Cooperative Learning: A Learning Reinforcement Project

∗ **Jaleh Hassaskhah**

Guilan University

Abstract

The Learning Reinforcement Project (LRP) was developed for the purpose of reinforcing the academic and social competencies of all students in English language classes, so that they would be better prepared for more accurate and fluent communication with others as well as a happy social life in a democratic society. This report presents the results of a 2-year study employing cooperation and reflection, as a means to reinforce learning in language teaching. It discusses how it was used and outlines a plan for its implementation and integration into classrooms. The LRP was a time-limited intervention designed to prepare students fully to continue achieving. By providing 110-220 hours of additional instruction over two academic years, the LRP has been successful in helping students to make both statistically and practically significant achievement and aptitude gains. To document the direct effect of the program and eliminate alternative hypotheses for assessed gains, a pre-post test, comparison group design was used. The program, using the same research design, was implemented in three different school systems with similar results.

Keywords: *Cooperation, achievement, reasoning aptitude, language teaching, language learning.*

هم‌آموزی طرح تقویت فراگیری

ژاله حساسخواه

استادیارگروه زبان و ادبیات انگلیسی، دانشگاه گیلان

چکیده

طرح تقویت هم‌آموزی (LRP) با هدف افزایش توانمندی‌های تحصیلی و اجتماعی تمامی فراگیران زبان انگلیسی طراحی شده است تا بتواند ایشان را علاوه بر ایجاد موفقیت در ارتباط صحیح و روان با دیگران، از زندگی رضایت‌بخش‌تری در یک جامعه آزاد برخوردار نماید. این گزارش که نتیجه یک کار تحقیقاتی دوساله بر اساس هم‌آموزی و مشارکت در تقویت آموزش و فراگیری زبان است راه‌های آمیختن این شیوه را با فعالیت‌های جاری کلاس نشان می‌دهد. از ویژگی‌های طرح زمان‌بندی و جانبی بودن آن است. از طریق فراهم آوردن ۲۲۰ - ۱۱۰ ساعت آموزش تکمیلی طی دو سال به فراگیران در سه فضای آموزشی (دانشگاه ـ آموزشگاه زبان و دبیرستان) کمک شده است تا هم از نظر آماری و هم از نظر عملی به موفقیت معناداری دست یابند و توانایی لازم برای حفظ و استمرار موفقیت حاصله را نیز از خود نشان دهند.

کلیدواژه‌ها: هم آموزی، موفقیت تحصیلی، توانایی استدلال منطقی، آموزش و فراگیری زبان.

∗ Jaleh Hassaskhah, currently an assistant professor at Guilan University, has received her Ph.D. in TEFL from Allame Tabatabaee University in Tehran, hassas@guilan.ac.ir.

Introduction

The development of foreign language students' communicative competence has widely been proposed as a goal of foreign language instruction (e.g. Doughty and Williams 1998; Ellis 2000). Within this goal, the design of learning activities that allow students to communicate with each other using the foreign language in personally meaningful ways is central Skehan 1998 Robinson 2001. However, as all of us have experienced, the overused traditional frontal teaching paradigm places responsibility for student learning solely upon the shoulders of the teacher. The instructor writes the curriculum and the syllabus, selects the readings, delivers the information via lectures and prepares evaluative instruments. She or he presents the same information, lectures to and tests all students regardless of individual differences among them. In other words, little or no attention is given to the social and psychosocial needs of the individual.

Rather than continue the traditional teaching strategy that leads to selecting the best students and weeding out the poorer ones, we can use a system that cultivates and develops the self confidence of every student. We cannot allow students to be ignored and dismissed from our classes with an inferior grasp of the subject matter. Every student, not just the elite few, must reach the competency levels set by the teacher. This is not to suggest that educators should produce student robots. The point is of that we cannot be content with ineffective teaching and learning. We cannot be content with a teaching approach that is only partly effective. Cross (1990) maintains: "*As educators we have an obligation to understand the teaching/learning process well enough to improve it*" (p.11). Thus, it is important that teachers prepare students *learn how to learn.* If we wish to help students learn how to think critically, to work constructively with members of their community, to enjoy scholarly activities and to embellish their learning experiences when they leave school, we must focus our attention on each student's individual needs of as well as the learning environments which are likely to encourage students' full participation and engagement.

Through the use of a challenging and accelerated English curriculum taught by teachers trained in the reflective cooperative model, LRP attempted to efficiently and effectively fill such educational gaps in each student's knowledge base and then allow him or her to proceed to learning at a flexible pace. The curriculum was cooperative and student centered, emphasizing both concept and skill mastery. Needless to say, additional support services were critical components of the program that helped to address issues affecting academic achievement.

Background, foundation and theoretical framework

There is, of course, a considerable body of research into cooperative learning deriving from psychological and managerial concerns with group decision-making processes, but in terms of a focus on language skills, there are few main

research traditions which have attempted to supply answers to the question of how reflective cooperation might be linked to language development and acquisition (see Mohan and Marshall Smith 1992). The existing research into language development and cooperation has been in several distinct traditions, and many of these approaches have been narrow and exclusive (Yule and Tarone 1991), possibly for reasons associated with the design complexities of more holistic attempts (Courtney 1995), or perhaps as a result of deterministic beliefs in linkages between certain types of communicative activity -for example, negotiated meaning and second language acquisition (Long and Porter 1985). The goal of language learning program, however, is not limited to such limited types of communication. Instead, they intend to improve the academic achievement, critical thinking and social abilities of the students in those areas of language which enable them to: (a) qualify for higher level academic programs; (b) go on to higher levels; and (c) ultimately be healthier and more reliable citizens.

Furthermore, the LRP was based on the belief that the low test scores of many students are not necessarily due to their lack of knowledge or ability, but indicators of skill deficits "at the time of measurement" (Gallagher 1991). Although such deficits might be the result of any number of intellectual, economic, social, and cultural factors, they are a reality that must be academically addressed. Thus, the strengthening of students' academic skills in preparation for academically challenging programs was the main goal of the LRP which was mainly based on cooperation which is defined as: **"***… working together to accomplish shared goals within cooperative situations where individuals seek outcomes that are beneficial to themselves and beneficial to all other group members. Cooperative learning is the instructional use of small groups so that students work together to maximize their own and each other's learning.***"** (Johnson, Johnson, & Holubec 1998).

Cooperative learning is founded on constructivist epistemology. Knowledge is discovered by students and transformed into concepts students can relate to. It is then reconstructed and expanded through new learning experiences. Learning consists of active participation by the student versus passive acceptance of information presented by an expert lecturer. Learning comes about through transactions among students and between faculty and students, in a social setting, as they construct a knowledge base. The key to cooperative learning, not surprisingly, is "cooperation". *Cooperation* is a structure of interaction designed to facilitate the accomplishment of a specific end product or goal achieved through people working together in groups. *Cooperative learning* is defined by a set of processes that help people interact in order to accomplish a specific goal or develop an end product that is usually content specific.

Cooperative learning is now widely recognized as one of the most promising practices in the field of education. It is a successful teaching strategy in which small teams, each with students of different levels of ability, use a

variety of learning activities to improve their understanding of a subject. Each member of a team is responsible not only for learning what is taught but also for helping teammates learn, thus creating an atmosphere of achievement. Students work through the assignment until all group members successfully understand and complete it. In other words, cooperative classrooms are changing the essence of learning from "*I classrooms*," to *"We classrooms"*. As a classroom structure, cooperative learning allows students to work together in small, mixed-ability groups. The teacher's role shifts from knowledge disseminator to learning facilitator. The responsibility for learning shifts from the teacher to the student. Furthermore, students working in cooperative groups have an additional twist to their learning. They are not only responsible for learning the material that is presented, but also for ensuring that everyone in the group knows the material. In other words, there is some type of group goal, either academic or some other type of extrinsic reward (Slavin 1987) which cannot be achieved unless the critical distinguishing features of cooperative learning are present: *positive interdependence and individual accountability*.

Positive interdependence is essential to fostering significant achievement gains. Structures must be built into the learning environment to ensure that all members of a cooperative-learning team feel a sense of responsibility for their teammates. One way to promote this sense of responsibility is by providing materials that must be shared (*materials interdependence*). Another way to foster group cohesion is by assigning different members of each team a discrete amount of material to master and then share with teammates (*task interdependence*). Finally, a small part of each person's grade can depend on each member of the team improving his or her performance in exams *(goal interdependence)*.

The second factor needed to make cooperative learning successful is *individual accountability*. Individual students must learn that they are responsible for understanding the course content. This must be assessed frequently. There are many ways to *structure and increase individual accountability*. It can be structured by assigning one student in each group the role of checker for understanding. The checker poses questions and the other group members provide rational answers, supporting group answers. Students can also teach what they have learned to someone else or edit each other's work. The teacher may call at random upon individual students to answer questions. Also, individual tests are given periodically to evaluate the students' achievement. Inevitably, some students exploit the group structure to avoid working and let the others do the bulk of the work. This behavior is called "social loafing". Group members can monitor individual accountability by constructing quizzes for each other. Records can be kept of the frequency and quality of each group member's contribution during a cooperative learning assignment. The important point is that there must be a system to continually assess each student's knowledge and contribution to insure that learning is occurring.

Cooperative learning is perhaps the most thoroughly studied teaching and learning paradigm (Johnson & Johnson 1989) with over 600 studies reported at all levels of education. The benefits which accrue from student centered cooperative learning paradigms are many (Panitz & Panitz 1998; Panitz 1999).The research and anecdotal evidence confirming the effectiveness of cooperative learning is at this point overwhelming. Regardless of the objective specified, cooperative learning has repeatedly been shown to be more effective than the traditional individual/competitive approach to education (Davidson & Worsham 1992; Johnson et al. 1998; Panitz 1999; Slavin 1983a; Slavin 2000; Hassaskhah 2004). Would it be legitimate, then, to conclude that in the 21st century teachers are forced to change from the comfortable and familiar lecture style of teaching to a student centered cooperative mode if they wish to remain relevant?

Over the past years, it has been widely claimed that Iranian young people constitute the nation's greatest untapped resources. Although some positive changes have taken place in many areas, in language learning, however, even the most talented are still not achieving at an acceptable level, and only a small number can manage to achieve perfect proficiency. The purpose of the LRP, therefore, was to study the effect of increasing peer support and participation of all students in English classes and find out if it could make them more successful in this field. This paper tried to investigate the effectiveness of the LRP in the strengthening of students' academic skills in preparation for academically challenging programs. In fact, we have attempted to test the adequacy of the following three Type 1 claims:

1. Subjects who complete the academic year and summer portion of the LRP will make significantly more gain than a matched comparison group of students.

2. Students will also make significantly more gain in the area of language arts ability than a matched comparison group of students.

3. A majority of the students will move up in percentile rank on the achievement and/ or the aptitude test, with more students scoring above the 90th percentile after completion of the LRP than before.

Methodology
Participants

On the basis of their achievement scores represented by their GPAs, students for the LRP selected from a pool of average students who were not achieving at high levels in the language classroom and whose test scores were not high enough to qualify them as good students. This particular group of students was chosen because they had already shown concern and motivation for learning. This was necessary because we needed to keep most of the subject for the whole experimental period, thereby controlling for subject mortality.

Both program participants and comparison group students were selected from the same pool of students who volunteered for the project. After students were selected for LRP participation, the remaining students were placed in a comparison pool to be taught through traditional instruction. The LRP and comparison groups were comparable in terms of gender, background and socioeconomic composition. In addition, groups were matched for pre-test scores. Through an early intervention, the LRP focused on improving students' skills and ability in English.

Guilan University (Rasht)

64 sophomores with recorded GPAs of 15-16 took part in the study. Although these students were generally scoring above average, they were not performing at high levels in general English classes and, when independently tested, scored at much lower levels. From among the subjects, 32 students completed the LRP and were matched with 32 students from the comparison pool who had not participated in the program but had completed all pre-and post-tests.

Allame Tabatabaee Language Center (Rasht)

36 students studying at the pre-intermediate level (screened by the evaluation and placement system of the institute) took part in the study. Although these students could generally meet the passing scores, they were not performing at high levels in classes and, when independently tested, scored at much lower levels. From among the subjects, 18 students completed the LRP and were matched with 18 students from the comparison pool who had not participated in the program, but experienced traditional instruction and had completed all pre-and post-tests.

Niki High School (Rasht)

54 second-graders with recorded GPAs of 15-16 took part in the study. Although these students were generally scoring above average, they were not performing at high levels in English classes and, when independently tested, scored at much lower levels. From among the subjects, 28 students completed the LRP. A comparison group of 26 students was chosen for the remaining pool of students who had not participated in the program, but had undergone traditional instruction and completed all pre-and post-tests.

Design

The methodology to verify the above claims was identical for the three LRP projects. For these three projects, a pre-test/ post-test design with a matched comparison group was used. (see Figure 1). To ensure comparability of the participants and comparison groups, the two groups were matched for ratios of males/females, background composition, overall socioeconomic status, and

mean pre-test scores. Both groups came from an initial pool of students who volunteered to participate in the program, and made a commitment to take part in the classes and/or testing sessions. This design was chosen because it allowed for the control of factors that could threaten the internal validity of a study, such as motivation, maturation, and passage of time or the effect of being tested. Although all the projects used the same evaluation design, the length of the programs differed. In all the instances, independent pre-and post-testing was administered by the researcher. This protected the validity and integrity of the test scores. Attrition occurred in all programs. Differences in aptitude and/or achievement test scores between the group of students beginning the program and those completing the program were statistically examined.

	LRP (G1)	Control (G2)
Achievement		
Aptitude		

Figure 1: Design of experiment

Procedures

The LRP supplemented the regular education program by filling the educational gaps in a student's learning. After the gaps had been filled, the flexible pacing of the LRP allowed the student to continue learning and reach his/her academic potential. The curriculum of the LRP was cooperative and student centered, emphasizing both concept and skill mastery in language arts and expected social behavior. Instruction covered basic concepts, skills and problem solving. English was chosen because of its importance to all educated people, and because of the national concern with the students' low achievement in this area. Instruction aimed at highlighting the students' areas of strength; students only took the roles for which they showed some aptitude. Prior to implementation of the LRP, the site researcher and teachers participated in a five day training session that included the following topics: 1) goals and objectives; 2) history of similar projects; 3) appropriate teaching strategies (including individualized instruction, cooperative learning, diagnostic teaching); 4) the administration and interpretation of tests; 5) curriculum design; and 6) documenting student progress. After the program started, staff development continued through structured and impromptu meetings among teaching staff.

The curriculum itself consisted of basic concepts and skills achieved through the following phases:

Step 1: Implementation of cooperative learning in-course as it was currently offered.

Step 2: Identification of topic(s) that had to be used in the course. Depending on the needs, interest and levels of the classes under investigation, this research work involved various topics to address reflection, positive interdependence, control, production, fluency, and accuracy that arise in authentic situations.

Step 3: Establishment of core skill(s) that had to be emphasized for effective preparation. Positive interdependence was a key feature that had been emphasized by scholars concerned primarily with promoting students' academic achievement and cognitive development (Slavin 1983b; Johnson & Johnson 1987), as well as scholars concerned with students' holistic development, such as Chickering (1969).

Step 4: Development of modules for the course that used cooperative learning to advance the topics. This allowed students to work together to attack a problem from different aspects and come up with a unified answer to the problem.

Step 5: Integration of new cooperative learning into the course. This new module was introduced into the course after students reviewed and study course material provided by the instructor. Commercially available textbooks, as well as supplemental materials prepared by instructors of the LRP were used in classes. In addition to textbooks, commercially available materials designed to help students develop good test-taking strategies were used. Lessons focusing on study habits and test-taking skills were incorporated into the curriculum.

The LRP proceeded in two phases. *Phase One* consisted of 11 one hundred minute classes during the academic year. *Phase Two* was a 10 week summer program. During the summer session, students were in class for two hours each session with an additional two hours of supervised study.

The teaching staff prepared lessons, instructed students, and evaluated student progress. In the classroom, the teachers assumed the role of facilitators, helping students to go as far as their ability and interest would take them. With the help of the teaching assistants selected from among the group members, teachers delivered instruction in small groups. Whole group instruction occurred only when an enrichment topic was introduced or problem solving compositions were held.

In addition, students participated in small instructional groups which were reconstituted as necessary according to student progress. More heterogeneous, cooperative learning groups were used when students were solving problems posed by the teacher.

Although no limitations were placed on a student's pace of learning, mastery of content was continuously assessed through performance on in-class assignments, quizzes, end-of-chapter tests and teacher-made tests. Student achievement was also assessed through pre-and post-testing using standardized achievement tests developed by the LRP researchers and validated against the official past papers of the ECCE 2000 (Examination for the Certificate of Competency in English, the University of Michigan).

Supplementary components of the LRP included: a) student counseling and b) affective development (attitudes, motivation, and discipline).

Student involvement was found to be an important influence on the achievement of the students. Student counseling meetings addressed learning skills, working with the school system, planning, understanding objectives, as well as community resources. Affective development was addressed both inside-and outside-of class through high expectations, role models, counseling, and development of positive peer groups.

Instruments

The standardized LRP Achievement test, developed by the LRP developers and validated against the official past papers of the ECCE 2000 (Examination for the Certificate of Competency in English, the University of Michigan), was chosen for independent pre-and post-achievement testing. The test demonstrated good content validity as it covered topics considered to be important for language competency. Internal consistency coefficients and parallel form correlations were.85 and above. Since a pre-test post-test design with a comparison group was used, normative contrasts were unnecessary, although norm tables were used to determine relative pre-and post-test percentile rank.

The School and College Ability Test developed by University of Michigan was used to assess the reasoning ability of the students. Test-retest coefficients ranged from.79 to.84; internal consistency coefficients ranged from.87 to.93. This test claimed to be able to measure aptitude and reasoning abilities of learners.

Completed protocols were properly scored, checked, and converted to scaled scores. To control for the fading of achievement gains, pre-testing was completed prior to the initiation of the LRP, while post-testing was completed within one month after the termination of the program.

Results

The statistical design was a 2 X 2 analysis of variance (ANOVA) with repeated measures on the second factor. The significance level was set at $p < .05$ for all comparisons. A significant interaction between group and time of testing was

followed by a test of simple effects contrasting groups for each time of testing. To answer questions of practical significance, pre-/post-effect sizes were calculated in accordance with procedures outlined by Cohen (1977). A large (.80) effect was considered practically significant.

Table 1 provides an overview of the results. The means and standard deviations for pre-test and post-test achievement and aptitude scaled scores, as well as percentile ranks for all LRP are presented.

Table 1: Means and standard deviations of scaled scores of the evaluation instruments for LRP participants

LRP <u>Aptitude</u> <u>Achievement</u>

Administration

	Pre-test	Pre-test	Post-test	Post-test	Pre-test	Pre-test	Post-test	Post-test
	scaled	percentile	scaled	percentile	scaled	percentile	scaled	percentile
<u>University</u> LRP (N = 32)	446.55 (10.78)	**59**	459.55 (10.10)	**85**	62.84 (9.43)	**86**	74.31 (7.14)	
Control (N = 32)	444.3 33 (10.23)	**59**	448.24 (10.56)	**69**	64.13 (8.14)	**86**	70.75 (8.73)	**92** **86**
<u>Language Institute</u> LRP (N = 18)	447.28 (9.79)	**60**	465.06 (10.33)	**86**	422.50 (8.68)	**62**	453.83 (8.94)	**84**
Control (N = 18)	446.83 (9.18)	**60**	455.89 (11.86)	**74**	441.61 (9.57)	**60**	443.94 (12.03)	**63**
<u>High School</u> LRP (N = 28)	444.33 (5.12)	**87**	474.60 (17.32)	**95**	431.03 (3.45)	**73**	466.36 (11.50)	**98**
Control (N = 26)	441.80 (5.17)	**83**	462.85 (11.32)	**85**	432.56 (8.38)	**76**	451.11 (13.01)	**83**

University

A significant interaction was found (F = 8.73), with the LRP group showing significantly greater gains than the comparison group (t = 3.19). A six point percentile gain was found for the LRP group, while no change was found for the comparison group. The LRP group also showed a significant gain on pre-to post-test scores for reasoning aptitude (t = 7.41) with a 26 point gain in group percentile ranking. After completing the program, 90 percent of the LRP participants showed a percentile gain on the standardized achievement test, while 100 percent showed a gain on the standardized aptitude test. Forty-two percent of LRP students scored at or above the 90th percentile for either the standardized achievement test or the standardized aptitude test scores on the post-test, while only 15 percent scored this high on the pre-test.

Language Institute

A significant interaction effect was found for both achievement scores (F = 13.24) and aptitude scores (F = 6.40), with greater gains for the LRP group on achievement (t = 3.64) and aptitude (t = 2.53). Effect sizes for the pre-/ post contrasts for LRP participants were large (1.72) for achievement and (1.26) for aptitude scores, effects that are well over one full standard deviation. Ninety-nine percent of the LRP students showed a percentile gain on the achievement, while 100 percent showed a percentile gain on the aptitude. In addition, 72 percent of the students who completed the program scored at or above the 90th percentile on post-testing for either the achievement or the aptitude, while only 9 percent scored this high on the pre-test.

High School

A significant interaction effect was found for both achievement (F = 8.02) and aptitude scores (F = 11.89), with greater gains for the LRP group on achievement (t = 3.41) and aptitude (t = 3.79) over the two year period. Effect sizes for the pre-/post-contrasts for LRP participants were very large (2.20) for achievement and 2.79 for aptitude, effects that are well over two full standard deviations. 100 percent of LRP students showed a percentile gain on the achievement, while 77 percent showed a gain on the aptitude. Eighty-nine percent of LRP participants scored at or above the 90th percentile on either the achievement or aptitude post-test, while only 46 percent scored this high on the pre-test.

Results of the three implementations of the LRP using a pre-/post-test and participant comparison group design supported the three Type 1 claims made for the program. Specifically, students at each of the program sites made both statistically and practically significant achievement and aptitude score gains. After the program, the majority of students moved up in percentile rank on both achievement and aptitude tests, with more students scoring above the 90th percentile after completion of the LRP than before.

The use of a pre-/post-test design with matched comparison groups controlled for the effect of factors such as maturation, statistical regression, other treatments, was tested. Since both the comparison and LRP groups were recognized as similar in terms of their academic performance after testing, the effect of being singled out as special should have been equal across groups. Since participants as well as comparison group students were selected from the same volunteer pool, the effect of differential motivation was also not a factor. Finally, the effect of attrition was carefully examined and the final comparison group was again matched to the LRP group on the basis of pre-test scores before final analyses to control for any attrition effects. It is also important to note that similar results were found across three program sites.

Discussion & Conclusion

The LRP demonstrated that majority of the students could make substantial score gains on standardized achievement and ability tests with a focused and specialized intervention over a period of time. The ability of the LRP to raise test scores is important since eligibility for special academic classes and opportunities are often based on test scores. Thus, improved test scores will open doors which have been previously closed to students. Ultimately, however, the gains made on achievement tests should be a reflection of developed skills which will enable students to survive successfully in any community they may enter.

Gains on the aptitude test, in particular, are quite important for sustained academic success and long term achievement. Aptitude score gains were also somewhat surprising, given assumptions about the static nature of such scores. The results of the LRP suggest that aptitude scores can be influenced through academic intervention and should, therefore, be considered as measured aptitude at time of measurement.

Although the number of students in the reported studies was small for research purposes, the results of this study, along with the existing records from the earlier ones, suggest that the program can be beneficial for a large number of students who are not achieving at high levels and who can demonstrate much higher achievement and aptitude levels. One obvious example is that students "at risk" of underachievement may benefit from extended instructional time during the school year and in the summer. This is supported by research done by Ceci (1991) and Entwisle and Alexander (1992) specifically targeting disadvantaged students. As a matter of fact, all kinds of students who, despite all they do, demonstrate below average achievement constitute the intended audience who may benefit from this study. Such wide population coverage is important because: (a) the problem existing in language teaching is of concern to the whole nation and (b) the result indicating high level performance may be generalized for all. Although the LRP focused on English at high school and university levels for the average students, other studies indicate that the

principles practiced in LRP can also be adapted for other majors and levels (Ceci 1991; Entwisle and Alexander 1992).

Although many of the LRP principles and practices are transferable to a general education setting, the program was not meant to be a substitute for school. Rather, it was a supplemental, time-limited intervention for students whose talents were not being fully developed for a variety of reasons, including less than optimal schooling, social or motivational factors. The LRP was designed to help students catch up and keep up.

By comparison with the majority of programs, the LRP provided content-based instruction. In comparison to remediation, the LRP offered acceleration with a focus on student strengths rather than weaknesses. It was purposely not a pull-out program so students did not miss potentially valuable classroom experiences. It was time-limited, designed to fully prepare the students to continue achieving. Finally, the LRP provided students with an honest assessment of what they could do now and what they would be capable of achieving instead of passing them by and setting them up for future failure. The intervention was significant and it occurred at a critical time in the student's academic development.

The LRP proved to have numerous advantages over other similar programs. First, unlike programs emphasizing unfocused enrichment experiences, the emphasis in the LRP was on the content and basic social and academic skills as the tools one uses to communicate. The LRP was developed on the premise that critical thinking and cooperation are best taught within a content area. In addition, content and skill acquisition was believed to be the foundation upon which higher level education is based.

Second, using multiple assessment, combined with flexible pacing, students received a kind of instruction that was highly efficient and effective in filling in gaps in their knowledge which allowed them to move on confidently and successfully to higher levels of education.

Third, the LRP used a multifaceted approach to improving student achievement. By including student counseling and involvement, focusing on students' affective/motivational development, and teaching test taking and study skills, the LRP was a more comprehensive intervention than other similar programs.

Fourth, the LRP included both an academic year and summer component to ensure that students received an intervention that was significant enough to make a long-term difference.

Fifth, the LRP was added to the regular school program rather than replaced it. Pull-out programs mean loss of regular classroom instruction which may lead to further gaps in knowledge and skills, while also stigmatizing and isolating students. Since the LRP curriculum included most of the skills and content taught in the regular school curriculum, it was in a unique position to strengthen and expand students' academic knowledge use. The LRP, however,

also provided students with alternative instruction specifically designed to address individual needs.

Sixth, the LRP was a time-limited intervention designed to fully prepare the students to continue achieving.

Finally, unlike many programs which rejected the use of standardized tests, the LRP illustrated a responsible, helpful use of tests to identify potential points of concern; i.e., to point out strengths and weaknesses for the purpose of suggesting appropriate instruction, to measure individual progress, and to ascertain program effectiveness.

Although the results revealed by this study highlight the importance of cooperation in language learning, it should be born in mind that demonstrated aptitude and achievement gains could, reasonably, have been attributed to a variety of other critical program elements found in the LRP. In addition to added instructional time, LRP students received qualitatively different instruction than that typically provided by their schools. The subject matter was advanced, rigorous, content-oriented, learner-centered, and flexibly paced. Students' skills were reinforced, gaps were efficiently eliminated, and they were then accelerated, unrestricted by lock-step curricular guidelines which often inhibit the attainment of academically able students. In addition to these critical elements of the program, teachers in the LRP consistently had high expectations of the students, while providing a supportive environment for high achievement. Many of the support elements, including an education program, role models of the high achievement, counseling services, and study/test taking skills provided in the LRP were, undoubtedly, also responsible for the students' achievement in the program and, hopefully, will be instrumental in ensuring their long-term achievement.

Acknowledgements

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