

example, there are few relationships deeper and more enduring than the student teacher relationship. Unfortunately, professors and students too often lose contact with one another. In a more general sense, universities too often lose touch with their graduates and thus forego a valuable resource for strengthening programs and for recruiting students. We critically need a better system of tracking former graduates if we are to involve them in enhancing the stature of agriculture. Additionally, I would like to encourage you to examine promotional materials for your institution. Do they project the parochial image of agriculture? You as individuals and NACTA as an organization must ensure that promotional materials reflect the totality and the importance of your educational programs.

While I cannot over emphasize the importance of your role in changing the image of agriculture, I recognize also that we in government have an important role to play. Before closing, I would like to share with you some of the initiatives we in USDA are undertaking.

Through our manpower analysis studies, we are documenting the Nation's supply of and demand for graduates of higher education in the food and agricultural sciences. We are deeply involved in developing the Food and Agricultural Education Information System (FAEIS) which will provide the first computerized, comprehensive, coherent set of national statistics for use in developing policies and programs aimed at strengthening food and agricultural sciences higher education. We are supporting several national projects focusing on faculty development, curricula development, and student recruitment. And in 1984, we established the first graduate fellowships grants program targeted toward recruiting outstanding master's and doctoral students into expertise shortage areas in the food and agricultural sciences.

The Secretary of Agriculture has even taken a personal interest in the situation. Through a 1984 private sector challenge forum, involving leaders of industry and academia, the Secretary elevated to the White House level the crucial need for maintaining our nation's food and agricultural scientific and professional expertise. That forum is still producing major dividends. Key industry participants in the forum, working cooperatively with USDA, have recently made a commitment to initiate a coordinated mass media campaign targeted specifically toward attracting our Nation's outstanding young people into the food and agricultural sciences. This campaign will consist of nationwide television and radio announcements and will also provide a "hotline service" for interested viewers/listeners.

But there is much more to be done and we cannot afford to waste time and energy lamenting our "reputation lost without deserving." Rather, we must direct our capabilities, imagination, and ingenuity toward presenting an impressive advocacy of the value of higher education in the food and agricultural sciences. Government, academia, and industry must unite to accentuate the positive, eliminate the negative, latch on to the affirmative, and revitalize the image of food and agricultural sciences higher education.

# The Environment For Effective Learning

George Bostick

*"Education is not about making a living, it's about making a life."*

(Doris Betts, 1985)

Providing educational environments is an expensive undertaking. Annually, about \$10 billion is spent for constructing educational facilities, and this figure has remained almost static for the past four years.

However, while the total may have remained static, there have been significant changes in the way that money has been spent. For example:

1. School districts are spending more money adding to, and rehabilitating, existing facilities than on new building construction.
2. Overall, about 50 percent of all construction dollars in school districts and colleges is spent on refurbishing and adding to existing buildings.
3. Continuing a trend that began in 1983, colleges are now spending more on construction than are school districts. In particular, spending on new buildings for four-year colleges alone is now greater than spending on new buildings for school districts.

It is clear, therefore, that besides providing additional classroom space, a significant percentage of construction dollars is spent on renovating and refurbishing the learning environment.

Some people may look upon the learning environment as nothing more than bricks and mortar containing teachers and students engaged in the educational process. However, the educational facility plays a much more substantial role in the development of its main ingredients — teachers and students.

Normally, three considerations are used in evaluating the accomplishment of a school's educational mission: educational philosophy, educational program, and educational facility. Decisions about the educational facility depend upon philosophy and program, and ideally all three should be compatible. Anything less than this would mean a failure of the educational mission and therefore a decline in the quality of the educational experience for students and teachers.

Until recently, considerations about the classroom environment were limited to establishing minimum standards for heating, lighting, acoustics, and ventilation. The assumption seems to have been that as long as these basic requirements were met learning depended solely on pedagogical, psychological, and

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Remarks by George Bostick, Director of the Educational Media Center, Department of Agricultural Communications, NCSU, at the 31st Annual Conference of the National Association of Colleges and Teachers of Agriculture, NCSU, Raleigh, June 18, 1985.

social variables. Educators now believe, however, that other environmental variables may significantly affect student behavior, attitudes and learning.

As with most innovative changes, including those that affect the learning environment, initial enthusiasm usually gives way to the realities and pragmatics of implementation. Questions arise as to effectiveness and plausibility of environmental changes: (1) Will it do any good?, and (2) Can we do it? (or, Can we afford it?).

The question of affordability seems mute in light of the dollars expended towards renovation projects in our colleges and school districts across the nation. More importantly, as stated earlier, the success or failure of a school's educational mission depends in part upon its commitment to providing an effective learning facility, an environment that supports the school's educational philosophy and programs. The question then is not one of "Can we do it?" but rather "Can we afford not to do it?"

The seemingly more relevant issue, therefore, concerns the effects of the learning environment on students and teachers. Two major issues reported in the literature are physical setting and environmental aesthetics. The former can be teacher controlled and does not involve capital expenditure; the latter, however, usually cannot be controlled to any extent by the teacher and is more costly. Physical settings affect student behavior and learning, and an aesthetic environment affects behaviors and attitudes which may affect learning. Both issues affect educational outcomes and help to answer the question, "Will it do any good?"

## The Physical Setting

As used in this paper, physical setting concerns the arrangement of classroom seating and the location of students seated in the classroom. Teachers, curriculum developers, and instructional designers — the architects of the learning experience — all too often focus their attention on pedagogical issues and disregard the environmental setting in which the instructional process occurs. While teaching strategies and the curriculum are routinely and systematically changed, the classroom setting routinely remains the same, its arrangement dictated either by tradition or by the custodian. This situation often results in a mismatch between the teaching/learning activity and the classroom environment. As a consequence, the classroom environment is neither facilitative nor supportive of the instructional activities of its users. Although teaching strategies and curriculum may be of primary importance in the educational process, experimental evidence suggests that the physical setting of the classroom environment can influence student behavior, attitudes, and learning.

The classroom setting facilitates certain behaviors and hinders others. These behavioral influences may be both direct and symbolic. For example, if students were seated in straight rows, many of them would be inhibited from participating in group discussions; this would be a direct effect of the environment. At the same time, due to the seating arrangement, some students may infer that the teacher does not value class participation or student interaction; this would be a

symbolic effect of the environment. While there is no ideal classroom setting that will satisfy all learning situations, the physical arrangement of the classroom setting must serve to facilitate the instructional objectives and teaching strategies of the individual teacher as well as be organized to minimize these negative behavioral influences.

Typically, classroom space is organized by personal territories or by functions. A functional arrangement allocates space according to interest areas or work centers. This type of arrangement is appropriate for small group work involving a variety of activities. In organizing space by personal territories, each student is assigned or chooses a seat or desk. This arrangement is typical of large group settings such as those used in lectures.

Questions dealing with territorial seating arrangements seem most germane here because large group row seating arrangements are typical of most college classes. Several studies have found a relationship between seating preference and attitudes toward learning and self-concept.

A study by Walberg (1969) assessing student attitudes indicated that students who preferred to sit in the front of the classroom placed a high positive value on learning. Students who chose to sit in the back of the room or near the windows indicated negative attitudes toward learning and their ability to succeed.

Similarly, a study by Dykman and Reis (1979) showed that students seated in the back and far-side regions of the classroom were likely to have feelings of vulnerability and inadequacy, while students seated in the front of the room were most likely to have positive self-concepts.

A study by Becker, Sommer, Bee, and Oxley (1973) showed that the course grades of college students decreased as a function of seating distance from the instructor. Students seated toward the rear and the side of the classroom received the lowest grades.

In an observational study reported by Sommer (1967), college students seated in the front of the room, and in the center of each row, participated more in class discussions. Similar findings were reported by Adams and Biddle (1970). They observed the rate of verbal interactions in 32 primary and secondary school mathematics and social studies classes. In an area these investigators termed the "action zone," student/teacher interactions were concentrated in the front of the room and in a line directly up the center rows.

From these studies, it appears that students who are seated toward the front and center of the classroom participate more, receive higher grades, have a more positive self-concept, and value learning more than students seated outside this zone. The question now arises as to whether brighter students tend to select seating toward the front and center of the class, or does seating position in some way affect student performance and attitudes? In other words, can the positive effects of front-center seating be attributed to the personal characteristics of the student, or does the seating environment affect student behavior?

The answer may be "yes" to both questions. Research by Schwebel and Cherlin (1972) seems to indicate an environmental relationship. They observed that primary grade students who were assigned to front row seating were more often "on task" than were the students in other rows. They also reported that when teachers randomly reassigned students to new seats, the students who moved forward showed the greatest increase in the amount of time spent on work. Similarly, in a study of two college classes in general psychology, Stires (1980) reported that students seated toward the middle of the room received higher grades and had a more positive attitude toward the course and the instructor than students seated on either side, regardless of whether seats were assigned or individually selected.

On the other hand, similar investigations into the learning outcomes of seating arrangements have concluded that, in fact, no environmental relationship exists. Wulf (1976), studying two groups of students enrolled in two sections of a college course, found that students assigned to prearranged seats showed no significant differences between rows or zones for course grades or for student participation. However, for the second group of students, those allowed to choose their seats, a significant effect was found for student participation for those students seated toward the front-center of the class.

A study reported by Koneya (1976) seems to imply that the personality characteristics of students, as well as environmental setting, affect differences in seating position. In this study, students who were judged to be highly or moderately verbal participated more when they were assigned seating in the action zone. On the other hand, participation by students judged to be low verbalizers did not vary; assignment to the action zone in effect did not change the behavior of these students. The implication of this study is that seating position affects class participation only for those students having a predisposition toward participating.

Although there are some inconsistencies in the research findings reported thus far, there is sufficient evidence to support a relationship between seating position and student achievement, attitudes, and participation. Students seated in the action zone tend to make better grades, have more positive attitudes toward their teachers and learning, and they participate more.

In a review of the research on physical setting, Weinstein (1981) offers six suggestions for teachers working in a straight row seating classroom.

1. Move around the room whenever possible.
2. Intentionally direct comments to students seated in the rear and sides of the classroom.
3. Periodically change seating assignments.
4. Encourage students who normally choose seats in the rear of the class to sit in the front rows.
5. Do not teach to a small group unnecessarily dispersed across a large room.
6. Use a student's choice of seat as a clue to self-esteem and liking for school.

## Classroom Aesthetics

The degree to which one's environment affects his behavior has been of interest to psychologists for decades. In 1936, Lewin offered the archetypical paradigm that behavior is a function of the interaction of personal characteristics and environmental qualities. But, in terms of classroom design and renovation, do aesthetic improvements have any impact upon student behavior? Aesthetically pleasing classrooms may look good, but do they in any way facilitate student achievement?

The research on this topic is sparse; however, the findings of two studies are worth reporting. Horowitz and Otto (1973) studied the effects of a traditional college classroom and a specially designed "alternative learning facility" on the behavior and academic performance of college students. The experimental classroom was painted in attractive colors, had decorative, moveable wall panels, a controllable lighting system, and comfortable seats. The same instructor taught the same course using identical materials, assignments, and exams in both classes. The results of two term papers and a final examination showed no differences in academic performance between the two groups. However, anecdotal information on the two groups did indicate observable differences in behavior. Students in the experimental room had a better attendance record, they participated more often, more students visited the instructors' office, and there appeared to be more group cohesion and informality.

In a similar study, Sommer and Olsen (1980) compared the attitudes and rates of participation of college students for a traditional classroom with row seating and a remodeled classroom having three-tiered, cushioned seating, carpeting, adjustable lighting, and other decorative touches. Information obtained from a questionnaire and anecdotal student comments showed positive changes in student attitudes favoring the remodeled classroom, and the students in the remodeled classroom participated more than students in the traditional classroom.

## Conclusions

Based upon the research reported here, it appears that the aesthetics and the physical environment of the classroom have little effect on academic achievement. Moreover, providing environmental embellishments or constructing more aesthetically pleasing classrooms may not significantly increase academic performance. However, one variable that has been associated with academic achievement is seating position.

The effects, however, of the classroom environment on the nonachievement variables of student behaviors and attitudes have been demonstrated. Aesthetically pleasing classrooms promote better attendance, increase student participation, and foster social interactions and positive attitudes toward self, classmates, instructors, and learning.

A primary function of the educational enterprise is to foster academic achievement; however, it is not the only function. Even with today's rhetoric about a "back-to-basics" education, teachers and ad-

ministrators, alike, are promoting the development of the "whole" student, instilling enthusiasm for learning and encouraging positive social relationships. The research evidence seems to support what the humanist educators have said for years, that these goals are more compatible with comfortable, attractive, and interesting learning environments (Weinstein, 1979).

This research might also provide clues for overcoming teacher complaints about the lack of motivated students. Students and teachers spend a large portion of their lives in the classroom. Is it unreasonable to expect these places to be hospitable?

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## Find the Job

David R. Ford

I am pleased to be asked to serve on this afternoon's program to address the topic of job placement, especially sharing some thoughts on helping the student find the job. Perhaps a personal illustration will set the stage most appropriately for my remarks. As a child, I often had a difficult time with simple motor skills. This created great frustration for public school and Sunday school teachers. Coloring within the lines didn't seem particularly important and free-hand drawings were a disaster. I could run, throw a baseball, a football or shoot a basketball with a fair amount of accuracy, but the simple skills seemed to frustrate me and those who seemed to place a greater importance on them than I did. There was one simple skill related to drawing that I enjoyed however and that was the dot-to-dot exercise. You all remember those books I'm sure and in fact have probably purchased them for your children to occupy their time while the family takes long trips across the country. It was always a challenge to connect in sequence the dots and then amazingly to see the result: a fish, a bird, a tree, or whatever. As I was assembling my thoughts for this presentation, my memory went back to this exercise because helping the student find a job seems to me to parallel the dot-to-dot process. That is connecting the dots or points to remember until at last a complete picture emerges: the job.

### Eight Points to Consider (or Connect) in Getting a Job

I'm sure each of you would have your own set of points to consider if we were talking to a student about getting a job. In a visit to our University Placement Service a few weeks ago, I picked up one of several brochures they had available which particularly caught my eye. It was entitled "The Honda How to Get a Job Guide," a special edition of Business Weeks Guide to Careers published by McGraw Hill, Inc. Paraphrasing from that guide I would list (not particularly in priority order) the following points I believe important to today's topic:

- Construct a resume that will sell yourself to an employer
- Know what Employers Look For
- Develop a Job Search Strategy
- Utilize Effectively the Art of Making Contacts
- Know How to Dress for the Job Interview
- Know How to Stand Out in the Job Interview
- Job Interview Follow-up is Important
- Consider Expectations for the First Job

Let's look at each of these eight points in some detail while sprinkling some of my past experiences and opinions among the facts.

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Presented by David R. Ford, Associate Dean and Director of Resident Instruction, College of Agriculture & Life Sciences, Virginia Polytechnic Institute and State University, to the NACTA Conference in Raleigh, N.C., June 18, 1985.