### Auto/Diesel Dictionaries in Three Languages

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<tr>
<th>FISCAL YEAR</th>
<th>ID NUMBER</th>
<th>COLLEGE</th>
<th>DISTRICT</th>
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<tr>
<td>1992-93</td>
<td>92-0025</td>
<td>Rancho Santiago</td>
<td>Rancho Santiago</td>
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**PROJECT TITLE**

Auto/Diesel Dictionaries in Three Languages

<table>
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<th>FUNDING CATEGORY &amp; AWARD</th>
<th>ELIGIBLE PROGRAM</th>
<th>PROJECT CATEGORY</th>
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<tr>
<td>Grant = $12,000</td>
<td>C --- Special Learning Needs Ed/Dis</td>
<td>Developmental Model</td>
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<tr>
<th>PROJECT PRODUCT</th>
<th>PROJECT TOPIC #1</th>
<th>PROJECT TOPIC #2</th>
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<td>ESL</td>
<td>Automotive Technology</td>
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**PROJECT DIRECTOR**

David Whitcomb, Instructor Diesel

**PROJECT SUPERVISOR**

Marilyn Brock, Asst Dean Science & Technology

**PROPOSAL DESCRIPTION**

This proposal is a grant request. This proposal addresses the language deficiencies of students enrolled in automotive and diesel technology. The majority of these students speak English as Second Language. The project will address the learning deficiencies of students with poor educational backgrounds or who speak Spanish or Vietnamese as their native language. The project will pilot test the use of the dictionary in Automotive Technology 002, Essentials, and develop related learning activities and work assignments to improve retention of students. The project will disseminate this dictionary and accompanying instructor's guide to all automotive technology programs in the California Community Colleges.
Auto/Diesel Dictionaries in Three Languages

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.

An average of 75% of the students enrolled in automotive and diesel technology classes at Rancho Santiago College are either Hispanic or Asian. Of these, 70% are non-native English speakers and experience difficulty with the language. In addition, 75% of all automotive students have inadequate educational backgrounds and are not prepared for college level work.

Faculty in the automotive technology program are committed to helping their students succeed. They realize that students are learning a whole new language when they enroll in their courses. And, like most common languages, it is clouded with dialects, jargon and acronyms. Mr. David Whitcomb, an instructor with more than 25 years of experience, believes that if the students can understand the terms and phrases in their native language they will be better able to learn them in English.

Mr. Whitcomb proposes to:

1. Address the learning deficiencies of students with poor educational backgrounds or who speak Spanish or Vietnamese as their native language and have trouble with English by compiling a dictionary of industry-specific terms, phrases, charts and acronyms that is in three languages to use while training and on the job.

2. Pilot test the use of this dictionary in Automotive Technology 002, Essentials and develop related learning activities and work assignments to improve retention of students in this course by 50% and to decrease the number of students receiving grades of D and F by 25%.

3. Disseminate this dictionary and an accompanying instructor's guide to all automotive technology programs in California community colleges.
Mr. Whitcomb has been compiling automotive terms and phrases on the computer for the last several years. He will donate the time and work he has already completed if the Fund for Instructional Improvement will support completion of this project. FII funds, $15,000, will be used to complete the collection of entries; have them translated into Spanish and Vietnamese; develop learning activities to accompany it; develop an instructor’s guide; and to disseminate the dictionary to students in the pilot test class and to automotive technology programs across the state. Local funds, $16,673, will be used to pilot test the manual in class and for the administration of the project. Several faculty members will also volunteer to proofread and edit the dictionary in English, Spanish and Vietnamese.
Auto/Diesel Dictionaries in Three Languages

1. Specific Educational Program Being Addressed

SPECIFIC EDUCATIONAL PROGRAM ADDRESSED

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.
2. Specific Problems Being Addressed

SPECIFIC PROBLEM TO BE ADDRESSED

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.

At the same time, the demand for automotive service technicians is very high. Students completing the necessary course, courses, or program are almost guaranteed employment. This is regardless of whether or not they can speak English. Students can be hired to repair front end alignments after completing only one class. Wages for mechanics in Orange County range from $6.50-7.00 for a starting level wheel alignment/tire specialist to $35,000 - 70,000+ for an experienced mechanic.

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.

Faculty in the automotive technology program are committed to helping their students succeed. They have developed aids that present the material visually, to help overcome language differences. Some organize teams of students to work together on various assignments. They have used professional interpreters at times, or allowed students to translate and help each other, even during lectures. Faculty members find themselves spending a lot of time during lectures explaining terms and phrases, which takes away from the time they have to present the material. However, a class in this field is guided by content and procedure rather than the level of any particular student; they cannot teach to the speed of the class. With the advent of computers, both on-board and for testing, the subject matter has
become even more extensive and complicated. Finally, safety is an issue, as is damage to equipment, if students do not understand written operating procedures and warnings.

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 word 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.

Mr. Whitcomb proposes to develop a dictionary of industry-specific terms, phrases, definitions, conversion charts and acronyms; have them translated into Vietnamese and Spanish; develop learning activities to accompany it; and develop an instructor’s guide to support using the dictionary in the classroom. It should be noted that he has already collected an estimated 75% of the terms and definitions that will be included in this dictionary. He is offering to donate the hundreds of hours of work he has already put into this project if the Fund for Instructional Improvement will support its completion. He is requesting funding because of the urgent need for these materials, now. These funds will enable him to be released from other teaching duties to devote more time to this project.

Mr. Whitcomb believes that if students understand the terms in their own language it will help them learn them in English. This dictionary will be a required text for students enrolled in Automotive Technology 002 and available to all automotive technology students. The instructor will prepare word lists and other assignments based on this dictionary on a daily basis. Students will be required to familiarize themselves with specific words and terms before they come to each class. Understanding of these terms will be assessed in tests and quizzes. The instructor’s guide that he will develop will suggest ways that other teachers can incorporate the dictionary into their classrooms.
3. Population To Be Served

POPULATION TO BE SERVED

This dictionary will contain English to English, English to Spanish and English to Vietnamese sections. As a result, it will be a great resource to approximately 1,000 students per year enrolled in Rancho Santiago's automotive and diesel technology classes.

This dictionary will be 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 work place. It is expected that shop owners and managers will request copies.
4. Objectives

PROPOSAL OBJECTIVES

a. By January 15, 1993, address the learning deficiencies of students enrolled in automotive technology courses who have poor educational backgrounds and/or speak Spanish or Vietnamese as their native language by compiling a dictionary of industry-specific terms and phrases in three languages for students to use during their entire training period and to use on the job.

b. By May 15, 1993, improve student success in Automotive Technology 002, Essentials by implementing the dictionary 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, 1993, improve the resources available to all community college automotive students by disseminating a copy of the dictionary and an instructor's guide to the chairperson of every department in the state.
5. Workplan Narrative

THE WORK STATEMENT

From July 1, 1992, through September 30, 1992, Mr. Whitcomb will complete the compilation of the materials to be included in the English portion of the dictionary. During this period he will complete the collection of entries, develop cross-references and definitions, complete a spell check, and categorize and alphabetize the entries. Mr. Whitcomb will work with the college’s gender equity coordinator to help eliminate gender-biased terms. English department faculty will proofread the document for grammatical errors. Automotive technology faculty will review the final English draft.

From October 1, 1992, through December 15, 1992, Mr. Whitcomb will work closely with Spanish and Vietnamese interpreters to translate the materials. Mr. Whitcomb will hire translators with a background in automotive technology. Spanish and Vietnamese speaking faculty on campus will be asked to proofread the translations for spelling and grammatical errors.

During this time period, Mr. Whitcomb will also develop work assignments for the students based on the dictionary. He will prepare weekly word lists, homework assignments, and test and quiz items.

From December 15, 1992, through January 15, 1993, final editing and typing will take place. A cover will be designed. The manuscript will be printed. Copies will be made for the students who will participate in the pilot testing of the dictionary.

From January 15, 1993, through May 15, 1993, the dictionary 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 May 15, 1993, through June 15, 1993, 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, 1993, 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 a evaluation form to identify which schools find the dictionary useful and plan to use it.
6. Expected Outcomes

THE EXPECTED OUTCOMES OF THE PROJECT

A. Project Objectives

The final product of this project will be a clearly printed dictionary of terms, phrases and definitions. Depending on its length, there may be one version with all three languages or three separate ones. Mr. Whitcomb estimates it will have about 200 pages of terms, but with translations does not know how long the entire document will be. 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.

The dictionary will be designed to industry standards. Also, the project director will produce an instructor's guide to using the dictionary in the classroom. Finally, 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.

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 work place. 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 dictionary 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.

This material will be useful to students at other colleges and universities throughout California, and probably the nation, where automotive and diesel technology programs are taught. This will be particularly true in regions of the United States which are impacted with students who use English as a second language.

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.
7. Evaluation Plan

EVALUATION PLAN

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 Assistant Dean of Science and 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.
8. Dissemination Plan

DISSEMINATION PLAN

The primary end product of this project will be a dictionary of automotive terms, phrases, definitions, charts and acronyms that will also be translated into Spanish and Vietnamese. 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 dictionary 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 a copy of the dictionary and instructor’s guide during the summer of 1993. Mr. Whitcomb will lead an in-service training session for interested instructor’s during “flex” days (staff development days) before the start of Fall 1993 semester.

Department chairs at other colleges will receive their copy of the dictionary, instructor’s guide and evaluation form by early July, 1993. 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 1993.

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.
9. Budget Narrative

[NO “BUDGET NARRATIVE” ACCOMPANIES THIS DOCUMENT.]