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ABSTRACT

The Tulsa Technology Center's Curriculum Department led the institution's staff in developing a competency-based occupational curriculum for the district. The process of curriculum development involved planning, developing, implementing, and evaluating the instruction within the district. The process was designed to provide a total district instructional system, including program examination, review charting, assessment of area needs, implementation, tracking, audiovisual selection, instructional planning, and testing. Although the process met some resistance at first, especially when presented in large groups, more enthusiasm was generated when instructors met with curriculum developers. After the curriculum guide for one course was developed, it was easier for all those involved to appreciate the process and to cooperate more fully in developing other areas of the curriculum. The model curriculum that was developed allows all instructors to follow an accepted format and campus administrators to implement a standardized curriculum in order to improve instruction throughout the district. (A glossary of terms used in the curriculum development process is included in the report.) (KC)

CURRICULUM DEVELOPMENT AND INSTRUCTIONAL PLANNING

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OVERVIEW

Competency-based curriculum development is a process for planning, developing, implementing and evaluating the instruction within a district.

The process which is designed to provide a total district instructional system, includes: program examination, review, charting, assessing area needs, implementation, tracking, documentation, audio visual selection, instructional planning and testing.

The model developed by the Tulsa Technology Center Curriculum Department works for all programs across the District. It is a model that allows all instructors to follow an accepted format and campus administrators to implement a standardized curriculum.

The development process is relatively simple and has a final product of a bound document which includes: a program description, program occupations, competencies, tasks, a scope and sequence, a course outline and an occupational matrix.

The overall goal of the curriculum development system is to improve instruction across the district.

OBJECTIVES

TO:

1. Provide a competency-based curriculum for each program in the District

2. Standardize programs across the district by assuring:
   a) objectives are the same
   b) textbooks are the same
   c) lesson plans are developed

3. Provide visual aids when needed

4. Promote a variety of instructional techniques

5. Encourage organization and management in the classroom and in presentations

PLANNING

A system or design for the development was established by the Curriculum Department and approved by the Assistant Superintendent for Instruction.

The initial plan included a format, a system for prioritizing programs for development and a method for allowing instructors to spend time in the Curriculum Department. As the first two programs evolved it was quickly evident that the process and format would change as the project evolved.

It was also evident as the department began to work with instructors that the majority had little or nothing on paper to document a curriculum, a course outline, lesson plan, tracking system nor methods of instruction. It became apparent at this time that much more would be involved in the process than competencies, tasks and a course outline.

It was also discovered that it was almost impossible for instructors or campus administrators to understand the concept because there was no final product to show them in the beginning. Once one program was completed it was much easier for them to visualize how their program design would work.

This failure to grasp the concept hindered the adaptability of the instructors to the process. The ability to see the "big picture" and the district standardization of curriculum remained only with the Curriculum Department and a few administrators all during the first year of the development process. The largest task in the planning process was the transference of the understanding and fundamental concepts of curriculum development to first of all campus administrators, then to the instructors as a group. It was quickly recognized by the Curriculum Department that when concepts and plans were presented in groups, barriers immediately went up. Resistance to doing any actual work and feelings of threat were evidenced within the group. When working one-on-one with instructors, the opposite was true. Individual instructors for the most part could see their lack of direction, focus and organization.

It was therefore necessary for the Curriculum Department to meet with smaller groups made up of the instructors of like programs across the district and once program structure fell out of the process, to work with individual instructors.

It was quickly apparent that some programs needed to change direction. Research showed some specialty areas to be no longer valid, while others needed to be added. For the first time a look was being taken at what was actually being taught in the programs at Tulsa Technology Center.

DEFINITIONS

Curriculum is the design, a blueprint or a plan for education. It gives an overall picture of what is being taught. It shows mission, goals, and purpose. It is the foundation for building instruction, teaching and learning. It also sets boundaries for what is to be taught.

Instruction is activities designed to accomplish the goals, purposes and mission. Instruction provides the operations for the curriculum.

Teaching is the behavior of teachers which causes students to learn.

Learning is the measurable change in what students know.

DEFINITIONS OF CURRICULUM TERMS

COMPETENCY - Knowledge, skill or attitude obtained or developed through instruction. (What a person should be able to do after set instructions.)

COMPETENCY-BASED INSTRUCTION (CBI)- An instructional system where expected competencies are given up front. Objectives are made from the competencies and only those objectives listed are taught and tested. (Note: Competencies will have been validated by business and industry.)

TRADE ANALYSIS - A listing of all the competencies, tasks and sub-tasks within a given skill area. It may also include all the jobs (from the DOT) which may be obtained upon completion of the course of study.

TASK - A measurable element of work which must be done to reach a competency.

CURRICULUM - A course of study.
Example: Orientation, Safety, Hydraulics, Pneumatics, etc.
Example: Hairstyling, Manicuring, etc.

INSTRUCTIONAL MATERIALS - Those materials developed to use in instruction of a curriculum.

COMMITTEE VALIDATION - A process by which a group of business and industry people examine the trade analysis and instructional material and agree that the material is proper for the trade.

UNIT - May be called LAP, Module, Section or Unit. It is any instructional material that is pulled together with certain components to create a written instruction to meet certain objectives. A number of units will compose a curriculum.

OBJECTIVES - A written explanation of what should be accomplished in instruction. Objectives should always begin with action verbs. Those tasks which must be done to reach a competency.
Example:ListConstructDemonstrate

COMMITTEE VALIDATION - A process by which a group of business and industry people examine the trade analysis and instructional material and agree that the material is proper for the trade.

INDIVIDUALIZED INSTRUCTION - An instructional delivery system where students are given large or small group instruction as appropriate then allowed to use individual units of instructional materials, with directions on them, to proceed with training at their own speed.

DAILY LESSON PLAN - A guide for the instructor to follow in daily presentations, demonstrations or lab.

INSTRUCTIONAL PLAN - A plan for instruction containing: mission or goal statement for a program, a personal educational philosophy, goals and objectives, scope and sequence of instructional materials, course outline, unit and daily lesson plans.

LEVELS OF LEARNING - The different levels within a trade area.
Example:Apprentice, Technician, Specialist, Engineer etc.

LEARNING STYLES - The methods by which individuals learn best visual, auditory, kinesthetic or a combination of any two of them.

SCOPE AND SEQUENCE - A course outline in the sequential order it will be taught, with time-lines on each block of instruction.

SUB-TASKS - Tasks - smaller units of instruction which make up tasks, but still have steps to complete this unit.

ATTITUDE - A state of mind or inner feeling.

SKILL - Proficiency, expertise in a trade.

KNOWLEDGE - The fact of knowing or understanding.

COGNITIVE - Knowledge acquired through perception, reasoning or intuition.

OBJECTIVE PAGE - Page of instructional material which contains the overall unit objective and specific objectives for that unit.

TITLE PAGE - The first page after the cover sheet. It should include the name of the unit, the developer, name of the school, etc.

COVER SHEET - Cover on the outside of instructional unit.

VALIDATE - To officially sanction. Stamp of approval by business and industry.

FORMAT - The organization and arrangement of the component parts of a unit of instruction.

DESIGN - The layout or look of a unit of instruction.

TRANSPARENCY MASTER -A graphic design which can be made into a transparency.

PROJECT GUIDE -A job sheet or project sheet which lists all the steps and information for completing a specific job, project or task.

INSTRUCTOR GUIDE - A detailed implementation guide which guides the teacher through the instruction process.

COMPONENTS - Parts of a whole. Different parts of a unit of instruction.

UNITS OF INSTRUCTION - One of a group of units which make up the instructional materials in a given trade area.

COMPETENCY-BASED - Listing of validated competencies from which instructional material is developed and on which students are tested.

PERFORMANCE OBJECTIVES - Listing of the verb which denotes what students will be expected to do to reach a competency.

ASSIGNMENT SHEET - A written or typed assignment. It should reinforce or allow practice of an objective.

CURRICULUM FUNCTION

Since the curriculum design serves as the district and program plan for instruction, it defines what will be taught. It is the foundation for the instructional process. Instruction, teaching and learning are all dependent upon the curriculum design. If the curriculum design is faulty, then the instruction, teaching and learning will fail.

Using the curriculum as a design base the other instructional system components can be built.

CURRICULUM

INSTRUCTION	TEACHING	LEARNING
-lesson plans	-methods	-pre/post testing
-visuals/aids	-techniques	-competency testing
-text books	-equipment	-progress testing
-workbooks	-demonstrations	
-learner based	-cognitive	
	-labs	

A well designed curriculum defines what is to be included in instruction and what is not. It should, however allow for instruction not curriculum based, but necessary such as citizenship, human relations, work ethics, and interpersonal relationships. In some instances these should be included in curriculum design in order to insure their being taught. Instruction based on a well designed plan certainly prevents haphazard teaching, and improves learning.

Legislation in some states such as Oklahoma's HB 1017 requires certain topics to be taught in public education. These include such things as: drug education, citizenship, environmental education, health and nutrition, etc. If these are spread across the K-12 curriculum it is manageable. However, if it is all required in high schools, a curriculum designed to cover all of these plus the basic programs of English, Math, etc., time becomes a great constraint.

A curriculum can be compared to a budget. The budget identifies areas on which districts plan to spend money. Anything not included in the budget cannot have money spent on it. Curriculum is the same. It identifies what is most important and should be taught. It says, "these are the skills, knowledge and attitudes which should result from this instruction." In terms of learner outcomes, the curriculum says, "these are the things which should be learned."

Without a curriculum design, outcomes are not identified and there is no way to measure gains. The design of the curriculum defines direction and establishes a way to reach a desired end result. It should drive the instruction, teaching, evaluation, and budgeting. It should also drive equipment and materials purchasing, rather than equipment and materials driving instruction. Equipment driving instruction could possibly be more apt to happen in a vocational program because of high equipment costs. It would be better to have no vocational program than one which does not meet industry standards for equipment and training.

INFLUENCES AND RESPONSIBILITIES

Decisions about curriculum often become political ones. Various power structures may influence whether something should or should not be included in the district's instructional plan. The Board of Eduction upon the advice of the professional staff decides what will be included. In a vocational school district, industry may dictate what programs will be added. Economic conditions may dictate placement which may justify having or not having a program. In a public school district various religious or parental groups may seek to influence what is or is not included in the district plan. Legislation also may force various curriculum components to be included in instruction, but seldom provides the funding for them. It will take commitment, input and support from all the district staff and the Board to make effective changes in a curriculum.

ROLE OF SUPERINTENDENT/SUPERINTENDENT OF INSTRUCTION

While a school board or legislature does legislate the intent of instruction, it is the responsibility of the professional staff of a district to design the curriculum and establish an instructional plan. The superintendent is responsible for improving the instruction within a district. It is also his/her responsibility to educate the community and Board about the design and instructional system used by the district. It is also his/her responsibility to remove any barriers to appropriate development and implementation, and to support the efforts of curriculum and instructional designers. It is also his/her responsibility to help administrators identify and accept their roles as instructional leaders on their respective campuses.

ROLE OF PRINCIPALS/DIRECTORS

Just as the Superintendent must educate the community and Board, the campus leader bears the responsibility for educating and influencing the instructors. It is his/her responsibility to see that instruction and teaching follows the curriculum plan. Course instruction and student achievement should constantly be evaluated by the campus leader. If the instruction is not following the identified curriculum then expected outcomes will not be met. New legislation in many states requiring testing will for closer adherence to identified learner outcomes, but it is ultimately the duty of the principal/director to see that instructors teach what has been identified in order to reach the identified leaner outcomes. It is impossible to talk about what is going to be taught without discussing how it will be taught.

ROLE OF THE CURRICULUM DEVELOPER

Curriculum cannot be developed by committee. This does not mean committee input should not be used. If a committee sits down to develop a curriculum together you may expect a two to five year project. By then everything is outdated. Simple logistics such as getting groups together then getting them to decide on anything takes unnecessary time. If the curriculum developer can put together a rough outline of the instruction to be presented with the help of one other person using textbooks, task lists, etc., then present it to a committee, the project will move forward more quickly.

In other words, a curriculum developer must have a great enough knowledge of instructional development to work through subject matters with

which they are not familiar. It is the job of the developer to facilitate and keep the project moving.

It may also be the job of the developer to help instructors see what changes can occur as a result of the development, share examples of successes and explain why development is being done. This may also include actually selling the development process and explaining how it can make the instructor's job easier.

ROLE OF THE TEACHER/INSTRUCTOR

The teacher/instructor plays the most important role in the process. This is the person who will be following the instructional guidelines. If he/she is not a part of the process, it may not be accepted and used. When curriculum changes are forced upon those who do the instruction, no matter what the purpose, they will rebel. The curriculum developer can play an important role in easing the tension by showing how much easier the job will be under the new process.

ACCOUNTABILITY

Accountability begins with the development of the curriculum and ends with the evaluation of student gains. If a curriculum is not developed with the right outcomes, then little progress will be shown by students in reaching expected criteria which has already been identified. If teachers/instructors do not teach from the curriculum as developed and local or state competency tests are given desired outcomes will not be reached. A lot of information may be taught, but there may be little or no focus causing an appearance of substance not being taught.

In vocational education accountability is reinforced by advisory committees. These are people trained in the occupation of a particular program who give input on curriculum, equipment purchases and student placement. This type of community input could be utilized in the same way by public educators in order to establish what skills a graduate will need to be employed by business and industry. This might also give students more of an understanding of why they need to know certain facts. The advantage of applied communications, math, science, etc., versus theoretical concepts is enormous. It allows students to do hands-on work related activities and practices rather than abstract concepts. This also allows for more accountability to the community.

Identified Standards and Measures must be established for all educational programs or accountability goes out the window. Criteria for establishing these standards may vary from program to program but such things as: equipment, space, materials, teacher qualification may be very generic The curriculum and instruction standards may also need to vary due to the content. All programs will not necessarily need the same improvements, new equipment, etc. It is more feasible to at first expend time, talent and money on improving poorly run programs through extra budgeting then divide available monies more equitably.

Students must be evaluated by methods other than regular classroom tests to truly see if they are competent. This indicates a need for pre/post testing with a competency test at the end of a course of study.

Mandating accountability by state or federal law or district policy is probably the most efficient way to achieve accountability. While the democratic processes may make people happier, it may not only be less efficient, it may not be strong enough to enforce accountability.

For accountability to be valid, Boards, administrators, curriculum developers and teacher/instructor must all understand what good curriculum and instruction really is. They must be able to expect certain outcomes and to deal with the problem when those are not met.

CURRICULUM DEVELOPMENT AND INSTRUCTIONAL PLANNING

The purpose of curriculum development and instructional planning is to develop a guide for instruction.

The curriculum development process will include content outlines, desired outcomes, textbook and materials selection, validation, evaluation, tracking, documentation and a plan for revisions.

The development process at Tulsa Technology Center includes:

PROGRAM DESCRIPTION

PROGRAM OCCUPATIONS

COMPETENCIES AND TASKS

SCOPE AND SEQUENCE

COURSE OUTLINE

OCCUPATIONAL MATRIX

After this has been completed, curriculum specialists work with individual instructors to look at textbooks, instructional materials, methods for teaching, tracking and documentation. The course outline includes performance terms and is aligned with the textbooks used and the identified competencies and tasks.

The district has identified development priorities and programs have been placed in an equipment cycle. Every four years specified programs are provided extra monies to bring equipment needs up to curriculum objective specifications.

Curriculum development takes time. Developers reach places where they must wait for instructor input. If the district has a true commitment to the development process, time must be made available for instructor and developer to work together. This has been done at Tulsa Technology Center through allowing days for teachers to work in the Curriculum Department and by paying instructors who want to work during June and July.

CURRICULUM CONTENT

In many states such as Oklahoma, some content is being legislated. In their efforts to improve the end product (the learning), legislatures may make decisions about what should be included or added to curriculum content. Many times this is done without input from educators about classroom and student realities. With so many legislated content components, it is often difficult to find time in the short periods allotted to teach the subject matter much less to include topics on multicultural awareness, the environment, health and nutrition, drug abuse education, etc. Unless teachers are trained to integrate these topics into subject matters already being taught by relating them to discussions in progress, it will be difficult to find a place in the district curriculum to even mention them.

Curriculum content must be valid, realistic and provide for the instruction of what should be taught. Everyone should accept that everything that is being done presently is not wrong or bad. In the case of Tulsa Technology Center it was just a case of not having it on paper. Not having an overall district direction, format and instructional improvement plan, certainly limits valid curriculum and instructional development.

The fact must be emphasized to teacher/instructors that not only should what they are teaching now be included in content, but also what they know ought to be taught, but are not teaching. If the teacher/instructor is not involved throughout the development process, not only will they be hesitant to add anything new, but may not actually understand how to follow the guide.

Teacher/instructors teaching the same subjects across districts should work as a team in content development. This should involve the development process, textbook selection and test development. All instruction across district should be the same. Therefore, expected outcomes must be the same and all students should have the same access to auxiliary materials and aids.

Once curriculum is developed and objectives are identified it is very easy for teacher/instructors to put together instruction by units with information, aids, tests and lesson plans. This makes their actual instruction very easy. They have a plan to follow and instruction improves.

POSITIVE RESULTS

The most positive result of the development process at Tulsa Technology Center has been in establishing a direction and plan for the District and individual programs. In the past everyone pretty much did their own thing. As teams across the district began to work together, a better understanding of why everyone needed to be doing the same thing began to develop. There seemed to be a better understanding of why district instruction needed to be coordinated. Communication across the district between teacher/instructors was much improved and they began shearing ideas and materials. They seemed for the first time to begin to look at things on a districtwide basis rather than individual or campus basis. This made the job of the Curriculum Department much easier.

The production of a written instructional plan has provided a tremendous tool for administrators who do not know or understand specific program content. This gives them a guide to what should be going on in each classroom/shop area. It also provides a tool for counselors to use in recruiting.

Development of District outcomes allows for development of tests on a district level which allows every student to be tested the same way. A sharing of instructional methods and techniques with administrators hopefully promotes a better understanding of what good instruction in a particular area really is.

A districtwide curriculum development effort provides a common language and a step-by-step plan for instruction. Leadership has evolved among staff members who have been through the process. They have been able to influence those who have been resistant to the changes and the districtwide approach to development. Instructors have made comments about "seeing that they need to change the way they are teaching." One administrator told the curriculum director "I have always disliked dealing the curriculum. When I talk to you, I get excited about curriculum." The most positive results of the development process can

only be measured by improved instruction. The newly implemented testing system and better employer satisfaction with student learning gains will measure the improvement and provide a more positive feeling toward education.