

SURVEY QUESTIONNAIRE

Questions with standard bullets (●) are single-select while questions with square (□) are multi-select.

- 1) What is your age? ● Under 18 ● 18-23 ● 24-29 ● 30 and above
- 2) What is your gender? ● Male ● Female ● Non-binary ● Prefer to self-describe [Text field] ● Prefer not to say
- 3) What is your ethnic group? ● Han ● Other [Text field] ● Prefer not to say
- 4) What subject are you studying in the last semester? ● Computer Architecture ● Electronics and IoT ● Automation and Embedded Systems ● Other [Text field]
- 5) What year of study are you in? ● First Year ● Second Year ● Third Year ● Fourth Year
- 6) How would you rate the difficulty of understanding theoretical concepts in your computing courses? ● Very Easy ● Easy ● Moderate ● Difficult ● Very Difficult
- 7) How challenging do you find applying theoretical knowledge to practical tasks in your computing courses? ● Very Easy ● Easy ● Moderate ● Difficult ● Very Difficult
- 8) Please select exactly three barriers you believe have the greatest impact on your computing courses. If your answers are not among the options, please add them below.
 - ☐ Language barriers in understanding course material
 - ☐ Insufficient prior knowledge of key computing concepts
 - ☐ Difficulty in grasping abstract theoretical concepts
 - ☐ Challenges due to cultural differences in learning environments
 - ☐ Unclear explanations of the knowledge from lecturers
 - ☐ Lack of practical examples in the course material
 - ☐ Inadequate lab facilities or hands-on practice opportunities
 - ☐ Limited access to necessary technology or software
 - ☐ The inappropriate assessment of the course (e.g. the weights of theory and practice are unreasonable.)
 - ☐ The improper course content composition, such as having much theory and not much practical content
 - ☐ Peer collaboration or group work challenges
 - ☐ Other [Text field]
- 9) To what extent does the chosen barrier 1 affect your learning? ● Not at all ● Slightly ● Moderately ● Very ● Extremely
- 10) To what extent does the chosen barrier 2 affect your learning? ● Not at all ● Slightly ● Moderately ● Very ● Extremely
- 11) To what extent does the chosen barrier 3 affect your learning? ● Not at all ● Slightly ● Moderately ● Very ● Extremely
- 12) What was your level of experience in computing before entering the current course? ● No Experience ● Beginner ● Intermediate ● Expert
[If you selected 'Beginner,' 'Intermediate,' or 'Expert,' please answer Question 13A).:]
- 13A) To what extent do you think your previous computing experience has helped you perform well in these courses? ● Not at all ● Slightly ● Moderately ● Very ● Extremely
- 14) How engaged are you in your computing courses? ● Not at all ● Slightly ● Moderately ● Very ● Extremely
[If you selected any option other than 'Not at all', please answer Question 15A).:]
- 15A) Do you think your level of participation in the course affects your learning and helps you overcome learning barriers? ● Strongly disagree ● Disagree ● Neutral ● Agree ● Strongly agree
- 16) To what extent has the support you received from the lecturer and teaching assistant helped you overcome obstacles? ● Not at all ● Slightly ● Moderately ● Very ● Extremely
- 17) How has transitioning from the Chinese educational system to the New Zealand educational system affected your learning experience and outcomes? ● Negative ● Slightly negative ● Neutral ● Slightly positive ● Positive
- 18) What aspects do you think can be further improved in these courses that have both theoretical and practical components? Please provide as much detail as possible. [Open-ended question. Participants were allowed to write without any word limit.]
- 19) Do your interests and career aspirations fall into the computing/computer science field? ● Strongly disagree ● Disagree ● Neutral ● Agree ● Strongly agree
[If you selected 'Strongly disagree' or 'Disagree' in Question 19), please answer Question 20A).:]

20A) Do your parents, relatives, and friends influence your career aspirations? • Strongly disagree • Disagree • Neutral • Agree • Strongly agree

[If you selected 'Neutral,' 'Agree,' or 'Strongly agree' in Question 19), please answer Question 20B):]

20B) Do your career aspirations align with your interests? • Strongly disagree • Disagree • Neutral • Agree • Strongly agree

[If you answered Question 20A), please answer Question 21A):]

21A) Because your future career is unrelated to computer technology, do you find it more difficult to participate in this course? • Strongly disagree • Disagree • Neutral • Agree • Strongly agree

[If you answered Question 20B), please answer Question 21B):]

21B) Does your education in the computing field help motivate you and make it easier to overcome barriers encountered during the course? • Strongly disagree • Disagree • Neutral • Agree • Strongly agree

22) For courses like this, do you have any specific study strategies or recommendations on learning resources for your juniors? Please provide as much detail as possible. [Open-ended question. Participants were allowed to write without any word limit.]