

**GER Guided Reflection on Student Learning**  
**Introduction to Human Nutrition**  
**Instructor: Sarah Ash**

**Course:** Introduction to Human Nutrition

**GER category:** Natural Sciences

**GER Objective #1:**

Use the methods and processes of science in testing hypotheses, solving problems and making decisions.

**Outcome:**

Students should be able to describe the different types of studies used in nutrition research and the limitations associated with the application/generalization of their findings specific to their methodology; identify the type of any given study being described based on a description of its methods; *use* both of these abilities to evaluate (*make decisions about*) claims that are being made, based on research findings, regarding a diet-disease relationship

**Evaluation of the outcome:**

Students will demonstrate their achievement of this outcome through a homework assignment in which they:

1. Read a newspaper article about a nutrition-related study and:
  - a. Identify the type of study being described and provide the evidence on which that conclusion is based.
  - b. Describe 3 characteristics of the study that limit one's ability to interpret the significance of its findings.
  - c. Advise a friend considering implementing the findings in his own life based on what the student knows about this study in particular and the ways in which we study nutrition more generally.
2. Evaluate the scientific studies that an ad references in support of its supplement product, describe two significant claims (relative to the purpose of the product), for which no references are given, and come to a reasoned judgment regarding the adequacy of all the evidence presented with respect to the product's claims.

**Results for Outcome #1**

The average score on this homework assignment was an 88% (66.9/75; N=353), suggesting that most students were able to master the objectives adequately (a rubric was used that evaluated the accuracy, clarity, depth, relevance, logic and significance of their answers). Those who had difficulty with the first question were most likely to demonstrate an inability to transfer a concept to a new situation in which the wording was not identical to that in the text. They attempted simply to "match" terms used in the newspaper article with those used in class, rather than thinking through the method being described and comparing that to the concepts that had been presented.

Those who had difficulty with the second question tended not to understand that they were to apply course-related concepts *specifically* to this advertisement. That is, in evaluating the claims they would simply regurgitate verbatim what was in the text, whether all of what they said applied in that particular situation or not. They were also unable or unwilling to think of any additional issues on their own (which was necessary for some of the analysis) -- if it wasn't in the text then it wasn't in their answers.

**GER Objective #2:**

Articulate, make inferences from and apply to solving problems scientific concepts, principles, laws and theories.

**Outcome :**

Students should be able to identify levels of nutrient and/or food group intake as being deficient, marginal, adequate, more than adequate or excessive; predict the potential effects of those levels of intake on health; evaluate the overall quality of a given diet given specific food group and nutrient levels; and make recommendations regarding changes necessary to improve diet quality.

**Evaluation of the outcome:**

Students will demonstrate their achievement of this outcome through a homework assignment in which they enter a five-day food diary into a computer program that determines their nutrient levels. They will then determine the adequacy/inadequacy of those levels, predict the potential consequences of those levels and make specific recommendations regarding changes, if necessary, to improve their diet quality.

**Results for Outcome #2**

The average score for this assignment was 95% (190/200; N=348), which demonstrates a high degree of student competency with respect to this objective. This is not surprising since the assignment itself guides the student through the process, and we devote an entire class period to it as well. It is very important to me that they NOT come away from this exercise with "wrong answers." Those might represent significant misconceptions about the quality of their diets that could, in turn, cause them to take inappropriate action. Students who do not do well typically are unwilling to take the time that the project requires, are unwilling or unable to recognize and retrieve the necessary information from earlier in the semester that is required to answer the questions, and/or have difficulty with an analytical activity that involves a series of interconnected steps.

**Improvements made in the course as a result of this process.**

Overall this has been an extremely helpful process. The diet analysis project has been a part of the course for some time and has worked well, therefore it will not be changed as a result of this assessment activity. However, using the GER objectives provided much more clarity and direction during the development of the other assignment than I have had in the past, as I have often struggled with how to construct the three other homework assignments. As a result, I will continue to use that structure, changing only the articles and ads that are evaluated.