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ABSTRACT
                This study investigated the relationships between
variables affecting the degree to which cooperative learning (CL) was
implemented by English as a Second Language (ESL) and bilingual
teachers. A total of 227 ESL and bilingual public school teachers
(K-12) of Spanish speaking language minority students responded to a
mailed survey questionnaire that was constructed to examine: (1)
teacher beliefs about the acquisition of knowledge, teacher role, and
second language instruction; (2) teacher attitudes about various
aspects of CL; and (3) teacher perceptions of constraints and
opportunities in their school environment. The study found that ESL
and bilingual teachers with high interpretive beliefs tended to
implement CL more frequently than teachers with low interpretive
beliefs. The teachers that most frequently implemented CL were those
who perceived the teacher's role to be of a more inclusive nature.
(Contains 24 references.) (MDM)

Variables Affecting the Teacher Implementation of Cooperative Learning Methods in ESL and Bilingual Classrooms

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Objective

The purpose of this study was to analyze the relationships between variables affecting the degree to which cooperative learning (CL) was implemented by English as second language (ESL) and bilingual teachers. Three sets of variables were investigated: (a) teacher beliefs about the acquisition of knowledge, teacher role, and second language instruction, (b) teacher attitudes about various aspects of CL, and (c) teacher perceptions of constraints and opportunities of their school environment.

Theoretical Framework

Teacher beliefs, attitudes, and external constraints and opportunities have only recently been recognized as important variables concerning the implementation of innovations. Early research on the implementation process in education emphasized procedural aspects and regarded teachers as technicians whose main task was merely to transmit a curriculum that was designed by more able professionals (Darling-Hammond, 1990; Doyle & Ponder, 1977-8; Isenberg, 1990). However, the assumption that teachers' thinking is of little consequence and that teachers can be controlled by prescription has blocked many innovative reform attempts. It is now recognized that the success or failure of innovation adoption largely depends on teachers' beliefs, attitudes, and environmental conditions (Darling-Hammond, 1990).

Studies regarding the relationship between teacher beliefs and some innovative methods, such as the whole language approach to reading instruction, have revealed significant findings (Anders & Richardson, 1991; Duffy & Roehler, 1986; Richardson, Anders, Tidwell, & Lloyd, 1991). However, little research to date has focused on the implementation of CL or on its relationship to teacher beliefs. Given the potential of CL as a powerful instructional method for meeting the needs of language minority students (Cummins, 1989; Kagen, 1986), inquiry

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into factors regarding its adoption is of utmost importance. Such knowledge is needed in order to encourage the use of CL methodology in ESL and bilingual classrooms.

One way to classify teachers' beliefs that is relevant to the underpinnings of CL and to second language instruction is the transmissive-interpretive classification as described by Barnes (1976). Barnes' conception is similar to Freire's (1985) banking and problem posing categorization as well as to Cummins' (1986) transmission and interactive distinction. According to Barnes, while the transmissive teacher measures pupil performance in terms of teacher predetermined criteria, follows predetermined lesson agendas, and does not incorporate students' work or input into the class syllabus, the interpretive teacher expects students to reinterpret knowledge to make it personally meaningful, encourages students to play an active part in the determination of the course, and does not follow a preplanned agenda from which he/she will not deviate.

Young and Lee's (1984) work brought Barnes' (1976) belief orientations into the world of second language instruction by comparing his transmissive and interpretive belief distinction to Brumfit's fluency and accuracy dichotomy. Young and Lee maintained that teachers' beliefs that are transmissive in nature are congruent to the grammatical (accuracy) approach to second language instruction while those that are interpretive in nature are congruent to the communicative (fluency) approach.

In the accuracy approach, activities are predetermined by the teacher and the main function of these activities in the classroom is to provide correct practice of the new language system. A constraint on divergence is assumed, meaning that the language used by the students is controlled by the teacher. Conversely, in the fluency approach, negotiation of meaning is fostered through meaningful interactions and there is no constraint on divergence. Learners are free to use any resources whatever in order to accomplish their goals (Brumfit, 1983, as cited in Young & Lee, 1984).

Rich (1990) directly applied a similar teacher belief framework to cooperative learning implementation. He discussed the importance of teacher beliefs concerning the nature of knowledge acquisition. Since CL suggests that knowledge acquisition is social in nature, teachers who believe in the transmission model of knowledge acquisition are less likely to adopt CL in their

classrooms than those who believe in the social acquisition of knowledge. Rich also suggested that while some teachers see their role as being primarily academic, others see it as being social and personal as well. Since CL is typically considered a method particularly suitable for social and personal goals of schooling rather than for academic goals only, teachers who view the importance of education to be mainly in the academic realm would be less apt to adopt this innovation than those teachers who also emphasize the social and personal development of students.

The present study applied the transmissive-interpretive belief distinction to questions of CL implementation among second language teachers, while adding the dimension of teacher role, inspired by Rich (1990). It was hypothesized that a transmissive belief orientation concerning knowledge acquisition, second language instruction, and teacher role would hinder CL implementation while an interpretive belief orientation would enhance it.

In this study, beliefs and attitudes were viewed as separate constructs, for whereas beliefs reflect perceptions of truths that are devoid of value judgments and feelings, it is precisely these evaluative qualities that characterize attitudes (Dillman, 1978). It was hypothesized that negative teacher attitudes toward aspects of CL that are relevant to second language instruction would hinder CL implementation, while positive ones would enhance implementation.

In addition to teacher beliefs and attitudes, it has been suggested that external variables that allow for teacher participation in decision making and in responsibility enhance innovative behavior (Clark & Peterson, 1986; Goodlad, 1983). Therefore, it was also hypothesized that such external conditions would enhance CL implementation. This study then, applied the transmissive-interpretive belief framework and teacher attitudes to CL in conjunction with the effects of external constraints and opportunities in an attempt to understand the implementation process of CL methods among ESL and bilingual teachers.

Method

Subjects

The subjects in the present study were 227 ESL and bilingual public school teachers (K-12) of Spanish speaking language minority students. Ninety-two percent of these teachers were from three urban school districts while the remaining eight percent were from a rural district. Of these teachers, 93% were

female. Seventy percent of the subjects classified themselves as White, 23% as Latino, 3% as African-American, and 1% as Asian. The remainder failed to report ethnic background. Eighty five percent of the subjects were teaching elementary school at the time of the study, while the rest were teaching at the secondary level. Although an attempt was made include only those teachers with at least five hours of district CL in-service training, 38 of the 227 respondents who elected to participate did not receive such formal training. Since a collolary analysis revealed a statistically significant difference on only 4 of the items, an expected finding given the large number of t-tests conducted, all 227 cases were included in the analysis.

Procedure

A mail survey method was used to obtain the data for this study. The researchers sent out a questionnaire of 87 items to 543 teachers of four school districts. In two of the districts, questionnaires were sent to all identified ESL and bilingual teachers who had received CL in-service training of at least five hours. These teachers were identified by the district CL specialist. In the other two districts, questionnaires were sent to all ESL and bilingual teachers. All teachers were asked to indicate on their questionnaires whether or not they had received at least five hours of CL training. Accompanying each questionnaire was a cover letter in which anonymity was assured, and a self-addressed, postage paid return envelope.

Instrument

Sources and Construction

The questionnaire consisted of 87 items, some of which were created by the researchers and some of which were adapted from established instruments. All items on the Acquisition of Knowledge Subscale and the Second Language Instruction Subscale (see Table 1) were adapted from Young's (1981) Transmission-Interpretation Test. Because Young's test was developed for teachers of English and English literature, items were altered to suit bilingual and ESL teachers. In addition, upon consultation with experts in the field, many items were shortened or reworded. All items on the Teacher Role Subscale were created by the researchers and based on Rich's (1990) conceptual model. On the External Constraints and Opportunities Scale, some items were adapted from Rosenholtz and Simpson's (1990) survey instrument of teachers' workplace

conditions. All the remaining questionnaire items were created by the researchers.

This questionnaire is a refined version of an earlier one that was pilot tested by the researchers on a similar population. Modifications were based on respondents' written and oral comments as well as on statistical analyses. The researchers decided to use a four point Likert scale rather than a seven point Likert scale as did Young (1981) since results of the pilot study revealed that a four point scale provided sufficient variability.

Table 1

Scales and Subscales

Interpretive Belief Scale (Alpha = 0.6124)
      Acquisition of Knowledge Subscale
      Teacher Role Subscale
      2nd Language Instruction Subscale

External Constraints &
Opportunities Scale (Alpha = 0.8318)
      Administration Subscale
      Assessment Subscale
      Curriculum Subscale
      Peers Subscale
      Tests Subscale
      Resources Subscale

Attitude Toward CL Scale (Alpha = 0.7562)

Questions and Scales

The dependent variable, Frequency of CL Implementation, that was used in our analysis was based on teachers' estimations of the percent of their teaching time devoted to CL instruction. It should be noted that other items on the questionnaire were intended to measure this dependent variable but were not included in our analysis.

Each of the three independent variables was measured by scales and subscales, as can be seen in Table 1. The degree of interpretiveness of beliefs was measured by one total scale (Alpha=0.6124) and three subscales. High scores indicated high degrees of interpretive beliefs. The degree to which teachers perceived that external factors in their schools allowed for teacher participation in decision making was measured by one total scale (Alpha=0.8318) and six subscales. The degree to which teachers' attitudes toward CL was positive was measured by one scale (Alpha=0.7562).

Results

To gather useful results from our study, it was important to differentiate levels of CL use by teachers. Thus, univariate analysis of the data did not correspond with a desire to understand the subtleties in the use of CL. For this reason, a stepwise discriminant function analysis was performed on the data. We believe that the increased complexity of our results through the use of this multivariate technique makes the discussion of this topic more complete.

A hierarchical discriminant function analysis was performed to assess prediction of membership in one of three groups; LO, MID-RANGE, and HI users. Teachers who reported teaching using cooperative learning less than 25% of their teaching time numbered 81 (LO), those using cooperative learning between 26% and 50% numbered 68 (MID-RANGE), and those who reported use of 51% or more numbered 78 (HI). Membership in one of three groups, LO, MID-RANGE, and HI users, was predicted based on 28 variables drawn roughly proportionally from each of the three survey scales. The mean percent of time devoted to cooperative learning for HI users was 79.23%. MID-RANGE users reported a mean of 31.91%; LO users' mean was 12.59%.

A total of 227 cases were included in the analysis, including those who did not receive at least five hours of CL in-service training. As previously noted, a collolary analysis between those who received training and those who did not, revealed a statistically significant difference on only four of the variables, an expected finding given the number of t-tests conducted.

Statistically significant discrimination was found among the three groups on the basis of the 28 variables included in the analysis. Two discriminant functions were calculated, with a combined x^2 (56) = 147.66, p < .0001. After removal of the first function (orthogonal to the first), statistically significant discriminating power remained, x^2 (27) = 60.40, p < .001. Classification of groups was based on size of original groups. Based on these prior probabilities, the discriminant functions served to correctly classify 67.9% of the high users of cooperative learning, 60.4% of the mid-range users, and 66.7% of the low users. The highest percentage of incorrect classifications was in the mid-range users who were erroneously classified as low users (25%).

As shown in Figure 1 , the first discriminant function maximally separated the HI users from LO and MID-RANGE users. The second discriminant function discriminated between LO users from the other two groups.

Figure 1

Canonical Discriminant Function
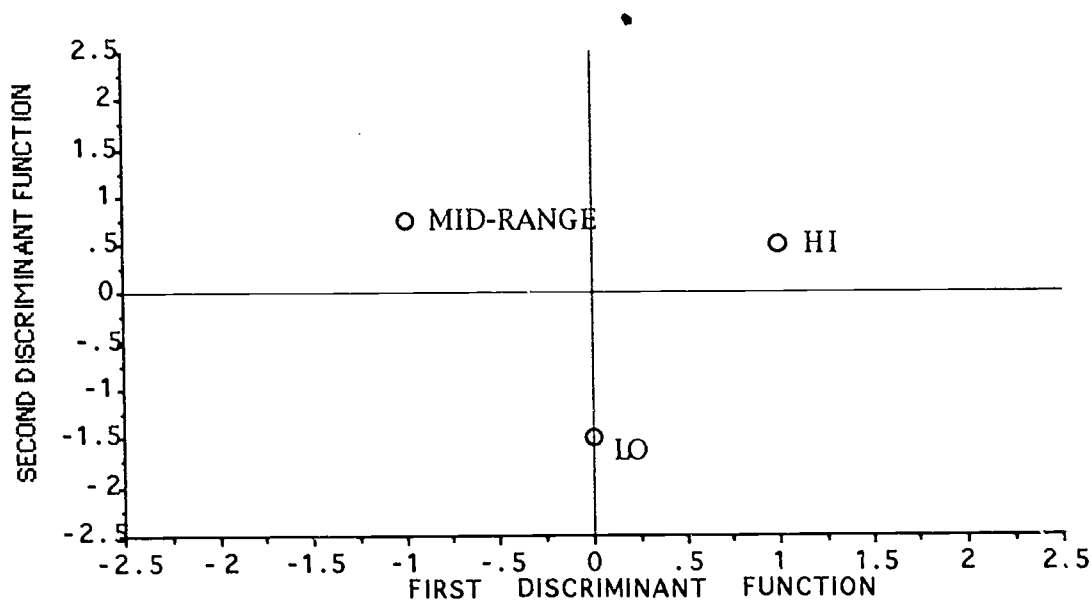
Following Comrey (1973), we examined only those variables with structure matrix loadings above or near 0.30. A loading matrix of correlations between the 28 predictor variables and the two discriminant functions is seen in Table 2.

Table 2

<u>Results of Discriminant Function Analysis</u>

Correlations of predictor variable with discriminant functions

	Function 1	Function 2	Univariate F (2, 204)
Predictor variable, coded variable and SHORT DESCRIPTION			
Interpretive/Transmissive Variables			
RACAD44 (ACADEMIC ROLE)	-0.24989	.02686	1.718
LERRC23 (ERROR REDUCTION)	0.23309	0.11367	1.313
RDEMV31 (VALUING SOCIAL SKILLS, DEMOCRACY,)	-0.28011	0.32639	3.213
RESTEE25 (RAISE SELF-ESTEEM)	0.10695	0.24872	2.866
Variables included in equation, low loadings			
LFREE42 (INFORMAL TALK)	-0.16190	0.00845	
KSPEL45 (AUTHENTIC SPELLING)	-0.14734	-0.06772	
KGRUP34 (VALUE OF STUDENT CONTROL IN GROUP)	-0.07992	0.21544	
LERRO21 (DIRECT GRAMMAR INSTRUCTION)	0.15828	0.19302	
KSPEL41 (STANDARDIZED SPELLING)	0.07599	-0.18018	
RNOSC38 (SUBJECT OVER SOCIAL)	0.00539	0.15856	
RBIGL22 (TEACHER ROLE IN SOCIAL)	0.00327	0.14881	
External Constraints and Opportunities Variables			
ADRUL61 (OVER-REGULATION)	0.29859	.04002	1.851
ASCON65 (DYSFUNCTIONAL TCHR EVAL)	-0.00202	-0.32862	0.836
PRALO50 (TEACHER ISOLATION)	-0.15203	0.24690	3.152
Variables included in equation, low loadings			
PRNOI56 (TEACHER CHANGES ALONE)	--0.14602	.08237	
PRCOL62 (TEACHERS OFTEN COLLABORATE)	0.10972	-0.10787	
TACCO52 (HELD RESPONSIBLE FOR STAND TESTS)	0.08745	-0.20964	
ASINO48 (CL ASSESSMENT)	-0.03333	0.12682	
ADBUC47 (IGNORE RULES TO HELP STUDENTS)	0.01221	0.08240	
Attitudes Towards Cooperative Learning Variables			
CLIND75 (GROUP INTERDEPENDENCE)	0.33295	.10126	2.274
CLGRP73 (GROUP ACADEMIC REWARDS)	0.19557	0.30397	4.196
Variables included in equation, low loadings			
CLASE70 (GRP PROCESSING)	0.14437	0.09049	
CLSOC69 (CL SOCIAL SKILLS)	0.07688	0.04424	
CLTAS68 (SPECIFIC TASKS)	0.07480	0.05615	
Demographic			
AGESU79 (AGE)	0.24098	-0.06077	2.750
Canonical R	**.58**	**.50**	
Eigenvalue	**.514**	**.332**	

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With respect to the variables used in the discriminant analysis, it is interesting to note that the largest percentage of variables are a subset of the Interpretive Belief scale. Of the variables that contributed to the first function, the item representing a general transmissive view of learning ("The major goal of a teacher is to present academic material and to make sure that students understand it") discriminated between HI users and the other two groups. HI users tended to view this statement less favorably (X = 3.19) than the MID-RANGE (X = 3.76) or LO (X= 3.58) groups. HI users also reported greater disagreement (X = 3.70) with a statement suggesting that teachers should correct all or most errors in students' written and oral language than MID-RANGE (X = 3.34) or LO (X = 3.27) users. The item representing the belief that schools should strive to instill democratic values, personal integrity, and interpersonal skills revealed an uncharacteristic pattern of responses. In this case, MID-RANGE users showed the greatest agreement with this statement (X = 3.69), more than either HI (X = 3.06) or LO (X = 3.12) users. HI and MID-RANGE users both agreed that a primary goal of schooling was to raise student self-esteem (X = 3.68 and 3.63, respectively), whereas LO users (X = 3.04) found this item less important.

The External Constraints and Opportunities Scale represented those variables ranking second in importance for discriminating among groups. The variable that served to maximally separate the HI user group from the other two represented the over-regulation of the teachers' workplace environment. HI users of cooperative learning, somewhat paradoxically, viewed the rules and regulations of their schools as more confining (X = 1.70) than LO (X = 1.30) and MID-RANGE (X = 1.00) users. Also contributing was an item which portrayed the difference in teachers' views on the usefulness of their teaching evaluations. HI (X = 1.22) and MID-RANGE (X = 1.26) users reported greater utility in their evaluations than LO users (X = 2.00). Finally, HI and MID-RANGE users (both X = 1.30) reported that at their schools teachers do not work in isolation. LO users, on the other hand, reported that teachers at their school work without much interaction (X = 1.20).

Of penultimate importance in discriminating between groups were two variables representing teachers' attitudes towards various features of cooperative learning. First, HI users (X = 1.67) were separated from the other two groups (X = 0.83, X = 0.97) on an item representing attitudes towards the importance of

group interdependence within cooperative learning groups. These values
indicate that HI users viewed most favorably the aspect of interdependence
among group members. HI users also viewed group rewards for academic
achievement more positively than MID-RANGE (X = 0.96) and LO (X = 0.62)
users.

Finally, only one of the demographic variables served to discriminate
between groups, and its contribution was marginal. The mean age for HI and
MID-RANGE users was nearly identical (X = 36.94 and 36.13, respectively). LO
users tend to be slightly older (X = 39.29).

Table 3 illustrates the pooled-within group correlations on which the
discrminant functions analysis was based.

Table 3

Pooled within-group correlations

	RACAD44	LERRC23	RDEM31	RESTEE25	ADRUL61	ASCON65	PRALO50	CLIND75	CLGRP73	AGESU79
RACAD44										
LERRC23	.2214**									
RDEM31	-.1700*	-.0525								
RESTEE25	-.0863	-.0873	.4226**							
ADRUL61	-.0242	.1199	-.0323	-.0498						
ASCON65	.0333	.0564	.0004	-.0142	.2622**					
PRALO50	.1130	.1131	.0854	.1072	.1357*	.0337				
CLIND75	-.0502	.2051**	.1530*	.2600**	.0427	.0825	.1389*			
CLGRP73	-.0160	-.0612	.2001**	.3181**	-.0700	-.0654	.0228	.2371**		
AGESU79	-.2594**	-.0511	-.0236	-.1354*	.0253	.0574	-.1482*	-.1992**	-.1313	

0* - Signif. LE .05   ** - Signif. LE .01   (2-tailed)

Many of these bivariate correlations indicate statistical significance. However,
such tests would not be appropriate given the multivariate nature of the analysis.
Despite this caveat, several important relationships require attention as part of
the overall discussion of the data. For example, teachers who view teaching as a
primarily transmissive act also tend to rate the reduction of errors as an
important feature of their work (r = .2214). The strongest relationship indicated
that teachers who rate highly the raising of student self-esteem also rate highly
the role of schooling in instilling the values of democracy and personal integrity
(r = .4226). In addition, the statistically significant correlations indicate that
teachers who believe in the school's democratizing function also view positively
the group rewards characteristic of CL (r = .2001).

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Discussion

The overall pattern of results is less than perspicacious. However, we did not expect unequivocal findings given the complexity of the data, our analysis of the data, and the phenomena under scrutiny (i.e., teacher adoption of an innovative instructional practice). Yet, taken as a whole, our data suggest that facets of teachers' interpretive belief systems, positive attitudes toward CL, and empowering workplace conditions, all dicriminate between frequent and infrequent implementers of CL.

However, a measure of caution needs to be taken into account when considering these results. It should be noted, for instance, that in this study our dependent measure, frequency of CL implementation, was determined by teachers' self reports rather than by a more objective measure. It should also be noted that since participation in this study was voluntary, there may have been a sampling bias in that those ESL and bilingual teachers electing to respond were those most interested in CL. In fact, of all responding teachers, only one percent reported not implementing CL at all. The investigated variables might reveal stronger discriminating power with a more varied sample.

Perhaps the most significant finding of this study was that, as hypothesized, ESL and bilingual teachers with high interpretive beliefs tended to implement CL more frequently than teachers with low interpretive beliefs and that of the three investigated aspects of teacher beliefs, the aspect concerning the role of the teacher was most powerful in differentiating among CL users. The teachers that most frequently implemented CL were those that perceived the teacher's role to be of a more inclusive nature.

The above findings offer a number of implications for educators interested in the promotion of CL among ESL and bilingual teachers. Specialists of CL should consider these results in terms of the nature of their CL in-services or courses and the type of participants encouraged to enroll in their programs.

When trying to promote CL, advocates may do well to avoid the prescriptive, teacher-as-technician approach of which teacher-proof materials are a vital part. Rather, educators interested in enhancing CL implementation among ESL and bilingual teachers might consider emphasizing the method's philosophical principles in their tarining programs. Currently, many programs focus primarily on the technicalities involved in implementing CL and ignore the

theories of learning on which it is based. This study suggests that ESL and bilingual teachers would be more inclined to implement CL if they accepted interpretive beliefs about the acquisition of knowledge, second language instruction, and especially teacher role. One option for program developers, then, is to include in the in-service or course agenda a component which encourages participants to embrace interpretive belief orientations.

Participating teachers could be urged to elicit and examine their own beliefs about teacher role, second language instruction, and knowledge acquisition, for example, and then compare these beliefs to the interpretive framework. Once teachers become conscious of their own beliefs, alternative views can be introduced which may replace the old (Nespor, 1987). This approach complements the approach of Anders and Richardson (1991) who designed in-services to enhance the implementation of a whole language reading program by first focusing on teachers' beliefs about the reading process. One option for CL in-service instructors of ESL and bilingual teachers is to first elicit the participants' beliefs in terms of transmissive and interpretive orientations, and then to try to change the three aspects of transmissive beliefs to interpretive ones.

However, influencing teacher belief orientations requires much time and effort. When CL in-service coordinators have time and staff limitations, programs of this nature become impractical. An alternative suggestion is to change the admission procedure for CL in-services. If time constraints do not allow for the inclusion of teacher beliefs, perhaps only those ESL and bilingual teachers who already have interpretive belief orientations should be admitted to CL training programs. A screening process could differentiate between transmissive and interpretive teachers. This process would ultimately result in more efficient use of in-service time as this study suggests that training ESL and bilingual teachers with transmissive beliefs in CL implementation may be impractical. Another option is to make CL in-services strictly voluntary. Perhaps ESL and bilingual teachers with interpretive beliefs would self-select for this training.

However, it must be noted that no causality was determined in this study. Results indicated only that interpretive beliefs and frequent CL implementation were related. Another interpretation of this finding then, is that implementation of CL enhances interpretive belief orientations among ESL and bilingual teachers. This interpretation suggests to practitioners no inclusion of the philosophical

bases of CL in their programs. Rather, it implies that if teachers simply are encouraged to implement the method, their transmissive beliefs may shift to interpretive ones as a result of the CL implementation process itself. Previous research, however, supports the first interpretation as a number of studies have shown teacher beliefs to be predictive of implementation of methods (Richardson et al., 1991; Sparks, 1988; Tobin, 1987).

Our discoveries related to teachers' external constraints and opportunities offer a challenge. For example, we found that teachers who reported teaching in a school where the exigencies in the form of rules and regulations constrain them were more likely to use cooperative learning regularly. There are several ways to make sense of this finding. One way is to contend that high users of cooperative learning tend to believe that their schools' regulations are confining. Perhaps at present most typical school rules and regulations clash with CL manifestations, so that those teachers who use it find these rules and regulations a hinderance. These teachers may use cooperative learning regularly because they are willing to step outside the norms of school functioning. In other words, their perception of themselves as rebels in the school culture may contribute to their willingness to try new instructional strategies. Less surprisingly, the higher implementers desribed their schools to be characterized by more constructive teacher assessments and more peer interaction than the lower implementers. In light of these findings, those who are interested in increasing the use of cooperative learning cannot avoid the school climate. For instance, checking with teachers about the constraints at their individual campuses might be a good place to begin instruction on cooperative learning.

With respect to attitudes towards cooperative learning strategies, HI users considered the establishment of group interdependence within cooperative learning groups to be of primary importance. This concept of interdependence is crucial in distinguishing CL from general group work. The absence of inderdependence is one of the pitfalls of general group work that is not truly cooperative in nature (Johnson & Johnson, 1990). In fact, interdependence is the aspect of group work that ensures the use of two-way rather than one-way tasks, an aspect that has been shown to be crucial for the enhancement of second language acquisition (Doughty & Pica, 1986). Maybe those second language teachers that use CL more frequently do so for they have found it to be successful for enhancing their students' second language development. Their appreciation of interdependence may ensure successful implementation of the method, which

in turn encourages its more frequent use. These results suggest that those hoping
to increase the use of CL among ESL and bilingual teachers may wish to point
out the aspects of the method which help students become more interdependent,
one of which is the appropriate use of rewards.

Educators who believe that cooperative learning can make a positive
contribution to the learning experiences of language minority students should
consider the questions of implementation raised in this study. A thorough
understanding of the variables related to CL implementation among ESL and
bilingual teachers is needed before implementation can be successfully enhanced.

This study emphasized that the philosophical principles upon which
cooperative learning is built differ from those of traditional methods. It showed
that those teachers whose beliefs about learning coincided with the underlying
beliefs of cooperative learning were the more frequent implementers of the
method. Teacher educators are advised not to undermine the philosophical
foundations of cooperative learning when introducing it to teachers, but rather to
highlight its unique interpretive nature.

In conclusion, this research offers a few cautious suggestions to those who
are interested in promoting CL for language minority students. It offers no
suggestions as to the optimal level of frequency of CL for effective instruction.
Time and continued investigation, we hope, will provide that answer.

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