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ABSTRACT

In order to build auto mechanics curricula and instructional programs responsive to the needs of employers, Bakersfield College (BC) sent a questionnaire to all employers listed under "Automobile Repairing and Services" in the yellow pages of the local telephone book. Only 43 (20 percent) of the 215 questionnaires sent out were returned; however, these respondents represented about half of the large garages and auto dealers so that 35-40 percent of the total full-time employment may have been represented. Most respondents were unaware of the auto program at BC and were suspicious that college auto programs were unrealistic in terms of skills really needed in the shop. However, there was an indication that they would hire BC graduates quite readily if they could be convinced that graduates were willing to work hard and had practical experience. For this, publicity is needed. Employers indicated great difficulty in hiring well-trained auto mechanics in almost any specialty--this indicates a need for more auto mechanics students at BC. Short-term updating courses, particularly in the area of electronic ignition, would be the kind of course to which employers would be most apt to send employees. Because employees want students trained in conditions similar to those encountered on the job, BC should obtain funds for the construction of a new auto shop building as soon as possible. (DC)



Table of Contents

I. INTRODUCTION AND METHODOLOGY . . . . .	1
II. RESPONSES TO QUESTIONNAIRE . . . . .	3
Types of Respondents . . . . .	3
Hiring Record . . . . .	3
Hiring Difficulty . . . . .	5
Record of Bakersfield College Trainees . . . . .	6
Reactions to Continuing Education Courses . . . . .	6
Equipment Used in Shops . . . . .	9
III. INTERPRETATIONS . . . . .	11
IV. SAMPLES OF QUESTIONNAIRE, LETTER . . . . .	13

## Part I. Introduction and Methodology

The purpose of this survey was to gather data from automobile mechanic employers in order to provide auto mechanic training programs at Bakersfield College that:

1. supply the skills to students in order to enable them to successfully find employment and to advance in their jobs
2. produce mechanics skilled enough to fulfill what appears to be the critical needs of employers
3. determine needs for continuing education job skill updating courses for mechanics already employed in the Bakersfield area
4. determine how well Bakersfield College auto students are functioning on the job
5. determine the awareness of the employer of Bakersfield College auto program generally and the new Auto Century program specifically.

In order to collect information necessary to meet these purposes, a 33 item questionnaire was designed by Charles Page and David Scott. Most questions were designed to be answered via multiple choice response to encourage ease of answering and to enable the responses to be scored via computer. Space was provided for written comments.

The questionnaire was divided into five parts:

1. Numbers of individuals hired and to be hired
2. Difficulty in hiring various specialized types of auto mechanics

3. Assessment of work records of Bakersfield College students hired
4. Interest in continuing education - job updating courses at the college
5. A computation of type of equipment used in shops of employers.

It was decided to mail the questionnaire to all employers listed under "Automobile Repairing and Services" in the yellow pages of the June 1974 Bakersfield area telephone book. The communities of Richgrove, Rosamond, Lebec, Gorman and Mojave were eliminated as being too far away to be in the immediate market area.

On December 23, 215 questionnaires were mailed. Only 43 were returned by January 29, the date when the cards to which the data had been transcribed were scored. This represents a return of 20%. Initially this return would appear to be low enough to make the returns statistically unreliable. But figures relating to the first page of the questionnaire indicate about half of the large garages and auto dealers returned the instrument so that about 35-40% of the total full-time employment might very well be represented.

The pages that follow represent the numerical responses to the survey as well as written comments offered by the employers.

## Part II. Responses to Questionnaire

Communities represented by the returned questionnaires were as follows:

Bakersfield	32	(74.4%)
Delano	5	(11.6%)
Tehachapi	2	(4.7%)
Oildale	2	(4.7%)
Shafter	2	(4.7%)

Employers classified themselves as follows:

### General repair services

New car, truck dealer, general repair	14	(32.6%)
General repair auto, light truck	12	(27.9%)
Service station, general repair	3	(7.0%)
General repair except front-end	3	(7.0%)
General sports, foreign car	<u>1</u>	<u>(2.3%)</u>
 Total general repair	 33	 (76.7%)

### Speciality shops

Brake, front end, wheel alignment	5	(11.6%)
Muffler, front end, brake	2	(4.7%)
Automatic transmission	1	(2.3%)
Auto blacksmith	1	(2.3%)
Tune-up, carburetor, electric	<u>1</u>	<u>(2.3%)</u>
 Total speciality shops	 10	 (23.3%)

One of the employers returned the questionnaire unanswered save one comment that his was a one-man (himself) shop and therefore it would be useless to answer the instrument. Therefore, in the statistics that follow, the most to answer any one question was 42.

Full time mechanics employed were indicated as follows:

none	4	(9.5%)
1	6	(14.3%)
2	6	(14.3%)
3	7	(16.7%)
4	5	(11.9%)
5 or more	14	(33.3%)

It is to be noted that one-third of those employers to respond employed five or more mechanics, the numerically large full-time employment referred to in the introduction. Part-time employment occurred very infrequently as is indicated by part-time employee figures as follows:

none	28	(68.3%)
1	12	(29.3%)
2	1	(2.4%)
3	0	
4	0	
5 or more	0	

Service personnel hiring also indicates almost a third of employers (31%) having hired five or more; specifically the figures were:

none	13	(31.0%)
1	5	(11.9%)
2	6	(14.3%)
3	3	(7.1%)
4	2	(4.8%)
5 or more	13	(31.0%)

Questions 5 and 6 dealt with amount of mechanics hired yearly in the last three years and expectations of yearly hiring in the next three years. Responses to these items were:

<u>Number</u>	<u>Average Yearly Hiring in Last Three Years</u>		<u>Anticipated Yearly Hiring in Next Three Years</u>	
none	5	(12.2%)	6	(17.6%)
1	9	(22.0%)	6	(17.6%)
2	13	(31.7%)	16	(47.1%)
3	9	(22.0%)	4	(11.8%)
4	1	(2.4%)	2	(5.9%)
5 or more	4	(9.8%)	0	

Most respondents had hired from one to three employees yearly for the last three years. Hiring anticipation for the next three years would appear to be the same though employers of large shops anticipate less hiring (four hired five or more in the last three years, none are planning to hire this amount in the next three years).

The next set of questions concerned hiring difficulty in seven specific mechanic specialities. Results were as follows:

<u>Speciality</u>	<u>Ease of Hiring</u>			<u>Have Not Tried To Hire Anyone In This Area</u>
	<u>Great Difficulty</u>	<u>Moderate Difficulty</u>	<u>No Difficulty</u>	
Service personnel	14 (35.0%)	13 (32.5%)	4 (10.0%)	9 (22.5%)
Auto air conditioning	11 (29.0%)	9 (23.7%)	13 (34.2%)	13 (34.2%)
Automatic transmission	14 (35.9%)	7 (18.0%)	1 (2.6%)	17 (43.6%)
Auto engine mechanic	12 (30.8%)	9 (23.1%)	4 (10.3%)	14 (35.9%)
Front end and brake	13 (33.3%)	5 (12.8%)	9 (23.1%)	12 (30.8%)
Tune-up and electric	12 (33.3%)	8 (20.5%)	4 (10.3%)	14 (35.9%)
Engine machinist	4 (11.4%)	1 (2.9%)	2 (5.7%)	28 (80.0%)
<b>Total</b>	<b>80 (29.9%)</b>	<b>52 (19.4%)</b>	<b>29 (10.8%)</b>	<b>107 (39.9%)</b>

From the figures above it is clear that a substantial amount of employers experienced hiring difficulties in all of the listed classifications other than engine machinist.

Employers were also asked to name other speciality areas not listed above. Great difficulty in hiring was reported for the following:

- Foreign car mechanic
- Muffler installer
- Mercedes Benz specialist
- Auto frame repair and straightening
- Body shop personnel
- Valve work on overhead engines
- Standard transmissions carburetion
- Mechanic with at least ten years experience

In order to obtain a true picture of hiring difficulty for employers, the above eight items were added to the specialities also listed above, then the category "have not tried to hire anyone in this area" was eliminated; the resultant tabulation was as follows:

Great difficulty	88	(52.1%)
Moderate difficulty	52	(30.8%)
No difficulty	29	(17.2%)

Clearly, when employers tried to hire what they felt were qualified mechanics they consistently experienced difficulty. One employer added the following thought, "I would like to note that there are qualified men in each of the above fields available, but finding the ones who will do the job thoroughly with consideration for the consumer is near impossible." In a similar mood another employer commented, "I need to find people that want to work, not just draw a paycheck."

Questions 15 through 22 concerned job performance of those who had experienced their automotive training at Bakersfield College.

Of the 40 employers who responded to this section of the questionnaire only 11 (27.5%) reported having hired Bakersfield College trainees. One other reported that a tune-up man had taken a continuing education course at Bakersfield College.

A total of 23 Bakersfield College trainees had been hired by these 11 employers. The areas hired and ratings accorded each are as follows:

<u>Speciality</u>	<u>Number Hired</u>	<u>Rating</u>			
		<u>Excellent</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Auto air conditioning	3	1 (33.3%)	1 (33.3%)	0	1 (33.3%)
Automatic transmission	4	2 (50.0%)	1 (25.0%)	1 (25.0%)	0
Auto engine mechanic	4	0	4 (100.0%)	0	0
Front end and brake	6	0	3 (50.0%)	3 (50.0%)	0
Tune-up and electric	<u>6</u>	<u>2 (33.3%)</u>	<u>2 (33.3%)</u>	<u>0</u>	<u>2 (33.3%)</u>
Total	23	5 (21.7%)	11 (47.8%)	4 (17.4%)	3 (13.0%)

Two-thirds of the Bakersfield College personnel hired were rated good or above; front end and brake, and tune-up and electric appear to account for most of the low performance ratings.

One employer added the following comment:

"The major fault I find with most auto mechanic students from private or public schools is a high degree of theoretical knowledge with poor practical knowledge and the inability to correlate the two. I see many people who do the work on paper, but not in the shop."

Questions 23 through 32 were designed to test employers attitudes toward various approaches the Bakersfield College training program is taking or considering taking particularly in the area of continuing education, job updating.

Question 23 asked about employer willingness to hire a mechanic with 360 hours of training in front end and brake, with no prior experience. Responses were as follows:

Yes	19	(57.6%)
Only if I couldn't find anyone else	7	(21.2%)
No	7	(21.2%)

Questions 24 through 32, all to be answered yes or no, are summarized below. In addition, following some of the questions are written comments.

<u>Question</u>	<u>Yes</u>		<u>No</u>	
	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>
Have you heard of the "Century" program for automotive students at Bakersfield College?	6	(15.0)	34	(85.0)
Would you allow a student to work 4 hours a day in your shop for work experience? (insurance covered by school - no pay involved)	37	(94.9)	2	(5.1)
"I have used this program in other areas and it has worked well."				
Would you send a mechanic to Bakersfield College for 4 hours a day for 9 weeks to train in a specialty area such as automatic transmission, electrical systems and tune-up, engines, brakes and front end?	10	(27.8)	26	(72.2)
Do you think a short review course (about 18 hours of classes) concerning the test given by the National Institute for Automotive Service Excellence, to auto mechanics, could be utilized by your firm?	26	(66.7)	13	(33.3)
Do you think a short review course (about 18 hours of classes) concerning State Examinations, to auto mechanics, could be utilized by your firm?	28	(75.7)	9	(24.3)

<u>Question</u>	<u>Yes</u>		<u>No</u>	
	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>
Do you think it is helpful to certify each mechanic, especially in his specialized area?	27	(71.1)	11	(28.9)
"Yes, if the instructor has the know-how and can hold a job at what he is teaching so he could show the students the way it is done on the job, not the way a book says."				
Should there be a state examination given to all mechanics who want to attain journeyman status?	16	(43.2)	21	(56.8)
"Yes only if handled correctly." "No, it should be Federal."				
Would you, if asked, serve on an advisory committee (meets 2 to 4 times a year) for the purpose of advising the automotive department at Bakersfield College?	23	(62.2)	14	(37.8)
Are there particular areas of updating or inservice training in auto mechanics you would like to see Bakersfield College offer your existing employees?	9	(40.9)	13	(59.1)

The following points appear to be apparent from examining the figures above:

1. Employers seem quite willing to hire a well trained, but inexperienced, mechanic in front end and brake.
2. The Auto Century program is virtually unknown among auto mechanic employers.
3. A no-pay work experience program seems popular with employers.
4. A 9 week, 4 hour day, updating course in a speciality area was only favored by a minority (27.8%) of employers, but a short review course (18 hours) was favored.

5. Certification was favored by a large majority but only a minority favored state examination.
6. A great interest was expressed in serving on an advisory committee.
7. Only 22 (52.4%) of the respondents bothered to answer a question concerning specific updating skills, and of these, only nine listed specific courses desired. The 11 courses suggested by the nine employers were:

<u>Courses</u>	<u>Number</u>
Electronic ignition, alternator controls	5
Auto air conditioning	1
Continual update on smog laws, possibly in seminars - but without manufacturers; salesmen bringing in their opinions	1
Standard transmissions	1
Carburetion, valve work	1
Quick check methods for testing various systems on cars	1
Updating front end and brake repair (particularly in subcompact and foreign lines)	1

The last question was designed to determine equipment used by employers in their shops. Only four failed to respond to the question. Of those that responded, the following frequency of use was mentioned:

<u>Tune-up:</u>	<u>Number</u>
Sun	23
Allen	7
Marquette	6
Autoscan	2
A C	1
Peerless	1

Brake & Front End:

Number

Hunter	12
John Beam	7
Snap On	6
Bender	3
Bee Line	2
Bosch	2
Van Norman	2
Ammco	1
Balancen	1
Bear	1
Exalian	1
Geodyna 3	1
Hoffman	1

General Shop Equipment:

Black & Decker	23
Walker	23
Chicago Pneumatic	22
Sioux	20
Ingersol Rand	18
Kein Warner	14
Rodac	11
Kwik	3

### Part III. Interpretations

Since the basic intent of this survey was to build auto mechanic curricula and instructional programs responsive to the needs of employers, a perusal of the responses leads to the following policy recommendations:

1. The low rate of return (especially among smaller employers) and the large amount not to have heard of the Auto Century program would indicate an unawareness of Bakersfield College's auto program. A greater emphasis should be placed on publicizing the program. Perhaps suggestions on this could come from the Advisory Committee (expanded to include some employers who indicated on the survey that they were willing to serve).
2. Great difficulty in hiring well-trained auto mechanics in almost any speciality was reported by employers; hiring needs for the next three years were expected to be almost as great.

The large increase in weekly student contact hours in auto mechanics observable in the last six semesters is definitely justified:

<u>Semester</u>	<u>Weekly Student Contact Hours</u>	<u>Percent Increase</u>
Fall 1972	2,143	
Spring 1973	<u>2,357</u>	
Total Academic Year	4,500	
Fall 1973	4,147	
Spring 1974	<u>3,735</u>	
Total Academic Year	7,882	75.?

<u>Semester</u>	<u>Weekly Student Contact Hours</u>	<u>Percent Increase</u>
Fall 1974	4,385	
Spring 1975	<u>4,313</u>	
Total Academic Year	8,698	10.4
Total Weekly Student Contact Hours Increase From 1972-73 to 1974-75	4,198	93.3

3. The reactions by those who hired Bakersfield College auto trainees was mixed; there appeared to be a suspicion that college auto programs were unrealistic in terms of skills really needed in the shop. But, if employers could be convinced that Bakersfield College students had practical experience and were willing to work hard they would hire them quite readily.
4. Short review updating courses (18 weeks), particularly in the area of electronic ignition, would be the type to which employers would be most apt to send employees.
5. The needs expressed by employers for students trained to work in conditions similar to those encountered on the job points to the necessity of obtaining funds for and constructing a new auto shop building as soon as possible. Equipment used in this building should correlate with that reported in response to question 33.

Part IV. Samples of Questionnaire, Letter

BAKERSFIELD COLLEGE  
Questionnaire - Auto Mechanic Survey

1. What type of auto service business do you run? \_\_\_\_\_

In the column below  
please circle the most  
appropriate response

- |  |                                       |
|--|---------------------------------------|
| 2. How many <u>full time</u> mechanics do you employ other than yourself?                              | none<br>1<br>2<br>3<br>4<br>5 or more |
| 3. How many <u>part time</u> mechanics do you employ?  | none<br>1<br>2<br>3<br>4<br>5 or more |
| 4. How many service personnel do you employ? (for example, service writers, lub men, errand boy, etc.) | none<br>1<br>2<br>3<br>4<br>5 or more |
| 5. In the last 3 years, on the average, how many mechanics <u>have</u> you hired a year?               | none<br>1<br>2<br>3<br>4<br>5 or more |
| 6. In the next 3 years, on the average, how many mechanics do you <u>expect</u> to hire in a year?     | none<br>1<br>2<br>3<br>4<br>5 or more |

Opposite the speciality area listed below, please indicate the difficulty you have had in hiring qualified personnel in the last 3 years.

- |                           |   |
|---------------------------|---|
| 7. Service personnel      | great difficulty<br>moderate difficulty<br>no difficulty<br>have not tried to hire<br>anyone in this area |
| 8. Auto air conditioning  | great difficulty<br>moderate difficulty<br>no difficulty<br>have not tried to hire<br>anyone in this area |
| 9. Automatic transmission | great difficulty<br>moderate difficulty<br>no difficulty<br>have not tried to hire<br>anyone in this area |
| 10. Auto engine mechanic  | great difficulty<br>moderate difficulty<br>no difficulty<br>have not tried to hire<br>anyone in this area |
| 11. Front end and brake   | great difficulty<br>moderate difficulty<br>no difficulty<br>have not tried to hire<br>anyone in this area |
| 12. Tune-up and electric  | great difficulty<br>moderate difficulty<br>no difficulty<br>have not tried to hire<br>anyone in this area |
| 13. Engine machinist      | great difficulty<br>moderate difficulty<br>no difficulty<br>have not tried to hire<br>anyone in this area |



## Questionnaire - Auto Mechanic Survey

22. Other, please specify
- \_\_\_\_\_
- excellent  
good  
fair  
poor
23. Would you hire a mechanic with 360 hours of training in front end and brake, but with no prior experience?
- yes  
only if I couldn't find anyone else  
no
24. Have you heard of the "Century" program for automotive students at Bakersfield College?
- yes            no
25. Would you allow a student to work 4 hours a day in your shop for work experience? (insurance covered by school - no pay involved)
- yes            no
26. Would you send a mechanic to Bakersfield College for 4 hours a day for 9 weeks to train in a specialty area such as automatic transmission, electrical systems and tune-up, engines, brakes and front end?
- yes            no
27. Do you think a short review course (about 18 hours of classes) concerning the test given by the National Institute for Automotive Service Excellence, to auto mechanics, could be utilized by your firm?
- yes            no
28. Do you think a short review course (about 18 hours of classes) concerning State Examinations, to auto mechanics, could be utilized by your firm?
- yes            no
29. Do you think it is helpful to certify each mechanic, especially in his specialized area?
- yes            no



December 20, 1974

Dear Automobile Mechanic Employer:

Bakersfield College needs **your** help. The college is trying to plan an auto mechanic training program in order to meet the needs of employers in the Bakersfield area.

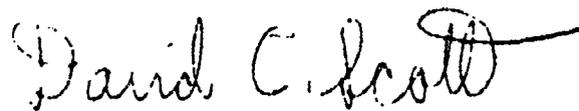
Could you please take a few minutes to fill out the enclosed questionnaire? We plan to use the computed results to establish a program to meet your needs as an employer. Please return the questionnaire in the enclosed stamped envelope.

Thank you for your cooperation.

Sincerely,



Charles Page  
Assistant Professor  
Auto Mechanics



David C. Scott  
Director, Institutional Research

Enclosures

UNIVERSITY OF CALIF.  
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MAR 28 1975