

Visuals

WED 460 - Occupational Analysis and
Curriculum Development

by

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Learning Objective Titles by Unit

Unit One - Workplace Education

- #1. Review the Workplace Education Curriculum Model

Unit Two - Program Development Process

- #2. Review the HPI¹ Program Development Process

Unit Three - Analysis

- #3. Prepare an Occupational Classification and List of Primary Occupations
- #4. Determine Occupational Specialties and Sub-specialties of the Primary Occupation **or**
- #5. Determine the Areas and Sub-areas of Responsibility of the Primary Occupation
- #6. Write a Task Listing Sheet
- #7. Write Task Analysis Sheets
- #8. Write a Performance Step Analysis Sheet
- #9. Write Technical Information Topics
- #10. Write Career and Occupational Guidance Information Topics

Unit Four - Conversion

- #11. Determine Program, Course and Unit Titles
- #12. Write Learning Objective Sheets
- #13. Write a Competency-based Program Outline
- #14. Write Learning Modules

Unit Five - Implementation

- #15. Write a Course/Unit Syllabus
- #16. Review the Development of Performance Records and Achievement Awards

¹“Human Performance Improvement.” Source: American Society of Training and Development.

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Orientation

WED 460 Occupational Analysis and Curriculum Development

Instructor: Richard Bortz

Objective #1

Interesting Statistics

- ▶ Approximately 31,000 individual occupations comprise the nation's workforce.
- ▶ 96% of all American adults at one time or another during their lives will be *directly* involved in the workforce.
- ▶ Only about 24% of the above 31,000 occupations require baccalaureate preparation.
- ▶ 24 Hour Clock.
- ▶ High school drop-out rates:
 - ▶ Approximately 31% of American high school students drop-out or fail to graduate the nation's 100 largest school districts.
 - ▶ An estimated 2,500 students drop out of U.S. high schools *every* day.
 - ▶ Over the last decade, between 347,000 and 544,000 10th through 12th grade students left school *each year* without completing a high school program.

Twenty-four Hour Clock

Workplace Education

“Education *about* and *for* the workplace; a formal study of the role of work and the centrality of human enterprise in the workplace. The curriculum defines the workplace in terms of its 1) categorical organization; 2) types and kinds of organizations and institutions in which people work; 3) roles, responsibilities and activities of individuals who work there; and 4) the interaction of cultural, economic, political, environmental and technological factors between organizations in the workplace and society at large.”

Workplace Awareness, Exploration, Orientation, HPI¹

¹“Human Performance Improvement.” Source: American Society of Training and Development.

HPI - 11 and Beyond

Characteristics

As a concept, the workplace~learningplace spiral:

- ▶ Coordinates the *workplace* and *learning-place* aspects of society;
- ▶ Provides the philosophical basis for organizing and developing work preparation programs;
- ▶ Articulates the HPI¹ offerings of the high school (*vocational education*), community college (*technical education*) and university (*professional education*) within a group of occupations (vertical articulation);
- ▶ Articulates the HPI offerings of the learningplace with employment opportunities in the workplace (horizontal articulation);

¹“Human Performance Improvement.” Source: American Society of Training and Development.

- ▶ Creates an HPI system which can be used either *in total* or *in part* to assist people in attaining their occupational and career goals;
- ▶ Creates an HPI system in which people build their *occupational* and *educational equity* as they invest time, money and effort in attaining their occupational and career goals;
- ▶ Eliminates “terminal” or “dead-end” occupations by integrating them into a long-range employment preparation system;
- ▶ Establishes a basis for developing *competency-based* HPI programs; and
- ▶ Establishes a basis for developing *instructor-led, print-based, CD-ROM* or *web-based* workplace preparation programs and learning materials.

Objective #2

Phases

Purpose: To develop an HPI program with course and unit learning materials.

ANALYSIS

- ▶ Structure?
- ▶ What does the worker DO?
- ▶ What does the worker NEED TO KNOW?

CONVERSION

- ▶ Organizational structure to curricular structure
- ▶ Tasks to learning objectives
- ▶ Occupational activities/information to learning activities/information

IMPLEMENTATION

- ▶ Course/unit syllabi
- ▶ Knowledge-related learning materials
- ▶ Performance-related learning materials

Objective #3

Occupational Classification and List of Primary Occupations

- I. Occupational Area of Interest: Credit Union
Operations

- II. Occupational Category: **Financial Service
Occupations**

- III. Functional Divisions:
 - A. Treasury Occupations
 - **B. Money Distribution Occupations**
 - C. Investment Occupations
 - D. Accounting Occupations
 - E. Insurance Occupations
 - F. Wealth Management Occupations

- IV. Functional Groups:
 - A. Functional Division: Money Distribution
Occupations
 - 1. Bank Occupations
 - **2. Credit Union Occupations**
 - 3. Federal Reserve Bank Occupations
 - 4. Savings and Loan Occupations
 - 5. Currency Exchange Occupations

V. Functional Sub-Groups:

A. Credit Union Occupations

- **1. Operations Occupations**
- 2. Personnel Occupations
- 3. Marketing Occupations
- 4. Finance Occupations
- 5. Training and Development Occupations

VI. Primary Occupations

A. Operations Occupations

- **1. Teller (Vocational)**
- 2. Loan Officer (Technical)
- 3. Vice President of Operations (Professional)

Occupational Categories

Different groups categorize the approximately 31,000 occupations in the economy differently. For instance, . . .

Office of Management and Budget

- ▶ Agricultural, Forestry and Fishing Occupations
- ▶ Mining Occupations
- ▶ Construction Occupations
- ▶ Manufacturing Occupations
- ▶ Transportation, Communications, Electric, Gas and Sanitary Services Occupations
- ▶ Wholesale Trade Occupations
- ▶ Retail Trade Occupations
- ▶ Finance, Insurance Real Estate Occupations
- ▶ Service Occupations
- ▶ Public Administration Occupations
- ▶ Nonclassifiable Establishment Occupations

Department of Education

- ▶ Agri-Business and Natural Resources Occupations
- ▶ Business and Office Occupations
- ▶ Health Occupations
- ▶ Public Service Occupations
- ▶ Environmental Occupations
- ▶ Communication and Media Occupations
- ▶ Hospitality and Recreation Occupations

- ▶ Manufacturing Occupations
- ▶ Marketing and Distribution Occupations
- ▶ Marine Science Occupations
- ▶ Personal Service Occupations
- ▶ Construction Occupations
- ▶ Transportation Occupations
- ▶ Consumer and Homemaking Occupations
- ▶ Fine Art and Humanities Occupations

Department of Labor, Bureau of Labor Statistics

- ▶ Goods-related Occupations
- ▶ Service Occupations

State of Illinois

- ▶ Agriculture and Natural Resources Occupations
- ▶ Arts and Communications Occupations
- ▶ Business and Administrative Services Occupations
- ▶ Health Care Occupations
- ▶ Human and Family Services Occupations
- ▶ Industrial and Engineering Technology Occupations

Primary Occupations

The three primary occupations used in the organizational development of a workplace-learningplace spiral are a:

- ▶ **Vocational/Entry-Level Occupation** - An occupation in which the necessary HPI can be acquired in the *last two years* of high school.
- ▶ **Technical Occupation** - An occupation which requires HPI *beyond* high school, but not resulting in a baccalaureate degree.
- ▶ **Professional Occupation** - An occupation which requires *baccalaureate preparation* (and for some occupations, graduate study).

Objective #4

Occupational Specialties and Sub-Specialties of the Primary Occupation

I. Primary Occupation: Teller

II. Occupational Specialties:

»»→ A. Basic Teller

B. Collection and Exchange Teller

C. Note Teller

III. Occupational Sub-specialties:

A. Occupational Specialty: A - Basic Teller

1. Mail Credit Teller

2. Payroll Teller

»»→ 3. Paying and Receiving Teller

4. Return Items Teller

5. Savings Teller

Objective #5

Areas of Responsibility

- I. Primary Occupation: Dental Hygienist

- II. Areas of Responsibility:
 - A. Patient Reception
 - **B. Radiology**
 - C. Patient Evaluation
 - D. Instrumentation
 - E. Patient Education
 - F. Dental Laboratory
 - G. Equipment and Supply Maintenance
 - H. General Office Procedures

Objective #6

Task Listing Sheet

(Specialties/Sub-specialties)

Primary Occupation: Teller

Occupational Specialty: Basic Teller

Occupational Sub-Specialty: Paying and Receiving Teller

Tasks:

- **#1. Cash Checks**
- #2. Process Check Deposits
- **#3. Process Cash Deposits**
- **#4. Sell Money Orders**
- #5. Sell Traveler's Checks
- **#6. BALANCE A CASH DRAWER**
- #7. Accept Night Deposits
- #8. Process Passbook/Checking Account Deposits. . . .

Occupational Sub-Specialty: Mail Credit Teller

Tasks:

- #1. Process Check Deposits
- #2. Process Cash Deposits
- #3. Balance ATM's
- #4. Bundle Paper Money

Task Listing Sheet

(Areas of Responsibility)

Primary Occupation: Dental Hygienist

Area of Responsibility: Radiology

Tasks:

- **1. Expose Bitewing Radiographs**
- 2. Expose Periapical Radiographs
(Paralleling Technique)
- **3. Expose Periapical Radiographs
(Bisecting Angle)**
- **4. Expose Panoramic Radiographs**
- 5. Expose Occlusal Radiographs
- **6. Expose Extraoral Radiographs**
- 7. Expose Pedodontic Radiographs
- 8. Expose Edentulous Radiographs
- 9. Prepare the Darkroom. . . .

Definition and Characteristics of a Task

Definition

Complete and distinct unit of work performed by an individual in an occupation. Logical and completed “product” or “service.” Accumulation of performance steps ending in a finished act. Saleable end unto itself.

Tasks serve as the activities needed to write learning objectives and provide the basis for developing competency-based HPI programs.

Characteristics

- ▶ Verb, noun, perhaps an adjective
- ▶ Titles/“CAPS”
- ▶ Occupation as categorization of verbs
- ▶ Defined procedure
- ▶ Ends vs means
- ▶ Closure, completed, finished, product, end
- ▶ Mutually exclusive
- ▶ Visual image
- ▶ Obvious ~ “behind-the-scenes”
- ▶ Task and occupational specialization
- ▶ Activity Triangle

Sample Tasks

Occupation: Licensed Practical Nurse

1. Adjust Hospital Beds
2. Assist Patients to Ambulate
3. Give Backrubs
4. Turn Patients in Bed
5. Apply Restraints

Occupation: Wheel Specialist

1. Rotate Tires
2. Balance Wheels (Static)
3. Balance Wheels (Dynamic)
4. Repair Flat Tires (Tube)
5. Repair Flat Tires (Tubeless)

Occupation: Groundskeeper

1. Cut Grass
2. Prune Hedges
3. Fertilize Lawns
4. Thatch Lawns
5. Sharpen Rotary Mower Blades

Objective #7

Task Analysis Sheet

Primary Occupation: Teller

Occupational Specialty: Basic Teller

Occupational Sub-specialty: Paying and Receiving
Teller

Task #6: Balance a Cash Drawer

Performance Steps

Standards of Performance

1. Add cash letter.

“Not on us” checks added together making tape of checks. Second tape produced with totals matching on both tapes.

2. Prepare withdrawal ticket

Completed ticket includes “Cash Letter”, drawer number, account number, cash letter total, teller's initials and date.

3. Post cash letter.

Cash letter posted to Account #90001-009. . .

Technical Information Topics

- ▶ Terms
- ▶ Balancing Preparation
- ▶ Reporting Functions

Tools/Equipment

- ▶ Desk calculator
- ▶ Computer terminal
- ▶ Microfilm machine

Material/Supplies

- ▶ Cash drawer with money supply
- ▶ Withdrawal tickets
- ▶ Daily work
- ▶ Rubber bands
- ▶ Balancing envelope

Computer Software

- ▶ None

Technical References

- ▶ Handbook for Tellers

Performance Steps

“Individual steps performed in the completion of a task. Sequential rather than mutually exclusive. An accumulation of performance step details. Comprised of a descriptive verb, noun and, perhaps, an adjective.”

Standard of Performance

“The response to the question “**WHEN** is the performance step or performance step detail performed **CORRECTLY?**” The statement establishes the minimum level of acceptable performance for both performance steps and performance step details. See *Task Analysis* and *Performance Step Analysis* worksheets.”

Objective #8

Performance Step Analysis Sheet

Primary Occupation: Teller

Occupational Specialty: Basic Teller

Occupational Sub-Specialty: Paying and Receiving
Teller

Task #6: Balance a Cash Drawer

Performance Step #1 - Add cash letter

Performance Step
Details

Standards of Performance

1. Add “not-on-us” checks. Total dollar amount of “not-on-us” checks computed. Total item amount also computed. Both totals confirmed with second check.
2. Produce second tape. Total dollar amount and total item count on second tape matches two totals on first tape.

Performance Step Details

“Individual steps performed in the completion of a performance step. The steps of a step. Sequential rather than mutually exclusive. Comprised of a descriptive verb, noun and, perhaps, an adjective.”

Objective #9

Task Analysis Sheet

Primary Occupation: Teller

Occupational Specialty: Basic Teller

Occupational Sub-specialty: Paying and Receiving
Teller

Task #6: Balance a Cash Drawer

Performance Steps

Standards of Performance

1. Add cash letter.

“Not on us” checks added together making tape of checks. Second tape produced with totals matching on both tapes.

2. Prepare withdrawal ticket

Completed ticket includes “Cash Letter”, drawer number, account number, cash letter total, teller's initials and date.

3. Post cash letter.

Cash letter posted to Account #90001-009. . .

Technical Information Topics

- ▶ Terms
- ▶ Balancing Preparation
- ▶ Reporting Functions

Tools/Equipment

- ▶ Desk calculator
- ▶ Computer terminal
- ▶ Microfilm machine

Material/Supplies

- ▶ Cash drawer with money supply
- ▶ Withdrawal tickets
- ▶ Daily work
- ▶ Rubber bands
- ▶ Balancing envelope

Computer Software

- ▶ None

Technical References

- ▶ Handbook for Tellers

Technical Information

Information that the worker “**MUST KNOW**” to perform a given task. When the information affects only a single task, it is referred to as “task specific” technical information.

Technical Information Topics

Occupation: Emergency Room Nurse

Task: Receive Injured Patient

- ▶ Signs and Symptoms of Skeletal Shock
- ▶ Patient's Rights
- ▶ Emergency Procedures
- ▶ Aseptic Technique

Occupation: Farmer

Task: Bale Hay

- ▶ Types and Characteristics of Hay
- ▶ Drying Time
- ▶ Field Safety
- ▶ Lifting Techniques

Occupation: Drywaller

Task: Set Drywall

- ▶ Types of Drywall
- ▶ Installation Patterns
- ▶ Drywall Tools
- ▶ Nailing Configurations

Objective #10

Career and Occupational Guidance Information Topics

- ▶ Wage Scale
- ▶ Working Conditions
- ▶ Reasons for Discharge
- ▶ Terms of Employment
- ▶ Vacation Benefits
- ▶ Insurance Plans
- ▶ Sick Pay Benefits
- ▶ Worker's Compensation
- ▶ Continuing Education Opportunities
- ▶ Civil Service
- ▶ Retirement Programs
- ▶ Investment Opportunities
- ▶ Opportunities in Related Career Fields
- ▶ Wage and Fringe Benefits

Objective #11

Organization of Curriculum

Occupational Program, Course and Unit Titles

<u>Occupational Titles</u>	<u>Curricular Titles</u>
I. Primary Occupation A. Teller	I. Program A. Teller Services
II. Occupational Specialties A. Basic Teller B. Collection and Exchange Teller C. Note Teller	II. Courses A. Basic Teller Services B. Collection and Exchange C. Note Teller Services
III. Occupational Sub- specialties A. Basic Teller 1. Mail Credit Teller 2. Payroll Teller 3. Paying and Receiving Teller	III. Units A. Basic Teller Services 1. Mail Credits 2. Payroll 3. Paying and Receiving

Program, Course and Unit Titles
(Areas of Responsibility)

Occupational Titles	Curricular Titles
I. <u>Primary Occupation:</u> »» Dental Hygienist	I. <u>Program:</u> »» Dental Hygiene
II. <u>Areas of Responsibility:</u> »» A. Radiology »» B. Patient Reception C. Patient Evaluation D. Instrumentation E. Patient Education F. Dental Laboratory G. Equipment and Supply Maintenance H. General Office Procedures	II. <u>Courses:</u> »» A. Radiology »» B. Patient Reception C. Patient Evaluation D. Instrumentation E. Patient Education F. Dental Laboratory G. Equipment and Supply H. General Office Procedures

Objective #12

Four Steps to Creating a Learning Objective

1. Identify the activity

- ▶ Dependent variable
- ▶ Workplace activity, task

2. Establish the “Performance Conditions”

- ▶ Independent variables
- ▶ Basic, expanded, hybrid
- ▶ Range of conditions
- ▶ Categories of conditions

3. Cast the activity into the future

- ▶ “The learner will. . .”
- ▶ Personalize
- ▶ Integrate

4. Establish the “Evaluation Criteria”

- ▶ Continuum
- ▶ Basic, expanded, hybrid
- ▶ Categories of criteria

Time ~ Space Relationship of the Learner
and the Learning Objective

Objective #13

Competency-based Program Outline (Specialties/Sub-specialties)

Program: Teller Services

Course #1: Basic Teller Services

Unit #1: Paying and Receiving

Learning Objectives:

- **#1. Cash Checks**
 - #2. Process Check Deposits
- **#3. Process Cash Deposits**
- **#4. Sell Money Orders**
 - #5. Sell Traveler's Checks
- **#6. BALANCE A CASH DRAWER**
 - #7. Accept Night Deposits
 - #8. Process Passbook/Checking Account Deposits. . . .

Unit #2: Mail Credits

Learning Objectives:

- #1. Process Check Deposits
- #2. Process Cash Deposits
- #3. Balance ATM's
- #4. Bundle Paper Money

Competency-based Program Outline (Areas of Responsibility)

Program: Dental Hygiene

Course: Radiology

Learning Objectives:

- **1. Expose Bitewing Radiographs**
- 2. Expose Periapical Radiographs
(Paralleling Technique)
- **3. Expose Periapical Radiographs
(Bisecting Angle)**
- **4. Expose Panoramic Radiographs**
- 5. Expose Occlusal Radiographs
- **6. Expose Extraoral Radiographs**
- 7. Expose Pedodontic Radiographs
- 8. Expose Edentulous Radiographs
- 9. Prepare the Darkroom. . . .

Objective #14

Time ~ Space Relationship of the Learner
and the Learning Objective

Challenge

The initial challenge when writing a learning module is to answer the following question:

“What is the most *effective, efficient* way of moving the learner from point ‘A’ to point ‘B’?”

- ▶ Point A defines the location of the *learner* in the *present*
- ▶ Point B defines the location of the *objective* in the *future*
- ▶ Results: the creation of a *time-space* problem

Learning Activities

The activities performed by a learner in attainment of a learning objective.

Order

A second question must be addressed and answered *before* writing the individual learning activities that comprise the learning activities sequence:

“Is there an inherent, logical *order* to the sequencing of learning activities?”

Phrasing

A properly stated learning activity includes the following entries:

- ▶ The *number* of the learning activity
- ▶ A *verb* and *noun phrase* telling the learner what to do, and
- ▶ The *estimated time* needed by the learner to perform the learning activity.

Learning Objective with Learning Activities

Summary Question

The question posed *after* writing the sequence of learning activities is:

- ▶ Are all of the necessary *knowledge-* and *performance-related* learning activities *in place*, in their *proper order* and utilizing the *most effective medium* to successfully move the learner to the learning objective?

Learning Activities:

1. Read information sheet “Terms.” *15 minutes*
2. Read information sheet “Balancing Preparation.” *30 minutes*
3. Read information-assignment sheet “Balancing Process.” *1 hour*
4. Visit a local credit union to watch a teller balance a cash drawer. *1 hour*
5. Participate in illustrated presentation-discussion “Balancing a Cash Drawer.” *30 minutes*
6. Complete the knowledge test. *1 hour*
7. Observe the demonstration “Balance a Cash Drawer.” *1 hour*
8. Practice the activity. *8 hours*
9. Take the performance test (45 minutes for each of 15 tests). *11 hours 15 minutes*

Estimated Time: 24 hours

Objective #15

Components of an Abbreviated Syllabus

- ▶ Purpose
- ▶ Goals
- ▶ Prerequisites
- ▶ Learning Objectives
- ▶ Learning Module

Systems Input/Output

Definition and Characteristics of a Purpose

A written statement defining the relationship of a system to its suprasystem(s). A human system defines the relationship of the system to the suprasystem in terms of people and their needs (Jarett, Rader and Longhurst, 1970). A system's purpose is defined in the response to the question "why does the system exist?"

Characteristics

- ▶ Establishes a system's philosophic "*raison d'etre*."
- ▶ *Justifies* the system's existence.
- ▶ Establishes a *service* relationship between the system and its suprasystem(s).
- ▶ Defines the system in terms of *people and their needs*.
- ▶ Identifies the *market/clientele* to be served.
- ▶ Defines *perceived* area(s) of responsibility.

Components of a Purpose

- ▶ Entity
- ▶ Service word
- ▶ Market(s)
- ▶ “Deliverables”

Purpose Statements

“The two-fold purpose of the Department of Human Performance is to provide employees with the training, education and development necessary for maintenance, growth and advancement in the company; and insure customer satisfaction and support through the company’s manufacture and delivery of quality electronics equipment.”

“The purpose of the Department of Allied Health is to assist citizens of central Arizona achieve and maintain an optimal state of physical and mental health. The department’s contribution is to prepare allied health personnel who will promote sound preventive health-care practices and deliver acute patient care services.”

“The purpose of the Paying and Receiving unit is to provide banks, credit unions and other money distribution organizations in the region with a resource of people prepared in paying and receiving.”

Goals

“Goals are statements of broad intent which are general and timeless. They are not concerned with the measurement of achievement within a specific time period.” (Nervig, 1984). “Goals give a sense of direction for the activities of an entity. They give *broad guidelines* toward which more detailed and specific plans are directed.” (Appleby, 1981). “A goal is a statement that tells the *direction* of an entity and defines the boundaries *within* which it will function.” (Bortz, 1986).

Objective #16

(No visuals)

Review

Workplace Awareness, Exploration, Orientation, HPI¹

¹“Human Performance Improvement.” Source: American Society of Training and Development.

HPI - 11 and Beyond

Phases

Purpose: To develop an HPI program with course and unit learning materials.

ANALYSIS

- ▶ Structure?
- ▶ What does the worker DO?
- ▶ What does the worker NEED TO KNOW?

CONVERSION

- ▶ Organizational structure to curricular structure
- ▶ Tasks to learning objectives
- ▶ Occupational activities/information to learning activities/information

IMPLEMENTATION

- ▶ Course/unit syllabi
- ▶ Knowledge-related learning materials
- ▶ Performance-related learning materials