Education by Application
The Vo Ag Educational Model

Timothy C. Visel, Coordinator - May 2004

A quick review of education program organization and three US models of education provides a description of different educational outcomes. Beginning in the 1980's an attempt was made to link content (theory) to applications in one of the models, the last to have such a connection, the comprehensive model. This has allowed the 125 year old association of Vo Ag with comprehensive programs to be reviewed as a model for this integration.

Why do I need to know this? is a question that secondary educators hear almost every day. High school youth since 1982 have questioned the relevance of the comprehensive high school model. "How do I use this information" and "when do I use it" also comes up frequently. Two years ago the State Department of Education issued a report urging Connecticut Comprehensive High Schools to "Come into the 21st Century." Much of the report urged high schools to adopt curricula which was both meaningful and relevant. The CAPT test was originally designed to create curricular change at the high school level. The State Department of Education urged local Board of Education to change high school curricula with several reports assured in the 1980;s and 1990's but, largely were unheeded. Now we have the CAPT, a test that measures the ability of students to perform applications in many subject areas.

Why has the comprehensive model come under such scrutiny and overhaul? In a quick answer and it's brief the model proposes theory and content without linking educational processes and activities to real world decision making about every day life. To combat its lack of applications to social and economic situations "life skill" issues were introduced into many high schools. It's not by accident that the curriculum often lacks application that's by design. The comprehensive model was created to provide young people skills that would be needed to succeed in post-graduate programs. The instruction plan was often termed the "non-specific model" - in other words students obtained skills that would prepare them for many careers and occupational areas. In many parts of the US it was specifically designated **not to specify** occupational outcomes. This was in contrast to the "harse" European model which "tracked" students at an early age into defined educational programs. Even today the term tracking has a somewhat negative connotation.

The Vo Tech and Vo Ag Models -

The Vo Ag and Vo Tech systems use a variant of this model called the "exploratory" program. Here students explore career and employment areas when they experience activities

that are employment skills based. It's those skills learned as freshman and sophomores that enable students to perform increasing complex industry applications (work) as junior and seniors. The comprehensive model is skills based but academically so that its graduates can be successful at college, etc. Unfortunately the delay in the acquisition of skills and their use is a problem. Studies have shown that learning is facilitated by connecting activities, linkages and "practical application." The application is a very old educational model (read apprenticeship) still utilized in Europe and adopted in Asia. It is often termed the "concrete" or "linear model." Although apprenticeship has been largely displaced by trade guilds (Unions) its model of application learning was adopted into public education.

The School To Career Initiative

In the early 1980's the business community nationwide voiced its concern about the lack of career preparedness of high school youth. In a series of federal legislative initiatives school to career programs commenced in urban school systems based upon Vo Ag regulations. School to Career focused upon dedicated classes, internships and special career guidance usually in coordination with Perkins vocational funds. Unfortunately this occurred when many comprehensive high schools were eliminating Technical Education and Industrial Arts classes. In 1993, this effort become the School to Career federal education grant program.

"The Inch Deep and Mile Wide Curriculum"

That's what the Europeans call our comprehensive curriculum. Their education programs especially the textbooks and courses are heavily application dependent, business, occupational, vocational, science and technology applications are directly linked to content theory. Students know why they are learning something, how it is applied and in what capacity they will use it. The textbooks for instance are a lot thinner. It is intense, sometimes harse and puts a great deal of pressure on its youth. This type of education is heavily dependent on defined outcomes. The comprehensive model is centered around a students ability to undertake both additional career and educational opportunities beyond high school. Some changes were identified in the "Nation at Risk Report" and many high schools have adopted the block scheduling and portfolio assessments- something that Vo Ag embraced 75 years ago.

Why has the Vo Ag model endured?

One of the reasons is that the exploratory program covers a tremendous of interest areas. That is followed by several career paths of scope and sequence which is chosen by the student with guidance from the Vo Ag teacher. This allows

students an unparalleled opportunity to "explore" career interests. It is the only educational model organized around this goal. It was termed the "associative model."

The Vo Ag Individual Career Exploration Plan

Students perform industry applications (the Vo Ag educational model) and the integration of skill based activities or projects prepares students for future industrial applications in the advanced and intensive units sequences. This guide is a detailed description of how a skill based activity is developed and for what future applications they "support." In the senior year, students select with their advisor or career services, a special topic/research projects for two marking periods.

Often vocational instruction is designed around instructional practice - or procedures. The term activity can be used to describe both skill based processes either for practice such as projects or procedures such as experiments. These skill based activities can also describe future science research or practical applications. It's not uncommon to have two or three projects supporting a future application each with a specific skill set and performance measures. Industry competencies are developed to guide students on what employers (industry) expect in this field of work. The use of shops in the VoTech model simulates real working conditions representatives of the "trade." The VoTech model concentrates on this aspect with special area certificates with occupational industry endorsements.

How Skill Based Activities in the Aquaculture Technology Curriculum at The Sound School/Vo Ag Center Prepares Students for "Performance" Applications

The Lobster Pot Construction Project (Aqua Tech II) as an example Linear Progression of a commercial/Environmental Fishery Management Unit
Skill Based Activities A, B, C Support Aquaculture Tech IV - Boat Construction/ Marine Manufacturing as a senior.

A. Lobster Pot Construction - Aqua Tech I Exploratory
   Skills - use of rulers measuring, estimation, practical tool use

B. Model Brockway Skiff Construction - Aqua Tech II Intermediate
   Skills, Measured Drawing Mechanical Drafting, Intro to CAD (Intensive)

C. Vessel Design Project - Aqua Tech III - Advanced Engineering Concepts/Skills, CAD Design, Stability Propulsion and Speed Curves Intro to CNC

D. Tech IV Boat Building Senior Year (Intensive) Marine Manufacturing Special Topics. CNC applications to cut and assemble small dory.

(Optional activity for A - Sail Making/Canvas Sail Bag Project)

Skill based activities can support each other and can be written as "supporting:" A supports B, supports C all activities enables Industrial Application "D" boat building. A → B → C D. The application in the intensive or special projects Senior Scope and Sequence. A-- B-- C-- "D" Linear Vo Tech Model (can be Vo Ag also).

Independent Foundational Science Skills Enables Integration of Higher Order Thinking Skills in Juniors and Seniors - Associative Progression

Science can be described in the same way although activities often are not strictly dependent, but independent but still support advanced "associated" science applications (example A does not support B but all enable "E" the science industry application at a later time and special topics.

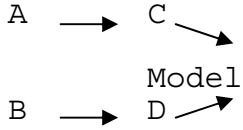
A) How to use A microscope - Freshman Exploratory Skills, operation and function of microscope types for appropriate use

B) Procedures to key out organisms Freshman Exploratory Skills, organism differences, order/classifications identification.

C) Making a dry mount glass slide sophomore - Intermediate Skills, preparation of histological sections, stains, fixatives and tissue processing

D) Fish Culture Necropsy Preparation Junior Advanced Skills, fish anatomy, diseases vectors, tissue extraction Identification of infected tissue

E) Life Science Senior Internship. Identification of fish specific parasites from infected Specimens (special topic research).
Can be written as A-- C-- E /B-- D-- E



(Represents the Associative - The Vo Ag Model)