

THE EFFECTS OF EDUCATIONAL ENVIRONMENT IN TECHNICAL EDUCATION ON STUDENT SUCCESS*

(ACCORDING TO TEACHER OPINIONS)

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ABSTRACT: The purpose of this study was how the best environment can be created for optimum performance of the technical education. During these study I visited the career centers in Columbus Ohio, I have visited all the departments of the schools and seen their environment. And I have made interview with the school presidents or with the school supervisors about the general situation of the school, the success level of the students, the physical conditions and its environment and their needs for the future improvements of their schools. In the study, a questioner was developed to collect the data. The questioner were applied to 40 teachers.

According to the results; usually the teachers working in the schools are mostly experienced and have a good level of knowledge in their fields. Most of the teachers have the experience of industrial areas. The success level in career centers are extremely high. The schools are also well equipment. In vocational and technological education its important to motivate the students and let them learn subject during practice. The teacher can increase the success level of the students by choosing the proper method of teaching for different environments.

KEY WORDS: *Technical Education, environment, team teaching.*

ÖZET: Bu çalışmanın amacı mesleki ve teknik eğitimdeki öğrencilerin başarılarını yükseltmede en iyi eğitim çevresinin nasıl yaratılabileceğini belirlemektir. Bu çalışmada Ohio Columbus'taki mesleki okullar ziyaret edilmiştir. Bu okulların bütün bölümleri ve öğrenme çevreleri görülmüştür. Ayrıca okul müdürleri ya da denetçilerle görüşmeler yapılarak okulun genel durumu, öğrencilerin başarı durumu, fiziki şartları ve okulların gelişmesi için gelecekte nelere ihtiyaçları olduğu belirlenmeye çalışılmıştır. Görüşmeler yanında bilgi toplamak amacıyla bir anket de geliştirilerek, değişik meslek lisesindeki 40 öğretmene uygulanmıştır. Elde edilen sonuçlara göre; genellikle okullarda görevli olan öğretmenlerin büyük bir çoğunluğu sanayide de deneyimleri bulunan tecrübeli kişilerdir. Mesleki eğitimde öğrenci başarısının yükseltilmesinde motivasyonun, iş içinde öğrenmenin önemli olduğu öğretmenlerce belirtilmiştir. Ayrıca başarının yükseltilmesinde öğretmenlerin öğrenci

seviyesine ve farklı öğrenme çevrelerine göre, değişik öğretim metotları seçerek kullanılmasının da bu yönde etkili olduğu belirlenmiştir.

ANAHTAR SÖZCÜK: *Teknik Eğitim, Çevre, takımla Öğrenme.*

1- INTRODUCTION

Each level of the educational system has a unique role to play in assisting every student to make wise career choices and to achieve maximum occupational competence.

Career development begins in early childhood and extends from the elementary school through the post secondary school levels.[1]

The world of work is constantly changing. Some businesses fail. New businesses start. Some products catch the public fancy others lose favor and disappear.

While you are considering the type of work you want to do, the work world will be changing.

All changes affect jobs. Being aware of the changes can help you choose a job with a more certain future. [2]

Social and technological changes are affecting jobs today. Technology is the use of ideas, processes, tools and materials to get things done.

Consequently, as technology changes, the work world changes. This technological changes may involve either new equipment, new materials or new methods.

New equipment can affect many job areas. Technology also changes methods. It can help

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make the work place safer, more comfortable and enjoyable. It can get jobs done faster technology can also replace some human workers with machines. The workers used to do these jobs must learn new skills. [2]

A lot of legal changes affect jobs. Many job changes are made for economic reasons. Economic reasons may force companies to use different methods or materials in making products.

The need for the technically qualified and skilful people are feed by the vocational and technical education schools.

1.1. What is Vocational and Technical Education?

Vocational education is specialized preparation for entry into employment or advancement on the job. Such education and training may be provided by high schools, community colleges, technical institutes, and four year technical colleges.

Vocational education is specialized because courses or programs are elected only by those individuals who have a special interest in preparing for and progressing in a particular occupations or family of occupations. It is that part of the total process of education aimed at developing the competencies needed to function effectively in an occupation or group of occupations.

Vocational education is perpetration for employment in the labor force from semiskilled workers to technicians and paraprofessionals.

Vocational education might be defined as specialized education that prepares the learners for entrance into a particular occupation or family of occupations or to upgrade employed workers. [1]

To accomplish this task adequately, career development should be an integral part of the total education process for everyone.

People work because they need to work. Their need may be economic, but when this ne-

ed is satisfied, they still want to work. Friedman and Havinghurst in a study of the meaning of work identified its functions: (1) income, (2) expenditure of time and energy, (3) identification and status, (4) association, and (5) source of meaningful life experiences [1]

Evans has identified three basic objectives of any public school vocational education curriculum : " 1. Meeting the man power needs of society, 2. Increasing the options available to each student, and 3. Serving as a motivation force to enhance all types of learning." [3] Evans points out that these are listed in chronological order of their acceptance as goals.

Increasing the quality of the work education and the students success depends mostly on the instructors.

A vocational teacher has three different roles to play. One is as the key person working with groups of students in a classroom, shop, or laboratory; another is as a professional working with other teachers, supervisors, and administrators in the department, division, school, or collage; and the third role in a community with worker in the occupation being taught. [1]

The teaching environment whether it be classroom, shop, or laboratory is a social system with characteristics to a large extend, upon the leadership behaviour of the teacher. [1]

Laboratory instruction, when done well, serves as an agent for attracting students to science or engineering. Many departments also provide service courses for non-science majors.

Unfortunately, such courses are now often taught without laboratory competent, thus denying the nonscience major the experience of doing science. A good laboratory program arouses curiosity, builds interest and motivation, and provides for the exercise of creative and critical thinking skills. Laboratory activities can strengthen patterns of thinking that serve people well in all walks of life, and that are vital to effective participation in a modern, technological soci-

ety. Further, the skills learned in laboratory work are essential tools of the professional scientist and engineer. For these reasons, laboratory instruction is a very important competent of the educational process at all levels of the curriculum, most particularly at the introductory level. [4]

In the workshop on laboratory development we have identified several factors that limit the effectiveness of laboratory instruction.

Frequently there is no perceived connection between the laboratory experience and students' career goals or personal interests, nor is the laboratory often clearly related to topics taught in lecture.

Institutions faced with rising costs of instruction and under strong budgetary pressures see laboratories as expensive costs centers in terms of both facilities and continuing instructional costs.

The develop of new laboratory curricular materials is even more demanding of human resources in relation to other forms of instruction.

Inadequate and insufficient physical resources are devoted to laboratory development and instruction.

Laboratory space is much more expensive than other forms of classroom space, and is more demanding on a square foot per student basis than other forms of instructional space. [4]

Conditions include all events arranged by teachers that guide and prepare students for learning. Under effective conditions students perform the behaviors necessary for attending to instruction. Within the regular school classroom, the most powerful conditions are provided by teachers' statements and by procedures for structuring classroom activities. Teachers may not establish conditions by stating classroom rules, giving directions, and dividing classes into different instructional activities.

1.2. Changes in the Role of Classroom Teachers in Career Education:

The crucial importance of the classroom teacher in the delivery of career education has remained central to the career education concept during its first 10 years of existence. [5]

Improvement in academic achievement was not, however, used as a primary vehicle for motivating teachers to insert a careers emphasis into the teaching process.

All classroom teachers will:

1. Devise and/or locate methods and materials designed to help pupils understand and appreciate the career implications of the subject matter being thought.
2. Utilize career-oriented methods and materials in the instructional program where appropriate, as means of educational motivation.
3. Help pupils acquire good work habits
4. Help pupils develop, clarify, and assimilate personally meaningful sets of work values.
5. Integrate the programmatic assumptions of career education into their instructional activities and teacher-pupil relationships. [5]

Each student is effected from the environment in a different way. Students show different successes in the same environment. There are many factors that play important roles in students success. Teachers have the most effective role on the students success. That is the teacher who combines the effective factors during a lecture, and forms the climate of the class. Because of these reasons it is important for a teacher to define and understand the factors and the environment that effects the students success.

2. RELATED LITERATURE

In recent years there are a lot of articles published about the student success. Most of these articles are the researches on the general educa-

tion, the ones on vocational and technical education occupies a little volume.

In his book Laset and Smith [6], effective classroom management) stated four rules of classroom management, and studied maintaining a peaceful classroom atmosphere.

Glass and Smith [7] studied 77 students in class size, time, and achievement bases, and concluded that, the effects on achievement increase as the class size is reduced, and over longer periods of instruction the benefits of smaller class size increase.

Despite disputes over these findings, in their book (Meta-analysis of research on the relationship of class size and achievement) Glass and Smith arrive at a similar conclusion; learning in small classes tends to benefit lower ability students more than students of the academic achievement of the disadvantaged students served by chapter 1 compensatory education programs.

Cooper [8] in his book studied that smaller classes also result in better teacher morale and improved attitudes toward students' as well as better student attitudes toward teachers and school and improved self concept, and motivation. In smaller classes there is also more individualization and a higher quality instruction (the effects are greatest for children under 12 and decrease with older students).

Shields [9] in his book Organized labor's linkage with vocational education stated that for more than century and a half, organized labor's relationship to education, including vocational education has been one of wholehearted support and encouragement.

Ohio Council on Vocational Education [10] in the book "Involvement in Vocational-technical Education at the Local Level" studied the four main purposes; (1) to identify and describe existing relationships and linkages between vocational-technical education and organized labor at the local level. (2) to identify key elements in such relationships; (3) to identify ways to enhance

cooperation between vocational-technical education and organized labor; and (4) to develop recommendation for the improvement of relationships between vocational-technical education and organized labor the local level. It is recommended; that

- That local vocational educators make special efforts to provide for appropriate involvement of organized labor in activities of student vocational organizations.

- That each vocational education planning district employ a full-time staff member to coordinate collaborative efforts between education and labor.

Van der Sijde and Pieter C. [11] investigated the effect of inservice teacher training on student perceptions of classroom environment. Student groups differed in perception of student affiliation but not instruction and classroom management.

Blankness and Glen [12] examines how an open classroom climate relates to effective global education. Looks at gender and race differences, and identifies attributes of open classrooms. It is stated that there is a moderate positive correlation between classroom climate and student political attitudes.

Houkoos, Gerry D., Penick, John E., [13] studied the interaction effects of selected personality characteristics, science achievement, and to classroom climates, one which encouraged discovery learning and one that did not. Demonstrated that student achievement is influenced by dynamic interactions within classrooms.

Dobry, Alberta M., [14], Fraser, Barry J., Fisher, Darrel L., [15], Lederman, Norman G., [16], Brown, Wesley [17], Haukoos, Gerry D., Penick, John E., [18], all studies classroom climate, student success, classroom variables, and teacher variables in their reports.

In his book Wilms Wellford W., [19] suggests that current secondary vocational education should be reformed, that employer based

skills training programs should be created, and that more attention should be paid to the needs of small firms for workers with special skills'

In his book Moss, Finck, and Johansen [20] investigated the leadership development service for vocational educators. This; (a) formulated a conceptualization of leadership and leadership development in which certain attributes (characteristics, knowledge, and skills) have been postulated as shopping and guiding effective leadership behaviors in a wide variety of vocational education situations, and (b) constructed a series of studies which reveal a strong relationship between the postulated leader attributes and leadership effectiveness. Fingh, Gregson, and Foulkner [21], Moss and Liary [22], Moss, Johanson, and Preskill [23], studied the same subject in their books.

Wirth [24] contented that Carl D. Perkins Vocational and Applied Technology Education (1990) not only serves as an instrument for restructuring vocational education but also provides an impetus for liberalizing general education. He stated that this act educated a vocational education similar to the one Dewey [25] envisioned 100 years ago; a vocational education that educates through occupations rather than trains students for specific trades. Also studies are made on the same subject by Finch, Schmidt and Faulkner [26]; Grubb, Davis, Lum, Plihel, and Morgaine [27]; Martinez, and Badeaux [28]; Rosanstoich [29]

J. A. Gregson [30] in his article studied the role of teacher education on student success. He states that, regardless of how effective vocational education in teaching work attitude is, if business and industry do not utilize an organizational structure conducive to desirable effective behaviors, worker productivity will not be maximized.

Thus, it appears the future of productivity in the U.S.A, in part, rests on whether organization work structures can become oriented toward high performance. In parallel with the changes of

the jobs in the real working life, the lectures and the programs are reorganized in order to adapt to these changes.

3. PURPOSE AND OBJECTIVES

The purpose of this study was how the best environment can be created for optimum performance of the technical education.

Specific objectives of the study were ;

1. To examine the number and usefulness of the physical properties of the schools like the width of the school, the classes and the laboratories, how well they are heated and illuminated, the number of the equipments and compare this number to the number of the students, to detect how new these equipments are and how they effect the student success in comparison to the developments in technology.

2. To detect the effect of the methods used on the students success during the lecture (methods like shop practice, shop demonstrations, small group discussions, large group discussions, team teaching etc.).

3. To detect the effect of the methods used to make the students ready for lecture (methods like making the subject attractive to the student, and relating the subject to the daily life etc.).

4. To find out what can be done to make the students success level optimum on education methods used, on the equipments used, on the physical situation of the school and its environment and motivation techniques used basis, and what can be done to improve this success level.

4. METHODOLOGY

During these study I visited the career centers in Columbus Ohio, Devry Institute, and Columbus State University. I have made observations concerning related time to each case. I have visited all the departments of the schools and seen their environment. During these visits I have

been instructed by the teachers who were giving the lessons about how, and using which methods they give the lecture. By the help of these interviews I have learned the methods the teachers use to motivate the students, which methods they usually use, which problems they usually face with, which ways do they follow to solve these problems, which methods they use for marking, at which level are the students success level and, which methods they use to maximize this level. And I have made interview with the school presidents or with the school supervisors about the general situation of the school, the success level of the students, the physical conditions of both the school and its environment and, their needs for the future improvements of their schools. I have discussed all these subjects with the teachers also.

In the study, questioner was developed to collect the data. The instrument consisted of 14 items. The survey was delivered to career centers, Columbus State university, and Devry Institute. An proximate of 100 surveys were given to all schools, and they were collected after three weeks time. There were 40 surveys from career centers, 27 surveys from Columbus State University and Devry institute. Frequency data analysis were applied to the surveys. Data and information about the career centers and technical institutes. I also visited; (1) Southeast Career Center, (2) Northwest Career Center, (3) Northeast Career Center, (4) Fort Hayes Metropolitan, (5) Fort Hayes Career Center (High School Programs), (6) Devry Institute, (7) Columbus State University. Face to face interviews were made with the principal or the supervisors. Various techniques and analysis of the environment were discussed.

5. FINDINGS

The studies are made in for groups of teachers: (A) The teachers from the career of teachers; (B) Teachers from and Devry institutes.

A. Findings Related to the Studied in Career Centers :

A.I. 40 teachers attended the survey from career centers 24 of which were female and 16 of them were male. 26 of these teachers were graduated from O.S.U while the others graduated from different universities. The teachers that attended the survey are the ones teaching only vocational lessons. The experience of the teachers are; two of them for 1 year, one of them for 3 years, two of them for 4 years, one of them for 5 years, one of them for 6 years. The rest of them has an experience of 12 to 30 years.

2. Only 3 of the teachers who attended the survey directly begin working as a teacher after their graduation from the universities. The rest preferred to work in other works about their branches and then became a teacher.

3. Most of the teachers agreed that the general physical conditions and the equipments are well enough for a qualified education. But they also mentioned that the equipments must be re-organized at every 5 years due to the development in the technology, which is very expensive. In some centers the heating and lightning systems are causing some problems. The number of computers also seems less with respect to the number of students.

4. The most used education methods by the teachers differ due to their branches and due to the specialities of the classes. The most used education methods in ascending order are;

1. Shop practice
2. Shop Demonstration
3. Large group discussion
4. Team teaching
5. Individualized instruction
6. Small group discussion
7. Lecture
8. Tutoring

5. The findings showed that the vocational education increases the motivation of the students, increase their interest to the work, makes

a strong impact on working and learning in real job settings. Also it helps them to develop the necessary skills and discipline for future employment. Students trained in vocational education will have an immediate skill in which to enter the work -force or work as they pay of for their college education.

6. Findings showed that to provide training in basic job skills for the students teachers introduce skills in a formal sitting, usually in a lecture discussion format, then the students practice the skills in a laboratory setting, mostly through extensive demonstration. Also to improve training teachers are in need of computers, videos, text books, work books, and more shop practice must be done. The job shadowing in the place also plays an important role.

7. Findings showed that the design of the workshop activities are done at week-ends or as soon as the work finishes, according to the structure of the workshop, and according to the advises of the business owners.

8. Findings showed that to achieve high performance in students and make them achieve their full potential, it is important to build relationships with them, to demonstrate a high level of performance and continually demand it from each and every student. Also make a good attitude and motivation, use examples and demodulations during the lectures and having them set goals seems the most used ways. Also working with each student individually as well as in group and showing care and interest will maximize their potential.

9. It is found that to make the school a better place for teachers to teach and students to learn; teachers need more control and flexibility in classes. Creating a good atmosphere and safety, making sure that the student behaviors are under control also effects the school environment. The school must also have proper equipment and supplies. And the desire in the students must be raised. These will also reduce the discipline problems.

B. Findings Related to the Studies in Columbus State University and in Devry Institute:

B.1.23 the teachers who attended the survey from the high schools male and the rest 4 were female. These teachers are graduated from different universities across U.S. 17 of which have a M.S. degree, and 2 have P.H.d. 3 of these teachers has an experience of 3 years while the rest has an experience between 8 and 30 years.

2. 26 of the teachers worked in their field and areas after their graduation before beginning to work as a teacher. only one of them directly begin to work as a teacher after his graduation.

3. The needs of the teachers differs in accordance with the change of the departments. The teachers from the business and marketing departments stated that the environment and the tools they have are well enough to teach effectively. However teachers from other departments stated that the office space is extremely limited, classrooms space are ample, individual equipment are short in numbers, additional surveying equipments and computers are needed. The equipment used seems enough for education but the ones used in industry are more complicated. They need more computers, organized space, ample tools, and storage area to have a more effective laboratory and hands on.

4. The teaching methods used by the teachers differs according to the working field and areas of the teachers. The most used ones in ascending order are:

1. Lecture and individualized instruction
2. Laboratory instructions and laboratory practice
3. Large group discussions
4. Small group discussions
5. Team teaching
6. Tutoring

5. It is raised from the findings that the success of the student depends on, small group sizes, the experience of the teachers, the quality of

the instructors, the technologically new equipment and their amount, student motivation, workshop practices, and interest.

6. It is raised from the findings that the teachers can help the students to reach their full potential of success by gaining them encourage, enforcing them positively, let students to be active and have participations in the class (Use real world applications oriented projects and examples in teaching skills) learn each students' goals and work with them to achieve it. Teachers should guide the students. All students should go through a work experience before graduation, learn to work individually, and learn individual consultations.

6. CONCLUSIONS

The following conclusions are derived from the research findings.

1. Usually the teachers working in the schools are mostly experienced and have a good level of knowledge in their areas. Most of the teachers have the experience of industrial work. Most of the teachers -especially the ones in universities have a B.S. degree. All of the teachers are graduated from universities.

2. The success level in Career Centers and universities are extremely high. These schools are also well equipped, but the number of equipments -machinery and computers became short with respect to the student number as time passes. Sometimes the problem of heating and ventilation also appears as problems. Due to the quick change in the technology the number of computers must be raised rapidly. These subject was also studied by Dobry, Alberta M. [14] in their book *Creating a Classroom Climate of Equity*.

3. Usually in lessons on improving student abilities and gaining skills, teachers apply workshop practice and workshop demonstrations after introducing the subject in the lecture. However teachers from business and marketing

departments, usually directly introduce the subject in a workshop practice and demonstration and let the students have group discussions. Other teaching methods seems rarely in applications.

4. In Vocational and technological education it is important to motivate the students and let them learn the subject during practice. The teacher can increase the success level of the students by choosing the proper method of teaching for different environments. Besides these if mere computers, videos, text books, work books are available, and if more workshop practice is done, the success level will increase.

5. In raising the success level of the students teachers have to; let them be active in the lecture, motivate them, watch out their faults and correct them, and make as much practice as possible and, they have to keep telling the students that they can overcome the work they have and by doing so they will make students gain encourage.

6. To set a good qualified learning climate teachers have to understand the needs of the students and have to set a peaceful, open learning climate in the classroom. For example teaching the best method suitable for the classroom environment, and guiding the students in their work.

7. Teachers explained that their experiences in their own area and their personal works on the same area effects the students success as well as working in small groups, having good and qualified equipment, and making workshop practices.

7. RECOMMENDATIONS

1. In vocational and technical education schools every support must be given, to provide the development of skills and abilities of the students. That is new technologically, updated equipment and learning environments must be supplied to these centers.

2. It is a fact that the students gain the skills and abilities mostly in workshop environments.

Due to this fact the equipments in the workshops must be quality ones and must be reorganized in parallel with the developments in the technology. The Holmes Group [31] in their study proved that the quality of the workshop environment is one of the most important factors that effect the students success.

3. The new technology must be introduced to the teachers by the use of additional courses and publications. By these applications the teachers can introduce the updated knowledge to the students and take them to an upper level of knowledge before facing the real work world.

4. New programs must be designed to make the teachers improve their knowledge in their own fields. The technological improvements requires the teachers to refresh their knowledge on their fields. To educate the students ready to face the real work world of the industry the teachers must be in contact with the industry, and they have to follow up the new technology and the new knowledge in their fields. In doing so the teachers can transfer their knowledge that they have to the students during lectures.

5. The providing an effective teaching environment in the classroom is related directly to the students success level. The providing of such an environment is related to teachers' taking the course of *classroom management* during his or her studies. To settle dicipline in the classroom makes both education and learning easier.

6. The qualifications of the teachers like; interest, patience, tolerance, being friendly to the students, and having good communication with the students plays on important role in the success of the students. The teachers have to have these qualifications as well as being flexible in the classroom. Hamachek [32] in his study proved the importance of these qualifications on student success.

7. During the lecture the teacher's actions and the language he uses effects the level of the success of the students. Also giving examples, repeating and covering the important subjects

again and again will maximize the success of the students.

8. The homework of the students must be given in a way to improve their creativity, let them use, and practice the things that they learn at lecture and workshop formats. These homeworks must be given in a way that the students have to search for new knowledge and techniques so that they can use their creativity and learn the improvements in the field by themselves. This will also help the students to analyze their knowledge and make them to learn how to make a survey.

9. The teachers have to use different teaching techniques in accordance with their teaching fields. The success and the interest of the students will increase to the subject if the teacher can make the subject more understandable and make the students more active in the class.

10. The practices in the workshop format requires to work in groups and shearing information. Due to these facts the teachers have to act in a way to let the students work together in a team work.

11. The improved connections with the business companies must be settle. By this way the students can see the real work world which will be helpful for them in finding a work after their graduation. By this way they will also have the chance to apply their knowledge in the real work world environment.

12. The teachers have to let the students understand that they trust them, and they must inject the feeling that they can overcome the work that they are dealing with. By these way the student will believe himself and will have more interest to the work which will raise his success.

13. The changes in the world also causes changes in the jobs. Some of the jobs lose their favor and some gain favor with time. Because of these reason the abilities of an other job must be introduced to the students as well as their working fields.

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