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**93-0023**
Rancho Santiago

**Automotive/Diesel Dictionary in Three Languages, Year Two**
In FY 1992/93, Mr. Whitcomb proposed to FII to develop a dictionary of industry-specific terms, phrases, definitions, conversion charts and acronyms; have them translated into Vietnamese and Spanish; develop learning activities and an instructor’s manual to support using the dictionary in the classroom. Mr. Whitcomb was funded to develop the dictionary. However, due to a reduction in the award amount, the project was revised to include only the Vietnamese translation. Because there is still a great need for the Spanish translation, Mr. Whitcomb now requests funds to complete this portion of the project.

In addition, the amount of time needed to complete the project was greatly underestimated, over 5,244 terms are included on 250 pages. Two separate dictionaries, English only and English-Vietnamese, were developed. Much more time than estimated was needed for review by the Gender Equity Coordinator, Vietnamese translator and editor. The dictionary was not ready for pilot testing during Spring semester as planned. Mr. Whitcomb requests permission to pilot test the completed English and Vietnamese version in the Fall, 1993 and the Spanish version in the Spring 1994 semester.

Funds that were budgeted for dissemination and pilot testing of the English and Vietnamese dictionaries will be carried over into the new grant year. This college will pay for the pilot testing of the Spanish version, except for a stipend to the instructor to complete the data collection and evaluation outside of the classroom instruction time.
The outcome of this project, dictionaries of automotive/diesel terms in English, English/Vietnamese (funded through a 1992/93 FII grant) and English/Spanish, addresses the Board of Governors’ concerns for access to programs and success within programs offered by the community colleges. This project recognizes that students come to the college with all levels of English language ability and educational preparedness. If we are to improve the retention of underrepresented students and increase the number of successful underrepresented students in vocational education programs, we must adapt our teaching strategies to reach as many students as possible.

The retention of underrepresented students in Rancho Santiago College's automotive classes will increase as a result of the development of these dictionaries. In addition, the dictionaries will be developed to industry standards. As a result, all automotive technology training programs in the state win benefit from receiving these materials and using them in their classrooms.
This project responds to the special needs of educationally disadvantaged students because it addresses the language deficiencies of students enrolled in automotive and diesel technology classes at Rancho Santiago College, the majority of whom speak English as a second language and have poor educational backgrounds. In addition it addresses the Board of Governors’ Agenda items to make vocational education more relevant and effective in preparing students for employment and to increase the number of successful underrepresented students in vocational education programs.
Rancho Santiago College serves a diverse student population. Twenty-four percent of the students enrolled in college level courses identify themselves as being Hispanic and 16% Asian. However, the number of ethnically diverse students enrolled in the automotive technology program is much higher. An average of 75% of the students are either Hispanic or Asian. Of these, approximately 70% are non-native English speaking. The non-native English speaking students have had various levels of English-as-a-second-language classes. Some read English but do not speak or understand the spoken word well. Seventy-five percent of all automotive students have poor educational backgrounds and are not prepared for college level work.

The college offers 12 automotive and diesel technology classes each semester, an average of 350 students per semester. The first course, Automotive Technology 002, Essentials, is difficult because the basic principles and terminology are presented. The attrition rate is high, an average of 45% do not receive credit for the course - - 25% of these receive grades of D or F and 20% withdraw. High attrition rates and low grades are the result, according to instructors, of difficult material, language deficient skills of incoming students and the quantity of material that must be understood. The automotive language, much like that of other common languages, is clouded with dialects, acronyms and jargon. In the automotive and diesel industry the student must learn how to complete the assigned mechanical task as well as master an entirely new vocabulary and language. This makes understanding difficult for even the better educationally prepared students.

Solution to the Problem

The automotive department faculty cannot control the level of proficiency students have in English or their level of educational preparedness when they enter the program. They need to help them learn despite their disadvantages. One way is to use classroom materials that are in the students' native languages.

David Whitcomb, has been an automotive technology instructor for 25 years. He has seen the changes in student characteristics that have occurred and has adapted his teaching strategies accordingly. For the past several years, Mr. Whitcomb has been compiling lists of terms phrases and definitions. He uses these to prepare work lists and written assignments for students. He
believes that a student who understands the language of the automobile will be better able to diagnose the problems of the automobile, and that this language must be presented consistently and according to industry standards.
These dictionaries will be a great resource to approximately 1,000 students per year enrolled in Rancho Santiago's automotive and diesel technology classes.

The dictionary has been developed based on industry standards. Because of this, the dictionary will be an excellent resource for students at all community colleges with automotive technology programs. In addition, students will use this dictionary in the workplace. It is expected that shop owners and managers will request copies.
Objectives

a) By January 15, 1994, address the learning deficiencies of students enrolled in automotive technology courses who have poor educational backgrounds and speak Spanish as their native language by compiling a dictionary of industry-specific terms and phrases in Spanish and English for students to use during their entire training period and to use on the job.

b) By May 15, 1994, improve student success in Automotive Technology 002, Essentials by implementing the dictionaries in three languages and accompanying assignments to decrease the attrition rate by 50% and to decrease the number of students receiving D’s and F’s by 25%.

c) By June 30, 1994, improve the resources available to all community college automotive students by disseminating copies of the dictionaries and an instructor’s guide to the chairperson of every department in the state.
From October 1, 1993, through December 15, 1993, Mr. Whitcomb will work closely with a Spanish interpreter to translate the materials. Mr. Whitcomb will hire translators with a background in automotive technology. Spanish speaking faculty on campus will be asked to proofread the translations for spelling and grammatical errors.

From August 15, 1993, through December 1, 1993, the English and English/Vietnamese dictionaries and related work assignments will be pilot tested in two sections of Automotive Technology 002, Essentials. Mr. Whitcomb will administer a pre-test to establish a base level of knowledge. Weekly quiz results will be recorded. Students will be asked on a regular basis for opinions on the dictionary. During this time period, he will present copies of the dictionary to members of the Automotive Technology advisory committee and ask them to submit a critique to him before the end of the semester.

From January 15, 1994 through May 15, 1994, the English/Spanish dictionary will be pilot tested in the sections of Automotive Technology 002, Essential, using the same format.

From May 15, 1994, through June 15, 1994, Mr. Whitcomb will complete an evaluation of the new materials and their effect on student success. In addition, he will develop an instructor's guide to using the dictionary in the classroom. He will revise the dictionary as a result of the evaluation, the ongoing suggestions of students and the advice of the advisory committee.

By June 30, 1994, Mr. Whitcomb will send a copy of the dictionary along with the instructor's guide to the Chancellor's Office and to each chairperson of Automotive Technology at the other community colleges. He will include with these copies an evaluation form to identify which schools find the dictionary useful and plan to use it.
a) Project Objectives
The final product of this project will be three clearly printed dictionaries of terms, phrases and definitions. This dictionary will be invaluable to students who are having difficulty with the technical language used in automotive and diesel classes. The project director will supplement the dictionary with various learning activities to promote the dictionary's use by students. The dictionary and the work assignments will be designed to improve student success and will have a noticeable impact on students who would previously have withdrawn or failed because of the complex materials. Use of these materials will decrease the attrition rate by 50%; only 10% of the students who enroll in Automotive Technology 002 will withdraw before completing the class. In addition, the number of students in the lower 25th percentile (those receiving C's and D's) will decrease by 25% as compared to previous semesters. These improvements will enable approximately one-third more students in each section of AT 002 to complete the class with the knowledge base they really need to move into the next course.

b) Impact of the Project
It is expected that this project will have a great impact on the success rate of underprepared students in this vocational area. The project director clearly feels that this dictionary and its accompanying learning activities will remove the barrier to success that exists because many students do not have a good understanding of the English language.

The dictionary will help students in future classes and at the workplace. It is anticipated that there will be some interest in this project and the resulting dictionary by the community trades people who are also facing the influx of many workers who have language deficiencies in English.

c. Potential for Continued Support
The dictionaries developed through this grant will be reproduced in the bookstore and sold to students to cover the cost of the printing, on a continuous basis. The automotive technology department will support the cost of updating the dictionary as new vocabulary words become part of the industry. No further funding will be needed.
d. Potential for Adaptation to Other Institutions or Programs

This project will serve as a model for other vocational programs at this college where critical materials could be translated into several languages. It will be a large undertaking for any other department, just as it is for automotive technology.

However, the success of this project can be used to justify endeavoring to duplicate it in another area and, possibly, to seek funding to do so.

The dictionary will be designed to industry standards. Most community colleges in California have a culturally diverse student population that needs additional support in order to succeed in the classroom. For these reasons, this dictionary will be a valuable tool to students enrolled in automotive technology programs around the state. It is expected that 50% of the automotive technology chairs who receive a copy of the materials will use it in their program.

The dictionary will also be useful to employers hiring workers with inadequate English-language skills, but who can complete the necessary tasks and operations to be good mechanics.
This project is a large undertaking, and because of that, the key means to evaluating the process will be by meeting the milestone dates established in the work statement. The project director will meet regularly with the Dean of Technology to review this progress. Mr. Whitcomb will keep notes on his activities as the dictionary is developed, to identify problems that arise and to give guidance to others wishing to replicate the process. The instructor's guide that he will develop will identify the effective methods for using the dictionary in the classroom.

When the dictionary is pilot tested in the classroom, Mr. Whitcomb will begin the evaluation process by administering a pre-test to assess student knowledge. His quizzes and exams will include information that students learned from the dictionary and the related learning activities. Testing will show, for example, that the students know how to look up materials and know how to make calculations and conversions. Mr. Whitcomb plans to monitor these on a continuous basis and to compare results to previous semesters. He will chart the comparisons to show the improvements that are occurring. He will monitor individual students closely to make sure that those who are having difficulty in the class are not doing so because of the language. He will suggest extra assignments to those who need extra practice. As often as needed he will ask students for feedback on the dictionary and what they are learning. Careful tracking of student outcomes will enable the project director to determine whether the quantitative goals of this project are met. Comparisons to previous semesters will show a decrease in attrition of 50%. Tracking and review of quiz and test scores will show fewer students receiving D's and F's, which should also mean a higher classroom grade point average. The post-test will show a marked increase in information knowledge.

The transferability of the dictionary and support materials will be shown by the number of colleges that respond positively to Mr. Whitcomb's evaluation form upon receiving copies of the materials. He expects that at least 50% of the colleges will want to use the dictionary in some way.
The primary end product of this project will be three dictionaries of automotive terms, phrases, definitions, charts and acronyms. The project director will also complete learning activities to assign to students to help them use the dictionary and learn the vocabulary. Finally an instructor's guide will be developed to give other teachers assistance in using the dictionary in their classrooms.

The dictionaries will be completed and made available to students in the pilot test classes. As the materials are refined, the publication and sale of the materials will be turned over to the campus student bookstore for sale to students in the program and to interested community members. Students in Automotive Technology 002 will be required to buy the book. Other students may be required to use it depending on the outcomes of this project.

Automotive faculty at Rancho Santiago College will receive copies of the dictionaries and instructor's guide during the summer of 1993. Mr. Whitcomb will lead an in-service training session for interested instructors during "flex" days (staff development days) before the start of Fall 1994 semester.

Department chairs at other colleges will receive their copy of the dictionary, instructor's guide and evaluation form by early July, 1994. Mr. Whitcomb will include his telephone number for others to call him with questions. He expects to know by August how many schools will use the dictionary and how they plan to use it. He will seek feedback from schools that decide to use the dictionary, after it is used in the classroom.

This information will be sent to the Chancellor's Office as an addendum to the Final Report he submits in July 1994.

Progress of the students will be compared with previous semesters in terms of numbers of questions generated from the students, their grades on various projects and their overall success in the class.
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