

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