Effective Curriculum and Instruction for Career Education

Unit 3: Apply Curriculum Alignment Theory to Instructional Materials

Existing Course: Curriculum Development Theory

Unit 1:   Describe Curriculum Components for Effective Instruction

Unit 2:   Evaluate Existing Curriculum Terminology and Components

Existing Course: Selecting & Organizing Course Content

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Unit 3:   **Apply Curriculum Alignment Theory to Instructional Materials**

    3.1   Evaluate instructional components for internal alignment

    3.2   Evaluate instructional components for external alignment

    3.3   Identify academic standards for external alignment

    3.4   Identify technical standards for external alignment

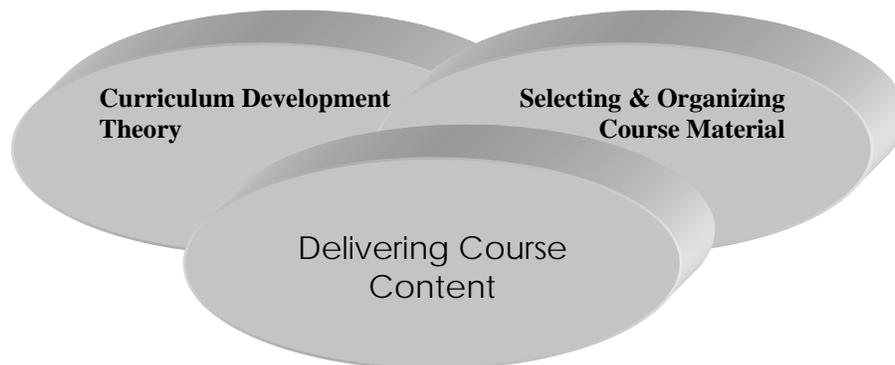   **3.5   Develop an external alignment matrix**

    3.6   Develop an internal alignment matrix

Unit 4:   Write and Clarify Instructional Objectives

Existing Course: Delivering Course Content

Unit 5:   Select Instructional Strategies, Activities, and Resources

Unit 6:   Apply Assessment Theory to the Classroom

Curriculum Development Theory

Selecting & Organizing Course Material

Delivering Course Content

UNIT OF INSTRUCTION PLAN

Name of Course:	Effective Curriculum and Instruction for Career Education
Measurable Learner Objective	Unit 3: Apply Curriculum Alignment Theory to Instructional Materials
Duration of Unit:	Weeks 3-4 (300 minutes)
Rationale for Unit:	All class participants, regardless of their chosen occupation (instructor, industry trainer, etc.), will be required to deliver "aligned" instruction. This includes ensuring our planning, delivery, and assessments are all consistent with our measurable learner objectives (i.e., verb choices and learning domains). It also includes ensuring what we're teaching/delivering meets external academic, technical, and professional standards (external alignment).
Tasks:	3.1 Evaluate instructional components for internal alignment 3.2 Evaluate instructional components for external alignment 3.3 Identify academic standards for external alignment 3.4 Identify technical standards for external alignment 3.5 Develop an external alignment matrix 3.6 Develop an internal alignment matrix
Topical Outline (content to be covered):	Curriculum alignment theory a. Internal alignment

	• Objectives / instructional strategies / assessments b. External alignment • Course alignment (program sequence) • Academic standards • Technical standards c. Program area / content-specific materials
Teaching-Learning Activities:	1. Presentation/discussion 2. Critique existing curricula for alignment (teachers and their partners) 3. Create sample alignment matrix (external and internal) 4. Questions/answers/collaboration work
Instructional Resources:	1. Teacher's sample/actual curriculum 2. Course readings (instructor identified) 3. Presentation (digital file and slide handout) 4. Sample component items / worksheets 5. DESE Report Writing Form Definitions (Appendix B; from Unit 1) 6. DESE MSIP Frequently Asked Questions (Appendix C; from Unit 1) 7. DESE Curriculum Sampler (2003) (Appendix D) 8. Computer and projector
Facilities:	1. Classroom 2. Computer laboratory (teacher notebook computers)
Assessment Activities:	1. Peer assessment checklist: evaluating existing curriculum alignment 2. Teacher daily performance work (ongoing curriculum alignment or creating new alignment matrices) 3. Unit and final exam assessments (evaluation level)

	4. Evaluating Curriculum Alignment Assessments (Unit 6)
Specialized Information:	The key focus of this unit is Internal and external alignment. This is a chance to truly assess ALL domains rather than assessing in the over-used cognitive domain. All new instructors must learn to assess in ALL learning domains, as well as maintain consistency in what is stated, delivered, and assessed (verb levels and domains). In addition, the curriculum should carefully align the course's measurable learner objectives with external academic, technical, and professional standards when available. However, one must realize that merely "crosswalking to standards that sound good" without providing documentation on how the material will be delivered and assessed is merely an exercise in futility.

Effective Curriculum and Instruction for Career Education

Unit 3: Apply Curriculum Alignment Theory to Instructional Materials

Suggested Lesson Plan

Teacher:	(to be determined)
Subject Area:	Career Education Curriculum Alignment
Grade Level:	Graduate University Credit (3.0 hours)
Unit Title:	Apply Curriculum Alignment Theory to Instructional Materials
Lesson Title:	Curriculum Alignment: Internal Alignment (Unit 3a)
	Curriculum Alignment: External Alignment (Unit 3b)
Behavioral Objectives:	1. While critiquing their curriculum, teachers will incorporate internal and external alignment strategies consistent with DESE guidelines.
	2. When internally aligning their curriculum, teachers will use consistent taxonomy verbs consistent with DESE and Bloom's Taxonomy literature.
	3. While internally aligning their curriculum, teachers will appreciate the emphasis of internal alignment as evidenced by instructing and assessing the same domain as their measurable learner objectives.
	4. When externally aligning their curriculum, teachers will select state/ national academic

and technical standards consistent with their program areas.

5. While externally aligning their curriculum, teachers will appreciate the importance of external academic and technical standards as evidenced by critically selecting the appropriate links for the specific measurable learner objectives.

6. While planning their curriculum and instruction, teachers will appreciate the importance of external and internal alignment as evidenced by aligning their curriculum regardless of state and local requirements.

Materials/Resources Needed:	1. Teacher's sample/actual curriculum.
	2. Selected Readings: Curriculum Development and Instructional Development (DESE Curriculum Sampler, 2003; Miller & Miller, 2002; Finch & Crunkilton, 1999; Mager, 1962).
	3. Electronic presentation: ECICE Unit 3.
	4. Sample component items / worksheets.
	5. DESE Report Writing Form Definitions handout (Appendix B; from Unit 1).
	6. DESE MSIP Frequently Asked Questions handout (Appendix C; from Unit 1).
	7. Computer and projector.
Anticipatory Set:	• Class Feedback: Teachers' knowledge/ experience with aligning their curriculum. MSIP

team experiences?

- Internal alignment experiences? What is internal alignment?

- External alignment? What is external alignment?

- So WHY do we align our curriculum? Biggest reason….Required locally? State Level? No….because it helps plan and deliver effective instruction.

Objective/Purpose: Relay to teachers…. "We'll learn how to internally and externally align our curriculum during these next two sessions. But we'll also be focusing on the affective domain during these two weeks, hopefully modifying any behaviors that say we should only align our curriculum because it's **_required_**….We want to do it because it's solid educational practice."

Input/Teacher Background:

1. Teachers should provide their existing curriculum that may have been modified based on Units 1 and 2. The information discussed in this unit will provide a strong base for the following three units: Addressing Measurable Learner Objectives (Unit 4), Instructional Strategies, Activities, and Resources (Unit 5), and Assessments (Unit 6).

2. Teachers should provide any district level requirements addressing curriculum alignment and related components, such as graduation goals and external technical and academic

standards.

Model:	• Instructor-led discussion
	• Teacher/peer collaboration
	• Question and answers

Check for Understanding:

1. Curriculum alignment is more than a matrix
2. Internal alignment
   a. Measurable learner objectives must be stated in "measurable" terms (verb level). Similar to behavioral objectives (Unit 4), MLOs will be in either the cognitive, psychomotor, or affective domains.
   b. Commonly illustrate internal alignment in a "matrix" format (see [DESE Curriculum Sampler, 2003](#), and DESE program area-specific examples).
   c. Measurable learner objectives (Units 1, 2, and 4) require teachers to think how they'll plan, teach, and assess.
   d. Must stay in the same learning domain (cognitive, psychomotor, affective).
   e. Internal alignment: Not "rocket science." As easy as staying in the proper domain (among MLOs, instructional strategies, and assessments) and staying consistent with verb levels (Bloom's Taxonomy).
   f. Must stay in the same Taxonomy level (Bloom's Taxonomy emphasize with #6

above).

3. External alignment

    a. Tying MLOs to external sources (academic and technical standards at the state and national level).

    b. Must externally align cautiously. Must teach and assess everything that is externally aligned (MSIP, etc).

    c. Discuss Outstanding Schools Act (1993) and how Career Education was not one of the core six areas. How did Division of Career Education respond? By liberally aligning ("crosswalking") to MANY Show-Me Standards to emphasize how important Career Education was to all academic areas.

Guided Practice:

1. Teachers critique their existing alignments
2. Teachers critique their partner's alignments
3. If teachers haven't aligned their curriculum, create an external and internal alignment matrix using their district format or one provided by DESE.

Closure:

1. Internal alignment: Improves instructional planning, delivery, and assessment.
   - Must stay consistent among verb levels and learning domains.
2. External alignment: Linking to external academic standards or Frameworks for

Curriculum Development (DESE) and technical standards (optional). Also tied to program sequence (alignment of courses).

- External standards must be taught and assessed if aligned with curriculum (cautious alignment).

3. Regardless of local and state requirements, hopefully this class is relaying that these are important for sound instructional practice and that's why it needs to be done.

4. This appreciation will carry on to future units of instruction, including Measurable Learner Objectives (MLOs), Instructional Strategies, Activities, and Resources, and Assessments.

Independent Practice:	1. Complete internal alignment matrix and compare with partner's matrix (similar content area).
	2. Complete external alignment matrix and compare with partner's matrix (similar content area).
	3. Read course materials disseminated in class.

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Program Area Specific Examples

The following curriculum samples will be presented during this Unit of Instruction. Additional samples will be presented as needed depending on the class population for any given semester.

Example 1: Business Education Business Technology (2004) Competencies and External Alignment Matrix (Duty Band A).

(Example purpose: The Business Technology course materials are externally and internally aligned at the competency level rather than at the measurable learner objective level. This requires documenting internal alignment links (instructional strategies, resources, assessments) and external alignments links (Show-Me Standards, external technical standards) for every competency listed rather than at the measurable learner objective level.)

Example 2: Lab Safety in Trade and Industrial Education Programs (2003) Internal Alignment Matrix (Learner Objective A)

(Example Purpose: The Laboratory Safety in Trade and Industrial Education Programs internally and externally aligns at the Measurable Learner Objective level rather than at the competency (or task) level, thus reducing the amount of links for documentation purposes.

Example 3: Agricultural Education Curriculum Enhancements Volume II (2004) External Alignment Matrix (Performance-based Assessments aligned with Show-Me Standards)

(Example Purpose: Agriculture Education's emphasis in aligning unit performance-based assessments with the Missouri Show-Me Standards).

Example 4: MSIP Training Materials Internal and External Alignment Matrix from the Missouri DESE Curriculum Sampler (2003).

(Example Purpose: Both internal and external alignment can appear in one matrix rather than having two matrices. The emphasis should be placed on instructional clarity, planning, and delivery.)

Program Area Specific Examples: Business Education

Business Technology Competencies (Duty Band A)

The *National Standards for Business Education* numbering system is developed to correlate with the competencies listed in each duty band, column 2. The *National Standards* are converted from bulleted items to a numbering system as follows: CD.I.A.3.1, means Career Development, Roman numeral I, Section A, Level 3, the first bulleted item.

The following suggested competencies, developed by an advisory committee, are intended to serve as a basis for your course curriculum. The list is neither inclusive nor required in its entirety. You may select competencies from other lists, and develop competencies of your own to define the outcomes you expect your students to achieve. The Show-Me Standards identified provide a guide. If activities you choose align better with other Standards, you should align your competencies/objectives to those Standards instead of these shown here.

Competencies	Show-Me Standards	National Standards for Business Education
A. Explore Careers in Business		
1. Utilize career assessment tools (e.g., student interest survey, aptitude test).	CA1, 1.10	CD.I.A.3.1, CD.I.A.4.2
2. Analyze various business careers by looking at salary, benefits, job requirements, educational requirements, employment outlook, etc.	CA3, 4.8	CD.II.A.2.2, CD.II.A.2.3
3. Research career choice.	CA5, 1.2	CD.II.A.5.1
4. Prepare a career development plan.	CA3, 4.8	CD.I.B.2.2, CD.I.B.3.2
5. Participate in work experience activities (e.g., job shadowing).	SS6, 1.10	CD.V.A.2.2, CD.V.A.3.1

Program Area Specific Examples: Trade and Industrial Education

Laboratory Safety in Trade and Industrial Education

Internal Alignment Matrix (Learner Objective A)

Learner Objective	Task Statements	Instructional Strategies	Resources	Assessments
A. Insure Personal and Coworker Safety	1. At all times wear the required personal protective equipment while in the laboratory or on the job site. 2. Appreciate the importance of personal protective equipment by monitoring their peers' actions and making the necessary corrective recommendations. 9. Appreciate the importance of safe equipment/tool use by monitoring their peers' actions and making the necessary corrective recommendations. 15. Recognize when personal medical attention is needed and contact the appropriate personnel (other students to get assistance, instructor, supervisor, etc.). 16. Recognize when coworkers/peers need medical attention and contact the appropriate personnel (other students to get assistance, instructor, supervisor, etc.).	• Video: Personal Protective Equipment (Safety 2 Lesson Plan) • Class Discussion: Required Personal Protective Equipment for this course (Safety 2 Lesson Plan). • Instructor Demonstration: How to properly adorn Personal Protective Equipment (Safety 2 Lesson Plan) • Role Play: Taking Responsibility for our Coworkers' Safety (Safety 2 Lesson Plan) • Simulation Video: Identifying Safety Problems in the classroom (Safety 3 Lesson Plan) • Instructor Demonstration: Proper safety practices for tools/equipment (Safety 3 Lesson Plan)	• PPE Video (Missouri Center for Career Education) • Safety Catalog • Specific PPE for content area (with order forms) • Simulation Video: Identifying Safety Problems (Missouri Center for Career Education) • Demonstration Sheets for tool/equipment safety	• Personal Protective Equipment Checklist (formative assessment – ongoing) • Simulation: Identifying Safety Problems (coworkers) • Simulation: Identifying Safety Problems (tools and equipments) • Unit Assessments (cognitive)

Program Area Specific Examples: Agriculture Education

Agricultural Education Curriculum Enhancements (Volume II)

Performance-based Assessments External Alignment with the Show-Me

Standards (Agriculture Mechanics Example)

Show-Me Standards Table

Performance-Based Assessment Activity (One for Each Curriculum or Unit Listed Below)	Show-Me Standards Applicable to Activity
Agricultural Mechanics Unit for Agricultural Science I 　　Common Hand Tools	1.8: Organize data, information and ideas into useful forms (including charts, graphs, outlines) for analysis or presentation CA6: Participating in formal and informal presentations and discussions of issues and ideas
Common Power Tools	2.1: Plan and make written, oral and visual presentations for a variety of purposes and audiences HP5: Methods used to assess health, reduce risk factors, and avoid high-risk behaviors (such as violence, tobacco, alcohol and other drug use)
Woodworking	2.5: Perform or produce works in the fine and practical arts CA3: Reading and evaluating nonfiction works and material (such as biographies, newspapers, technical manuals)
Tool Sharpening and Reconditioning	2.5: Perform or produce works in the fine and practical arts CA3: Reading and evaluating nonfiction works and material (such as biographies, newspapers, technical manuals)
Arc Welding	2.5: Perform or produce works in the fine and practical arts CA3: Reading and evaluating nonfiction works and material (such as biographies, newspapers, technical manuals)

Curriculum Alignment

MSIP 6.1.1 *Each written curriculum guide must include alignment of the measurable learner objectives for each course to the knowledge, skills, and competencies that students need to meet the district's goals and the Show-Me Standards.*

Quality curricula are aligned both internally and externally. **External alignment** indicates the measurable learner objective and related activities and assessments reflect the demands of the Show-Me Process and Knowledge Standards at the appropriate learning level. Relating the objective, activity and assessment to the Frameworks for Curriculum Development is another option. Districts may reference national standards in addition to the Show-Me Standards. **Internal alignment** indicates there is a close relationship among measurable learner objectives, instructional activities, and assessments (all having external alignment to the Show-Me Standards or Frameworks for Curriculum Development). Assessments included in the curriculum should be linked to what is taught. When learner objectives, activities, and assessments are aligned, the assessments test the knowledge and skills described in the measurable learner objective.

Example from MSIP Training Materials (Bird, Eastwood, & Flakne, 2002).

LEARNER OBJECTIVE	ACTIVITY	ASSESSMENT	SHOW-ME STANDARDS
Students will: analyze and organize data and draw a graph that depicts the data analysis.	**Students will:** work cooperatively in small groups with a set of varied manipulatives (attribute blocks, buttons, M&M's, etc.), analyze the possible groupings by common attribute, organize the manipulatives by a single attribute (shape, color, size, etc.), and construct a graph to show their findings.	**Students will:** work individually to analyze the possible groupings within a set of manipulatives, organize the manipulatives by the chosen grouping, and construct a graph that represents the findings.	1.8 MA 3

Effective Curriculum and Instruction for Career Education

Unit 3: Apply Curriculum Alignment Theory to Instructional Materials

Suggested Unit Assessment

Measurable Learner Objective:	Apply Curriculum Alignment Theory to Instructional Materials
Behavioral Objective:	1 While critiquing their curriculum, teachers will incorporate internal and external alignment strategies consistent with DESE guidelines. 2 When internally aligning their curriculum, teachers will use consistent taxonomy verbs consistent with DESE and Bloom's Taxonomy literature. 3 While internally aligning their curriculum, teachers will appreciate the emphasis of internal alignment as evidenced by instructing and assessing the same domain as their measurable learner objectives. 4 When externally aligning their curriculum, teachers will select state/ national academic and technical standards consistent with their program areas. 5 While externally aligning their curriculum, teachers will appreciate the importance of external academic and technical standards as evidenced by critically selecting the appropriate links for the specific measurable learner objectives. 6 While planning their curriculum and instruction, teachers will appreciate the importance of external and internal alignment as evidenced by aligning their curriculum regardless of state and local requirements.

Learning Domain(s):	Cognitive and Affective
Assessments:	1. Peer Assessment Checklist: Evaluating Existing Curriculum Alignment. 2. Teacher Daily Performance Work (ongoing curriculum alignment or creating new alignment matrices). 3. Unit and Final Exam Assessments: Analysis and Evaluation level. 4. Evaluating Curriculum Alignment Assessments (Link with Unit 6).

Peer Assessment: Evaluating Existing Curriculum Alignment

Bloom's Taxonomy Cognitive Levels Assessed: Analysis and Evaluation

Evaluate an identified curriculum of your choice for external and internal alignment using the following checklist. Analyze and evaluate the component in the left-hand column against the criteria at the right.

Alignment	Criteria (Binary Assessment: Yes or No)
External: Academic (MSIP)	☐ Established link between MLOs/activities/assessments and Show-Me Standards (Process) ☐ Established link with MLOs/activities/assessments and Show-Me Standards (Knowledge) ☐ Established link with MLOs/Activities/Assessments and the Frameworks for Curriculum Development (optional) ☐ Links are consistent with curriculum and standard intent/scope ☐ Other:
External: Technical (National Standards)	☐ Established link with MLOs/Activities/Assessments and Technical Standards (Technical Standard: _____ _____) ☐ Links are consistent with curriculum and standard intent/scope ☐ Other:
Internal Alignment	☐ Learner objectives (MLOs) are measurable (Bloom) ☐ Instructional activities are measurable and are consistent (Bloom level/verb and learning domain) with MLOs ☐ Assessments measure same Bloom level/verb and learning domain as MLOs and instructional activities ☐ Other:
External Alignment Validation	☐ MLOs/activities/assessments, when aligned with an external standard, are delivered and assessed in the classroom ☐ Other:

Unit and Final Exam Assessments: Potential Assessment Items

Bloom's Taxonomy Cognitive Levels Assessed: Analysis and Evaluation

On a typed/word processed document to be attached to this sheet, analyze and evaluate the following MLO, instructional activity, and assessment for curriculum alignment. Your critique should include the consistency among the MLO, instructional activities, and assessments, as well as the validity presence of the external alignment (both listed and needed sources) in the MLO, instructional activities, and assessments. In addition, you may use the following resources in your work:

- Missouri Show-me Standards
- Peer Assessment: Evaluating Existing Curriculum Alignment

LEARNER OBJECTIVE	ACTIVITY	ASSESSMENT	EXTERNAL ALIGNMENT
Students will: Disassemble and reassemble a personal computer "CPU" at the component level (within the main box).	**Students will:** Work cooperatively in small groups to describe how to disassemble and reassemble a personal computer workstation, including peripherals. Observe a CTSO event that emphasizes computer repair	**Students will:** Complete a multiple choice and illustrations written exam on "CPU" disassembly and reassembly. Students will keep a journal of their group's activities.	Show-Me Standards: 1.6, 3.6 CA 3