Teacher Motivation Strategies, Student Perceptions, Student Motivation, and English Achievement

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This study investigated language teaching strategies, as reported by teachers and students, and the effects of these strategies on students' motivation and English achievement. The participants consisted of 31 English as a foreign language (EFL) teachers and their students ($N = 694$) in Catalonia, Spain. The teachers and students rated the frequency of use of 26 strategies in their classes. In addition, the students were tested on their attitudes, motivation, and language anxiety with the mini-Attitude Motivation Test Battery (AMTB; Gardner & MacIntyre, 1993) and completed objective tests of English achievement.

The results indicated that the teachers and students agreed on the relative frequency of some strategies but not on the frequency of other strategies and that, although the teachers' reported use of motivational and traditional strategies was not related to the students' English achievement, attitudes, motivation, or language anxiety, the students' perceptions of these strategies tended to be related to their attitudes and motivation at both the individual and class levels. In addition, when the students were the unit of analysis, there was a negative correlation between the students' ratings of the frequency of traditional strategy use and English achievement. Path analysis indicated that integrativeness, attitudes toward the learning situation, and instrumental orientation predicted the motivation to learn English and that motivation was a positive predictor of English achievement, whereas attitudes toward the learning situation and language anxiety were negative predictors of English achievement. Hierarchical linear modelling analysis confirmed these findings but indicated that the effects of strategies are much more complex than previously thought. Strategy use as reported by the teachers did not influence the regression coefficients for any of the predictors, but strategy use reported by students had a positive effect on the predictability of motivation on English achievement.

THERE HAVE BEEN MANY STUDIES THAT have investigated the relationship between motivational variables and second language (L2) achievement. These studies have used many different measures of motivation. Some studies have been based on the socioeducational model of L2 acquisition and the Attitude Motivation Test Battery (AMTB; Gardner, 1985, 2006), or on Noels's (2001) adaptation of Deci and Ryan's (1985) self-determination theory, or on Clément's (1980) social context model, and other studies have used items developed for the purpose (see, e.g., Dörnyei & Clément, 2001). Although these studies have used different conceptualizations of motivation, they all found relationships between motivation and L2 achievement or other indexes of learning. This type of research that focuses on individual difference correlates of language achievement has been criticized, however, because critics have claimed that it overlooks the importance of the teacher in the learning process and that the contributions of the teacher are being ignored. A more education-friendly approach, it is argued, would focus more on variables that would help the teacher understand motivation and encourage its development and maintenance.

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To this end, there have been a number of educators who have proposed ways in which motivation can be developed and supported. For example, Dörnyei and Csizér (1998) presented 10 commandments for teachers that were directed at improving student motivation, and Williams and Burden (1997) listed 12 suggestions for motivating students. Dörnyei (2001) proposed that these strategies could be grouped into four categories. The first category concerns conditions in the classroom; that is, it is necessary to create basic motivational conditions by adopting appropriate teacher behaviours, having a good relationship with students, maintaining a pleasant and supportive atmosphere in the classroom, and providing group norms to promote a cohesive learner group. The second category focuses on generating student motivation by enhancing their language-related values and attitudes, increasing their goal orientation, making the curriculum relevant, and creating realistic learner beliefs. The third category involves maintaining motivation by setting *proximal subgoals*, improving the quality of the learning experience, increasing student self-confidence, creating learner autonomy, and promoting self-motivating learner strategies. The fourth category deals with encouraging positive self-evaluation by promoting attributions to effort rather than to ability, providing motivational feedback, and increasing learner satisfaction. Clearly, the assumption underlying all of these recommendations is that teacher behaviour and beliefs have a direct influence on the students.

All of these motivational strategies seem important, and, as a result of studies based largely on student or teacher responses to questionnaires, all of them have been proposed as potentially important. There appears to be little research, however, that has directly investigated the relationship between the use of these strategies and student motivation or achievement in the language, or both; that is, if one were to conduct a study in which some students were randomly assigned to classes taught by teachers who actively followed some of these strategies while other students were taught by teachers who did not use the strategies, would the anticipated results actually be obtained? Much research that has been done relating teacher motivational strategies to student motivation and achievement in fact does not even test the teachers. Many of the results are based on the students' perceptions of their teacher's behaviour, not necessarily on the teacher's actual behaviour itself.

For example, Noels, Clément, and Pelletier (1999) studied the relationship between student perceptions of their teacher's communicative style and the students' motivation and language competence. The study found that intrinsic motivation was negatively associated with class anxiety, with perceptions of the teacher as controlling, and with perceptions of being controlled by the environment, but that it was positively related to motivational intensity, to intention to continue language study, to self-evaluation of language skills, and to perceptions of the teacher as informative. Moreover, perceptions of the teacher as controlling were positively correlated with class anxiety and negatively correlated with motivational intensity and self-evaluation, whereas perceptions of the teacher as informative were positively correlated with motivational intensity and intention to continue with language study. These types of results indicate the importance of such factors in influencing student autonomy (cf. van Lier, 1996). Final grades in the language course were not significantly related to any of the measures investigated.

Noels (2001) also investigated the relationship between students' perception of their teacher's communication style and various measures of motivation. A path analysis indicated that the more controlling the teacher seemed to the students, the less autonomy they felt, and that the more informative the teacher was perceived to be in terms of the feedback given, the more competent the students felt. In turn, perceived autonomy and perceived competence were related to five forms of "orientations" investigated in that study.

Ibarraran, Lasagabaster, and Sierra (2007) investigated attitudes toward languages and preferences for language class activities of autochthonous and foreign students in the Basque country. The foreign students rated their first language most positively, but thereafter both groups expressed the most positive attitudes toward Spanish, followed by English, and then by Basque. In addition, both groups showed a clear preference for classroom activities that involved communication and active participation using authentic materials in the language classes instead of simply following the textbook, although they also favoured direct correction of grammar errors. The study also included interviews with the teachers, but these qualitative data could not be related directly to the students' attitudes. Similar results with respect to attitudes toward languages were obtained in a study carried out in Catalonia by Bernaus, Masgoret, Gardner, and Reyes (2004). The most positive attitudes were toward Spanish, followed by English and Catalan for samples of both autochthonous and foreign students.

A study by den Brok, Levy, Brekelmans, and Wubbels (2005) investigated the influence of teacher proximity (cooperation) and influence (dominance) as perceived by students on four aspects of student motivation (pleasure, effort, confidence, and relevance) in an English as a foreign language (EFL) course. Using multilevel modelling (hierarchical linear modelling), they found that both proximity and influence at the class level had an effect on pleasure, effort, and relevance; that is, the more the students perceived the teacher as cooperative or dominant, the more the students reported experiencing pleasure, effort, and relevance. The effects of proximity were greater than those for influence, and whereas proximity also had an effect on confidence, influence did not.

Rather than asking students, some studies have queried the teachers instead. For example, Dörnyei and Csizér's (1998) 10 commandments were based on responses to a questionnaire that was administered to teachers asking them to identify teaching strategies that promoted student motivation. No students were included in the investigation.

Although the various strategies that have been proposed seem meaningful, there is evidence to suggest that there may be disagreement between students and teachers about the value of some strategies. For example, Schulz (2001) investigated the perceived value of the use of grammar instruction and corrective feedback in samples of students and teachers of foreign languages in Colombia and the United States. The results indicated that although the teachers from the two countries showed reasonable agreement on the use of grammar instruction and corrective feedback, as did the two student groups, there was a considerable degree of disagreement between the teachers and the students in the two countries. Another study by Raviv, Raviv, and Reisel (1990) had teachers and students respond to the Class Environment Scale (Moos & Trickett, 1974), which consists of nine dimensions. Half of the respondents in each group rated the real classroom, and the others rated the ideal classroom. The results demonstrated that the teachers and students perceived the classroom environments significantly differently on the dimensions overall, although the differences were greater for ratings of the real classroom than for the ideal classroom. Thus, there is evidence to suggest that students and teachers perceive things differently.

There does not appear to be any study that has formed random classes of students and has systematically tested whether the use of specific strategies has the hypothesized effect on motivation and achievement. Of course, there is a good reason for the lack of this kind of study, given that it might well be considered unethical. There does not even appear to be any study that has asked both teachers and students whether specific strategies were used in their classes. There is no ethical reason why this type of study could not be done. Clearly, it would not be as informative as a study in which students were randomly assigned to classes differing in the use of strategies, but it would at least deal with the issue of whether teachers and students agree on when a strategy is employed or whether the teacher's view that a strategy is being used has an effect on the students' motivation and achievement.

THE PRESENT STUDY

The purpose of the present study was to investigate this issue of teacher and student perceptions of strategy use and the effects of those strategies. In this study, we asked the teachers and the students to indicate the extent to which 26 different teaching strategies were used in their classes. There were 14 strategies that would be considered traditional, in that they tend to be teacher-centered and devoted primarily to the structural aspects of language training, and 12 strategies that most teachers would classify as innovative in intent, given that they are student-centered, devoted to communicative interaction, and stress student autonomy in the language learning process (cf. van Lier, 1996). The questions underlying our research were:

1. Do students and teachers perceive the use of the same strategies similarly?
2. Are the strategies as reported by the teachers related to their students' motivation and achievement?
3. Are the students' perceptions of the use of these strategies related to their motivation and achievement?

METHODS

The participants for this investigation consisted of 31 English teachers and their students ($N = 694$) from the Catalan Autonomous Community of Spain. The students were in their last year of compulsory secondary education, and they were 15 years old. Of the participant sample, 50% came from public schools and 50% came from private schools subsidized by the Catalan government. The schools were distributed over Catalonia and were situated in small, medium, and large towns.

The teachers and students in 31 secondary school classes in Catalonia completed a series

of questionnaires designed to identify the strategies used by the teachers in the EFL class. The students' language attitudes, motivation, and language anxiety were assessed by 12 variables usually measured by the AMTB. Rather than use the full AMTB, however, for the present study, we used the mini-AMTB (Gardner & MacIntyre, 1993). The mini-AMTB consists of one item corresponding to each scale on the AMTB. When using the mini-AMTB, it is recommended that researchers direct their attention toward the major attributes in the socioeducational model by aggregating the item scales, rather than using the scales individually. Thus, the variables resulting from the mini-AMTB for the present study were Integrativeness, Attitudes toward the Learning Situation, Motivation, Language Anxiety, Instrumental Orientation, and Parental Encouragement.

A description of the measures administered to the teachers and the students follows.

The Teachers' Questionnaire

The teachers' questionnaire listed 26 teaching strategies and asked the teachers to rate the frequency with which they used each strategy on a 7-point scale ranging from 1 (never) to 7 (always). As mentioned previously, 12 of the items referred to innovative strategies and 14 presented traditional strategies, although they were not identified as such on the questionnaire. The items were presented in random order.

In some classes, teachers tend to use innovative strategies, whereas other teachers use more traditional methods. Our vision of the innovative strategies is that they are based on student-centered activities that lead the students to interact with each other and with their teacher in the L2 in order to solve problems and complete projects. Traditional strategies, by contrast, involve the teacher as a protagonist. The traditional class is more teacher-centered than student-centered and focuses on learning the elements and structure of the language.

Furthermore, these two approaches to teaching often differ in the way in which they evaluate students' learning process, so we included some items on the questionnaire that related to evaluation and assessment. We hypothesized that teachers using the traditional approach would tend to use tests to assess student achievement but would rarely distribute questionnaires to their students to evaluate their teaching, whereas teachers who used innovative strategies would use tests less frequently but would ask their students to evaluate their teaching performance more frequently.

The Students' Questionnaire

There were two parts to the student questionnaire, both of which were presented in Catalan. In the first part of the questionnaire, the students were asked to rate the extent to which their teachers used each of the same 26 strategies that had been rated by their teachers, using the same 7-point scale that ranged from 1 (never) to 7 (always). In the second part of the questionnaire, the students completed the mini-AMTB (see the Appendix for the items in English). Six variables were derived from the scores on this test because some scales were aggregated. The variables and the items aggregated to form some of them were the following: *Integrativeness,* consisting of (a) Attitudes toward the Target Language Group, (b) Interest in Foreign Languages, and (c) Integrative Orientation; *Attitudes toward the Learning Situation,* which included (a) English Teacher Evaluation and (b) English Course Evaluation; *Motivation*, which included (a) Motivational Intensity, (b) Desire to Learn English, and (c) Attitudes toward Learning English; *Language Anxiety*, which included (a) English Class Anxiety and (b) English Use Anxiety; *Instrumental Orientation* (a single item); and *Parental Encouragement* (a single item).

In addition, the students completed two objective measures of English achievement. One test measured reading skills, and the other test measured listening comprehension skills. The correlation between these two measures for the sample of 694 students was .743; thus, the mean score served as the measure of English achievement in this investigation.

RESULTS

The results of this investigation are presented in the following four subsections.

Relationship Between Student and Teacher Ratings of Strategy Use

The relationship between the teacher and student perceptions of individual strategy use was investigated by calculating the mean use of each of the 26 strategies in each class as seen by the students and correlating this mean with the ratings made by their teacher. Thus, each correlation was based on 31 pairs of observations. Table 1 presents these correlations.

TABLE 1
Correlation of Teachers' Report of Innovative or Traditional Strategy Use and Students' Perceptions of Such Use

I or T	Teacher Strategy	*r*
I	I make students do pair work conversations.	.45*
T	My students do listening activities through audio or video.	.47**
T	I make students do grammar exercises.	.17
I	My students play games in class.	.36*
T	I ask my students to memorize lists of vocabulary.	.60**
T	My students read stories or other kinds of texts in class.	.58**
T	My students write letters or other kinds of texts in class.	.65**
T	I address questions to the whole class.	.01
I	Students work in small groups.	.08
T	I assign homework to my students.	.51**
T	I make my students do dictations.	.63**
I	My students do project work.	.35
I	My students participate in European projects.	.60**
T	My students use dictionaries in class.	.54**
I	My students use the Internet, CDs or other kind of resources to do research.	.36*
T	I make my students translate English texts into Catalan.	.58**
T	I follow the students' textbook.	.59**
I	I speak English in class.	.51**
T	I allow my students to speak Catalan or Spanish in class.	.70**
T	I lay down the norms to be followed in class.	.24
I	I put more emphasis on my students' communicative competence than on their discourse competence.	.02
I	I supplement the students' textbook with other materials.	.17
I	I surprise my students with new activities in order to maintain their interest.	.13
T	I evaluate my students' English achievement using tests.	.01
I	I give questionnaires to my students to evaluate my teaching.	.09
I	My students do self-evaluation and co-evaluation.	.36*

Note. I = innovative strategy; T = traditional strategy.
*$p < .05$; **$p < .01$.

As Table 1 shows, 16 of the correlations were significant, whereas 10 correlations were not. Of the 12 innovative strategies that the teachers claimed to use, 6 were not perceived that way by the students in their classes, whereas the frequency of 10 of the 14 traditional strategies were perceived similarly by both the students and the teachers. For the 16 strategies where the teachers and their students agreed on the frequency of use, it seems reasonable to conclude that the strategies were in fact used to varying degrees in the different classes. Conclusions about the remaining 10 strategies are less clear. The teachers and students did not agree on the frequency of their use, but precisely what this lack of agreement means could not be determined in this study. This question could be answered in future research by using this procedure but including observers in the classrooms at various times throughout the year to monitor the use of the different strategies. The present data, at least, identify differences in the reported use of some strategies and the recognition of these strategies by the students and are consistent with previous findings (cf. Raviv et al., 1990; Schulz, 2001).

It was noted previously that 12 of the items reflected innovative strategies, and the remaining 14 referred to more traditional strategies, Item mean scores were computed for the two types of items resulting in Innovative and Traditional Strategy Use scores for each teacher. A paired *t*-test of these scores revealed that the teachers perceived that they made use of the traditional strategies more frequently than the innovative strategies, $M = 5.06$ and $M = 4.05$, respectively; $t(30) = 6.60$, $p < .001$.

Relationship of AMTB Variables to Each Other and to English Achievement

Another purpose of this investigation was to assess the relationships among the variables measured by the mini-AMTB and between these variables and English achievement. This assessment was done in two ways in this investigation: first, by focusing on the relationship among these

variables using the student as the unit of analysis and, second, by using the class as the unit. In Table 2 the correlations based on the individual differences among the 694 students are presented in the lower part of the matrix (i.e., below the 1.000s) and the correlations based on the means for the 31 classes are presented in the upper part (i.e., above the 1.000s).

In the correlations that use the students as the unit of analysis, the correlations between the measures of Integrativeness, Attitudes toward the Learning Situation, Motivation, and Instrumental Orientation are all significant and substantial. For example, the correlation of Motivation with English Achievement is .326, indicating that students with higher levels of motivation performed better on the English test than the students with lower motivation. In general, the correlations among the variables measured with the mini-AMTB tended to be somewhat higher than those typically found with the full AMTB, but this result was to be expected because so few items were involved in the measures. As a result, there was much more room for the influence of common measurement variance to contribute to the correlations. At the same time, it is reasonable to expect that the correlations of these measures with English Achievement would tend to be lower than those that would be obtained with the full AMTB because so few items were involved. Nonetheless, each of the variables, with the exception of Attitudes toward the Learning Situation, correlated significantly with the measure of English Achievement.

The correlations in the upper part of the matrix are the correlations obtained when the class was treated as the unit of analysis. This type of result has not been studied in the past, and it is important to note that the same types of relationships obtained among the individuals were obtained among the classes; that is, the correlation of .455 between Motivation and English Achievement demonstrates that the classes with higher levels of motivation tended to have higher levels of achievement than the classes with lower levels of motivation, and vice versa. Note, too, that the pattern of correlations among the mini-AMTB measures is comparable to patterns obtained when the student was the unit of analysis, even though the correlations tended to be higher because they involved correlations of class means and the number of replications was only 31. This pattern of relationships for both the individual students and the classes supports the predictions from the socioeducational model of L2 acquisition, even though this is the first demonstration of these relationships at the class level.

Relationship of Teaching Strategies to Student Affective Variables and English Achievement

A reasonable question to ask is: What is the correlation between the use of the teacher strategies and the measures of English Achievement and the students' affective variables? Table 3 presents this information for both Innovative and Traditional Strategies as defined by the teachers' ratings, for the class ratings based on the mean of the students for that class, and for the individual student ratings.

The first two columns in Table 3 show the correlations between the teachers' ratings of their use of the two types of strategies and the mean scores of their students on the English achievement test and the students' affective characteristics. Thus, the sample size is 31. None of the correlations are significant, indicating that there is no

TABLE 2
Correlations Among the Affective Variables and English Achievement

	INT	ALS	MOT	ANX	INS	PE	ENG
INT	1.000	.497	.832	−.277	.764	.777	.574
ALS	.480	1.000	.717	−.068	.534	.394	.180
MOT	.863	.548	1.000	−.182	.686	.579	.455
ANX	.058	.102	.082	1.000	−.151	−.278	−.244
INS	.653	.422	.699	.037	1.000	.786	.464
PE	.535	.272	.493	.020	.462	1.000	.594
ENG	.364	.048	.326	−.093	.271	.260	1.000

Note. Individual level correlations ($N = 694$) appear below the major diagonal; class-level correlations ($N = 31$) appear above the major diagonal. INT = Integrativeness; ALS = Attitudes toward the Learning Situation; MOT = Motivation; ANX = Language Anxiety; INS = Instrumental Orientation; PE = Parental Encouragement; ENG = English Achievement.
For $N = 31$ $r = .3551$, $p < .05$ $r = .4557$, $p < .01$ $r = .5620$, $p < .001$
For $N = 694$ $r = .0745$, $p < .05$ $r = .0978$, $p < .01$ $r = .1246$, $p < .001$

TABLE 3
Correlations Between Innovative and Traditional Strategies with Student Measures

	Teacher Ratings $N = 31$		Class Ratings $N = 31$		Student Ratings $N = 694$	
	I	T	I	T	I	T
English Achievement	−.086	−.016	.145	−.039	−.029	−.098**
Integrativeness	.136	.266	.309	.473**	.144***	.262***
Attitudes toward the Learning Situation	−.010	.169	.524**	.605***	.359***	.419***
Motivation	.201	.243	.446*	.516**	.197***	.273***
Language Anxiety	−.216	−.141	−.144	−.114	.018	.025
Instrumental Orientation	−.075	.150	.214	.499**	.107**	.237***
Parental Encouragement	.102	.303	.180	.436*	.118**	.240***

Note. I = innovative strategies; T = traditional strategies.
For $N = 31$ $r = .3551$, $^{*}p < .05$ $r = .4557$, $^{**}p < .01$ $r = .5620$, $^{***}p < .001$
For $N = 694$ $r = .0745$, $^{*}p < .05$ $r = .0978$, $^{**}p < .01$ $r = .1246$, $^{***}p < .001$

evidence of any association between the teachers' reported use of either Innovative or Traditional Strategies and their students' English achievement, attitudes, motivation, language anxiety, or perceived parental encouragement. Additionally, there is no evidence that there is a relationship between the reported use of innovative and traditional strategies by the teachers, $r(29) = .315$, *ns*.

The next two columns present the correlations between the mean student ratings of strategy use and the mean ratings of English Achievement and the other variables. Thus, these correlations represent class characteristics as seen by the students. They also are based on a sample size of 31. Again, there is no significant correlation between the perceived strategy use of either type with English Achievement, but there are a number of significant correlations with the other variables. The perceived use of innovative strategies was significantly correlated with Attitudes toward the Learning Situation and Motivation, whereas the perceived use of traditional strategies was correlated with all of the affective variables except Language Anxiety. There was also a significant correlation between perceived use of Innovative Strategies and of Traditional Strategies, $r(29) = .440$, $p < .05$. Thus, these results indicate that there are associations between strategy use in the classroom as perceived by the students and the mean affective reactions of the classes. Of course, with correlational data, the direction of causation is never indisputable. We prefer the interpretation that those classes that perceived the use of both types of strategies had more favourable attitudes toward the learning situation and higher levels of motivation than those classes that did not and that the classes perceiving more use of traditional strategies scored higher on the measures of Integrativeness, Instrumental Orientation, and Parental Encouragement, but not on Language Anxiety, than classes that perceived lower levels of Traditional Strategy use. Of course, a reverse causal association might be postulated, as well as some other extraneous variable in order to account for the associations. Regardless of the interpretation, it is clear that it is the students' perceptions of strategy use and not the teachers' perceptions that are related to student affective characteristics.

The final two columns present the correlations between individual student scores on the Innovative and Traditional strategies and their scores on the various measures. As Table 3 shows, there is a significant negative correlation between student ratings on the Traditional strategies and their English scores. Students who perceived that their teachers were using traditional strategies frequently tended to do poorly on the English test, and vice versa. Moreover, there were significant correlations between both strategy use scores and all of the measures except Language Anxiety; that is, those students who rated their teachers as using either innovative or traditional strategies frequently had more favourable attitudes toward the learning situation, had higher levels of motivation, ranked higher on integrativeness, exhibited more of an instrumental orientation to language study, and reported more parental encouragement than those students who perceived lower levels of either type of strategy use. Additionally, there is a tendency for the students who perceived high levels of innovative strategy use also to perceive high levels of traditional strategy use, $r(692) = .479$, $p < .0001$. This pattern of correlations, which used the student as the unit of analysis, is similar to the correlation that used the class as the unit of analysis, but these patterns do not

necessarily reflect class differences in this case. Also, because the sample size is so large, the sampling distribution is less variable so that many of the correlations are significant even though they are smaller than those obtained using the student data at the class level.

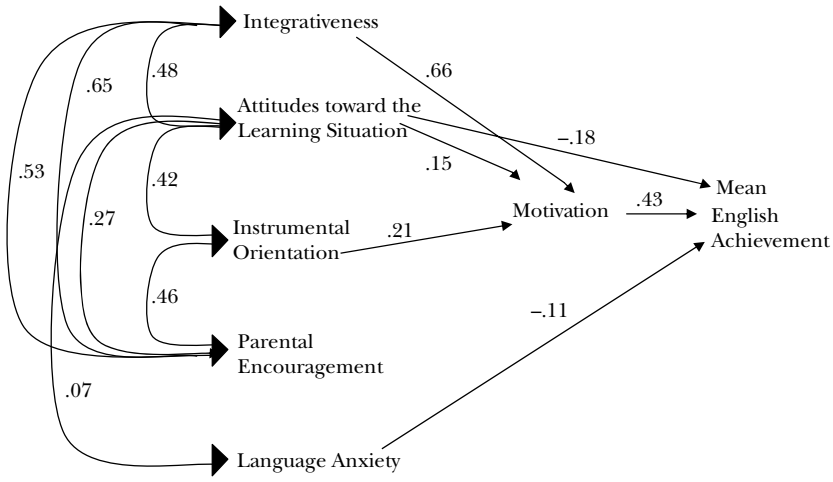
A Direct Test of the Socioeducational Model

The data from this investigation can be used to test directly the predictions from the socioeducational model of L2 acquisition using path analysis, a variant of structural equation modelling in which single indicators are used to represent the variables (cf. Pedhazur, 1982). The initial formulation of the model predicted that Integrativeness and Attitudes toward the Learning Situation are two correlated variables that serve as the foundation of Motivation, whereas Motivation and language aptitude are two relatively independent variables that account for individual differences in L2 achievement (cf. Gardner, 1985). In subsequent formulations, it was hypothesized that language anxiety could play a direct role in influencing L2 achievement, depending on the setting, and that other variables like an instrumental orientation could also serve to support the motivation to learn an L2 (cf. Gardner, 2001, 2007). There were no measures of language aptitude available in the present study, but measures of the other variables permitted a direct test of the socioeducational model using path analysis. This model is presented in Figure 1.

The path analysis depicts four exogenous variables, Integrativeness, Attitudes toward the Learning Situation, Instrumental Orientation, and Parental Encouragement, as being correlated with one another; that is, in the context of learning an L2, it would be expected that these variables would be interrelated (cf. Gardner, 1985). It also shows that another exogenous variable, Language Anxiety, is correlated with Attitudes toward the Learning Situation in that both of these variables would be expected to develop as a function of reactions to the learning situation. Consistent with the predictions of the socioeducational model, direct paths are shown linking Integrativeness, Attitudes toward the Learning Situation, and Instrumental Orientation to Motivation. In path analytic terms, these three variables are recognized as having direct effects on a student's motivation. The model also shows Attitudes toward the Learning Situation, Motivation, and Language Anxiety as having direct paths to English Achievement. The initial test of the model did not include the path from Attitudes toward the Learning Situation to English Achievement, but statistics obtained in that analysis indicated that the fit of the model could be improved substantially with the addition of this path.

The path analysis shows the influence of the various attitude measures on motivation and performance on the mean scores on the English tests. The statistics associated with this path model indicate that the fit to the data is very good. All of the values shown are significant, and the various fit summary statistics relating to the accuracy of the

FIGURE 1
Final Path Analytic Model



model are strong. One measure of the adequacy of the model for describing the relationships among the data is the goodness-of-fit index (GFI; Bentler, 1983). For these data, the GFI is .987, indicating that the model accounts for 98.7% of the total variation. Often it is recommended that this index be adjusted for the number of paths (cf. Tanaka & Huba, 1989). The adjusted goodness-of-fit index is .956, again indicating a very good fit of the data to the model. Another fit index, the comparative fit index (CFI), has been proposed to compare the model with a model of independence (Bentler, 1988). The CFI is .989 for these data, and any value greater than .95 is seen to be a good fit. An alternative fit index, the root mean square of approximation (RMSEA) has been proposed (Browne & Cudeck, 1993) to assess the quality of fit, taking into account the degrees of freedom and sample size. Values of .06 or less indicate a good-fitting model. The value of RMSEA for this model is .065, thus indicating an adequate fit. In short, all of the indicators show that this model accurately accounts for the relationships obtained among these variables.

The model indicates that the variables Integrativeness, Attitudes toward the Learning Situation, Instrumental Orientation, and Parental Encouragement tend to be significantly related to each other and that Language Anxiety is correlated with Attitudes toward the Learning Situation. It shows further that Integrativeness, Attitudes toward the Learning Situation, and an Instrumental Orientation have an influence on the students' motivation and that Motivation, Language Anxiety, and Attitudes toward the Learning Situation have an effect on the students' performance on the English tests. The coefficients linking both Language Anxiety and Attitudes toward the Learning Situation to English Achievement are negative, indicating that they have a negative influence on achievement. The negative effect of Language Anxiety is as expected, but the negative effect for Attitudes toward the Learning Situation is not. Close inspection of the whole path diagram shows, however, that one aspect of Attitudes toward the Learning Situation is positively linked to achievement through its influence on motivation. The negative effect suggests that, to the extent that favourable attitudes toward the learning situation do not result in increased motivation, they have a slight negative effect on achievement. This result would be expected; some students might well enjoy aspects of the learning environment but not be motivated to learn the language and, hence, might attain lower levels of achievement. Only when the favourable attitudes toward the learning situation are linked with motivation will they result in high levels of proficiency.

Close examination of the path analysis will reveal that, in essence, it reflects two multiple regression equations. In one equation, Integrativeness, Attitudes toward the Learning Situation, and Instrumental Orientation are viewed as predictors of Motivation, whereas in the other equation, Attitudes toward the Learning Situation, Motivation, and Language Anxiety are considered predictors of English Achievement. Viewed in this way and employing relatively new developments in data analysis techniques, these data can provide a unique test of the effects of the classroom environment on these relationships. Hierarchical Linear Modelling (HLM; Raudenbush & Bryk, 2002) is a data analytic procedure that considers relationships among variables obtained from individuals who are from intact groups. The difference between this approach and multiple regression is that this approach enables the researcher to test the significance of the regression coefficients for the data set as a whole (as with traditional multiple regression) and also determine whether the regression coefficients differ across groups, suggesting that the structure is influenced by group membership. It does so by reformulating the basic multiple regression model to consider the data consisting of at least two levels. As applied to the current case, Level 1 data would be the observations obtained from the individuals, whereas the Level 2 data would refer to group membership (i.e., the class). An added advantage of this approach is that one also can identify a characteristic of each class and determine whether this characteristic predicts the regression coefficients for the different groups. All of the variables, with the exception of the outcome variable, are grand mean centred by subtracting the mean of that variable from the participant's score, so that the intercepts in the analysis are, in essence, the mean of the outcome variable at the mean of the relevant predictor variables.

Thus, when applied to the regression model linking Integrativeness, Attitudes toward the Learning Situation, and Instrumental Orientation to Motivation, scores for the individuals on these four variables would constitute the Level 1 data. Motivation is the outcome variable (i.e., the criterion or dependent variable), and the other three variables are the predictors. The Level 2 data would be the class in which the student was a member, and the classes could be associated with a concomitant variable. In this case, we will use the Teacher Strategy Use score as a Level 2 variable. For this analysis, Strategy Use was defined as the

aggregate of traditional and innovative strategy use because we were concerned only with differences in strategy use, not with the type of strategy used. As can be seen, HLM is conceptually similar to multiple regression. A difference, however, is that rather than use the principle of least squares to estimate the intercepts and slopes (regression coefficients) for the model, as in the case of multiple regression, HLM uses maximum likelihood procedures to estimate the population values for the intercept and slopes for each class as well as the variance in the intercepts and slopes over the various classes. Thus, unlike multiple regression, HLM can evaluate the model for the data set as a unit, assess whether the regression coefficients vary significantly over the classes, and evaluate whether the Level 2 variable, Teacher Strategy Use, predicts the class-level regression coefficients. Summary statistics provided by the HLM analysis are presented separately for the Level 1 and Level 2 data. The coefficients for the Level 1 data include a test of the intercept greater than zero (generally a relatively unimportant statistic if the outcome scores are all positive values, as in the present case) and measures of the regression of the class intercepts and slopes of the predictor variables on the Teacher Strategy Use score. The significance of each of these coefficients is tested by a *t*-statistic. The coefficients for the Level 2 data are measures of the variance of the estimates of the intercepts and slopes over the various groups. The test of significance of each variance from zero is assessed by a chi-square statistic. If it is significant, this finding indicates that the relevant coefficient differs somewhat across the groups. A summary of these results for this analysis of motivation as a function of Integrativeness, Attitudes toward the Learning Situation, Instrumental Orientation, and the Level 2 measure of Teacher Strategy Use is presented in Table 4.

The results presented in Table 4 demonstrate that, overall, Integrativeness, Attitudes toward the Learning Situation, and Instrumental Orientation contributed significantly to the prediction of Motivation as indicated by the tests of significance of the slopes at Level 1 (the individual level). This result is consistent with the formulation of the socioeducational model, which postulates that motivation is supported by these variables, as indicated in the path analysis discussed previously (see Figure 1). None of the Level 1 statistics involving Strategy Use was significant, however, indicating that the degree of strategy use in the classroom did not add to the prediction of the intercepts and the slopes in the groups. The analysis of the Level 2 data demonstrated, furthermore, that although the model is true on average, there was variation among the groups in the intercept and the regression coefficients for all three predictors,

TABLE 4
Summary of the Hierarchical Linear Modelling Analysis for Predicting Motivation

Level 1 Results (Individuals)	Coefficient	*t* test	*df*	*p*
For Intercept1				
Intercept2	5.50	150.52	29	<.0001
Strategy Use	.02	.54	29	*ns*
For Integrativeness Slope				
Intercept	.67	18.59	29	<.0001
Strategy Use	.02	.65	29	*ns*
For Attitudes to Learning Situation Slope				
Intercept	.15	5.41	29	<.0001
Strategy Use	.01	.41	29	*ns*
For Instrumental Orientation Slope				
Intercept	.21	6.71	29	<.0001
Strategy Use	−.02	−.55	29	ns
Level 2 Results (Class)	Variance	Chi-square	*df*	*p*
Intercept1	.02	45.77	29	<.0250
Integrativeness Slope	.02	56.33	29	<.0020
Attitudes to Learning Situation Slope	.01	50.45	29	<.0080
Instrumental Orientation Slope	.01	59.41	29	<.0010

TABLE 5
Summary of the Hierarchical Linear Modelling Analysis for Predicting English Achievement

Level 1 Results (Individuals)	Coefficient	*t* test	*df*	*p*
For Intercept1				
Intercept2	63.37	32.17	29	<.0001
Strategy Use	−1.24	−.72	29	*ns*
For Attitudes to Learning Situation Slope				
Intercept	−2.72	−4.80	29	<.0001
Strategy Use	−.84	−1.69	29	*ns*
For Motivation Slope				
Intercept	4.93	10.37	29	<.0001
Strategy Use	.50	1.20	29	*ns*
For Language Anxiety Slope				
Intercept	−.79	−1.87	29	<.0001
Strategy Use	−.38	−.97	29	*ns*
Level 2 Results (Class)	Variance	Chi-square	*df*	*p*
Intercept1	110.42	326.83	29	<.0001
Attitudes to Learning Situation Slope	2.81	34.30	29	*ns*
Motivation Slope	1.01	34.76	29	*ns*
Language Anxiety Slope	2.19	48.95	29	<.0120

Integrativeness, Attitudes toward the Learning Situation, and Instrumental Orientation; that is, the mean level of motivation varied from class to class and the regression coefficients for each of the predictors varied from class to class. Thus, although there is clear evidence that these three variables had a direct positive effect on motivation, it would be expected that these relationships could vary somewhat from class to class.

A comparable analysis was conducted for the second part of the model, linking English Achievement to the three predictors Motivation, Attitudes toward the Learning Situation, and Language Anxiety (see Table 5). Examination of the results with respect to the Level 1 data demonstrates that, over all, Motivation was a significant positive predictor of English Achievement while Attitudes toward the Learning Situation was a significant negative predictor. Although this finding may appear counterintuitive, it should be recognized that this result refers to the aspect of Attitudes toward the Learning Situation that is independent of Motivation. As we noted in the path analysis, Attitudes toward the Learning Situation had a negative direct effect on English Achievement but a positive link through Motivation. In the analysis of the Level 1 data, Language Anxiety had a marginal negative effect on English Achievement ($p < .071$) when considered along with Motivation, and this finding is consistent with the path analysis. As can be seen in Table 5, the Level 2 measure of Teacher Strategy Use did not have any significant influence on the regression coefficients for any of the predictors, indicating that strategy use as defined by the teacher did not influence the predictability of the predictors. The analysis of the Level 2 data of the variability of the regression coefficients demonstrates that the effects were generally consistent across the classes for Motivation and Attitudes toward the Learning Situation (note that the tests of the variances were not significant), whereas the effects for the intercept and Language Anxiety were not consistent. This finding indicates that the mean English Achievement score varied from class to class, and that, although the predictability of Motivation and Attitudes toward the Learning Situation was generally consistent, the predictability for Language Anxiety was not.

The preceding HLM analyses also can be performed using the class means of the students' ratings of Strategy Use as the Level 2 variable instead of the teacher measure. Again, the aggregate of Traditional and Innovative Strategy Use scores was used. When this analysis was done, the results were essentially the same as those reported previously (and are not presented in detail here because of their redundancy, as would be expected, with the previous analyses), except for one difference. When predicting English Achievement,

there was a significant effect for Strategy Use on slopes for Motivation, $t(29) = 2.282$, $p < .030$. Thus, the magnitude of the regression coefficients for Motivation in the various classes was positively related to the perceived Strategy Use; that is, the effects of motivation on English Achievement were greater in classes in which the students perceived greater use of strategies. This difference from the results obtained when strategy use was defined by the teachers speaks directly to an understanding of the role of strategy use to motivate students.

DISCUSSION AND CONCLUSION

These results offer some unique observations in this area of research. The findings indicate that teachers differ in the reported frequency with which they use various strategies to teach English, but, in this study at least, they favoured traditional over innovative strategies. The findings also show that for more than half of the strategies, the differential use was recognized by the students in the classes; that is, where the teachers differed in terms of how frequently they had their students write letters or other texts in class, the students were aware of the relative frequency. For other strategies, however, the different perceptions of the teachers were not mirrored by the classes; that is, although the teachers varied in the extent to which they claimed to have their students work in small groups, these differences were not recognized by the students. This study also demonstrated that the correlations among the variables when the student was the unit of analysis were consistent with findings in other countries (see, e.g., Gardner, 2006).

This study is unique, however, in demonstrating that these relationships were also obtained when classes were the unit of analysis. Note, for example, that Integrativeness, Motivation, and Instrumental Orientation were significantly related to the measure of English Achievement when the student was the unit of analysis and also when the class was the unit. These relationships suggest that the generalizations based on the socioeducational model of L2 acquisition apply equally to students and classes.

The findings seem particularly informative when associations between the use of traditional and innovative strategies and student affective characteristics are considered. No significant correlations were found with the teacher ratings of Strategy Use at the class level, but a number of significant correlations were obtained when the class mean ratings of Strategy Use were used. The important point here is that when students as a class perceive differences in the use of strategies, these differences are related to the affective characteristics of the class, but when strategy use is defined by the teachers, there is no evidence of a relationship with the affective characteristics. It should be noted that more of the correlations involving the use of traditional strategies were significant than those involving innovative strategies, and the reasons for this finding are unclear. One possibility is that the teachers tended to use traditional strategies more frequently than innovative strategies and that the students were more aware of the traditional than the innovative strategies. When the students were the unit of analysis, the pattern of correlations was similar, but with the much larger sample size, more correlations were significant even though they were much smaller than those based on the class as a unit.

These results support the validity of the socioeducational model, as represented in the path analysis done for this study; that is, there is very good support for the claim that integrativeness, attitudes toward the learning situation, and instrumental orientation serve as the foundation for individual differences in the motivation to learn a foreign language and that motivation, attitudes toward the learning situation, and language anxiety account for individual differences in achievement. It is even noteworthy that attitudes toward the learning situation contribute negatively to achievement independently of motivation. This finding does not mean to suggest that attitudes toward the learning situation are negatively related to language achievement. (Note, in Table 2, that these correlations are not significant at either the student or the class level.) It means instead that favourable attitudes toward the learning situation contribute positively to achievement only when they influence motivation; otherwise, the effects tend to be negative. This appears to be the first investigation to uncover this two-part explanation of the role of attitudes toward the learning situation in L2 learning.

These results take on more meaning when considered in light of the hierarchical linear modelling analysis. There it was noted that there is strong evidence that the three variables, Integrativeness, Attitudes toward the Learning Situation, and Instrumental Orientation, contribute positively to Motivation and that mean motivation level varies across classes. It was also noted, however, that these relationships vary somewhat from class to class, indicating that class variables have an effect on these relationships. Our hypothesis that this result would be due to the extent to which teachers used strategies to motivate their students was not supported, but it is clear, nonetheless,

that some features associated with class structure have an influence. In fact, our secondary analysis using the students' perceptions of strategy use indicated that this measure predicted class differences in motivation. Future research could help to uncover the underlying causes of this variation.

The hierarchical linear modelling analysis also supported the hypothesis that Motivation and Attitudes toward the Learning Situation had a direct influence on English Achievement, although the effect for Attitudes toward the Learning Situation was negative and the effect for Language Anxiety was marginal (and negative). In this case, moreover, although the classes tended to differ on mean English Achievement, the prediction of achievement by Motivation and Attitudes toward the Learning Situation was relatively consistent over the classes, whereas the prediction of achievement by Language Anxiety was less consistent. Similar generalizations apply when Strategy Use was defined in terms of student perceptions, although there was one important difference. The results indicate that the effect of Motivation on English Achievement is greater when students perceive frequent as opposed to infrequent use of strategies by their teachers. Taken together, these results indicate that it is not the actual use of strategies but their perceived use that has an effect on motivation and achievement.

This finding has important implications for studies investigating the link between strategy use and motivation and L2 achievement in student samples, suggesting that the link may appear stronger than it is. One possible explanation might be that some teachers may use strategies but their students may not recognize the strategies because of the teacher's personality or because the students lack motivation. Students might not be able to appreciate the strategies used by the teacher simply because they are not interested in the subject. In such cases, probably, the lessons are not aimed at the students' needs or interests and consequently, the students do not pay attention to the strategies used by the teacher. This explanation is not meant to suggest that what teachers do in the classroom is unimportant. Clearly, teachers should use strategies that they believe will motivate students, improve skill development, and promote cooperation and a good classroom atmosphere. Such behaviour on the teachers' part can have implications. The implications may be more complex than previously thought, however, and as has been demonstrated in other studies, there is often disagreement between teachers and students as to what constitutes a valuable teaching strategy.

One might well ask, what are the consequences of these findings for the modern language teacher? We believe there are many, but we will focus on only two.

First, the results demonstrate that students and teachers agree on the use of some strategies in the classroom but not on the use of other strategies, and, at the class level, although student perceptions of the use of strategies are generally related to their attitudes and motivation, teacher perceptions of their use are not related to student attitudes and motivation. From this finding, we might conclude that teachers may use any strategy with which they feel comfortable and that is of value to the students, but for the strategies to be effective in influencing students' attitudes and motivation, they must be perceived as such by the students. We recommend, therefore, that teachers assess their students' perceptions of any strategies they employ.

Second, clearly there is a correlation between student motivation and L2 achievement, but this relationship is associated with a complex of factors. Although there might be many possible causal interpretations of the relationship, we believe that the one tested in this study and portrayed in Figure 1 is the most parsimonious and most informative for teachers. Thus, we recommend that teachers recognize (a) that their students' motivation and English achievement are influenced not only by what takes place in the classroom but also by a host of other variables, such as their attitudes toward other groups and languages, and integrative and instrumental orientations, and (b) that evaluation of the learning situation is related to many other variables as well. Furthermore, language anxiety and attitudes toward the learning situation that are not linked with motivation both contribute negatively to English achievement.

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APPENDIX
Questionnaire

Each statement of this questionnaire is followed by a 7-point scale. Please place an X in one of the spaces to indicate the extent to which that statement applies to you.

1. My motivation to learn English in order to interact with English speaking people is:
   WEAK _____:_____:_____:_____:_____:_____:_____ STRONG
2. My attitude toward English speaking people is:
   UNFAVOURABLE _____:_____:_____:_____:_____:_____:_____ FAVOURABLE
3. My interest in foreign languages is:
   VERY LOW _____:_____:_____:_____:_____:_____:_____ VERY HIGH
4. My desire to learn English is:
   WEAK _____:_____:_____:_____:_____:_____:_____ STRONG
5. My attitude toward learning English is:
   FAVOURABLE _____:_____:_____:_____:_____:_____:_____ UNFAVOURABLE
6. My attitude toward my English teacher is:
   FAVOURABLE _____:_____:_____:_____:_____:_____:_____ UNFAVOURABLE
7. My motivation to learn English for practical purposes (e.g., to get a good job) is:
   WEAK _____:_____:_____:_____:_____:_____:_____ STRONG
8. I worry about speaking English outside of class:
   VERY LITTLE _____:_____:_____:_____:_____:_____:_____ VERY MUCH
9. My attitude toward my English course is:
   UNFAVOURABLE _____:_____:_____:_____:_____:_____:_____ FAVOURABLE
10. I worry about speaking in my English class:
    VERY LITTLE _____:_____:_____:_____:_____:_____:_____ VERY MUCH
11. My motivation to learn English is:
    VERY LOW _____:_____:_____:_____:_____:_____:_____ VERY HIGH
12. My parents encourage me to learn English.
    VERY LITTLE _____:_____:_____:_____:_____:_____:_____ VERY MUCH

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