

**1. Questionnaire of SMQ-II**

## Intrinsic Motivation component

- Q1\_01. The science I learn is relevant to my life.  
Q1\_03. Learning science is interesting.  
Q1\_12. Learning science makes my life more meaningful.  
Q1\_17. I am curious about discoveries in science.  
Q1\_19. I enjoy learning science.

## Self-Efficacy component

- Q1\_09. I am confident I will do well on science tests.  
Q1\_14. I am confident I will do well on science labs and projects.  
Q1\_15. I believe I can master science knowledge and skills.  
Q1\_18. I believe I can earn a grade of "A" in science.  
Q1\_21. I am sure I can understand science.

## Self-Determination component

- Q1\_05. I put enough effort into learning science.  
Q1\_06. I use strategies to learn science well.  
Q1\_11. I spend a lot of time learning science.  
Q1\_16. I prepare well for science tests and labs.  
Q1\_22. I study hard to learn science.

## Grade Motivation component

- Q1\_02. I like to do better than other students on science tests.  
Q1\_04. Getting a good science grade is important to me.  
Q1\_08. It is important that I get an "A" in science.  
Q1\_20. I think about the grade I will get in science.  
Q1\_24. Scoring high on science tests and labs matters to me.

## Career Motivation component

- Q1\_07. Learning science will help me get a good job.  
Q1\_10. Knowing science will give me a career advantage.  
Q1\_13. Understanding science will benefit me in my career.  
Q1\_23. My career will involve science.  
Q1\_25. I will use science problem-solving skills in my career.

**2. Questionnaire of SPQ-2**

- Q2\_01. I find that at times studying gives me a feeling of deep personal satisfaction.  
Q2\_02. I find that I have to do enough work on a topic so that I can form my own conclusions before I am satisfied.  
Q2\_03. My aim is to pass the course while doing as little work as possible.  
Q2\_04. I only study seriously what's given out in class or in the course outlines.

Q2\_05. I feel that virtually any topic can be highly interesting once I get into it.

Q2\_06. I find most new topics interesting and often spend extra time trying to obtain more information about them.

Q2\_07. I do not find my course very interesting so I keep my work to the minimum.

Q2\_08. I learn some things by rote, going over and over them until I know them by heart even if I do not understand them.

Q2\_09. I find that studying academic topics can at times be as exciting as a good novel or movie.

Q2\_10. I test myself on important topics until I understand them completely.

Q2\_11. I find I can get by in most assessments by memorising key sections rather than trying to understand them.

Q2\_12. I generally restrict my study to what is specifically set as I think it is unnecessary to do anything extra.

Q2\_13. I work hard at my studies because I find the material interesting.

Q2\_14. I spend a lot of my free time finding out more about interesting topics which have been discussed in different classes.

Q2\_15. I find it is not helpful to study topics in depth. It confuses and wastes time, when all you need is a passing acquaintance with topics.

Q2\_16. I believe that lecturers shouldn't expect students to spend significant amounts of time studying material everyone knows won't be examined.

Q2\_17. I come to most classes with questions in mind that I want answering.

Q2\_18. I make a point of looking at most of the suggested readings that go with the lectures.

Q2\_19. I see no point in learning material which is not likely to be in the examination.

Q2\_20. I find the best way to pass examinations is to try to remember answers to likely questions.

Deep motive (DM): Q2\_01+Q2\_05+Q2\_09+Q2\_13+Q2\_17

Deep strategy (DS): Q2\_02+Q2\_06+Q2\_10+Q2\_14+Q2\_18

Surface motive (SM): Q2\_03+Q2\_07+Q2\_11+Q2\_15+Q2\_19

Surface strategy (SS): Q2\_04+Q2\_08+Q2\_12+Q2\_16+Q2\_20

Deep approach (DA): DM+DS

Surface approach (SA): SM+SS