the two external and internal variables.

PCA, according to Pallant (2013), is a data reduction technique that looks for a way a huge collection of data can be reduced or summarized. The purpose of this study, however, was to single out variables that did not correlate with each other, even though they belonged to the same category theoretically, and explain why this was the case.

The Scree plot tells us which variable or groups of variables are statistically important and should be retained. This is made possible by considering extreme change(s) in the form of the plot which are called elbows or points of inflexion. The higher the component in the scree plot, the more influence it is thought to be wielding on the component or components in question. In other words, it explains more of the variance in the data compared to other variables. Component plot also represents loadings of the variables on the components but after they are extracted. In the case of this study, however, the components themselves were not of much interest as they were known to the researchers before beginning of the study, rather the study was set to find the variables that loaded or more importantly did not load on those components even though, with respect to their nature, they were expected to do so.

PCA also provides us with two measures of sampling adequacy and two measures of PCA appropriateness. One of the sampling adequacy measures is Kaiser-Meyer-Oklin (KMO) whose value should be above the bare minimum of .5 for us to be able to run PCA. Another measure is the Anti-image Matrix that shows KMO values for individual variables as represented on its diagonal. The KMO values on the Anti-image diagonal, likewise, should be above .5.

The determinant of the correlation matrix and Bartlet's Test of Sphericity are indices of appropriateness. The first of these indices checks for the existence of multicolinarity (correlations above .8 between variables) and singularity (perfect correlations between variables). SPSS provides this value at the bottom of the correlation matrix. Determinant's value should be significantly different from zero, i.e., the P value should not exceed .05. The Bartlet's Test of Sphericity tells us whether there is any variable that does not correlate with other variables and like Determinant its probability value must be significant. Bartlett's measure is given in the same table as KMO. It should be noted that for PCA to work, we need some moderate correlations between variables.

4. Data analysis

The questionnaire used in this study was a five-point Likert scale with 30 questions. The reliability of this data collection instrument was r=.803, as shown in Table 4.1 below. Pallant (2013) suggests that r values above .70 are large enough for the reliability of questionnaires.

Table 4.1 *Reliability of the Questionnaire*

Reliability Statistics

Cronbach's Alpha	N of Items
.803	30

PCA was used twice in this study. In the first case, it was used to plot all of the variables on the component plot and around the vectors. This was done to show that there might be variables in each category that do not load on their respective components but load on the other component or fall somewhere in between. In the second case, PCA was run without confounding variables. The confounding variables were the ones whose strength of correlation with any other variable and the principle component to which they belonged was not above .3. The second instance of running PCA could have given us a much clearer picture of what was going on with respect to the loadings of variables on the two principle components. It should be kept in mind, however, that many of the non-correlating variables, as their mean values represented, were very important ones to which respondents had attributed some of the greatest values. This means that, the results should be interpreted with respect to the roles that these variables play in relation to foreign language success. Table 4.2 represents the KMO and Bartlett's values for the total data in this study. KMO is a measure of sampling adequacy and Sphericity is a measure of correlations between variables, as discussed below.

Table 4.2 *KMO Test of Sampling Adequacy and Bartlett's Sphericity*

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.626
Bartlett's Test of Sphericity	Approx. Chi-Square	998.899
	df	435
	Sig.	.000

According to Field (2009), the value of KMO test of adequacy of sampling should be above the bare minimum of .5 for us to be able to run PCA. Bartlett's measure, tests whether the correlation matrix is an identity matrix (that is, no variable is correlated with the other variables) or not. So, we need some correlations between variables for PCA to work but this correlation should not be very high.

Another index to be checked for is Determinant of the correlation. The value of Determinant of the correlation is important for rejecting multicollinarity and singularity, as was explained about. This value which is given at the bottom of the Correlation Coefficients table must be smaller than .05 for us to be able to reject the existence of multicollinarity and singularity. The existence of these two conditions can render the use of PCA implausible. In the case of our data the Determinant's value was equal to =.000.

Anti-image Covariance is another necessary index which shows the KMO values for individual questions, that is the adequacy of the number of responses given to each question in the questionnaire. These values fall on the diagonal of Anti-image table and necessarily must be above .5. The shaded values in the portion of Anti-image table that is given below indicate the magnitudes of this index for some of the individual questions in the questionnaire. All anti-image values for our questions were above .5.

Table 4.3 *Anti-image Covarince*

		motivation	parental influence	intelligence	teachers	attitude	social class
Anti-image Covariance	motivation	.651	-.198	.092	-.017	-.081	.075
	parental influence	-.198	.556	-.103	-.079	.057	-.104
	intelligence	.092	-.103	.627	-.184	.016	.190
	teachers	-.017	-.079	-.184	.632	-.075	-.085
	attitude	-.081	.057	.016	-.075	.556	-.096
	social class	.075	-.104	.190	-.085	-.096	.618

The Total Variance Explained table is an additional table that shows the eigenvalues of the variables. Eigenvalue can be conceived of as the ratio of the length of the data in a scatter plot to its breadth represented by perpendicularly crisscrossing lines. The larger this value is, the more loading it can be concluded that the variable is exerting on one of the principle components. According to Field (2009), the table of Total Variance Explained lists the eigenvalues associated with each linear variable, i.e., each question in the questionnaire, before and after extraction and also after rotation. The eigenvalue associated with each variable represents the amount of variance explained by that variable. Variables are listed in the TVE table in a descending order with variables on top having the largest eigenvalues. The only difference between Extraction Sums of Squared Loadings column and the previous column is that the values for the discarded variables are ignored in the former column. The final column displays the eigenvalues of the variables after they are rotated. Direct Oblimin rotation was the procedure used in this analysis because there were significant correlations between some variables belonging to different components. Verimax is the best choice when variables loadings on different components do not correlate with each other highly. Of course, by significant correlation it is not meant that the correlations were very high but that their significance values fell below .05. The table by which we know about the correlations between variables is the Correlation Matrix which is not given here for space limitations. The following table shows the Rotation Sums of Squared Loadings after this adjustment, i.e., rotation, was done. Please note that like the Anti-image Covariance table, only the top part of the table is represented here. The deleted section of the table only shows the initial eigenvalues of the remaining variables.

Table 4.4 *Eigenvalues of Variables after They Are Rotated*

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.665	15.551	15.551	4.665	15.551	15.551	3.403	11.343	11.343
2	2.133	7.109	22.659	2.133	7.109	22.659	3.395	11.316	22.659
3	2.033	6.775	29.435						
4	1.838	6.126	35.561						
5	1.598	5.328	40.889						
6	1.469	4.898	45.787						

Field (2009) argues that PCA "works on the initial assumption that all variance is common; therefore, before extraction the communalities are all 1" (p. 661). However, once principle components are extracted, we have a better idea of how much variance is common. For example, in the part of the communalities table that follows, we can say that .114% of the variance associated with the first question had been common or shared variance.

Table 4.5 *Communalities of Variables*

Communalities

	Initial	Extraction
Motivation	1.000	.114
parental influence	1.000	.331
Intelligence	1.000	.141
Teachers	1.000	.233
Attitude	1.000	.142

SPSS provides a wealth of tables and figures in PCA. One of the very useful figures produced is the Scree plot. This plot shows the importance of each variable graphically. Usually there are one or a few variables that have substantial loadings on the principle components and occupy the highest points on the Scree plot. Variables with relatively low eigenvalues, of which usually there are many, fall after the sharp descent or point of inflexion and tail off with a mild slop. The Scree plot that follows shows the loadings of variables in this study schematically. There are two points of inflexion, as it can be seen, one after the second variable and the other after the third variable. This suggests that there might have been two principle components, as we had speculated initially. The eigenvalue of the variable with the strongest loading is close to 5 while the eigenvalues of variables in the first and second inflexion points are around 2. These variables can be identified by the means of the responses to questions if they are arranged from the biggest to the smallest. In the case of our data, the first two largest loadings belonged to motivation and teachers.

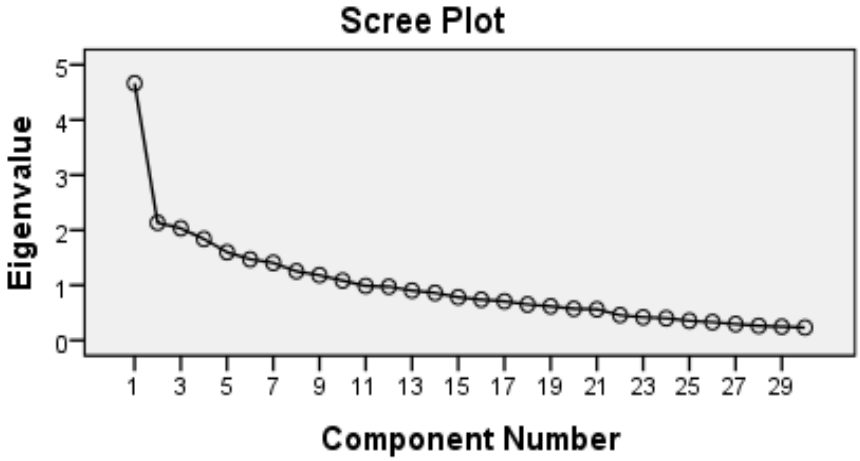

Figure 4.1 Loadings of the variables

Another important figure that is very informative is the Component Plot, alternatively called Factor Plot. This plot is especially easy to draw when there are only two principle components because loadings of the variables on them can be represented by two vertical and horizontal axes or vectors. When the number of principle components exceeds this limit, the plot's drawing and interpretation becomes extremely difficult and even SPSS does not provide such plots. Variables that relate to each principle component, therefore, are plotted

around those components represented by axes. The coordinates of each variable represent the strength of the relationship between that variable and each of the components. The axes lines range from -1 to 1 which are the outer limits of a correlation coefficient (Field, 2009). The position of each variable says how much it correlates with each of the components. In Figure 4.2 a component plot for the data in this study is given. As it can be seen, a cloud of dots covers the area between the two axes on the right topmost quarter of the graph with a few variables falling on the left of the vertical axis and below the horizontal axis. The dots falling on the middle of the cloud represent the variables that not only do not correlate with a particular principle component strongly enough but also do not correlate with other variables. This finding bears witness to our initial claim that among the many variables that are thought to belong to a particular construct some might not correlate with others or even the component that represents them.

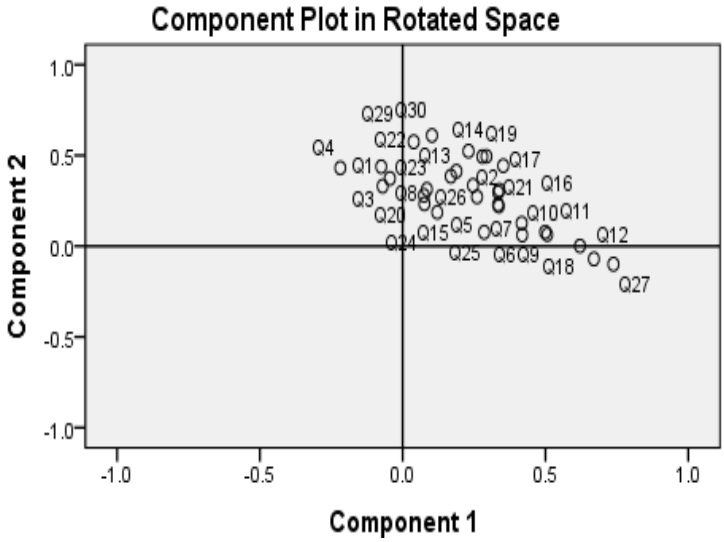

Figure 4.2 Factors and their contributing variables

Strangely enough, the non-correlating variables are some of the most important variables as rated by the respondents in this study. To reiterate, by non-correlating it is not meant that these variables do not correlate with each other at all rather their correlations with each other and with the principle components are below .3. The non-correlating variables were questions addressing motivation, intelligence, teachers, social class, autonomy, institutions, friends, persistence, the internet, teaching resources, and L2 curriculum with mean values of 4.80, 3.97, 4.18, 3.42, 3.52, 3.5, 3.15, 4.11, 3.80, 3.68, 3.17, respectively. Some of these variables are internal and others external. Still worse, the results obtained in the Rotated Component Matrix below show that variables of different nature had loadings on the same Component. The empty spaces are because correlations between the variable and the principle components had been below .3.

Table 4.6 *Rotated Loadings of Variables on Components*

Rotated Component Matrix[a]

	Component	
	1	2
Beliefs	.738	
job market	.670	
Politics	.621	
risk-taking ability	.506	
personality	.499	
social class	.419	
Press	.417	
first language	.338	.310
autonomy	.337	
analytical perception	.334	
Friends	.334	
degree of hopefulness		
group work		.610
early start		.575
Films		.524
parental influence		.495
Anxiety		.494
participation	.352	.443
Age		.438
teachers		.431
competitiveness		.413
openness to innovation and new methods		.385
intelligence		.373
L2 curriculum		.335
motivation		.331
institution		.313
Internet		
Attitude		
teaching resources		
persistence		

This state of affairs, however, does not reject the idea that, generally speaking, there might have beeen two principle components. To show that there are specific groups of variables that load on just one component we can discard our non-correlating variables and run PCA one more time. The Component Plot and the Rotated Component Matrix table that follows it show that after this pruning the picture becomes much clearer.

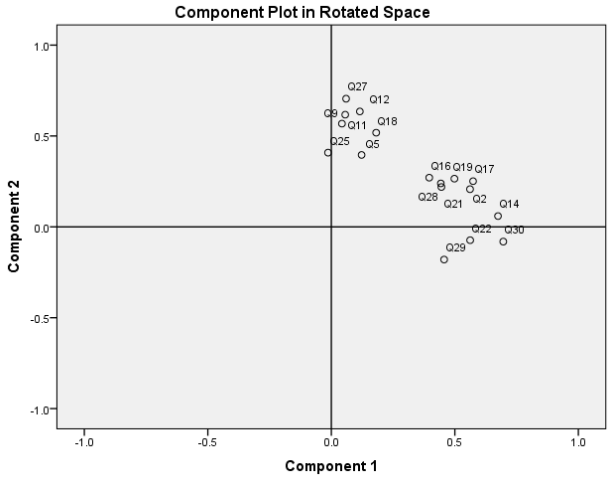

Figure 4.3 Variables and their vectors after pruning

Table 4.7 *Loadings of Variables on Components after Pruning*

Rotated Component Matrix[a]

	Component	
	1	2
group work	.698	
Films	.672	
early start	.594	
parental influence	.555	
participation	.529	
Age	.525	
first language	.478	
Press	.389	
Beliefs		.720
job market		.647
risk-taking ability		.608
personality		.569
Politics		.527
degree of hopefulness		.419
Attitude		.400

The finding that there were two principle components is not very important though because we already knew about it. What is important is that to determine the elements of success in foreign language learning one should not exclusively concentrate on variables that load on one principle component or the other but to concentrate on both of them and even variables that load on none of them heavily. Alternatively, one could focus on variables that although belonging to a particular category, do not correlate highly with variables of the same nature.

One reason for this is that variables that theoretically are related to each other and fall in the same category do not necessarily correlate highly with each other and even with the principle component that represents them. For example, in the case of this study motivation, which had the highest mean score among all of the variables, did not correlate highly with the internal variables like intelligence and persistence. It did not load heavily on the internal principle component either, as can be seen in Table 4.6. On the other hand, teachers variable which was the second most important variable from the respondents' perspective did not correlate highly with teaching resources and institutions and did not load heavily on the external component either, as is visible again in Table 4.6. These finding altogether suggest that categories should not be the basis of our judgment by saying that, for example, internal factors are more important than external factors merely because these are emphasized more in the literature. What matters, is paying balanced attention to both categories of variables and exploring their effects. Even running an Independent samples T-test will tell us that the weight the respondents assigned to the internal variables did not vary significantly from the weight they assigned to the external variables. Also, the grand mean of the scores assigned to the internal variables is 3.767 and the grand mean of the scores assigned to the external variables is 3.499 and this is while only three external variables, namely, politics, friends, and parental influence, by mean scores of 2.71, 3.03, and 3.15, respectively, gathered low mean scores. Had the participants been well-informed of the role of politicians in setting educational policies, the role that parents play in encouraging their children from early childhood both in paving the ground for their learning of English as a foreign language and in developing positive attitudes in them and the role that peers play in many cooperative learning contexts, their responses could have favored external variables. Table 4.8 shows the lack of a significant difference in the importance assigned to the internal and external principle components by respondents in this study.

Table 4.8 *Independent-samples T-test Comparing Means of Internal and External Variables*

Independent Samples T-test

	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
Equal variances assumed	.990	.328	1.897	28	.068

Conclusion and discussion

If we now turn to the questions that we raised in the introduction section, our answer to both of the questions (Do all variables that are theoretically considered to be internal correlate significantly with each other? Do all variables that are theoretically considered to be external correlate significantly with each other?) will be NO. Our

answer to the third question (Are there any internal and external variables that correlate significantly with each other or with the other principle component?), but, will be YES. For example, the correlations between *beliefs* and *job market* on the one hand and anxiety and participation on the other are *r*=.460 and r=.415, respectively.

To justify these patterns of responses, one might say that students' responses and the values they attribute to the variables have nothing to do with the variables' nature because variables in each category can be graded according to their degree of importance and naturally some variables within each category may take priority over variables in the other category. This justification has some valid points to it but it seems that for the most part the respondents' assignment of scores is conditioned by their social and cultural settings. For example, whether they value cooperative learning or not, which can reveal itself in their appreciation of the role of friends, or whether they assign high scores to parental influence, reflected in their answers to the question addressing this issue, are both social and cultural issues. Also whether respondents put much premium on the internet or not is to a great extent affected by their country of origin's level of development. The final point to make is that findings in one situation should be taken with a grain of salt when they are applied to other contexts and one component should not be favored to the disadvantage of the other.

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