Affective Work Competencies of Agriculture Workers as Compared by Age

Gregory C. Petty
Associate Professor
Vocational-Technical Education
University of Tennessee

Bob R. Stewart
Professor
Vocational-Technical Education
University of Missouri-Columbia

Concerns of vocational educators in recent years have begun to focus more on the affective skills needed for successful job employment and retention. Kazanas (1978) cited literature by educators and employers alike who stressed their concern with the need for more effective training in the area of affective work skills.

Agricultural educators have shared this concern for training in the affective domain. Legacy, J., Howell, D., & Richardson, W. (1978) conducted an investigation of the employment needs of agribusinesses. They recommended that new efforts were needed in the development of programs in agribusiness.

Other evidence seems to indicate that age is important to the career development and placement of vocational graduates. Luft and Suzuki (1980) reported that students of high school age could benefit from a non-technical curriculum directed in assisting them in their transition from school to work. However, evidence is not available to support the hypothesis that age alone, or the maturation process has a significant effect on the affective skills of workers.

While the importance of the affective domain is generally accepted by agricultural educators, few data are available concerning the affective competencies exhibited by workers in the agriculturally oriented labor force. Specifically, differences in perceptions of various age groups of agricultural workers have not been documented. Such information would provide an added dimension for program planners in agricultural education as they develop programs and materials to prepare agricultural employees. Therefore, the focal point of this study was to provide data concerning the affective competencies of workers of different ages in selected agricultural occupations.

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Purpose of the Study

Specifically, the study attempted to ascertain if a difference existed between the affective competencies exhibited by production agriculture and agribusiness workers when grouped according to age.

The following null hypotheses were formulated and tested at a .05 alpha level:

Ho_1: There is no significant difference between the mean scores on the Revised Affective Work Competencies Inventory (AWCI) for agricultural workers in production and business related jobs.

Ho_2: There is no significant difference among the mean scores on the Revised Affective Work Competencies Inventory for selected age groups of workers in agriculture.

Ho_3: There is no significant interaction among the mean scores on the Revised Affective Work Competencies Inventory for ages and areas (production and business) of agricultural workers.

Method

The study was conducted in 1978 and utilized an ex post facto design. A sample of 550 was obtained from some 1,000 inventories sent to and administered by randomly selected Missouri employers of agricultural workers from business and production related jobs. The dependent variables were the five component factors of the Revised AWCI. The independent variables were area (agribusiness, n = 401; ag production, n = 149) and age (less than 25 years, n = 153; 26-35 years, n = 158; 36-45 years, n = 88; and 46 years and above, n = 151).

Instrumentation

The instrument used in this study was a Revised Affective Work Competencies Inventory (Revised AWCI). This inventory was determined by a posteriori computerized factor extraction of the description statements used in the original AWCI from data previously collected as developed at the University of Missouri-Columbia by Petty (1978). The AWCI contained 95 items measured with a Likert-type five-point scale. The split-half reliabilty of the AWCI was .95, and its reliability by the Kuder-Richardson 20 procedure was .94 (Sapko,

1978). The 45 questions retained by the Revised AWCI were obtained by varimax rotation and accounted for 76.3% of the total variance. This factor analysis by Petty and Brauchle (1981) revealed five factors whose items loaded greater than .35 on a factor. These factors along with their major points are as follows:

FACTOR 1: Ambition; set personal goals, set personal work goals, improve yourself, learn new skills to advance on the job, participate in group activities.
FACTOR 2: Self-Control, be tolerant, keep cool, calm down, be stable, be positive toward others.
FACTOR 3: Organization; cleanliness; be organized, keep supplies arranged, keep records and files in order.
FACTOR 4: Enthusiasm; work toward new goals, pride in accomplishments, accept challenging assignments, complete the job, adjust to change.
FACTOR 5: Conscientiousness; be diligent, mind your own business; be a self-starter, stick by your word, be on time.

Data Analysis

Data were analyzed using a two-way multivariate analysis of variance (MANOVA) statistical procedure. Unequal cell sizes required that a method for use with unequal N's be used. The partial correlation coefficient analysis (Table 1) justified the use of multivariate statistics by revealing that the dependent variables were significantly correlated.

The computer analysis listed F values, degrees of freedom, least squares means, and probability level. Hotelling-Lawley Trace was the statistical test for overall multivariate significance (main effects). Fisher's LSD was incorporated for testing the least squares means of the significant univariate comparisons.

Findings and Conclusions

The multivariate analysis of variance (Hotelling-Lawley Trace) as reported in Table 2 revealed no significant difference between the mean scores of agricultural workers by areas (ag production and agribusiness); therefore, Ho_1 was not rejected. However, significant differences among the mean scores for age groups were reported; therefore, Ho_2 was rejected. The check for interaction, Ho_3, was not rejected as no significant differences were revealed.

Table 1

Partial Correlation Coefficients for the Five Factors of Affective Work Competencies

	1[a]	2	3	4	5
1	1.00	.15	.31	.41	.45
2		1.00	.25	.03	.26
3			1.00	.46	.37
4				1.00	.50
5					1.00

[a]The factors were: 1) ambition, 2) self-control, 3) organization, 4) enthusiasm, and 5) conscientiousness.

Table 2

Multivariate Analysis of Variance for Mean Scores of Area, Age, and Interaction

	Hotelling-Lawley Trace	df	F Value
Area	.0098	5,538	1.05
Age	.0708	15,1610	2.53*
Interaction	.0270	15,1610	0.97

*Significant at $p<.05$ level

The MANOVA among age groups revealed significant differnces. Therefore, univariate tests were used for further analysis for each of the five factors of the Revised AWCI. The results are reported in Table 3. Significant univariate differences were found on the factors of organization, enthusiasm, and conscientiousness. Data for the factors of ambition and self-control were not found to have significant differences.

Fisher's LSD Test was performed on the three factors with significant differences to isolate which ranges among the age groups differed significantly as reported in Table 4. The LSD for age and organization revealed that the ages of 26-35, 36-45, and 46 and over were significantly higher than the lowest age group of less than 25. The test for age and enthusiasm revealed significantly higher scores for the ages of 26-35, 36-45, and 46 and over than for the younger group of less than 25. Similarly, the scores for age and conscientiousness showed the age groups of 26-35, 36-45, and 46 and over to be higher than those less than 25.

Based on the analysis, it was concluded that wage earning agricultural workers in production and agribusiness did not differ significantly on the five affective competency factors identified for this study. However, significant differences were found among age groups. Therefore, it was concluded that younger agricultural workers do in fact perceive factors related to affective competencies differently than do older workers.

Discussion

There were two groups of workers in this study; one group worked in agribusiness-related supervisory and sales positions which led to contact with the public. The other group worked for wages in major firms in more production-oriented activities. There were no major differences found in the perceptions of these groups which worked for wages in agribusinesses in Missouri on the five factors of the scale analyzed for this study.

This finding differs from that reported in a previous article (Petty and Stewart, 1982) which was based on affective skills of workers utilizing a fifteen factor scale for analysis to compare agricultural workers on the basis of area and of function. Of the fifteen factors previously identified, sales-oriented workers were found to rate higher in five areas. Two points should be noted when studying this comparison. The current analysis is based on a five factor instrument refined on the basis of a factor analysis procedure, which provided a basis for a more concise post hoc comparison of differences among groups. Although both analyses utilized a two-way MANOVA,

Table 3

Univariate Analysis of Variance for the Five Factors of Affective Work Competencies

Source	df	SS	MS	F
Ambition				
Area	1	0.029	0.029	0.12
Age	3	12.464	4.155	1.67
Interaction	3	16.635	5.545	2.22
Within	542	1352.369	2.495	
R^2 = .015				
Self-control				
Area	1	2.859	2.859	0.48
Age	3	33.173	11.058	1.85
Interaction	3	9.420	3.140	0.52
Within	542	3247.860	5.992	
R^2 = .015				
Organization				
Area	1	12.113	12.113	3.63
Age	3	52.918	17.639	5.29*
Interaction	3	6.227	2.076	0.62
Within	542	1806.363	3.333	
R^2 = .043				
Enthusiasm				
Area	1	6.929	6.929	0.26
Age	3	484.435	161.478	6.00*
Interaction	3	20.020	6.673	0.25
Within	542	14585.031	26.910	
R^2 = .039				
Conscientiousness				
Area	1	13.556	13.556	0.98
Age	3	200.493	66.831	4.84*
Interaction	3	17.878	5.959	0.43
Within	542	7482.450	13.805	
R^2 = 0.36				

*Significant at $p<.05$ level

Table 4

Fisher's LSD Test and Least Squares Means for the Revised AWCI

Variable	LS Mean	1	2	3	4
Age and Organization					
1 < 25	12.598	.	.0097*	.0282*	.0002*
2 26-35	13.180		.	.9507	.1714
3 36-45	13.197			.	.2682
4 46>>	13.524				.
Age and Enthusiasm					
1 < 25	58.910	.	.0052*	.0135*	.0001*
2 26-35	60.693		.	.8669	.1695
3 36-45	60.826			.	.3111
4 46 >	61.676				.
Age and Conscientiousness					
1 < 25	43.875	.	.0199*	.0003*	.0455*
2 26-35	44.938		.	.0915	.9004
3 36-45	45.894				.0900
4 46 >	44.874				.

*Significant at $p<.05$ level

the current comparison was made on the basis of area and age of workers. The classification of area was the same, but there were four classifications of age of workers as compared to the two classifications of functions of workers noted in the previous article. Consequently, the degrees of freedom varied as a function of the number of comparisons.

The second hypothesis relating to differences among groups of workers when classified by age did reveal a difference. Those workers 25 years of age and under differed significantly from the groups of older workers. In each case, the younger workers scored lower on the factors related to organizational ability (cleanliness, arrangements of supplies, and keeping files in order), enthusiasm (working toward new goals, pride in accomplishments, accepting challenging assignments, completing jobs, and adjusting to change), and conscientiousness (being diligent, self-starting, sticking by their word, and being on time). Closer examination indicated that these items constitute what is often termed the "work ethic." The colloquialism "doing an honest day's work for a honest day's pay" might be apt for the higher scoring older workers.

The differences among age groups leads to some interesting questions. Certainly this emphasizes the point of needing to work with high school students seeking to enter the work force in terms of affective skills desired by employers. Perceived differences by age raise a question concerning the function of maturation versus that of education. Will the young workers grow in terms of affective skills as they become older and have experience in the work force, or is this difference to be noted in the new generation of workers? Secondly, can students be significantly impacted prior to their exiting secondary programs to improve their organizational and work oriented skills? Perhaps the study has highlighted what many would suspect about the attitudes of young workers.

These questions facing planners in curriculum development and vocational programs delivery focus on ways to impact the affective skills of the young worker. Additional effort should be given to developing methods and activities that impress desirable affective skills on the young worker preparing to seek employment in agricultural occupations.

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