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## FOREIGN LANGUAGE TECHNOLOGY IN THE 21ST CENTURY

Frank Otto, Brigham Young University

### **Introduction**

You have probably already witnessed considerable interest expressed recently in designing and implementing a variety of exemplary programs to teach first, second, and foreign languages with the assistance of computers.

There is no doubt that CAI/IL can make significant contribution to teaching and learning more effectively by providing teachers, administrators, and students options that would not otherwise be available in their teaching/learning environment; indeed, the primary purpose of CAI/IL is to enrich and enhance that environment.

I shall focus my comments in an attempt to offer an up-to-date information source vis a vis the status of technology in language teaching, to provide direction to the practitioner and teacher trainer who are faced with the application of software and hardware in their daily instruction, and to suggest direction for further research and implementation to the profession at large.

### **Making the Best Use of CAI/IL**

We must pay special attention to integrating CAI/IL programs in such a way that they are fully incorporated as integral features of the instruction program to be tailored to needs, interests, and learning styles of individual students. While the application of IL is certainly not a new goal among educators, interactive learning (IL) incorporates instructional specifications that are pedagogically sound while requiring active student participation at every level of language acquisition. Branching and learner options are increased by the use of new technologies.

### **Language Achievement Applying the Notional Functional Approach Exemplary in CAI/IL Programs is Characterized by:**

- Students making more use of language provided them by expanding their learning options.
- Teachers going beyond the textbook to lead students to proficiency by offering a variety of learning options.
- Students being engaged in meaningful learning based on realistic topics, events and situations.
- Students being given opportunities to use language for real-world purposes, including language for special purposes and on-the-job training (OJT).
- Students being guided towards proficiency from the first day of the course in order to increase their proficiency as significantly as possible.

Much has been said and written about IL and the notional-functional approach. The following guidelines are useful when measuring the extent to which a CAI/IL program is pedagogically sound:

Priming. The purpose of priming is to give the student a chance to become comfortable and familiar with the sight, sound, and sense of new language before being required to produce it. Priming lays the affective and cognitive foundation upon which to build productive skills later.

Prompting. The purpose of prompting is to develop the student's ability to produce appropriate language when prompted.

Performing. The purpose of the performing stage is to provide sample opportunities for students to use language creatively to accomplish their own purposes in a way acceptable within the new target culture.

Students are expected to progress from priming to prompting to performing in order for a program to be truly interactive. The most important feature of model CAI/IL programs is the control that teachers and students have in the form of options provided by the special courseware.

### **Guidelines of Effective CAI/IL Programs**

While there are many guidelines that may be listed for effective CAI/IL programs, the following are the most important:

Perceived Purpose. Learners learn best if they can see or develop for themselves a reason for learning the material being presented.

Appropriate Practice. "Appropriate Practice" means doing what the objective calls for. If our objective is that the learner will be able to obtain services in a restaurant (order food and pay for it), then the best possible way to achieve that objective is for the learner to practice in a role-playing situation through simulation.

Graduated Sequence. "Graduated Sequence" involves progressing from the easy to the difficult, from the familiar to the unfamiliar, from the simple to the complex, from the clearly stated to the implied. It is based on the assumption that success and increased confidence are very important factors in the learning process.

Knowledge of Results. While we learn by doing, we can learn to do things incorrectly by practicing them incorrectly. "Knowledge of Results" involves telling learners whether they are doing something correctly or incorrectly; and if they are doing it incorrectly, telling them as precisely and as timely as possible what they are doing wrong and how to correct it. This process allows students to avoid habituated errors.

Individual Differentiation. This principle is based on the assumption that not all learners are created equal. They have different entry skills, aptitudes and attitudes. Every effort should be made to permit each learner to proceed at a pace that challenges yet permits success. There need be no correlation attempted between the number of attempts made and the evaluation of student success. This approach allows the correlation between aptitude and achievement to be reduced to zero.

Fail-safe Protected Learning Environment. Students are not permitted to fail. The record-keeping function allows them to proceed as long as an acceptable level of mastery is maintained. (We use 80 percent in BYU CALI Research projects.) Remediation, review, and additional examples/explanations are provided when students fall below the agreed upon level of mastery in order to bring them back on track so that their learning experience will be successful.

### **General Rationale for the use of Exemplary CAI/IL Programs In Teaching and Learning Languages**

1. CAI programs should be used to individualize and personalize student interaction in a manner not possible in normal classroom settings:
  - Through student control of rate of presentation.
  - Through availability of help features.
  - Through individualized branching for remedial instruction.
  - Through program ability to adjust the level of difficulty according to the student's needs.
  - Through student ability to continue receiving instruction and practice until a level of mastery is attained.
  - Through immediate correction of errors so that mistakes will not become habituated.
2. CAI programs can provide for language-learning experiences not otherwise available by utilizing simulations involving role play.
3. CAI programs with a record-keeping function provide both the student and teacher with on-going evaluation that would be difficult in most conventional classroom settings.

### **Specific Examples of Applications of CAI to Various Skill Areas**

Authentic material should be used to promote communicative competence through teaching techniques and learning activities that enhance:

1. **Vocabulary Learning**
  - Games or word puzzles in which the teacher inputs the vocabulary and the program converts it into a game (i.e., Crossword Magic by Mindscape).
2. **Grammar**
  - Exercises in word order where the meaning of the resulting sentence is demonstrated by animated graphics (i.e., Make a Sentence - PLATO).
  - Programs that build the display interactively as certain grammatical concepts are explained, thus drawing the student's attention to the pertinent part of the display.
  - Exploratory CAI in which the student is free to ask questions of the computer and explore the target language and its structure (i.e., Grammarland by John Higgins).
3. **Reading Comprehension**
  - Programs which incorporate repetition or highlighting of relevant parts of a passage in response to missed comprehension questions.
  - Cloze exercises in which the teacher or student can control the number and placement of blanks.
  - Programs to increase reading speed by the use of various scrolling techniques.
4. **Writing**
  - Programs that take advantage of the computer's word processing capabilities, making it very easy for the student to edit.

- Programs with on-demand, built-in bilingual dictionaries.
- Programs with the ability to highlight a certain word or phrase and have a translation provided.

5. **Translation**

- Programs with on-demand, built-in bilingual dictionaries.
- Ability to highlight a certain word or phrase and have a translation provided.

6. **Auditory Discrimination** (Audio peripheral required such as a Kay Elemetric's Visi-Pitch)

- Programs which display phonemes on the screen along with aural presentation of minimal pairs and include more practice in the student's problem areas.

7. **Listening Comprehension** (Audio peripheral required such as a non-computer or computer-controlled audio cassette player [Tandberg], videotape, videodisc, or interactive television [ITV])

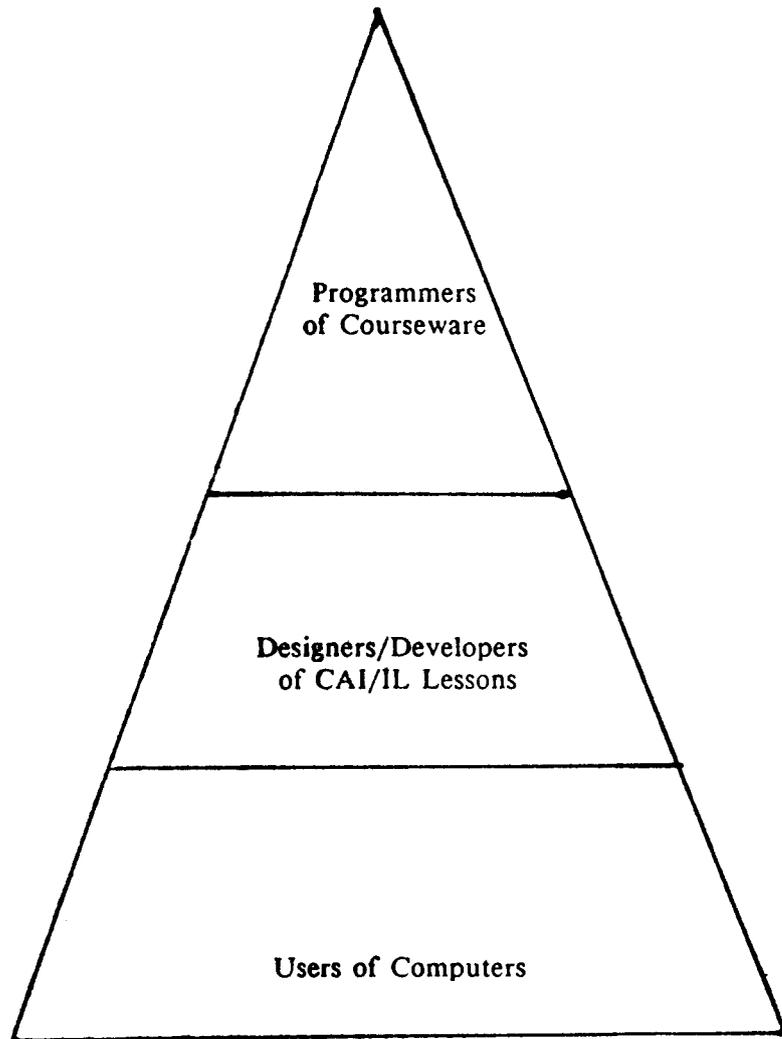
- Programs in which the student hears a passage in the foreign language, is asked comprehension questions, and is given immediate feedback and remediation.
- Simulations of real-life situations in which the student is required to respond to directions, a request, etc., and is branched to a simulated result of that response (i.e., Montevidisco by Brigham Young University).
- Listening comprehension activities coupled with video making it possible to practice understanding non-verbal communication.
- Dictation activities where the feedback is detailed and immediate and the student can ask for clues to make corrections.

8. **Culture**

- Culture capsules such as a program in which the student makes a choice of what to do in a certain situation and then receives an explanation of the probable consequences of that choice (i.e., Correct Behavior the Mexican Way by Langenscheidt).
- Audio/Video simulations which take the student through real-life situations (i.e., Klavier Im Haus and Montevidisco).

9. **Additional Technologies**

- Satellite Telecasts via PEACESAT (i.e., TELEclass by John Wellstein and John Southworth).

**Levels of Teacher Involvement****Figure 1**

These levels of computer literacy and the extent to which teachers/administrators are involved indicate that workshops must be tailored to the needs of individuals grouped as illustrated above.

### Personnel and Organizations Involved in the CAI/IL Environment

Ideally, our professional language organizations should cooperate with teacher education institutions and with hardware/software/courseware vendors to offer pre-service and in-service workshops involving the most feasible applications of CAI/IL programs to the teaching and learning of languages.

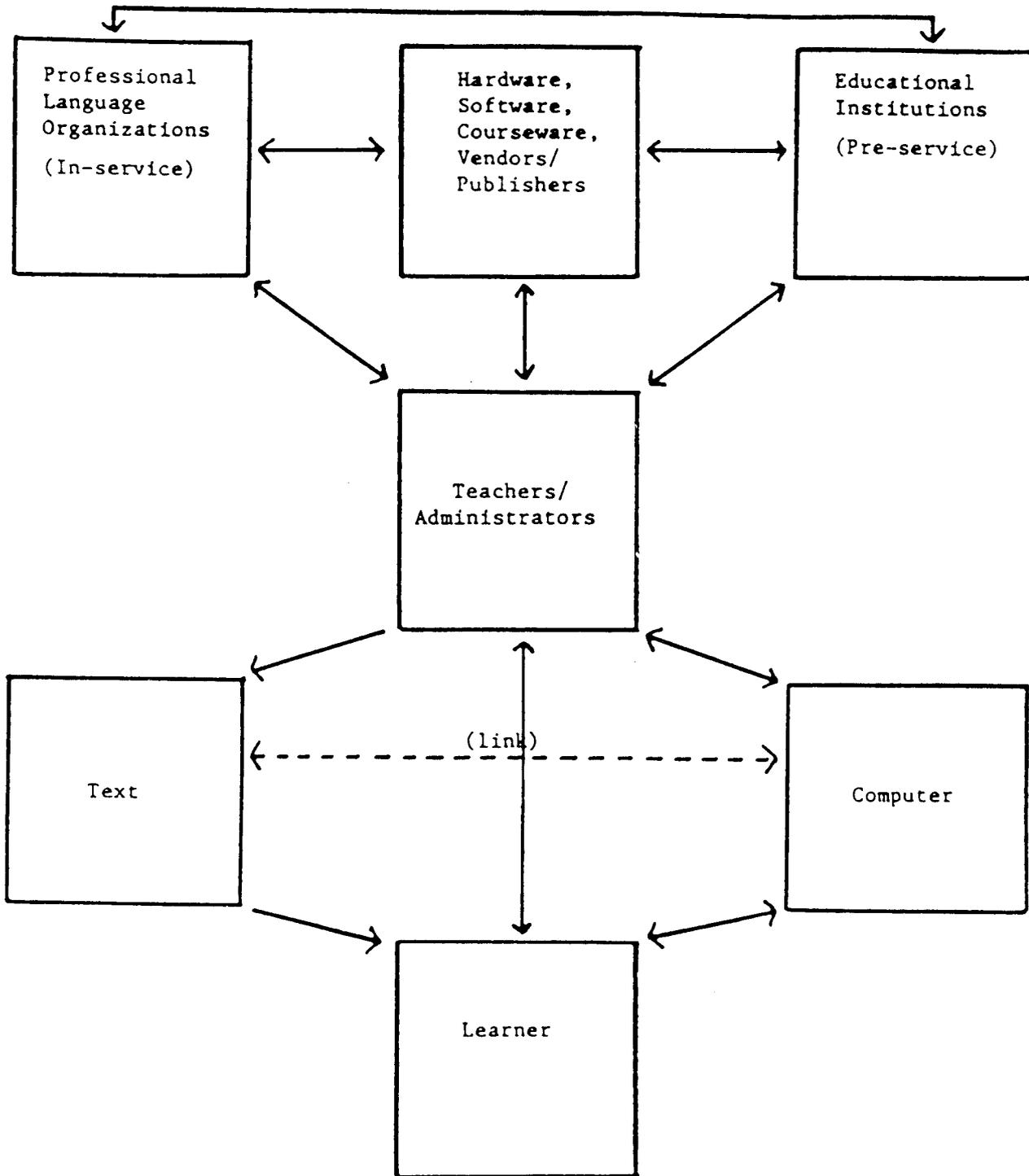


Figure 2

## Comments to Accompany Figure 2

While most of the associations illustrated in Figure 2 are self-explanatory, there are some special observations and supporting comments that would be helpful.

1. Professional language organizations must interrelate with educational institutions and both should maintain an on-going dialogue with hardware/software/courseware vendors and publishers so that all three can communicate as meaningfully as possible with teachers and administrators involved with CAI/IL programs.

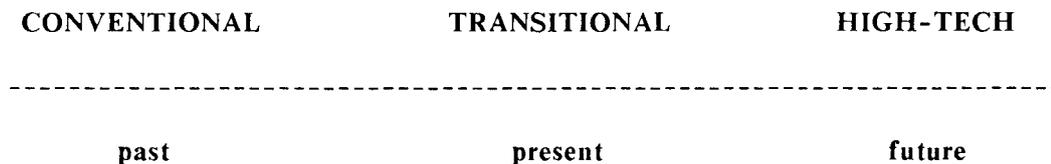
CALICO (Computer Assisted Language Learning and Instruction Consortium) with its Journal, Database, annual Summer Institute, CAB (CALICO Audio Bookshelf) tape and study series, Monograph Series, and other special programs and activities, is the only professional organization that exists with the sole purpose of assisting its members in applying technology specifically to the teaching, learning, and processing of first, second, and foreign languages. For those who want to become involved with CAI/IL by sharing information with others in this field, there is no better plan than to join CALICO and to encourage your institution to join as well.

2. Because the challenge to educational institutions is so immense in terms of becoming familiar with CAI/IL programs and CALI/CALL applications plus the need to become familiar with a rapidly expanding array of hardware/software/courseware possibilities, many educational institutions are forming consortia in order to meet their needs. It is hoped that these educational institutions--whether operating as members of consortia or individually--will fully utilize the programs available through CALICO and other professional language organizations who seek to assist those wishing to develop understanding and expertise with new technologies and their applications to the teaching and learning of languages.

3. It now becomes the responsibility of each educational institution to scrutinize applications of technology to the teaching and learning of languages, prioritize needs in relation to the capability of the educational institution to staff and conduct research in these area, and to offer top-quality teacher education courses that will enable graduates to meet with confidence the newly emerging needs of teachers and administrators.

4. Teachers/administrators must become involved as soon as possible and to a degree in keeping with the needs of their programs and students. It no longer makes sense for members of our profession to wait for any reason until new products are developed, new educational programs are in place, leadership is provided directly by their institutions or school districts, etc. The immediate need is for all of us to become involved in a way that is most meaningful to us personally. We must all find our place on the learning curve in order for this most important new form of instruction to grow and be successful in our educational program.

**Stages of Progress in Instructional Programs Utilizing  
Computers and Interactivity**



**Figure 3**

Most of us understand what is meant by conventional teacher/text instructional programs since we have been working with pencil-paper approaches to the teaching and learning of foreign languages for some time. While we have added media in the form of opaque and overhead projections and supplementary taped materials, most of us consider these approaches to be conventional.

We are now firmly entrenched in what I choose to call the transitional phase; that is, we have sought to supplement the conventional teacher/text approach with applications of computers at a very limited level of interactivity. Unfortunately, most of our efforts in this phase have resulted in the use of CAI/IL to supplement existing text materials that we refer to as "basic instructional materials." While some programs are highly innovative and have succeeded in motivating both teachers and learners, the tendency is for us to consider CAI/IL approaches as peripheral to the central task at hand of dealing with "text" materials.

The high-tech phase opens new dimensions to us and promises to have an immense impact on the teaching and learning of foreign languages. Since the computer is rapidly establishing itself as a valid instructional medium, teachers and materials developers are faced with the question of how to integrate the computer into the traditional teacher/textbook classroom so that it enriches and enhances that environment by fully utilizing all capabilities of hardware/software/courseware. The following section discusses how we may go about achieving full integration and application of the high-tech phase.

Considerations in Implementing CAI/IL Programs

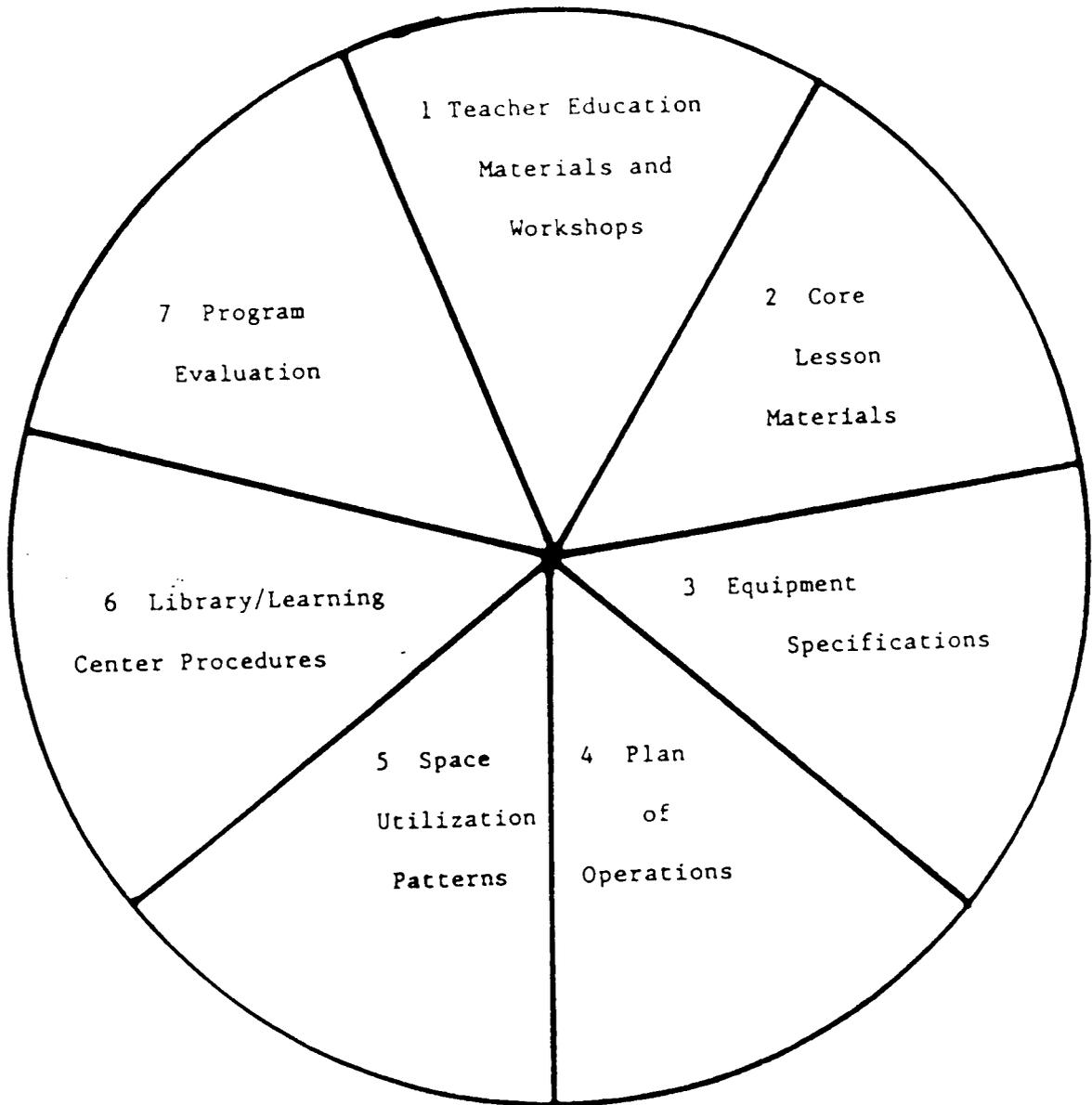


Figure 4

### Comments to Accompany Figure 4

Considerations in implementing CAI/IL programs indicate that:

1. We must design teacher educational materials and workshops that will bring instructors up to speed so that a smooth transition is made between present courseware/procedures and those to be developed during the high-tech phase.
2. Transitional core lesson materials must be selected/developed in such a way that they may be repackaged in keeping with simulation formats to be made interactive for use during the high-tech phase.
3. Equipment specifications must be developed according to needs required to deliver instructional programs selected during the transition phase.
4. A plan of operations must be developed in order to provide a full Gestalt so that personnel can develop a part-whole relationship and smooth continuity from the transition phase to the high-tech phase.
5. A thorough study should be made of space utilization patterns so that equipment, courseware, and procedures are fully operational within the constraints of available space and facilities.
6. Library and learning centers must be developed so that proctors and monitors serve as effectively as possible in their roles as supervisors and facilitators.
7. Current programs must be evaluated in order to determine the extent to which they may be feasibly included as part of the high-tech phase, or adapted successfully to fit with modifications that will enhance the entire instructional program.

### Important Questions to be Addressed by Professional Language Organizations/Educational Institutions Seeking to Provide Guidance to Members/Students Involved with CAI/IL

Our professional language organizations and educational institutions must take the leadership role in providing guidelines for both in-service and pre-service teacher education programs that will lead to acceptable answers for the following questions:

1. **What roles should teachers and administrators play in the selection of CAI/IL courseware?** In order for an exemplary CAI/IL curricula to be established, enabling and terminal teaching and learning objectives must be defined. Only teachers, administrators and instructional designers are in a position to state educational objectives in such a way that hardware and software specialists can design systems that are in keeping with the states goals of the program.
2. **What roles should teachers and administrators play in the design, development, programming and evaluation of CAI/IL materials developed "in house"?** Most observers who have had opportunities to work in the area of courseware development would agree that teachers and administrators are best involved as designers and developers of lesson materials. Very few teachers have had opportunities to become involved enough with programming to fully understand systems capabilities and options for innovative and sophisticated applications in the area of programming. While workshops/seminars are available for teachers who want to learn more about computers, these sessions seldom are designed to meet the specific needs of language teachers. Moreover, those who have participated as members of courseware development teams have observed that teachers must not be overtaxed by being expected to provide exemplary lesson design and lesson

development strategies in addition to having the responsibility for programming and evaluating courseware developed in house.

3. **Realistically, what should we expect CAI/IL courseware to enable us to do that we cannot do easily or would like help in accomplishing?** The needs in this area are most critical since they serve as the basis for determining exactly what tasks and assignments should be addressed in both pre-service and in-service teacher education programs. These needs will vary depending upon the level of proficiency and the extent to which CAI/IL is an integral component of the instructional program.
4. **What expectations should we assign to CAI/IL as the results of needs assessments and task analyses?** Without teacher and administrator input in completing needs assessment and task analyses, the CAI/IL program is doomed to failure through misuse or disuse. Of course, in addition to input mentioned in these areas, there must be complete support expressed for the new program by all teachers and administrators.
5. **How may we most effectively obtain the involvement of students in the revision and improvement of our CAI/IL programs?** Students are anxious to be of assistance as we go about revising and improving CAI/IL programs in which they are involved. Our experience has been that student involvement in the revision and improvement of courseware correlates most positively with increased student motivation regarding CAI/IL programs. We have also experienced an increase in student/teacher/administrator satisfaction when all participants are involved in suggesting revisions and improvements to their courseware.

### **Challenge**

Whatever our future may be in CAI/IL, the extent to which we will be successful depends more on teacher and administrator participation than upon any other single variable. We hope that you will accept the challenge to become involved in a way that is meaningful to you.