resents five aspects of the learning situation with each one prepared by combining 4 of the 20 instructor items on the form. These profiles are intended to give an overview of the student's reactions to: instructor involvement, student interest, student-instructor interaction, course demands, and course organization.

The SIRS rating form indicated significant increases (5% level) in four of the five composite profile categories when comparisons were made between 1973 and 1974 (Table 7). There were also significant differences in all composite profile categories (5% level) when the 1974 students who achieved a 4.0 were compared to the 1974 students who achieved less than a 4.0. Those students who attained higher grades tended to rate the course higher.

Table 7. Item Means for Five Composite Profile Items Obtained from the SIRS Form.

Year	Composite Profile Areas				
	Instructor Involvement	Student Interest	Student-Instructor Interaction	Course Demands	Course Organization
1973	1.71	1.84	2.36	3.56	1.86
1974 (total) *	1.57	1.80	2.16	3.75	1.63
1974 (4.0) **	1.45	1.67	2.04	3.88	1.40
1974 (3.5 or less)	1.69	1.87	2.25	3.63	1.86

* Significantly different from 1973 in all areas but Student Interest at the 5% level.

** Significantly different from 3.5 or less in all areas at the 5% level.

Conclusions

Implementing the learning strategies presented in this paper such as audio-visual tutorial laboratories and modified mastery learning concepts resulted in: 1) an increase in student achievement (both low and high capability students), 2) an increase in awareness of how topics relate to on-the-job situations, 3) a positive increase in attitudes students have toward instruction, and 4) proving that the two-year agricultural technology student is capable of using the audio-visual tutorial laboratory as an effective learning tool. Students in Soil Science 051 have reacted favorably to the learning strategies used, not only by increasing their performance over previous years but also with their unsolicited comments of "I wish all courses were like Soil Science 051." It appears that extension of these learning strategies to other two-year agricultural technology courses with students of similar experiences and capabilities to those in the turfgrass, landscape-nursery, and floriculture programs at Michigan State University will provide similar results.

REFERENCES

1. Block, J. H. Operating Procedures for Mastery Learning. P. 64-76. In: Mastery Learning – Theory and Practice. Holt, Rinehart, and Winston, Inc. 1971.
2. Bjorkuist, David. "What Vocational Education Teachers Should Know About Individualized Instruction," Report No. Information Services 49, Ohio State University, Center for Vocational and Technical Education, November, 1971.
3. Connolly, J. J., and Sepe, Thomas. "Do Students Want Individualized Instruction?" U.C.L.A., Eric Clearinghouse for Junior College Information, Topical Paper No. 34. 1972.
4. Drawbaugh, C. D., Hall, W. L. Agricultural Education: Approaches to Learning and Teaching. C. E. Merrill Publishing Company. 1971.
5. Ecker, H. J. "The Transfer Dilemma" The Journal of the National Association of Colleges and Teachers of Agriculture, 17:48-50. 1973.
6. Foth, Henry D. "A Mastery Learning Program in Soil Science" Journal of Agronomic Education, 2:65-68. 1973.
7. Green, D. E., Stamp, D. L., Thomas, T. T. and James, L. L. "Student Response to a Personalized Learning and Narrated Tutorial System (PLANTS). I. A. Case Study." Journal of Agronomic Education, 2:5-9. 1973.
8. Iverson, N. J., Vincet, J. F., and Bender, R. E. Student and Program Characteristics of Technical Agricultural Programs in Ohio. College of Agricultural and Home Economics, Ohio State University. 1970.
9. McCarley, Walter W. "An Experimental Study to Evaluate the Effectiveness of An Individualized Instructional Method and the Lecture Discussion Method for Teaching Vocational Agricultural Classes," a Ph.D. Dissertation, Graduate School, Michigan State University. 1969.
10. McVey, Gary C. "An Experimental Evaluation of the Effectiveness of An Audiotutorial Method in Teaching Vocational Agriculture," a Ph.D. Dissertation, Graduate School, Iowa State University. 1970.

NACTA Journal Manuscript No. 10/30/74/31

ACADEMIC PERFORMANCE OF JUNIOR COLLEGE TRANSFERS

by W. F. Bennett, Associate Dean
College of Agricultural Sciences, Texas Tech University

The academic performance of students who transfer from two-year colleges to four-year colleges varies greatly. A study at Washington State University's College of Agriculture by Strait (1) indicates that transfer students 1) have some difficulty in the first semester after transfer, 2) experience an "adjustment shock," and 3) require special counselling.

Academic counsellors need some criteria for advising the transfer student to minimize his difficulty in coursework and his adjustment shock. One obvious criterion could be grades earned at the two-year college. A transfer student with a low grade-point average (GPA), for example, might be advised to take a minimum number of hours and perhaps "less rigorous" courses. On the other hand, a student with a high GPA might be advised differently.

To determine whether the GPA earned by a student while at the junior college is a good indicator of his ability to do well academically at the senior college, junior college transfer students, in the College of Agricultural Sciences at Texas Tech University during the academic year 1972-73, were included in a study for this comparison. The study included only students with between 12 and 66 hours of transfer credits and those who took at least 12 hours during the first semester at Texas Tech. The 137 students included were from 34 Texas and 2 Eastern New Mexico junior colleges.

The overall GPA of the student while at the two-year college was correlated with the first semester, second semester, and fourth semester overall GPA of the student while at Texas Tech University. The correlation between two-year college GPA and

first semester GPA at Texas Tech was also determined for each individual college that had three or more transfer students.

Certain additional groupings were made and correlations determined to see if there were any differences due to location, types of courses taken at the two-year college or number of hours in the correlation of the junior college and first semester GPA at Texas Tech. These groupings included 1) colleges with three or more transfers compared to those with two or less, 2) West Texas and Eastern New Mexico colleges compared to other, 3) transfer students with some courses in agriculture compared to those without courses in agriculture, and 4) students with more than 30 transfer hours compared to those with 30 or less transfer hours. The bases and reasons for these groups are given in the discussion.

Results and Discussion

The correlation coefficient between two-year college GPA's and first semester GPA's at Texas Tech University was 0.632. For the second semester overall GPA, the value dropped to 0.599, and for the fourth semester overall GPA, the value was 0.577. (Note that the N value drops for each as follows: first semester – 137 students, second semester – 96 students, and fourth semester – 45 students.) These correlation coefficients were significant at the 1% level.

A breakdown by schools shows that the two-year college and Texas Tech GPA's are better correlated for certain schools than for others. Table 1 shows that there is a wide range of correlation values (from positive to negative values). One college (No. 8 in Table 1) with 53 transfer students had a correlation value of 0.536 – almost the same as the value when all colleges were included. (Note that almost 40% of the total were from this college.)

TABLE I
Breakdown by Colleges Showing Correlation Coefficients Between Junior College GPA's and First Semester GPA's at Texas Tech

College No.	No. of Students	Correlation Coefficient	Average GPA Values Jr. Co.	Sr. Co.
1	4	0.986*	1.69	1.03
2	3	0.826	2.77	2.67
3	12	0.805**	2.53	2.12
4	7	0.781*	2.91	2.69
5	3	0.764	1.98	1.51
6	4	0.749	2.50	2.07
7	4	0.717	2.61	2.59
8	53	0.536**	2.51	2.30
9	3	0.491	2.05	1.94
10	3	0.488	2.50	2.64
11	3	0.137	2.57	1.77
12	3	-0.320	1.78	2.00
13	4	-0.686	2.48	2.22
14	3	-0.951	1.47	2.10

*Significant at 5% level.
**Significant at 1% level.

As mentioned previously, certain groups were compared to determine whether there were differences between these groups. Colleges with three or more transfers were compared to those with two or less transfers. Results are given in Table 2.

TABLE II
Correlation Coefficients for Junior College GPA's and First Semester GPA's at Texas Tech Based on Number of Transfer Per College

Grouping	No. of Students	Correlation Coefficient	Average GPA Values Jr. Co.	Sr. Co.
3 or more	109	0.561**	2.44	2.20
2 or less	20	0.290	2.31	2.35

**Significant at 1% level

Values shown in Table 2 indicate that the variation in GPA's of transfers from colleges who have three or more transfers is more closely related to the variation in first semester GPA's at Texas Tech than are GPA's of transfers from colleges with only one or two transfers.

Colleges from West Texas and Eastern New Mexico were compared with those from outside this area. Colleges included in the first group are within a 180 mile radius of Lubbock while those in the latter group are outside of the 180 mile radius. Colleges located in Eastern New Mexico and West Texas are considered "feeder" colleges for Texas Tech University. Table 3 gives the correlation values.

TABLE III
Correlation Coefficients Between Junior College GPA's and First Semester GPA's at Texas Tech Based on Nearness of College to Texas Tech University

Grouping	No. of Students	Correlation Coefficient	Average GPA Value Jr. Co.	Sr. Co.
West Texas & Eastern New Mexico	87	0.609**	2.49	2.23
Others	50	0.302**	2.28	2.25

**Significant at 1% level

The values in Table 3 indicate that the GPA's of the students from the two-year colleges nearer the university are more closely related to first semester GPA's at Texas Tech than those farther away. The difference in these values does not necessarily indicate that one group of colleges is better than the other, but it could indicate that those that are nearer the university coordinate their subject matter. This could be particularly true for agricultural courses. There could also be "regionalism" involved in teaching subject matter material.

For the group of students in the grouping of three or more transfer students listed in Table 2, 83 were from West Texas-Eastern New Mexico colleges; hence, the values for groupings in Table 2 and 3 could be expected to be similar.

Another grouping included those students who had taken agriculture courses and those who had not. Table 4 shows these values. Also included in Table 4 is a correlation breakdown on agriculture and non-agriculture courses for College No. 8 (listed in Table 1) to determine whether this correlation value would be greatly different than for all students.

TABLE IV
Correlation Coefficients Between Junior College GPA's and First Semester GPA's at Texas Tech Based on Whether Transfer Students Had Taken Agriculture Courses

Grouping	No. of Students	Correlation Coefficient	Average GPA Values Jr. Co.	Sr. Co.
All Colleges				
With Ag. Courses	59	0.504**	2.59	2.38
Without Ag. Courses	78	0.488**	2.27	2.12
College No. 8				
With Ag. Courses	39	0.539**	2.53	2.34
Without Ag. Courses	14	0.501	2.44	2.21

**Significant at 1% level

The values in Table 4 indicate that whether the student had or had not taken agriculture courses would have no effect on the relationship between junior college GPA's and first semester GPA's of Texas Tech. Correlation coefficients for College No. 8 were similar to those for all colleges (even though the correlation coefficient for those without agriculture courses was not statistically significant).

The number of hours that a student accumulated at a junior college conceivably could influence the relationship studied; hence, those with greater than 30 transfer hours were compared to those with 30 or less transfer hours. Table 5 shows these results.

TABLE V
Correlation Coefficients Between Junior College GPA's and First Semester GPA's at Texas Tech Based on Number of Transfer Hours

Grouping	No. of Students	Correlation Coefficient	Average GPA Values Jr. Co.	Sr. Co.
More than 30	105	0.520**	2.43	2.27
30 or less	32	0.480**	2.35	2.13

**Significant at 1% level

These values in Table 5 indicate that the number of hours

transferred has no effect on the relationship between the junior college GPA's and first semester GPA's at Texas Tech.

Summary

This study indicates that the GPA of a student from a junior college may be related to the GPA that will subsequently be made at Texas Tech University. The GPA of transfer students from one college may be highly positively correlated with their Texas Tech GPA while the relationship may be highly negatively correlated for another college.

The GPA's for students from "feeder" colleges, i.e., those from West Texas and Eastern New Mexico colleges and who consequently usually have three or more transfer hours are more closely related to first semester GPA's at Texas Tech University than for those transfers from colleges outside of this area.

Correlation coefficients indicating the junior college-senior college GPA relationship show that number of hours taken at the junior colleges had no effect on the relationship.

[1] Strait, Leland C., "Do Community College Transfer Students Succeed In Colleges of Agriculture?" NACTA Journal XVIII-4:77-80, 1973.

NACTA Journal Manuscript No. 10/30/74/28

PRIORITIES AND INTERPRETATIONS OF TECHNICAL EDUCATION

by Bruce W. Emanuel
Professor – Animal Husbandry
Division of Agriculture & Natural Resources
Agricultural and Technical College
Cobleskill, New York

From all segments of society comes mounting evidence against the status quo in education. Many observers are convinced that education is in need of significant reform. Citizens are demanding that educators be accountable for their use of public funds and for the outcomes of education. They are asking for evidence of student behavioral changes in response to educational programming.

In the past, educators have been concerned with program standards such as classroom size, availability of display equipment, the appropriateness of visual aids, and other items of a tangible nature. Process evaluation also examines student-teacher ratio, amounts of money budgeted for instructional materials, and salaries for instructors. In itself, however, a process evaluation is not an adequate measure of program effectiveness.

Accountability is readily accepted but rarely demonstrated by those in the classroom. Yet achievement of goals in technical education, when compared with a purely academic achievement, should be relatively easy to measure. Manipulative skill is allied to some degree with almost every technical program and the results of that skill can be quite evident. Such goals as the appropriate mathematical dimensions on a drawing can be measured to effectively evaluate the end product of classroom work.

What seems to be lacking is the instrumentation to carry out a thorough and complete evaluation. We do not have measures to show our accomplishments. The challenge is to draw up acceptable means of analyzing achievement of both a theoretical and performance nature. These would show that educators within the program are meeting their stated goals through proper instruction and curriculum.

Training for More than Skills

However, we must recognize that instructors as professionals are responsible for a level of learning which goes beyond training for technical skills. Professionals, by definition, do not subscribe to a fixed set of common beliefs and behaviors. Professionals do differ as to what constitutes sound professional practice. Dependence on accountability tends to limit the curriculum to those lesser learnings which are subject to classification and quantification. Critics of accountability deplore its seeming potential for neglect of the greater learnings such as development of capacities to raise questions, synthesize ideas, trust one's own insights, make independent critical judgments, make autonomous choices, and specify one's own goals. The professional educator assumes responsibility for these greater learnings along with his commitment to skill development.

In working toward more effective evaluation of their programs, instructors must know clearly the intent of each course they teach. In addition, they must faithfully adhere to the objectives entrusted to them, must develop effective methods to enable students to achieve those objectives, and must realistically test progress and accomplishment. In other words, a good accountability program is one that not only establishes goals but sets up procedures for reaching those goals.

The following are some suggested factors that can be used to evaluate student performance in a viable technical program.

1. Knowledge of subject matter
2. Quality and quantity of achievement
3. Ability to work independently
4. Creativity and imagination
5. Acceptance of responsibility
6. Ability to communicate and work with others

The Technical Student

In evaluating technical education programs, it is important to remember that educational institutions and programs exist primarily for the purpose of educating individuals. So much is said and written about curriculums, physical plant, equipment, faculty, and similar topics that one could easily get confused about the ultimate purpose of education. In evaluating the worth and efficiency of technical education, we must remember that the primary goal is to answer the needs of individual students.

In order to gain a better understanding of the technical student as an individual we must look for the answers to some specific questions about him. Where do students come from, what kind of people are they, and what do they want? What do they actually achieve in school and what is their place in industry? Where do they fit into society and what recognition does society give to them?

Factors in Choosing a Technical Education

Federal-state expenditures are projected toward a student capacity in two-year technical institutes of 750,000 by 1975. Will we have the enrollment to fill this capacity? A student's preference for a technical education is often the result of a desire both for constructive achievement and to please others. But a survey conducted at the University of Syracuse indicated that the desire to please others often dominates the drive for achievement. If a student has a choice of being either a good technician or a poor lawyer, too often his parents would rather have him be a poor lawyer – and that is what he becomes. The chief conclusion of a majority of student surveys is that parents play the major role in their children's choices of (1) post-secondary education as well as later career decisions – much more of a role, for instance, than guidance counselors.

Peer-group opinion is a critical factor in the way the technical school program is perceived by students. The chance to enter a well chosen career field, to learn an occupation and to assume an adult role should be emphasized. Satisfied and successful technical education students are the one best advertisement the program can have. Well trained, productive graduates will provide the community with an important on-going positive evaluation of their education.