

MPS6-1

MPS 6 Analysis: classification Objectives © copyright, Donald R. Woods, 1998

Analysis is a convergent thinking skill in which we use critical judgement about the information. In **classification** the task is to divide a whole into parts such there is a meaningful relationship among the parts.

Skill development:

1. Practice with a thinking skill that is needed throughout the problem solving process.
2. Analysis is a general *convergent* thinking skill consisting of classification, identifying series and sequences, checking for consistency and reasoning (or critical thinking). The *divergent* thinking skill, creativity, is explored in MPS 7.
3. The resulting classification, and likely the procedures used, depend on the purpose or goal for the classification. In this unit, the impact of goal setting will be felt. This extends the skills developed in MPS 3.
4. Skill in creating criteria was initially developed in MPS 3. Here this is extended and used as one of the basic skills needed for classification.
5. The ability to identify faults in classifications, called faulty coordination and faulty subordination, is developed. This is practical application of criteria to make an assessment.
6. Numerous tabular, symbolic, pictorial representations have been developed to aid in classification. Practice will be given for some of these.
7. Skill is developed in selecting a form of representation that is most likely to be effective.
8. Analysis (classification) is a basic skill needed for Analysis (reasoning), MPS 30.

Pretest:

Awareness: how aware are you of what you do when you use this ability? Rate with an "x"

0	1	2	3	4	5	6	7	8	9	10
Unaware				Aware of						Very aware
I just				Some						I can describe
do it										The details of
										how I do it

Skill: how skilled are you in doing this activity? Rate with an "x"

0	1	2	3	4	5	6	7	8	9	10
Poor		Fair		Good			Very good			Excellent

Comments:

MPS6-2

Learning objectives

MPS 6 Analysis: classification

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

1.2 you will be able to list at least nine techniques for the process of classifying information.

1.3 you will be able to list the criteria for a *good* classification. These will be judged to be 100% correct by the tutor.

3.1 given a classification task, you will be able to apply the following methods: force field diagram, concept map, tree diagram, fishbone chart, Pareto plot, column and row elimination, IS and IS NOT, 5Ws and H, truth tables, Govin vee, Larkin checklist and numeral coding.

3.2 given a classification task, you will be able to select an appropriate technique to create a *good* classification.

3.3 given a classification, you will be able to identify which element does **not** belong, or which element is **missing**. These will be judged to be 90% correct by the tutor.

4.1 given an object and a stated purpose, you will be able to classify the parts such that it satisfies the purpose, such that there is a single basis of classification at each level and that there is no faulty subordination or coordination as judged by the tutor.

4.2 given a situation or a set of information and a stated purpose, you will be able to classify the parts such that it satisfies the purpose, such that there is a single basis of classification at each level and that there is no faulty subordination or coordination as judged by the tutor.

4.3 given a classification, you will be able to identify faults in coordination, subordination, inconsistency of purpose and inappropriate bases. These will be judged to be 90% correct by the tutor.

4.4 given a definition (such as fact, opinion or opinionated fact) and a set of information, you will be able to use the definitions to identify the class to which

each bit of information belongs. These will be judged to be 90% correct by the tutor.

4.5 given a set of ideas from a brainstorming session and the purpose of the session, you will be able to classify the ideas. These will be judged to be 90% correct by the tutor.

5.1 given a situation, you will be able to create a force field diagram to summarize at least five major influences in both positive and negative directions. These will be judged to be 90% correct by the tutor.

5.2 given a set of equations, you will be able to create a structural matrix relating the equations to the variables. This will be judged to be 90% correct by the tutor.

5.3 given 5.2, you will use column and row elimination to determine a) if the set of equations can be solved simultaneously or sequentially and b) the order to be used in solving the set of equations. You can represent the results on an operator-on-the-node diagram.

5.4 given a set of prose, you will be able to create a concept map that satisfies the criteria of a good classification. These will be judged to be 90% correct by the tutor.

6.1 given a paper to evaluate, you will be able to identify the author's conclusions that you accept, that you reject and that are ambiguous about. You will be able to list what could and should have been done. These will be judged to be 90% correct by the tutor.

Concepts introduced Basis of classification or criterion, faulty coordination, faulty subordination, 5Ws and H, force field diagram, Pareto plot, concept map, Larkin's checklist, structural matrix, column and row elimination (CRE), fishbone diagram, truth tables. Checklists, operator-on-the-node diagram; operator-on-the arrow diagram.

MPS6-3

MPS 6: Analysis: Classification. Example assessment tasks:

1. Given the page of text from a textbook, create a concept map for the purpose of learning the information.
2. Given an outline for a report and a purpose and audience for the report, assess the proposed outline or table of contents.
3. From the in-class activity, you have the following evidence:
 - your reflections that you wrote three times during the activity.
 - your worksheets and the statement of the exercises.
 - the DISCOVERY sheet.
 - your awareness and skill checklist **before** and **after** the activity.

Write up a reflective assessment of the degree to which you have achieved the objectives. Refer to the evidence by number and relate your evidence and claims to the objectives by number.

4. Given 50 ideas from a brainstorming session to solve a given problem:
 - a) Classify the ideas.
 - b) Identify the craziest idea.
5. Given that you want to quit smoking, create a force field diagram.
6. Given the following data, create a Pareto plot.