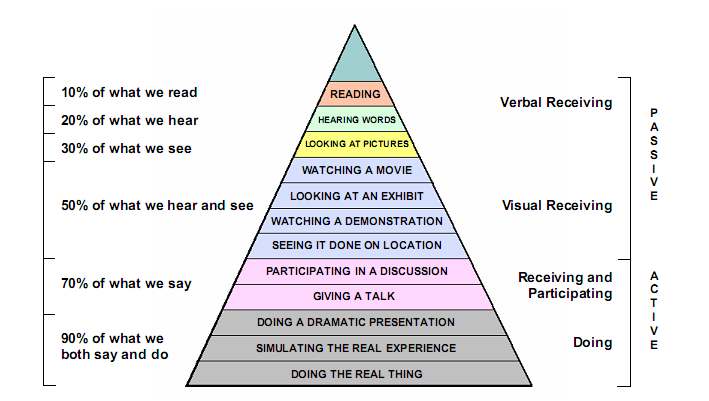
**The Final Project**

**Kadir Kozan**

For credibility reasons as well, I would first congratulate the hospital education administrator for her or his asking me to create a brief online education module for the newly diagnosed patients as based on recent research (e.g., Glasgow et al., 2010; Lorig et al, 2010). For instance, Glasgow et al. (2010) compared effectiveness of online intervention to that of an enhanced usual care condition with 463 type 2 diabetes patients (p. 1315). The results pointed to a significantly larger improvement when intervention was actualized online compared to usual face-to-face care on the basis of healthy eating behavior, physical activity or exercise and fat intake but not on medication taking or adherence in sorts of analyses: intention to treat and complete cases (p. 1319). On the other hand, the experimental group exposed to online intervention only and that which undertook the online intervention plus social support in the form of follow-up group visits (p. 1319). It should be noted that the found ineffectiveness of extra social support also highlights the large effect of the internet-based intervention employed in this study.

Before actually starting with the construction of the module let me question my own thoughts on how learning happens and how it should be fostered. Here is a guideline of cone of cone of learning to which I have been adhering to:



*Figure 1*. Cone of learning by Dale (1969). (taken from Hyland, n.d. , p.1)

So, on the basis of my own way understanding of learning, I would like to design an online instruction module that would be interactive and that would encourage active participation through discussion and doing something. Plus, it would include a multisensory information processing in which instruction is presented in different modalities over which learners will have control. I would like for the instruction to be self-paced as well so that learners can control their own pace of learning during the instruction. Even though these sound good to my ear, as a novice designer I would like to test these (and possibly some other relevant values or ethical considerations) through contact with the client (hospital education administrator), groups of prospective learners and an expert designer. Also, let me assume that needs assessment revealed not only a need for instruction (knowledge or skill gap to be bridge) but also that we need online instruction because of learners’ concerns related to job, school etc. in terms of time. The learner analysis yielded that learners have no problem with using the computer or the internet. In addition, I assume that they all have access to a computer and the internet at home at least even though they may not have access on their iPhones, iPads etc. After all these reflections, I have decided to design a self-paced interactive online instructional module that will address different processing channels of human cognition thus giving the chance of choosing any of them to the learners (assuming that there will be cognitive and learning style differences among the learners).

Another decision I have made is that there will be peer moderators[[1]](#footnote-1) who have diabetes themselves and have been dealing with diabetes successfully and who will be facilitating the online instructional module. Accordingly, the final online instructional module will have the following basic/general characteristics:

1. Learner-pacing compared to computer or system pacing in order to decrease possible cognitive overload (e.g., Mayer & Chandler, 2001; Tabbers, 2002).
2. Encouragement of multisensory information processing in which material will also be presented in audiovisual format, which is also called the modality principle in the literature (e.g., Mayer, 2001; Moreno, 2006; Shams & Seitz, 2008).
3. Learners will be given options to choose whether they will go through the instruction with auditory information or not. Specifically speaking, there will be, for instance, “with or without auditory instruction” buttons for learners to choose.

3.a. In audiovisual presentation, the instruction will be temporarily congruent with the visual materials (i.e., pictures of body, insulin cells etc.), which will be in line with temporal contiguity principle (e.g., Mayer, 2001).

3.b. In visual only presentation, the instruction will be spatially congruent with visual materials, which will be in line with spatial contiguity principle (e.g., Mayer, 2001).

4. Learners will be encouraged to be active cognitively in the sense that possible cause-and-effect

chains will be highlighted through cueing, making use of different colors, asking questions that

relates what is being presented to what was presented previously.

1. A text with corresponding visuals will be available online to download, use, and refer to later for the learners.
2. An advanced organizer in the form of a short video or chart will be presented at the beginning to set up some sort of prior knowledge on the part of the learners related to type 1 and type 2 diabetes and corresponding eating behaviors.
3. A KWL chart including “what I know about healthy eating, what I want to know about healthy eating and what I want learned about healthy eating” will be available online. Through this, I would like to get the learners to become more aware of their strengths, weak points, and needs regarding and encourage them to come up with individual goals for the learning experience. This is, I think, in line with especially standards 8 and 9 of the 2007 National Standards for Diabetes Self-Management Education (p. 604).
4. On the asynchronous discussion forum embedded into the online instruction, peer moderators will present a discussion topic related to any aspect of healthy eating or what happens when learners eat something and learners will be asked to discuss.
5. The presentation will be offered in Flash or Adobe Shockwave Player.
6. There will be interactive application activities incorporated in the module that will ask learners to perform certain tasks. For example, there will be a balance on the screen and items including but not limited to carbohydrates, insulin, exercise, stress etc. And learners will be asked to click on and drag each of these into three parts of the balance: items that are thought to increase glucose will be on the right, items that are thought to decrease glucose will be on the left site, those that can do either or neither will be put in the middle. Another example would be to include the food pyramid for diabetics in a blank format together with food names scattered around the screen. The task may ask the learners to click on each food and drag it into the right place on the food pyramid.
7. The online site will also include email facility for the learners to contact each other or the moderator over email.
8. Both corrective and reinforcing feedback will be provided during application activities and during evaluation.
9. I would like to apply a distributed learning experience on this module as based on the spacing effect and guidelines suggested by Cepeda, Vul, Rohrer, Wixted, & Pashler (2008).[[2]](#footnote-2)
10. Learners will be given the chance to change text size through links given at the bottom.
11. The instruction targets outpatients.

It should be noted that this would not be the appropriate design given the resources, criticality of the task (compared to physical activity, for instance, for the learner group), level of accountability, expectations of the hospital and learners. More interestingly, a simpler or linear website presenting the relevant information, fill in the blanks activities, assessment items etc. would do a good job as well. However, for the purpose of this final paper, I am trying to be as precise as possible by trying to implement what I have as an ideal instruction module in my head for the case. So, I assume that I am working under conditions that are appropriate to design the instruction I have been talking about.

**The prerequisite analysis[[3]](#footnote-3)**

1. **Know how to plan your eating behavior**
2. You are hungry
   1. Determine you are or not hungry
   2. Know what it means (not only feels) to be hungry with your diabetes case
      1. Determine the last time you ate (how many hours passed since you last ate)

1.2.1.1 Know how to keep track of when you eat in a day

1.2.1.2. Know how to keep a daily eating plan

1.2.1.3. Know what a daily eating plan layout is

1.2.1.4. Be able to name essential components of a daily eating plan

1.2.1.4.1. Be able to name main food services you should have in a day

1.2.1.4.2. Know what healthy snacks are

1.2.2. Determine how much you ate at a single meal in a day

1.2.2.1. Know what the food pyramid for diabetics is

1.2.2.1.1. Be able to name of the food groups in the food pyramid for diabetics

1.2.2.1.1. Be able to give example foods from each food group in the food

pyramid for diabetics

1.2.2.2. Know how to count how much carbohydrate is in a food

1.2.2.2.1. Know how to read foods with a label

1.2.2.2.2. For foods without a label, know how to count the amount of

carbohydrate

1.2.2.2.2.1. Be able to name what general serving sizes are

1.2.2.2.2.2. Know what sorts of general serving sizes include 15 grams of

carbohydrate

1.2.2.3. Be able to name the types of nutrients a healthy meal should have

1.2.3. Determine how much you have exercised since your last meal.

1.2.3.1. Be able to name the types of exercises you performed

1.2.3.2. Be able to name how long you exercised

1.2.3.3. Be able to name how frequent you performed the same exercise

2. You eat

2.1. Determine why you eat what you eat

2.1.1. Know what your favorite foods are

2.1.2. Know the place of what you ate in the food pyramid for the diabetics

2.1.3. Know how much carbohydrate, protein and fat involved in what you ate

3. Your body tries to convert what you eat to energy

3.1. Know that food is used as energy by the body

3.2. Know how body converts food to energy

3.2.1. Know that insulin helps convert food to energy

**Prerequisites in graphic form:**

D E

You eat Body converts what was eaten to energy

NO

YES

You’re hungry You’re not hungry

Determine you are hungry or not

Know what it means to be hungry with your diabetes case

A B C

Determine when you Determine how much you ate Determine how much you’ve

ate your last meal exercised since your last meal

A

Know how to keep track of when you eat in a day

Know how to keep a daily eating diary or log

Know what a daily eating diary or log layout is

Be able to name essential components of a daily eating diary or log

Be able to name main food services you should have in a day Know what snacks are

B

Know what the food pyramid for diabetics is

Be able to name of the food groups in the food pyramid for diabetics

Be able to give example foods from each food group in the food

pyramid for diabetics

Know how to count how much carbohydrate is in a food

Know how to read foods with a label

For foods without a label, know how to count the amount of carbohydrate

Be able to name what general serving sizes are

Know what sorts of general serving sizes include 15 grams of carbohydrate

Be able to name the types of nutrients a healthy meal should have

C

Be able to name the types of exercises you performed

Be able to name how long you exercised

Be able to name how frequent you performed the same exercise

D

Determine why you eat what you eat

Know what your favorite foods are

Know the place of what you ate in the food pyramid for the diabetics

Know how much carbohydrate, protein and fat involved in what you ate

E

Know that food is used as energy by the body

Know how body converts food to energy

Know that insulin helps convert food to energy

Know how to plan your eating behavior

**Objectives**

1. After instruction on what happens when what is eaten and given a template of daily eating plan, the learners will be able to construct an online daily eating plan[[4]](#footnote-4).
   1. When given a case on what has been eaten, the learners will be able to decide whether they are hungry or not.
   2. The learners will be able to differentiate between feeling hungry and being hungry specific to diabetes.

1.2.1. The learners will be able to identify how they determine the last time they ate.

1.2.1.1. The learners will be able to express how they can keep track of what they eat in a day.

* + - 1. The learners will be able to write don a 400-word paragraph in which they will explain how to keep a daily eating plan in their own words.
      2. The learners will be able to identify how many components a daily eating plan has.
      3. The learners will be able to state the essential components of a daily eating plan.

1.2.1.4.1. The learners will be able to list the main food servings they should have in a day

1.2.1.4.2. The learners will be able to identify snack foods in a given food list.

1.2.2. The learners will be able to state on what criteria they determine how much they eat at a

single meal.

1.2.2.1. The learners will be able to identify the number of strata a food pyramid has.

1.2.2.1.1. When given a blank food pyramid, the learners will be able to state the type of

foods in the correct portions of the pyramid.

1.2.2.1.2. The learners will be able to list examples of food pertaining to the food groups

in the food pyramid for diabetics.

1.2.2.2. The learners will be able to express how they count how much carbohydrate is included in

a food.

1.2.2.2.1. The learners will be able to identify where they should look at to see the amount

of carbohydrate include in a food with a label.

1.2.2.2.2. The learners will be able to identify how many grams of carbohydrate are

included in a given amount of food.

1.2.2.2.2.1. The learners will be able to list the general serving sizes[[5]](#footnote-5).

1.2.2.2.2.2. The learners will be able to identify the general serving sizes that

contain 15 grams of carbohydrate

1.2.2.3. The learners will be able to list all types of nutrients a healthy meal should include.

1.2.3. The learners will be able to list the factors that will help them decide how much they have exercised since their last meal serving.

1.2.3.1. The learners will be able to identify the healthy daily exercises/activities they conduct.

1.2.3.2. The learners will be able to identify how they decide on how long they exercise in a day.

1.2.3.3. The learners will be able to identify the frequency of an exercise conducted.

2. The learners will be able to compare their general eating behavior and the healthy eating behavior they

should adapt.

2.1. The learners will be able to express why they eat what they eat in a given condition.

2.1.1. The learners will be able to list their favorite foods.

2.1.2. The learners will be able to indicate the place of what they eat in the food pyramid.

2.1.3. The learners will be able to express why types of nutrients they should know to decide

on what to eat.

3.The learners will be able to identify that the body converts food to energy.

3.1. The learners will be able to identify that food is used as energy by the body.

3.2. The learners will be able to express how body converts food to energy.

3.2.1 The learners will be able to identify that insulin helps body to convert food to energy.

**Item Specifications**

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| **Objective:A** | After instruction on what happens when what is eaten and given a template of weekly eating plan, the learners will be able to construct an online daily eating plan. |
| **Description of Test Form:** | A 3X6 table form indicating the main steps of an eating plan. Plus, this is a constructed item |
| **Sample Item:** | Please click on which one of the given foods you would like to eat today and drag them into the food columns of the today’s eating plan. Then, type in the food type and how much you ate at each food serving.    Milk, cookies, soup, fruit etc.  (see appendix for a larger image) |
| **Question Characteristics:** | 1. Different sorts of food will be provided 2. A blank eating plan template will be provided 3. Main column headings will be provided 4. Main food servings for a diabetics will be provided 5. Click and drag should be underlined |
| **Response Characteristics:** | 1. The foods given will form healthy food groups 2. 2. When a learner finishes filling out the table a total amount of carbohydrate will be calculated automatically by the server 3. 3. As the learner change the answer the amount of carbohydrate will be calculated automatically again again 4. 4. Initial original response will be saved automatically for evaluation purposes |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% correct placement of foods into the plan during the initial original response. |

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| **Objective:1.1.** | When given a case on what has been eaten, the learners will be able to decide whether they are hungry or not. |
| **Description of Test Form:** | Choose the right option give the case |
| **Sample Item:** | Assume that for yor breakfast today you had: 1 small piece of fresh fruit, 2 slices of bread, 1cup of outmeal and 1-2 crackers. After the breakfast, as a snack, you ate 1 cup of yogurt...Now it is almost noon and you have started to feel that you are hungry. However, are you really? Based on what have you eaten so far, please decide whether you are hungry or not by clicking on:  I am hungry I am not hungry |
| **Question Characteristics:** | 1. A case is given to the learners 2. Case differentiates between feeling hungry and being hungry on the basis of how much is eaten. |
| **Response Characteristics:** | 1. There is an inevitable chance factor of 50% because there are two options to choose. 2. Options are negations of each other 3. Are and not should be underlined |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification |

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| **Objective:1.2.** | The learners will be able to differentiate between feeling hungry and being hungry specific to diabetes |
| **Description of Test Form:** | True or false |
| **Sample Item:** | Please indicate whether the following statement is true or false. Feeling hungry is the determining factor whether someone should start eating something or not soon independent of the fact that one has diabetes or not.  True False |
| **Question Characteristics:** | 1. Item root provides a false statement in an affirmative form. 2. Item root generalizes the question to larger society by point at people without diabetes 3. Determining should be underlined 4. Independent should be underlined |
| **Response Characteristics:** | 1. There is an inevitable chance factor of 50% because there are two options to choose. 2. Options are negations of each other |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification |

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| **Objective:1.2.1** | The learners will be able to identify how they determine the last time they ate. |
| **Description of Test Form:** | Multiple choice |
| **Sample Item:** | While deciding on the last time you ate, you count the number of:   1. Hours 2. Minutes 3. days 4. Seconds |
| **Question Characteristics:** | 1. Recognition item 2. Item root should address the last time a meal was had 3. Count should be underlined |
| **Response Characteristics:** | 1. Correct answer is randomly assigned to the options 2. Distracters should refer to an amount of time 3. All options should be plural 4. The correct answer should not be the longest option |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification |

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| **Objective:1.2.1.1.** | The learners will be able to express how they can keep track of what they eat in a day. |
| **Description of Test Form:** | Essay |
| **Sample Item:** | In the blank section below, please write down at least a 400-word essay about how you can keep track of what you eat in a day. |
| **Question Characteristics:** | 1. 400-word should be underlined 2. A day should be underlined |
| **Response Characteristics:** | 1. Answer should include at least 400 words. 2. Spelling mistakes or paraphrasing is acceptable. |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% identification of how to keep track of healthy eating behavior |

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| **Objective:** 1.2.1.2. | The learners will be able to write down a 400-word essay in which they will explain how to keep a daily eating plan in their own words. |
| **Description of Test Form:** | Essay |
| **Sample Item:** | In the blank section below, below please write down at least a 400-word essay about how to keep a daily eating plan |
| **Question Characteristics:** | 1. 400-word should be underlined 2. Daily should be underlined |
| **Response Characteristics:** | 1. Answers should include at least 400 words 2. Answers should refer to how to keep track of what is eaten in a day. 3. Answers should refer to how to keep track of eating behavior through a daily plan not other techniques such a diary or log. 4. Spelling mistakes or paraphrasing are acceptable. |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% correct identification of how to keep a daily eating plan |

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| **Objective:1.2.1.3.** | The learners will be able to identify how many components a daily eating plan has. |
| **Description of Test Form:** | Multiple choice |
| **Sample Item:** | As far as food is concerned, how many components should exist in a daily eating plan? Please, indicate your answer by choosing any of the options below:   1. 2 2. 3 3. 4 4. 5 |
| **Question Characteristics:** | 1. Food should be underlined 2. Direction should guide the learner towards choosing “ANY” of the options, thus not sensitizing learners to the correct answer |
| **Response Characteristics:** | 1. Two distracters should be even numbers 2. Correct option and one of the distracters should be odd numbers 3. There should be “1” difference among all options. |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification |

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| **Objective:1.2.1.4.** | The learners will be able to state the essential components of a daily eating plan. |
| **Description of Test Form:** | Short answer |
| **Sample Item:** | In the blank section below, please list all essential components of a daily eating plan. |
| **Question Characteristics:** | 1. All should be underlined. 2. Essential should be underlined 3. Daily should be underlined |
| **Response Characteristics:** | 1. Spelling mistakes will be ignored 2. Rewording should make sense on the basis of the original answer |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% correct statement of the essential components |

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| **Objective:1.2.1.4.1.** | The learners will be able to list the main food servings they should have in a day |
| **Description of Test Form:** | Short answer |
| **Sample Item:** | In the blank section below, please indicate the main food servings you should have in a day. |
| **Question Characteristics:** | 1. Main should be underlined 2. A day should be underlined |
| **Response Characteristics:** | 1. Spelling mistakes will be ignored 2. Rewording should make sense on the basis of the original answer |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% correct statement of the main food servings |

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| **Objective:1.2.1.4.2.** | The learners will be able to identify healthy snack foods in a given food list. |
| **Description of Test Form:** | Multiple choice |
| **Sample Item:** | Which one of the foods given below is not a healthy snack?   1. Pasta 2. Candy 3. Toaster pastry 4. smoothies |
| **Question Characteristics:** | 1. Not should be underlined |
| **Response Characteristics:** | 1. Correct answer is randomly assigned among the options 2. One of the distracters will not be a snack 3. The other two distracters will be unhealthy distracters 4. The correct answer will not be the longest option |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct indetification |

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| **Objective:1.2.2.** | The learners will be able to state on what criteria they determine how much they eat at a single meal. |
| **Description of Test Form:** | Essay |
| **Sample Item:** | In the blank section below, please write down at least a 400-word essay about how you should determine how much you eat at a single meal |
| **Question Characteristics:** | 1. 400-word should be underlined 2. Directions should guide learners towards they will present their answers. |
| **Response Characteristics:** | 1. Answers should include at least 400 words. 2. Spelling mistakes or paraphrasing is accepted. |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% identification of how much should be eaten at a meal in the case of diabetes |

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| **Objective:1.2.2.1.** | The learners will be able to identify the number of strata a food pyramid has. |
| **Description of Test Form:** | Multiple choice |
| **Sample Item:** | How many strata or sections does a food pyramid for diabetics have?   1. 3 2. 4 3. 5 4. 6 |
| **Question Characteristics:** | 1. Many should be underlined 2. Both strata or sections should be used to prevent any sort of confusion 3. Recognition |
| **Response Characteristics:** | 1. Correct answer is randomly assigned 2. Correct answer and one of the distracters should be even numbers |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification |

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| **Objective:1.2.2.1.1.** | When given a blank food pyramid, the learners will be able to state the type of foods in the correct portions of the pyramid. |
| **Description of Test Form:** | Performance |
| **Sample Item:** | Please fill in the blanks given on the food pyramid below by typing in the correct food groups. |
| **Question Characteristics:** | 1. Groups should be underlined 2. Items root should direct learners to the blank pyramid below |
| **Response Characteristics:** | 1. Answers should refer to exact food groups. 2. Spelling errors are ignored. |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% correct identification of the food groups + in the correct places in the food pyramid |

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| **Objective:1.2.2.1.2.** | The learners will be able to list examples of food pertaining to the food groups in the food pyramid for diabetics. |
| **Description of Test Form:** | Short answer |
| **Sample Item:** | In the blank section below, please list the four examples of foods from each food group in the food pyramid for diabetics |
| **Question Characteristics:** | 1. Four should be underlined |
| **Response Characteristics:** | 1. There should be at least 24 foods listed 2. Each group should have four examples 3. Spelling errors are ignored |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% correct identification of the example foods of food groups |

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| **Objective:1.2.2.2.** | The learners will be able to express how they count how much carbohydrate is included in a food. |
| **Description of Test Form:** | Essay |
| **Sample Item:** | In the blank section below, write down at least a 400-word essay about how you count how much carbohydrate is included in a food. |
| **Question Characteristics:** | 1. 400-word should be underlined 2. Much should be underlined. 3. Direction should direct the learner towards where to put in the answer. |
| **Response Characteristics:** | 1. Answers should include at least 400 words. 2. Spelling mistakes or paraphrasing is acceptable. |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% of correct identification of ways of counting carbohydrates included in a food |

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| **Objective:1.2.2.2.1.** | The learners will be able to identify where they should look at to see the amount of carbohydrate include in a food with a label. |
| **Description of Test Form:** | Multiple choice |
| **Sample Item:** | While determining the amount of carbohydrate included in a food with a label, which main section of the label you examine?   1. Ingredients 2. Nutrition facts 3. Expiration date 4. Directions |
| **Question Characteristics:** | 1. Label should be underlined 2. Main should be underlined |
| **Response Characteristics:** | 1. All options including the correct one should be a section of the food label 2. Correct answer should not be the longest option 3. Two of the distracters should be plural just like the correct answer |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification. |

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| **Objective:1.2.2.2.2.** | The learners will be able to identify how many grams of carbohydrate are included in a given amount of food. |
| **Description of Test Form:** | Multiple choice |
| **Sample Item:** | How many grams of carbohydrate exist in a 1 slice of bread, ½ cup of oatmeal or 1 cup of soup?   1. 10 2. 15 3. 20 4. 25 |
| **Question Characteristics:** | 1. Grams should be underlined 2. More than one clues/hints should be included in the item root 3. recognition |
| **Response Characteristics:** | 1. correct item is randomly assigned 2. the correct answer and one of the distracters should be odd numbers 3. the other two distracters should be even numbers 4. there must be five difference among all options |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification |

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| **Objective:1.2.2.2.2.1.** | The learners will be able to list the general serving sizes |
| **Description of Test Form:** | Short answer |
| **Sample Item:** | In the blank section below, please write down the general serving sizes. |
| **Question Characteristics:** | 1.general should be underlined  2. Directions should guide learners towards where to put in the answer. |
| **Response Characteristics:** | 1.spelling errors and paraphrasing are acceptable  2. one-word answers are acceptable together with the numbers |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% correct identification of the general serving sizes |

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| **Objective:1.2.2.2.2.2.** | The learners will be able to identify the general serving sizes that contain 15 grams of carbohydrate |
| **Description of Test Form:** | Multiple choice |
| **Sample Item:** | Which one of the general serving sizes includes 15 grams of carbohydrate?   1. 1/3 cup of pasta or rice 2. ½ serving of medium french fry 3. 3 chicken nuggets 4. 5 small cookies |
| **Question Characteristics:** | 1. 15 should be underlined 2. Carbohydrate should be underlined |
| **Response Characteristics:** | 1. Correct answer is randomly assigned 2. Correct answer is not the longest option 3. Two options are singular 4. Two options are plural |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification |

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| **Objective:1.2.2.3.** | The learners will be able to list all types of nutrients a healthy meal should include. |
| **Description of Test Form:** | Short answer |
| **Sample Item:** | In the blank section below, please list all types of nutrients a healthy meal should include. |
| **Question Characteristics:** | 1. All should be underlined 2. Healthy should be underlined 3. Direction should refer learners to where they will put in the answer |
| **Response Characteristics:** | 1. Responses should exactly refer to the correct answers 2. Spelling errors are ignored |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification of the essential nutrients |

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| **Objective:1.2.3.** | The learners will be able to list the factors that will help them decide how much they have exercised since their last meal serving. |
| **Description of Test Form:** | Short answer |
| **Sample Item:** | In the blank section below, please list all of the factors that guide you while you determine how much you have exercised since your last meal. |
| **Question Characteristics:** | 1. All should be underlined 2. Last should be underlined 3. Directions should lead the learners where to put in the answer. |
| **Response Characteristics:** | 1. Spelling errors are tolerable. 2. Answers should contain the exact wording |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% correct identification of the factors |

|  |  |
| --- | --- |
| **Objective:1.2.3.1.** | The learners will be able to identify the healthy daily exercises/activities they conduct. |
| **Description of Test Form:** | Multiple choice |
| **Sample Item:** | Which one of the following is not a healthy daily exercise/activity?   1. Gardening 2. Walking 3. Climbing up stairs 4. Sleeping |
| **Question Characteristics:** | 1. Recognition 2. Not should be underlined |
| **Response Characteristics:** | 1. Correct answer is randomly assigned 2. Correct answer should not be the longest option 3. All options should be expressed as gerunds |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification |

|  |  |
| --- | --- |
| **Objective:1.2.3.2.** | The learners will be able to identify how they decide on how long they exercise in a day. |
| **Description of Test Form:** | Multiple choice |
| **Sample Item:** | While deciding on the duration of how long you exercise in a given day, it is generally suggested that you examine:   1. 2-hour blocks 2. Hours 3. 3-hour blocks 4. Minutes |
| **Question Characteristics:** | 1. Recognition 2. Long should be underlined 3. Generally should be underlined 4. The item root should be a complementary sentence ending in colon |
| **Response Characteristics:** | 1. Correct answer is randomly assigned 2. All options should be plural 3. Correct answer should not be the longest option 4. Two distracters and the correct option should talk about “hour” concept 5. One distracter should talk about “minute” concept |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification |

|  |  |
| --- | --- |
| **Objective:1.2.3.3.** | The learners will be able to identify the frequency of an exercise conducted. |
| **Description of Test Form:** | Multiple choice |
| **Sample Item:** | While deciding on the frequency of an exercise conducted by you, you refer to:   1. Number of times you’ve conducted the exercise 2. Number of times you’ve measured your pulse rate 3. Number of times you’ve felt tired 4. Number of times you’ve drunk water while exercising |
| **Question Characteristics:** | 1. The item root should be a complementary sentence ending in colon 2. Recognition 3. Frequency should be underlined |
| **Response Characteristics:** | 1. Correct option is randomly assigned 2. All options should start with “number of times” 3. All option should be expressed in present perfect 4. All option should refer to first person singular |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification |

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| --- | --- |
| **Objective:2.** | The learners will be able to compare their general eating behavior and the healthy eating behavior they should adapt. |
| **Description of Test Form:** | Essay |
| **Sample Item:** | In the blank section below, please compare and contrast your general eating behavior with the healthy eating behavior for your diabetes in a 400-word essay. |
| **Question Characteristics:** | 1. Compare should be underlined 2. Contrast should be underlined 3. 400-word should be underlined 4. Direction should lead learners to where to write down the answer |
| **Response Characteristics:** | 1. Answers should contain at least 400 words 2. Spelling errors and paraphrasing are allowed |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% correct identification of the characteristics of a healthy eating behavior |

|  |  |
| --- | --- |
| **Objective:2.1.** | The learners will be able to express why they eat what they eat in a given condition. |
| **Description of Test Form:** | Essay |
| **Sample Item:** | In the blank section below, please state why you would prefer to eat 1 cup of soup instead of 2 cups of soup in a 200-word essay. |
| **Question Characteristics:** | 1. Instead of should be underlined 2. Item root should direct learners to where to write down the answer 3. 200-word should be underlined |
| **Response Characteristics:** | 1. Answers should contain at least 200 words 2. Spelling errors and paraphrasing are allowed. |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% correct identification of the reasons for choosing 1 cup of soup instead of 2 cups |

|  |  |
| --- | --- |
| **Objective:2.1.1.** | The learners will be able to list their favorite foods. |
| **Description of Test Form:** | Open ended short answer |
| **Sample Item:** | In the blank section below, please list as many favorite foods of yours as possible. |
| **Question Characteristics:** | 1. Many should be underlined 2. Favorite should be underlined 3. Item root should lead learners where to put in the answer |
| **Response Characteristics:** | 1. Answers should be foods only |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | N/A |

|  |  |
| --- | --- |
| **Objective:2.1.2.** | The learners will be able to indicate the place of what they eat in the food pyramid. |
| **Description of Test Form:** | Short answer |
| **Sample Item:** | In the blank section below, list the name of what you ate today on the left, and state which food pyramid food group they belong to on the right.  What I ate today Food Group |
| **Question Characteristics:** | 1. On the left should be underlined 2. On the right should be underlined 3. Item root should direct learners to where to enter the answers |
| **Response Characteristics:** | 1. On the left the following title should be given: “What I ate today” 2. On the right, the following title should be given: “Food group” |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% correct match between foods eaten and the food group to which they belong |

|  |  |
| --- | --- |
| **Objective:2.1.3.** | The learners will be able to express why types of nutrients they should know to decide on what to eat. |
| **Description of Test Form:** | Fill in the blanks |
| **Sample Item:** | Please, fill in the blanks below:  In order to determine why you eat what you eat, you should know how much \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_ involved in what you eat. |
| **Question Characteristics:** | 1.Item root should consist of directions leading a learner where to put in the answer  2. below should be underlined |
| **Response Characteristics:** | 1. Blanks should be of the same size 2. Spelling errors are ignored. |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% correct identification |

|  |  |
| --- | --- |
| **Objective:3.** | The learners will be able to identify that the body converts food to energy. |
| **Description of Test Form:** | True or false |
| **Sample Item:** | Please indicate whether the following sentence is true or false by clicking: The body converts what is eaten (foods) to energy.  True False |
| **Question Characteristics:** | 1. True or false should be underlined 2. Clicking should be underlined 3. Item root should direct the learners to the sentence |
| **Response Characteristics:** | 1. 50% chance factor is inevitable 2. Answers should be indicated by mouse click |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification |

|  |  |
| --- | --- |
| **Objective:3.1.** | The learners will be able to identify that food is used as energy by the body. |
| **Description of Test Form:** | Fill in the blanks |
| **Sample Item:** | Please, fill in the blank in the sentence below:  Food is used as \_\_\_\_\_\_\_\_\_\_\_\_\_ by the body. |
| **Question Characteristics:** | 1.Item root should consist of directions leading a learner where to put in the answer  2. below should be underlined |
| **Response Characteristics:** | 1. One blanks entails one correct answer 2. Spelling errors are ignored 3. The blank should fit the length of the correct answer being not smaller or larger. |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification |

|  |  |
| --- | --- |
| **Objective:3.2.** | The learners will be able to express how body converts food to energy. |
| **Description of Test Form:** | Essay |
| **Sample Item:** | In the blank section below, please write down a 400-word essay about how the body converts food to energy. |
| **Question Characteristics:** | 1. Item root should direct learners to where to put in the answer 2. 400-word should be underlined 3. How should be underlined |
| **Response Characteristics:** | 1. Answers should contain at least 400 words 2. Spelling errors and paraphrasing are tolerable |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 80% correct identification of the process through which the body converts food to energy |

|  |  |
| --- | --- |
| **Objective:3.2.1.** | The learners will be able to identify that insulin helps body to convert food to energy. |
| **Description of Test Form:** | True or false |
| **Sample Item:** | Please, indicate whether the following sentence is true or false by clicking: Insulin helps body to convert food to energy.  True False |
| **Question Characteristics:** | 1. Item root should direct the learners to the target sentence 2. True or false should be underlined 3. Clicking should be underlined |
| **Response Characteristics:** | 1. 50% percent of chance factor is inevitable 2. Learners should indicate their answers by using mouse click |
| **Number of Items:** | 1 |
| **Mastery Criteria:** | 100% correct identification |

**\*NOTE: I am planning to use the items specified so far. For assessment items, please refer to sample item section of the specifications.**

**Assessment Blue Print (for pre, post and follow up)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Form | # of items | Criterion level | Proportion |
| Objective A | Performance/constructed answer | 1 | 80% | .10 |
| Objective 1.1. | True or False | 1 | 100% | .01 |
| Objective 1.2. | True or False | 1 | 100% | .01 |
| Objective 1.2.1. | Multiple Choice | 1 | 100% | .03 |
| Objective 1.2.1.1. | Essay | 1 | 80% | .05 |
| Objective 1.2.1.2. | Essay | 1 | 80% | .05 |
| Objective 1.2.1.3. | Multiple Choice | 1 | 100% | .03 |
| Objective 1.2.1.4. | Short Answer | 1 | 80% | .02 |
| Objective 1.2.1.4.1. | Short Answer | 1 | 80% | .02 |
| Objective 1.2.1.4.2. | Multiple Choice | 1 | 100% | .03 |
| Objective 1.2.2. | Essay | 1 | 80% | .05 |
| Objective 1.2.2.1. | Multiple Choice | 1 | 100% | .03 |
| Objective 1.2.2.1.1. | Performance/constructed answer | 1 | 80% | .06 |
| Objective 1.2.2.1.2. | Short Answer | 1 | 80% | .02 |
| Objective 1.2.2.2. | Essay | 1 | 80% | .05 |
| Objective 1.2.2.2.1. | Multiple Choice | 1 | 100% | .03 |
| Objective 1.2.2.2.2. | Multiple Choice | 1 | 100% | .03 |
| Objective 1.2.2.2.2.1. | Short Answer | 1 | 80% | .02 |
| Objective 1.2.2.2.2.2. | Multiple Choice | 1 | 100% | .03 |
| Objective 1.2.2.3. | Short Answer | 1 | 80% | .02 |
| Objective 1.2.3. | Short Answer | 1 | 80% | .02 |
| Objective 1.2.3.1. | Multiple Choice | 1 | 100% | .03 |
| Objective 1.2.3.2. | Multiple Choice | 1 | 100% | .03 |
| Objective 1.2.3.3. | Multiple Choice | 1 | 100% | .03 |
| Objective 2. | Essay | 1 | 80% | .05 |
| Objective 2.1. | Essay | 1 | 80% | .05 |
| Objective 2.1.1. | Short Answer | 1 | 80% | .02 |
| Objective 2.1.2. | Short Answer | 1 | 80% | .02 |
| Objective 2.1.3. | Fill in the blanks | 1 | 80% | .015 |
| Objective 3. | True or False | 1 | 100% | .01 |
| Objective 3.1. | Fill in the blanks | 1 | 100% | .005 |
| Objective 3.2. | Essay | 1 | 80% | .05 |
| Objective 3.2.1. | True or False | 1 | 100% | .01 |

**Directions to the learners:** The following assessment instrument includes 32 questions. Among these questions:

1. 2 are performance or constructed items in which you will be asked to construct/perform an answer to the questions.
2. 4 are true and false type questions in which you will be asked to read question sentence first and then decide on whether the sentence in question is true or false by clicking on it.
3. 7 are essay questions in which you will be asked to provide at least a 400-word essay answer to the given questions.
4. 2 are fill-in-the-blanks type questions in which you will be given sentences with one or more blanks (corresponding to words) and you will be asked to fill out the blanks with suitable words.
5. And, 8 are short answer questions in which you will be asked to provide answers in the form of one single word and phrase to the given questions.

Timing: The total amount of time allocated to this assessment is 2 hours. Accordingly, please, log into the system by using your user ID and password when you can REALLY separate 2 hours for this assessment. After 2 hours, the system will close the assessment and you will not have access to the assessment items. In such a situation, you overall score will be determined on the basis of the numbers of items you will have responded.

Answering: In the assessment items, the important points you should pay attention to are underlined. Please, read all items fully by paying attention to these underlined portions.

Presentation of the items: Each question will be provided on separate screens. The system is self-paced, so whenever you think you are finished with a particular question press the next button to move onto the next item.

Controls: At the bottom of each screen you will see the following control links and their functions: next question (will move you to the next question); previous question (will move you to the previous question if you would like to revise your answer); ask a question (will lead you to a chat room where you can see your peer moderator and ask your question if you have any); and, finish (will finish answering the assessment items and log you out of the system).

**Directions to the peer moderators:** You will function as assessment administrators on the day of assessment. You should be online during the whole 2 hours in which learners are allowed to take the assessment and ready to answer any questions from them. Please, ensure that you are familiar with all the assessment items. During the assessment, please do not provide any types of clues to the learners that can help them answer the questions.

**Scoring:** No partial scoring will be implemented. The scoring rubric is as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| # of items | type | Point rewarded for each correct answer/item | Total point rewarded (max.) |
| 1 | Performance | 10 | 10 |
| 1 | Performance | 6 | 6 |
| 4 | True or false | 1 | 4 |
| 7 | Essay | 5 | 35 |
| 9 | Multiple ch. | 3 | 27 |
| 1 | Fill in the bl | 1.5 | 1.5 |
| 1 | Fill in the bl | 0.5 | 0.5 |
| 8 | Short ans. | 2 | 16 |

**Assessment Plan**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type** | **Tool/Instrument** | **Mission** | **When** | **How** |
| Demographic | Survey (online or paper) | To find out learners’ age, education, whether they have access to the internet at home, if they have when etc | Before the entry skills | The online or paper versions of the survey will be made available to patients after their next visit to the hospital or it will be emailed to patients. |
| Entry skills  &  Prior knowledge test | Online assessment | To see whether learners have certain computer/web page navigation skills and keyboarding skills | Before the pretest | The test will be an online test in which participants will be provided with written or auditory direction to navigate through a website. Second part will ask participants to type in an auditory passage they will be listening to. |
| Pretest | Online assessment | To gauge people’s prior knowledge level on the content of the education module | Two weeks before the instruction starts | The pretest will be implemented online to learners by being emailed to them. Any learners who do not have access to the internet will be given the test on paper at the hospital |
| Immediate post-test | Online assessment | To gauge the immediate learning outcomes of the learning module. | Right after the online module is completed | It will be administered online again. |
| Delayed post-test | Online assessment | To gauge the delayed effects of the learning module. | Two weeks after the learning module is finished | Online |
| Follow up | Online | To gauge far transfer of learning | After lesson 10 (integrating self-management) is also finished since eating info will be needed through this end. | Online |

**Note:** The same assessment test will be implemented during pretesting, immediate post-testing and delayed pos-testing. One might argue that this may lead to sensitizing learners to the answers on later administrations of the instrument. However, learners will be provided with immediate corrective and reinforcing feedback for multiple choices, true and false, fill in the blanks etc. questions. Still, their original answers will be saved by the server as “original” and their performance will be evaluated on the basis of these. In addition, their answers after the feedback will be also saved and evaluated to gauge the effectiveness of feedbacks provided. This may also provide the chance to see whether there are any testing effects in that whether testing can be used to foster learning more. Plus, this may function as a good covariate for further analyses.

**Instructional Strategies**

Overall online course and lesson organization[[6]](#footnote-6):

Lesson 1: Introduction to diabetes self-management and online learning module

Lesson 2: Goal setting

Lesson 3: How to deal psychosocial problems like fatigue, stress, isolation etc.?

Lesson 4: Healthy eating

* How does eating relate to diabetes in general?
* What is healthy eating for diabetics?
* What is healthy eating for diabetics with Type 1?
* What is healthy eating for diabetics with Type 2?
* What happens when you eat?
* How do you decide you are hungry?
* How do you decide what to eat?
* How do you decide when to eat?
* How do you decide how much to eat?
* How do you decide how much you’ve exercised since your last meal?
* What is food?
* What does body do with the foods you eat?
* What is insulin?
* How does insulin help your body to convert food to energy?
* How to construct a daily healthy eating plan?
* How does healthy eating contribute overall healthiness for diabetics?

Lesson 5: Physical Activity Management

Lesson 6: Medication and treatment adherence

Lesson 7: Diabetes related problem solving

Lesson 8: Communicating with care givers (family, friends), health professionals

Lesson 9: Self-assessment

Lesson 10: How to integrate diabetes self-management with your routines

Macro-organization of the learning module:

Learning-related since lessons and topics covered in lessons are related to each other, and previous one sets the stage for the others. For example, general eating is handled first before moving to healthy eating since learners may need to focus on their general eating behavior first before learning what healthy eating is and setting up a healthy eating plan.

Lesson Organization and grouping of objectives:

Objectives for the main goal and information processing steps are organized in a learning-structure fashion. However, since objectives for the prerequisites are based on declarative knowledge, these are structured in a separate parallel form. That is also because of the fact that accomplishment of prerequisite objectives does not rely upon the accomplishment of each other.

Introduction strategies:

* Deploying attention: First the question of “Do you know that what, when and how much you eat has a great impact on your health?” will be showed on the screen after pictures of delicious meals/foods are shown. Show results of some recent research on the direct relationship between healthy eating and healthy diabetes self-management.
* Establishing instructional purpose:
* Relate content of the module to goals set by the learners (e.g., becoming healthier).
* Explicitly convey the general purpose and objectives (generalized and summarized) at the beginning of the module (e.g., after completing this learning module, you will be able to…)

1. Arouse interest and motivation:

* Show a short animation (may also function as an advanced organizer) on what happens when some eats a certain unhealthy type of food.

1. Preview Lesson:

* Show the topics that will covered in the learning module in a listed format. The presentation will be enriched with corresponding pictures on the screen and auditory explanations related to them.

Body:

1. Recall relevant prior knowledge:

* Discuss healthy and unhealthy foods whose picture will be depicted on the screen. Highlight what kind of food people generally regard as healthy and unhealthy (e.g., greens, fruit etc.). Ask a question of whether it would be possible to relate those healthy foods to diabetes as well.

1. Process information and examples:

* Visual materials to be used (animations shown on the screen) will help learners to process information.
* Examples of foods will be provided from common general ones in order to facilitate their being processed.
* Interactive application activities in which learners will be asked to click on, drag, and place some stuff will be provided.

1. Focus attention:

* Important parts of the instruction will be presented in different colors, fonts, font sizes, in a highlighted or underlined format, zooming etc.
* A short attention directing questions will be popped up on the screen (e.g., do you think proteins can also be related to energy mentioned in the first paragraph?
* Employ rhetoric questions as well.
* Make use of unusual statements such as if you do not plan it, your eating behavior can eat you

1. Employ learning strategies:

* Time to time provide summaries of the information covered through graphic organizers, concept maps etc.
* Organize process information from the very beginning to the end, which is also depicted by the relevant animations.
* Animations including imageries and pictures will also be employed.

1. Practice:

* Practice will be spaced through applications activities where learners will be asked to complete:
* a blank table
* a blank list
* a balance to be filled out with options on each side etc.

1. Feedback:

* Both corrective and reinforcing feedback will be provided to the learners.
* Corrective feedback will focus on errors not on the whole answer.
* On application activities feedback will also be provided.
* Feedback on essays etc. will be provided by the peer moderators of the learning module after they are saved on the server.
* Feedback will not provide direct correct answer or answers as soon as it is provided but provide hints/clues to tap correct answer in learners’ mind.

Conclusion:

1. Summarize and review: The main points targeted by each objective will be summarized and reviewed through:

* Summaries constructed by learners will be required. Then, already created summaries will be provided to the learner for them to compare and contrast their summaries with these
* Graphic organizers, concept maps will also be used to summarize and review the nods of information covered. These will be provided incomplete first; and then learners will be asked to fill in these few components. After learners’ these attempts, a full form will be shown on the screen together with the one learners filled in for them to make comparisons and some final remedies to their knowledge.
* Learners will be given the chance to review whatever portion of the learning module they wish at the end by providing popping up links on the screen. These will be the executive summaries of each section presented together with corresponding visual aids.

1. Transfer of learning:

* Instruction aims at building relationship among information nods already. For instance, the relationship between how much one ate at a meal and decision on whether they are hungry. Overall these relationships will exist between the main steps of the instruction: They will learn how to decide whether they are hungry or not; then they will eat (hypothetically on the module); and they will learn what happens when they eat (conversion of food to energy by the body and some more details)
* To instigate inference from the material the learners will be given the chance to write down a question they will try to answer during the next part of the module. Specifically speaking, a window will pop up and ask learners “the next section is based on the assumption that you decided you are hungry and you want to eat something. Now, in the section below type in a question of yours that you would like to answer while studying this next part”.
* Learners will have the chance to print out the daily eating plan etc. and use it in a daily basis. Plus, they will be encouraged to use the module to make use of the plan template any time they want.

1. Remotivate and close:

* This section will ask learners to ponder the possible benefits of knowing what happens when they eat “what”, and how this knowledge may contribute to their health as well as planning daily eating.
* Closely related to reviewing, in closure (final review) learners will be provided the questions they constructed while going through the learning module. They will be asked to review and answer these questions once more to themselves.

Assessment:

1. Assess Performance:

* Assessment will be officially done thorough the instrument specified above. Plus, learners will be asked to self-assess themselves on the basis of the goals they set for their eating behavior in lesson 2 “goal setting”.
* Learners will also be assessed and given feedback regarding their contributions to their discussion on the online discussion forum or arena.

1. Evaluate Feedback and Seek Remediation:

* Learners will be provided with feedback during application activities during the instruction. They will be provided with corrective and reinforcing feedback together with short explanations or hints leading learners to the right answer or performance.
* Feedback will also be given together with clues etc during the assessment (on some items such as multiple choice, true and false etc.) as well after their original answers were saved on the server of course. This is just to turn even assessment. Learners will get feedback on their essay performance by their peer moderators later over email.
* Therefore, remediation will be embedded into feedback session not as separate isolated instruction piece through hints, short explanations etc. Also, reviews mentioned above are supposed to contribute to remediation.

**Implementation Plan**

For the implementation phase, an integrated model in which development of the module and dissemination started almost at the same time was used. Through informative meetings or workshops a sort of awareness on the part of the hospital administrators, peer moderators will be built and the evolution of the online module will be introduced them over time. Plus, learners (outpatients) will be informed about the online module and what it can do differently compare to the classic in-hospital instruction. The aim of beginning dissemination when almost the project starts is to be more able to realize some hurdles earlier and correct them again earlier during the development phase. This I think may also contribute to facilitating stakeholders’ awareness concerning the learning module as well as adoption and use of it. This phase will basically tell us how we should deliver the instruction: maybe we will decide to turn the learning environment into a blending learning experience where online instruction will be supported by some in class-learning activities at the hospital. It should also be noted that media selection, logistical requirements for the implementation, and some other implantation concerns were also assessed for their any possible impact on the instruction during the design development. These logistical issues may include learners’ printing the learning materials or activities done (e.g., preparation of a single day eating plan) server characteristics that may affect operation of the learning module etc.

Moreover, assuming that there would be some differences among the learners in terms of being accustomed to online learning modules, the internet etc. some planning on possible implementation supplementary materials appears to be important as well. I think these may include:

1. Brochures or supplementary manuals on how to use and navigate through the learning module,
2. Training of the peer moderatos who will guide learners’ participation in the learning module, discussions etc. (this will basically be about what they are actually expected to do: moderating synchronous discussions, answering learner questions via email etc.).
3. Online or printed course catalogs including learning objectives and what is expected from the learners etc.
4. Considerations on online help that is to be offered while learners are online etc.

Assuming that I will also be the project manager, I think I should keep an eye on whether the learning application or the website is functional enough to lead to learning outcomes targeted. The introduction to the learning module may be conducted in the computer lab of the hospital together with all the peer moderators and the learners. The learners may then log into the system and try out a brief learning module on how to use the system to learn about healthy eating and the like. Learners comments on their first experience of the online system can be collected or reflected upon together in this brief session. Including other types of stakeholders like hospital advisory board members, decision makers etc. during this section, I think, would be fruitful in that first effective impression may lead to more support from the beginning to the end. Therefore, implementation is intended to foster adoption of the new learning module by as many stakeholders as possible from the beginning. In addition, the data that will be collected from the learners during first phase of the implementation, their comments etc. will also be used to make necessary adaptation to the instruction, which I think can be an ongoing process again until the full integration of the instruction into learners’ life. I also would like to add the instruments of the Concerns-Based Adoption System Model (CBAM; Smith and Ragan, 2005, p. 307) at least to the first implementation phase: Stages of Concern Questionnaire, Levels of Use Questionnaire, Innovation Configuration Matrix, and Intervention Taxonomy that I think will contribute to the adoption of the instruction in general and to the adaptations to make to the instruction.

Finally, I am planning to add the following items to my implementation plan agenda[[7]](#footnote-7):

**Purpose:** The purpose of the implementation plan is to guarantee a smooth transition from the development phase into the implementation phase. Besides, the design will include types of tasks to be done and timing schedule as well.

**Assumptions and constraints:** Learners are familiar with the internet environment. Logistical infrastructure such the server and its capacity are enough to do what is envisaged to do: saving learner what learners do etc. This is a sort of distance education and full control over the learners during participation is not possible. Other type of information to be included here would, I think, relate to resource availability, budget, constraints related to self-pacing, asynchronous nature of the module etc. can also be stated here.

**Management:** The main management task is to ensure that such prerequisites as properly functional website, server capacity, training classes etc. are arranged and scheduled accordingly.

**Stages of implementation:** Beginning, middle and end: what to do when and how information will be specified here.

**Implementation tasks:** Tasks to be covered prior to the implementation and during implementation will be stated here. These tasks will also be incorporated into the implementation schedule below.

**Implementation schedule:** A shortened example version of my implementation schedule is as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Task** | **Related activities to be done** | **Targets** | **Start point**  **(Date started)** | **End point**  **Date to be completed)** | **Status** |
| Peer moderator training | Basics of the online module  How to provide feedback etc. | Peer moderators | prior to involving learners in the implementation (date and duration specified) | Introduction to the online module where learners attend (date etc. specified) | Not started  Ongoing  Completed etc. |
| Building awareness | What is the online module for? | All stakeholders ranging from administrators to learners | prior to actual implementation of the module with the learners (date etc. specified) | Introduction to the learning module with all stakeholders (date etc. specified) | Not started  Ongoing  Completed etc. |
| Building interest | How can online module contribute to faster progress in dealing with diabetes | Learners | During introduction to the online module where learners attend as well | Date etc. specified | Not started  Ongoing  Completed etc. |

The implementation schedule can also include a time chart like Gantt Chart to depict the exact amount of time allocated to each phase of the implementation.

**Implementation support:** Any support materials needed during implementation printers, internet connection, facilities etc. will be listed here.

**Issues:** Any issues that are foreseeable beforehand are specified here and taken attention to.

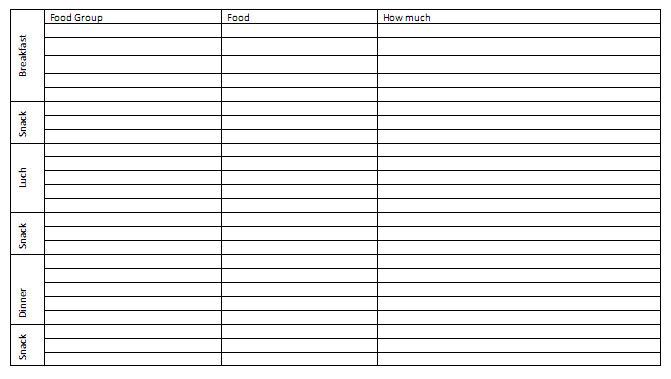
**Performance monitoring:** How performance will be monitored to gauge whether the implementation is successful will be explained here.

**Implementation requirements:** Any requirements related to software, internet connection etc. will be stated here.

**Evaluation Plan**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type** | **Process** | **Methods** | **Sources** | **How** | **Timing** |
| **Formative evaluation** | Design reviews | 1. Goal reviews etc. 2. Review of task analysis 3. Reviewing item specifications and blueprint + expert reviews | Designer  Learners who can do and cannot do the target skills + assess-  ment instrument  Reviewers including content and testing experts | Answering previously determined questions (Does the goal satisfactorily response to the needs or problems identified?) Questions can be listed here.  Comparison of whether the learners who have accomplished necessary skills and knowledge can actually achieve the terminal objective and enabling objective compared to those who have not. Plus, can learners who achieved the terminal objective do the others in the specified subordinate order?  Determining the degree of congruence between objectives specified and item | Before the actual development of materials. This column may also include specific dates etc. |
| **Formative evaluation** | Learner validation | 1. Assessment instrument reliability 2. One-to-one evaluation | Expert and novice learners + assessment instrument  Read and think aloud  Assessment instrument having items ordered from simpler prerequisites to more complex ones. Demographic survey and entry skills assessment tool | specifications.  Determining whether the items specified  can adequately cover  the domain of the objectives. Additionally, determination of whether the to-be-learnt content is represented adequately in the item specifications and blue print.  Whether the criterion-references instruments are good at distinguishing between master and non-master learners at the criterion levels specified.  Few target learners engage in evaluation of the assessment instrument and instructional materials through reading and thinking aloud procedure. | Before the actual development of materials. This column may also include specific dates etc.  Assessment tools can be given earlier (one day or so). Delayed administration of the assessment to be applied two weeks later. |
| **Formative evaluation** |  | 1. Small-group evaluation 2. Field trials | 8-12 learners who are varied in terms of some variables like  age, diabetes type etc.  Observation of learners while they are going through the instruction  Assessment instrument  Attitude survey/questionnaire  Time data  Large enough sample (30 or so learners)  Peer moderators involved as well  Observation of the trials by the designer | Observing while learners work on the online instruction including assessment phases.  Both pretests and posttests will be given to the learners to do. Comparison of pretest and posttest performance trying to detect any discrepancies, understanding difficulties etc.  This will be collected and saved automatically by the server while learners go through the instruction. | Before the actual development of materials. This column may also include specific dates etc.  Assessment tools can be given earlier (one day or so). Delayed tests to be applied two weeks later.  After the small-group evaluation. |
| **Formative evaluation** |  |  | Attitude, time, performance, degree of implementation data through observation, interviews etc..  A questionnaire to detect any sort of problems peer moderators may have confronted during instruction.  Interviews with group of learners or peer moderators to go more deeply into causes behind any reported problems. | Degree of implementation can be measured through a rating scale targeting the distinctive features of the module. This rating can be done by the designer. Peer moderators themselves can also rate the degree of implementation they were able to achieve.  Peer moderators will also complete a questionnaire constructed to see whether they have any problems related to their training, training docs, any sort of support, instruction itself and the like.  Interviews can be conducted individually or in a focus group format. Interviews with peer moderators can also provide insights into the extent the instruction is implemented. | Before the actual development of materials. This column may also include specific dates etc.  Demographic survey, pretest etc. may be given earlier. The posttest to be administered two weeks later. |
| **Summative Evaluation** | Objective goal-based evaluation  Subjective goal-free evaluation | Quantitative collection and analysis.  Qualitative data collection and analysis. | For goal-based quantitative part, it would be the designer himself or any other external evaluator.  Pretest, posttest and follow up administration of the assessment instrument as well as the attitude questionnaire.  Control group who covered the content of the module through face-to-face instruction or usual care.  Baseline group with no usual care and education (if any).  But, I certainly need an external evaluator on the goal-free qualitative part. Individual or focus group interviews will be implemented. | Control group and baseline group (if any) will be involved in order to guarantee internal and external validity of the. Plus, participants will be assigned to groups randomly in order to minimize any possible effects that may originate from individual differences. Selection of the participants will also be random.  At the beginning of the quantitative data analysis, groups will also be compared in terms of attitude, prior knowledge etc.  Attitude data will be compared in a pretest-posttest design format only. | Pretest and prior knowledge tools to be applied before the instruction (optimally two weeks ago in order to be strict enough to prevent any kind of sensitization into the pretest by the prior knowledge test ).  Post-test to be administered two weeks later. Follow up to be administered one month or later before the next lesson starts.  During the first week after the instruction interviews will be conducted. |
| **Summative Evaluation** | Cost evaluation | Cost effectiveness | Cost for the program divided by the effectiveness index of the instruction as based on gain scores across the assessment instruments.  The overall source for summative evaluation is a behavioral change such as constructing daily eating plans. Learners will also be encouraged to do this online, thus also having the chance to keep track of their performance. | Gain scores refer to the performance differences between administrations of the tests after the instruction and pretest. So, gain scores will be calculated based on immediate, delayed and follow up tests (e.g., posttest results – pretest results). This, I think, will give deeper insights into both short and long term cost effectiveness of the online module. | This column may also include information regarding the date of data collection, data analysis, and reporting as well.  After the test results etc. are gathered starting with the immediate post test.  Even though summative evaluation will be conducted after the first implementation, it will also be conducted after other implementations of the instruction. |
| **On going**  **Evaluation**  **(including**  **Formative &**  **Summative parts)** | In terms of both instruction itself and whether the goals are being met | Most of the methods specified above. | Peer moderators, and all other instruments mentioned above. | In the form of action research when a problem or obstacle is faced and to improve instruction  continuously. | As a cycle going into action when a problem is faced, new learners are available, to ensure effectiveness continuously. |

**Appendix: Daily Eating Plan**

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1. This idea was adapted from Stanford Self-Management Program in which diabetes patients function as peer moderators during diabete self-management face-to-face classes: <http://patienteducation.stanford.edu/internet/diabetesol.html>

   Also, this is in line with Standard 5 of the 2007 national standards for diabetes self-management education

   [↑](#footnote-ref-1)
2. This is in line with standard 7 of the 2007 national standards for diabetes self-management education. [↑](#footnote-ref-2)
3. I know the prerequisite steps here can be broken down into some other prerequisites e.g., meauring food through . However, by following the final guideline “(...)add a bit of detail to one or more sub-steps(…), I tried to do my best to keep it something “doable” by focusing on things that seemed to be primary to me for the purpose of the final. [↑](#footnote-ref-3)
4. The website where the online instruction will have facility to create an online weekly eating plan which can be downloaded or printed by the learners. Besides, this refers to a “behavioral change” on the part of the learners, which is in line with the 2007 national standards for diabetes self-management education (especially, standards 1 and 6). [↑](#footnote-ref-4)
5. Guided by the info from National Diabetes Information Clearing House (please see the references) [↑](#footnote-ref-5)
6. Basically adapted from Stanford online diabetes self-management program to some extent: <http://patienteducation.stanford.edu/internet/diabetesol.html> [↑](#footnote-ref-6)
7. Adapted from EPLC implementation plan template:

   <http://www.google.com/url?sa=t&source=web&cd=1&sqi=2&ved=0CBYQFjAA&url=http%3A%2F%2Fwww.hhs.gov%2Focio%2Feplc%2FEPLC%2520Archive%2520Documents%2F33-Implementation%2520Planning%2Feplc_implementation_planning_template.doc&rct=j&q=eplc%20implementation%20plan%20template&ei=2GIATfG1H8WblgeX_6TeCA&usg=AFQjCNFZNULCoyUDriufK1okwY1teDHCRA> [↑](#footnote-ref-7)