Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Joseph Banks Secondary College

Year 11 ATAR Psychology

Assessment Task 7

Investigation = 5% Validation = 5%

**UNIT LEARNING CONTEXT:**

**OUTCOMES:**

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| --- | --- |
| *Outcome 2:* | *Investigating in psychology* |
| *Outcome 4:* | *Communication in psychology* |

**ALLOCATED TIME FOR THE TASK:**

* *You will have one period to complete the test in class*.

**INSTRUCTIONS:**

* *Attempt all questions*
* *No notes, files etc. to be accessed during the test*

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| Question 1 | / 14 |
| Question 2 | / 17 |
| Question 3 | /14 |
| Question 4 | /15 |
| **Total** | **/ 60** |

Teacher comment: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Question 1 (14 marks)**

A psychology teacher wanted to investigate the effects of rewarding students for completing their work. She decided to test this idea on her 20 Year 11 students. On the first lesson, students were given a one-page worksheet on Freud’s theories before asking students to complete an anonymous survey to indicate how much they enjoyed (or did not enjoy) completing the worksheet. On the second lesson, students were given a chocolate once they had completed a different worksheet on Maslow’s theories and were then asked to complete the same anonymous survey.

1. Identify the research design of this study. (1 mark)

|  |  |
| --- | --- |
| Repeated measures | 1 |

1. Explain the limitations of using this research design and how it can be overcome. (3 marks)

|  |  |
| --- | --- |
| Repeating the experiment to complete both conditions can create **order effects** | 1 |
| **fatigue** - participants becoming tired from completing the conditions twice.  **practice effects** – participants improving by completing the conditions twice. | 1 |
| Overcome through **counterbalancing –** half participants completing condition 1 first and half participants completing condition 2 first. | 1 |

1. Explain why this study would not be considered internally valid. (2 marks)

|  |  |
| --- | --- |
| The measuring tool does not appear to test what it is supposed to test | 1 |
| Different worksheets with different subject matters | 1 |

1. Is this study generalisable to the population? Justify your answer. (3 marks)

|  |  |
| --- | --- |
| No | 1 |
| Sample includes only year 11 students | 1 |
| Low internal validity | 1 |

1. Identify the **two** most relevant ethical considerations the psychology teacher did not consider. (2 marks)

|  |  |
| --- | --- |
| Voluntary participation | 1 |
| Informed consent | 1 |

1. Create an example of a subjective, quantitative data collection question for the anonymous survey. (3 marks)

**Question 2 (17 marks)**

Zara, a Ph.D student studying psychology, was interested in the effects of intermittent dieting (diets that include fasting) on young adults’ cognitive abilities, namely their mood and ability to concentrate. She placed flyers around her Perth university asking for volunteers aged between 18-35. 20 people volunteered with equal numbers of males and females. The participants agreed to follow a strict diet for one month as part of the investigation. Half of the participants were asked to follow a diet where they ate three meals a day adding up to 2000 calories. The other half were asked to replace two of their meals with a shake each day, their daily calorie intake each day did not to exceed 600 calories. At the end of the study participants were asked to complete a self-report and a memory test.

The raw data can be seen below:

Table 1: Effects of intermittent dieting on mood and memory

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Experimental Group | | Control Group | |  |  |
| Mood | Memory test | Mood | Memory test |  |  |
| 6 | 25 | 8 | 45 |  |  |
| 3 | 28 | 5 | 42 |  |  |
| 5 | 32 | 6 | 31 |  |  |
| 9 | 26 | 7 | 24 |  |  |
| 6 | 24 | 8 | 28 |  |  |
| 4 | 13 | 6 | 14 |  |  |
| 3 | 17 | 4 | 54 |  |  |
| 7 | 37 | 3 | 39 |  |  |
| 4 | 45 | 7 | 58 |  |  |
| 5 | 13 | 6 | 25 |  |  |

1. Using the data in Table 1, calculate the following: (3 marks)
2. Mean memory test score within the experimental group: 26
3. Median mood score within the control group: 6
4. The mode mood score across both groups: 6
5. If the sample size was much larger in this experiment, Zara would hope to find a normal distribution of results in the memory test as per below. With reference to measures of central tendency, explain why Zara would want a normal distribution. (2 marks)

Graph 1: Memory test scores



Experimental Group

Frequency

Memory Test scores

Control Group

|  |  |
| --- | --- |
| A normal distribution is simple/clear in **analysing/identifying** central tendency | 1 |
| As the mean, mode and median are all equal | 1 |

1. Identify the control group of this study and explain why the control group is required for experimental research. (2 marks)

|  |  |
| --- | --- |
| Control: Participants who ate three meals a day (2000 calories) | 1 |
| Experimental: Participants who replaced 2 meals with shakes (600 calories). | 1 |

1. Write an operational hypothesis for this investigation. (4 marks)

|  |  |
| --- | --- |
| Sample/Population | 1 |
| Independent and Dependent Variable | 1 |
| Measurable | 1 |
| Control group | 1 |

1. Identify two extraneous variables and explain how they could impact the study. (2 marks)

|  |  |
| --- | --- |
| Mood – other personal situations that can affect mood (e.g. a fight at home) | 1 |
| How many calories/food the person eats on a daily basis normally (some people may need more or less food than others). | 1 |
| Any other relevant answer |  |

1. Explain the difference between a population and sample and identify the population and sample in this investigation. (2 marks)

|  |  |
| --- | --- |
| Population – the group people that the results of a piece of research is **generalising** to.  Young adults/18-35-year-olds. | 1 |
| Sample – a sub-set of the population that is being tested in an experiment.  20 18-35-year-olds from Perth. | 1 |

1. Identify and describe a technique Zara should utilise to ensure her test is externally reliable.

(2 marks)

|  |  |
| --- | --- |
| Test-retest | 1 |
| Re-do the test at different times and situations. | 1 |

**Question 3 (14 marks)**

A population health specialist wanted to promote healthy living by investigating whether a person’s weight impacted their ability function in society. He decided to conduct a study, asking participants to complete a survey on their weight, height and age to determine their BMI (Body Mass Index) as well as how much money they earned over the last financial year. After initially analysing the results, he decided to exclude participants who had an unhealthy low weight (under 18 BMI) as they typically earned less than those in a healthy weight range (18-25). The results can be seen in the table below:

Table 2: Relationship between BMI and money earned in 2019

|  |  |  |
| --- | --- | --- |
| Participant | BMI | Money Earned in 2019 ($) |
| 1 | 27 | 40, 000 |
| 2 | 25 | 245, 000 |
| 3 | 24 | 65, 000 |
| 4 | 22 | 210, 000 |
| 5 | 24 | 98, 000 |
| 6 | 18 | 125, 000 |
| 7 | 30 | 72, 000 |
| 8 | 35 | 55, 000 |
| 9 | 27 | 18, 000 |
| 10 | 24 | 125, 000 |
| 11 | 32 | 35, 000 |
| 12 | 18 | 95, 000 |
| 13 | 35 | 10, 000 |
| 14 | 29 | 65,000 |

1. Identify the research method used in this study. (1 mark)

|  |  |
| --- | --- |
| Correlation | 1 |

1. Explain your reasoning with reference to the study. (2 marks)

|  |  |
| --- | --- |
| The research is investigating the **relationship** between **BMI** and **Money** earned. | 1 |
| The researcher is not **manipulating** variables (e.g. BMI) | 1 |

1. When is it appropriate to use this research method? (2 marks)

|  |  |
| --- | --- |
| When it is not possible/ethical to undergo experimental research | 1 |
| When it is being used as exploratory research before conducting experimental research | 1 |

1. Explain why the population health specialist should not have excluded participants who had a BMI of less than 18. (2 marks)

|  |  |
| --- | --- |
| **Experimenter Bias** | 1 |
| Experimenter manipulating the interpretation of results to align with what he was looking for. OR something similar. | 1 |

1. Create a graph to represent the raw data in Table 2. (5 marks)

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1. Describe the results of the study (2 marks)

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| --- | --- |
| There is a **moderate**, **negative** correlation | 1 |
| between BMI and money earned in 2019. | 1 |

**Question 4 (15 marks)**

Psychology students of Blue Bonnet Senior High School learned that face to face communication is important in building healthy relationships. They are concerned that excessive use of telecommunication devices may be increasing conflict and destroying friendships. The students wanted to determine if their concerns were true by testing three conditions:

A. friends that communicate only by face to face communication

B. friends that communicate only through telecommunication devices

C. friends that communicate using both face to face and telecommunication devices

Participants were randomly allocated to one condition and asked to use only the type of communication specified with their friendship groups for two weeks. A 10-point Likert scale questionnaire was given to each participant before and after the investigation to measure the quality of their friendships. The questionnaire consisted of the following question – What is the quality of your friendships within your school group?

A table with the results can be seen below:

**Table 1.** Mean scores on ratings of friendship quality before and after the investigation where a rating of 1= extremely poor quality and a rating of 10 – extremely high quality.

|  |  |  |
| --- | --- | --- |
| Type of communication | Mean rating scores of friendship quality | |
| Before the investigation | After the investigation |
| 1. Face-to-face only | 5.1 | 7.8 |
| 1. Telecom devices only | 5.5 | 4.1 |
| 1. Combination of face-to-face and telecom devices | 5.3 | 6.1 |

1. Why was it necessary to randomly assign participants to each condition? (1 mark)

|  |  |
| --- | --- |
| To ensure the procedure is systematic and thus, any differences between groups recorded at the end of the experiment can be more confidently attributed to the experimental procedures or treatment | 1 |

1. Identify the research design of this study. Justify your answer. (2 marks)

|  |  |
| --- | --- |
| Independent measures (1) – participants are allocated to different conditions. | 2 |

1. Identify **one** source of error in the data and briefly describe **one** way of reducing the error. (2 marks)

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| Rating responses may be biased or affected by social influences like social desirability or peer pressure (1).  Sample population may not be a true representation of the population (1).  Researchers did not collect information about other factors that could influence the quality of friendship (1).  Researchers only included one question in the questionnaire, cannot ensure internal reliability (1).  **Any 1** | 1 |
| Include items in the questionnaire that test for honesty or influence of social desirability (1). Ensure that the questionnaire is highly valid and reliable – more questions (1). Use stratified random sampling to ensure that the sample is representative of the wider population (1). Collect information about other factors that might affect quality of friendship such as similar characteristics among friends, frequency and reasons of conflict, etc. (1)  **Any 1 relevant to above** | 1 |

1. Describe the results of the study. (3 marks)

|  |  |
| --- | --- |
| Within Condition 1, face-to-face communication only for two weeks, **mean rating scores increased from 5.1 to 7.8.** | 1 |
| Within Condition 2, telecom devices only for two weeks, **mean rating scores decreased from 5.5 to 4.1.** | 1 |
| Within Condition 3, both telecom and face-to-face communication for two weeks, **mean rating scores increased from 5.3 to 6.1.** | 1 |

1. Write a conclusion for this study, including an interpretation of results and an evaluation of the importance of the findings. (5 marks)

|  |  |
| --- | --- |
| Interpretation: Face-to-face communication only for two weeks, increased the mean rating scores the most (2.7), compared to both face-to-face and telecommunication (0.8) and only telecommunication (-1.4).  **Accept similar response** | 1 |
| This supports the hypothesis | 1 |
| State hypothesis | 1 |
| Evaluation: Despite the trend in the results, cannot generalise results to the population | 1 |
| Outlines source of error – sampling method, reliability, etc. | 1 |