Appendix 1: Sample survey used to collect data for this study

SURVEY
GENERAL CHEMISTRY-I (1341)
TEST I

Name: _____

"Would you like to contribute to the development of science education and get bonus points?"

Then, please read the following section and provide as much information and insight as you can.

IMPORTANT NOTE:

- After you complete your test, please go back and check every question in the test and carefully provide the information required in this survey.

- There is no right/wrong answer for the questions in the survey. You will get the bonus points based on the *completeness*, *not* the *correctness*. However, it is very important that you share your very honest opinion for each question.

EXPLANATION FOR FILLING THE TABLES:

- First, for each **fill-in-the-blank, multiple-choice, & long answer question**, please assign *a number (1, 2, or 3) to each question* in the test *for each category;* Difficulty (D), Familiarity (F), and Self Confidence (SC) using the explanation below.

Difficulty (D)	Familiarity (F)	Self Confidence (SC)
1- Easy (solution requires remembering some basic definitions or facts)	*1- Very familiar (have seen and done several similar examples)*	*1- Extremely confident (know how to check and it is correct)*
2- Medium (solution requires formulas and some application)	*2- Somehow familiar (have seen before but have very little experience)*	*2- Somehow confident (think I got it right but not sure and do not know how to check)*
3- Difficult (solution requires linking among different concepts and a lot of calculations)	*3- Not familiar (have not seen at all before)*	*3-Very little confidence (have no idea if I got it right)*

- Then, in the next column entitled (**Topics/Concepts**) on the table below, write the numbers of each topic/concept from the list on the last page which you think are involved in each question. There is no limit to the number of topics you can list but please list the ones closely associated with the question.

- In the column at the far right, please share your insights, challenges you face with the question, general comments, etc.
    - If you got stuck, please tell us where, why, and how.
    - If you do not remember a specific piece of information, please tell us what it is.
    - If you cannot do a certain operation, again please tell us and explain why.

  Remember!!! The more specific information you provide the easier the analysis of data will be and the more efficiently the curriculum and teaching methods will be improved.

Qs *Fill in the Blanks*	**D**	**F**	**SC**	**Topics/Concepts**	**Insights/ Comments**
1					
2					
3					
4					
5					

Multiple Choice	D	F	S C	Topics/Concepts	Insights/ Comments
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Long Answer	D	F	S C	Topics/Concepts	Insights/ Comments
1					
2					
3					
4					
5					
6					

Please remember to complete each question carefully to get the bonus points added to your test score.

We greatly appreciate your time and the information that you share which will lead to better instructional designs and developing more effective teaching materials.

THANKS!!!

TOPIC LIST

1. Classification of matter
2. Properties of matter
3. Measurement
4. Atomic structure
5. Periodic table
6. Formula calculations
7. Naming compounds
8. Chemical equations
9. Balancing equations
10. Formula weight
11. The mole
12. Mole/mass conversions
13. Mole/volume conversions
14. Mole/particle conversions
15. Mixed mole conversions
16. Empirical/Molecular formulae
17. Stoichiometric calculations
18. Limiting reactants
19. Theoretical yield