ANALYSING RESEARCH – BLUE QUESTIONS

The Source

A psychologist investigated whether there was a difference between individuals depending on their zodiac star signs. She predicted people would have different personality characteristics for each of the 12 zodiac star signs. For example, astrological theory suggests that those people who are born under the Scorpio star sign are sensitive, imaginative and persistent.

The psychologist used a sample of 120 adult participants. Each participant was given a questionnaire consisting of closed questions asking them about their personality characteristics. For each of the characteristics listed, the participants were required to rate how much like them they are using a scale of 1 to 10, where 1 is 'not at all like me' and 10 is 'very much like me'. The psychologist also asked for each participant's date of birth so she could compare the scores with the participant's star sign.

The psychologist found no evidence that individuals' personality characteristics were affected by their zodiac star signs.

BLUE QUESTIONS

PART A

1. Explain the following terms
(a) alternate hypothesis
(b) null hypothesis

2. The psychologist decided to use an alternate hypothesis.
(a) Write an alternate hypothesis for this study.

PART B

1. Explain what the terms target population and sample mean.
2. Outline the two sampling methods.

3. The psychologist used a sample of 120 participants.

   (a) Describe **one** way the psychologist could have obtained her sample in this study.

   (b) Explain **one** weakness of obtaining the sample this way.

PART C

1. Explain each of the four research methods (including strengths & weaknesses).

2. The psychologist used a questionnaire to collect her data.

   (a) Identify **one** weakness of using a questionnaire.

   .... [1]

   (b) State why it is a weakness in this study.

   ....

   .... [1]

   (c) State the effect it could have on the findings in this study.

   ....

   .... [1]

3. The psychologist used a questionnaire. She could have used a structured interview instead.

   Identify how structured interviews are different from unstructured interviews.

4.   **(a)** Outline **one** advantage of using interviews.

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.... **[2]**

(b) Outline **one** disadvantage of using interviews.

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.... **[2]**

5.   In a follow-up study the psychologist investigated whether there was a relationship between belief in astrology and belief in science. She predicted she would find a negative correlation.

Identify the direction of results predicted.

As_____ , _____

BLUE QUESTIONS

PART A

1 mark for 'to investigate whether there was a difference between individuals depending on their zodiac star signs'.	1	Allow similar response that pertains to an aim, i.e. do not credit statement of results or a hypothesis.	1 X AO3

PART B

1 mark for identification of an appropriate sampling method. 1 mark for an elaborated description of how the psychologist could have obtained her sample. 1 mark for a response placed in context For example 'the psychologist could have used opportunity sampling [1], she could have just used 120 people who were available at the time [1] by perhaps using her colleagues at work or friends and family' [1].	3	The most obvious choices of sampling methods are opportunity and random, but allow descriptions of volunteer or stratified also. Identification of sampling method can be named or outlined. For full marks the response MUST be contextualised. Examples of context make reference to: 120, adults, zodiac signs. Reference to 'the psychologist' is not sufficient context.
1 mark for identifying or outlining a weakness of the sampling method. 1 mark for an elaborated response explaining **how** the specific sampling method has this weakness. For example 'one weakness of an opportunity sample is that it is biased [1] as the psychologist may chose participants who she knows will give her the result she is looking for' [1] or 'volunteer samples may be biased [1] because only a certain type of person would volunteer to take part' [1].	2	The response does not need to be explicitly contextualised to obtain full marks. Time consuming is only appropriate for random sampling, unless it is clearly qualified for other sampling methods. If candidates mention the unrepresentativeness of a random sample, it is important that this **may** be a possibility, rather than random samples are **not** representative.

PART C

1 mark for identifying any weakness of using a questionnaire For example 'people may exaggerate' [1], 'people may misunderstand questions' [1], people may give socially desirable answers [1], demand characteristics [1]	1	7 (a), (b) and (c) are sequential and when marking should be considered together. However, each part is marked independently; for example a candidate may receive zero marks for 7a, but can still be awarded a mark for 7b. **Do not** accept lying, not honest, untruthful but **do** accept exaggerate or underestimate.
1 mark for stating why it is a weakness. For example 'you may not find out their true personality characteristics' [1] Social desirability (to make their personality look good) [1]	1	Answer must be relevant to *this* study. Context must come from their answer to part (a)
1 mark for stating the effect it would have on the findings of the study. For example 'the responses are inaccurate so results are invalid' [1]	1	Context must come from their answer to part (b) Credit should not be awarded for stating that results are inaccurate, unreliable, unrepresentative, untruthful or invalid in isolation. Candidates must demonstrate an understanding of the terminology they use. In order to achieve a mark there must be a qualified use of validity, reliability etc. It needs to be clear **what is** invalid/ unreliable. 'It is unreliable' – 0 marks. The results/findings are unreliable – 1 mark.

3. The psychologist used a questionnaire. She could have used a structured interview instead.

Identify how structured interviews are different from unstructured interviews.

		1 mark for correctly matching structured interviews to the bottom definition 'interviews where the questions are pre-set'. 1 mark for correctly matching unstructured interviews to the top definition 'interviews where there are no set questions'.	2	If more than two lines are drawn from column A minus one mark.
(a)		1 mark for identifying an advantage of using interviews. 1 mark for an explained response. For example 'one advantage is that because the interviewer is the present [1] if the interviewee doesn't understand questions, they can double check what questions mean [1] Interviews give rich and detailed answers [1] Interviews provide qualitative data which allows elaboration of answers [1]	2	An explanation of **why** it is an advantage of an interview is required for 2 marks. The answer can refer to any type of interview. For example where candidates give advantages specific to structured interview this needs to be clear in their response. References to reliability and/or validity are not creditworthy, as they refer to the effect it would have on the findings, which is not required by the question.
(b)		1 mark for identifying a disadvantage of using interviews. 1 mark for an elaborated response, which demonstrates how or why it is a disadvantage of an interview. For example 'one weakness is that people may lie / exaggerate [1] and give socially desirable answers to the psychologist instead of truthful ones' [1]. Interviews are time consuming [1] because asking 120 people in-depth questions is a long process [1]	2	An explanation of **why** it is a disadvantage of an interview is required for 2 marks. The answer can refer to any type of interview. For example where candidates give disadvantages specific to structured interview this needs to be clear in their response. References to reliability and/or validity are not creditworthy, as they refer to the effect it would have on the findings, which is not required by the question.

4.

		1 mark for correctly matching structured interviews to the bottom definition 'interviews where the questions are pre-set'. 1 mark for correctly matching unstructured interviews to the top definition 'interviews where there are no set questions'.	2	If more than two lines are drawn from column A minus one mark.
(a)		1 mark for identifying an advantage of using interviews. 1 mark for an explained response. For example 'one advantage is that because the interviewer is the present [1] if the interviewee doesn't understand questions, they can double check what questions mean [1] Interviews give rich and detailed answers [1] Interviews provide qualitative data which allows elaboration of answers [1]	2	An explanation of **why** it is an advantage of an interview is required for 2 marks. The answer can refer to any type of interview. For example where candidates give advantages specific to structured interview this needs to be clear in their response. References to reliability and/or validity are not creditworthy, as they refer to the effect it would have on the findings, which is not required by the question.
(b)		1 mark for identifying a disadvantage of using interviews. 1 mark for an elaborated response, which demonstrates how or why it is a disadvantage of an interview. For example 'one weakness is that people may lie / exaggerate [1] and give socially desirable answers to the psychologist instead of truthful ones' [1]. Interviews are time consuming [1] because asking 120 people in-depth questions is a long process [1]	2	An explanation of **why** it is a disadvantage of an interview is required for 2 marks. The answer can refer to any type of interview. For example where candidates give disadvantages specific to structured interview this needs to be clear in their response. References to reliability and/or validity are not creditworthy, as they refer to the effect it would have on the findings, which is not required by the question.

5. In a follow-up study the psychologist investigated whether there was a relationship between belief in astrology and belief in science. She predicted she would find a negative correlation.

Identify the direction of results predicted.

As_____, _____

1 mark for correctly ticking the first box 'as belief in astrology increases, belief in science decreases	1	If more than one box is ticked, zero marks.

PLANNING RESEARCH – PINK QUESTIONS

The Source

Using interviews, a psychologist investigated students' feelings regarding homework. He particularly wanted to know whether enjoying homework improved students' performance in examinations. He conducted a correlational study at a school to find out if those students who enjoyed doing homework the most, also achieved the highest marks in their end of year exams.

The psychologist chose his sample of participants by putting the names of all the students from the school into a hat and the first ten he picked out became his participants. The psychologist interviewed the participants individually asking each of them the same ten questions. He tape-recorded all the interviews. Following the completion of the interviews, the psychologist rated their enjoyment on a scale of 1 to 10. He correlated these with their exam marks at the end of the year.

The psychologist plotted these results on a graph. He concluded that students who achieved the highest marks in their exams were also the ones who had said they enjoyed doing homework the most.

PINK QUESTIONS

1. State an alternate hypothesis for this study.

2. (a) State the sampling method the psychologist used in this study.

   (b) Describe **one** advantage of the sampling method the psychologist used in this study.

3. Identify the target population in this study.

4. (a) Explain the term variable

   (b) Explain what an extraneous variable is.

   (c) State the **two** variables the psychologist correlated in the source.

5. The psychologist used a structured interview. Explain how structured interviews are different from unstructured interviews.

6. Describe **one** strength of using interviews in this study.

7. (a) Explain the difference between quantitative and qualitative data.

   (b) Identify the type of data that would be collected using open questions in interviews.

8. (a) Explain the three ethical considerations.

   (b) Outline **one** way the psychologist could make sure his study in the source was ethical.

9. The psychologist plotted his results on a graph. Identify the type of graph the psychologist would have used in this study.

10. Explain **one** way in which this study is high in ecological validity.

11. Social desirability can be a problem in interviews. Explain how social desirability may have been a problem in this study.

12. The psychologist tape-recorded the interviews for reliability.

    (a) Identify the correct definition of reliable results from the list below.

        Tick **one** box to show your answer.

        Results which measure what they said they would measure. ☐

        Results which are accurate. ☐

        Results which show consistency. ☐

        [1]

    (b) Outline **one** way in which the psychologist could check the reliability of his results.

        ....

        ....

        ....

        .... [2]

PINK QUESTIONS

1. State an alternate hypothesis for this study.

1 mark for recognising that this hypothesis predicts a relationship (correlation). 1 mark for the accurate identification of both variables. For example "There will a relationship / correlation [1] between exam marks and the rating of enjoyment of homework' [1].	2	The response must be a hypothesis to be creditworthy (not an aim, question or statement of results). NB: hypotheses can be phrased in either the present or future tense, but not the past tense. Allow link, trend or pattern for correlation. Accept 'performance in examination'.

2. (a) State the sampling method the psychologist used in this study.

RANDOM SAMPLING

(b) Describe **one** advantage of the sampling method the psychologist used in this study.

1 mark for the identification of a strength pertaining to the use of random sampling. 1 mark for elaborated responses demonstrating how or why it is a strength. For example 'Random samples are less biased [1] as everyone in the target population has an equal chance of being selected' [1] or 'random samples are more representative [1] as the researcher cannot choose who takes part in the investigation' [1].	2	No explicit reference to the source is required. If the incorrect sampling method has been identified in (a) award 1 mark for a strength that pertains to that identified. For example if opportunity sampling has been identified in (a) award a maximum of 1 mark for a strength of opportunity sampling.

3. Identify the target population in this study.

The target population is the group of people from whom the sample is drawn so the target population is all the people the psychologist wants to generalise his findings to. 1 mark for the identification of the target population. For example 'students at the psychologist's school' [1], students at a school [1]	1	Mere reference to 'students' or 'school students' is not creditworthy.

4. (a) Explain the term variable

(b) Explain what an extraneous variable is.

(c) State the **two** variables the psychologist correlated in the source.

1 mark for ratings of enjoyment / enjoyment on a scale of 1-10 1 mark for exam marks	2	Reference to 'rating' or 'scale' is needed to be creditworthy. Allow 'exam….grades/results/performance.'

5. The psychologist used a structured interview. Explain how structured interviews are different from unstructured interviews.

1 mark for identifying a feature of structured interviews. 1 mark for identifying a feature of unstructured interviews. For example 'Structured interviews are where the questions are pre-determined [1] whereas in unstructured interviews the interviewer asks questions based on the participant's answers '[1] or 'in structured interviews, participants are asked the same questions [1] whereas in unstructured interviews the interviewee is asked different questions so it runs more like a conversation' [1].	2	If a candidate provides one feature and the opposite feature, 1 mark rather than 2 should be awarded e.g. 'structured interviews are where the questions are pre-determined whereas in unstructured interviews they are not' [1]. If a correct description is given of either or both structured or unstructured interviews with no identification i.e. structured/unstructured, 1 mark should be awarded.

6. Describe **one** strength of using interviews in this study.

1 mark for identifying a strength of using interviews 1 mark for elaborated responses illustrating how or why it's a strength For example 'A strength of interviews is that it allows participants to double check what the questions mean [1] which would make the results more more valid [1].' or 'A strength of interviews is that the interviewer can clarify participants' responses [1] to make sure he is interpreting the answers correctly [1] or 'A strength of interviews is that they can be used to access people's thoughts and feelings [1] so in this study the psychologist could find out how the students feel about doing homework' [1].	2	A strength pertaining to the use of predetermined questions leading to standardisation (replication) is creditworthy. Lying, exaggeration or social desirability are not creditworthy.

7. (a) Explain the difference between quantitative and qualitative data.

(b) Identify the type of data that would be collected using open questions in interviews. - **Qualitative**

8. (a) Explain the three ethical considerations.

(b) Outline **one** way the psychologist could make sure his study in the source was ethical.

1 mark for identifying an appropriate ethical issue the psychologist would need to consider 1 mark for an elaborated response clearly indicating how or why this makes his study ethical. For example 'the psychologist would have to maintain confidentiality [1] by making sure that he doesn't use the student's names' [1].	2	Allow definitions of ethical issues as their identification.

9. The psychologist plotted his results on a graph.Identify the type of graph the psychologist would have used in this study. SCATTER GRAPH

10. Explain **one** way in which this study is high in ecological validity.

1 mark for demonstrating an understanding of the concept of ecological validity. 1 mark for illustrating how this study is high in ecological validity. For example 'ecological validity means how much the study reflects real life situations [1], in this study real exam grades are used so this is high in ecological validity' [1].	2	Location of 'being in a school' is not creditworthy.

11. Social desirability can be a problem in interviews.Explain how social desirability may have been a problem in this study.

Social desirability is when participants give answers that they think the researchers want to hear, rather than give their true answers. 1 mark for a vague response which states that social desirability is where participants may lie in interviews. 1 mark for an accurate description of social desirability which includes reference to participants giving answers they think the researchers want to hear/they believe society expects of them. 1 mark for placing the answer in context of the investigation in the source. For example, 'social desirability is when participants give the researcher the answer they think he or she wants to hear [1].	1 mark for identifying one way the psychologist could check the reliability of his results. 1 mark for an elaborated response demonstrating how this method would check for reliability. For example 'the psychologist tape recorded his interviews so he could get another psychologist to listen to the tapes [1] if they both agreed on how the responses have been interpreted, this would make it reliable.' [1] or 'The psychologist could repeat the study [1] and compare the two sets of results to see if they are similar [1].

12.

1 mark for identifying one way the psychologist could check the reliability of his results.
1 mark for an elaborated response demonstrating how this method would check for reliability.

For example 'the psychologist tape recorded his interviews so he could get another psychologist to listen to the tapes [1] if they both agreed on how the responses have been interpreted, this would make it reliable.' [1] or 'The psychologist could repeat the study [1] and compare the two sets of results to see if they are similar [1].

PLANNING RESEARCH – GREEN QUESTIONS

You have been asked to carry out a questionnaire to investigate whether there are gender differences in addiction to computer games. The theory is that males are more addicted to playing computer games than females.

GREEN QUESTIONS

13 (a) State a null hypothesis for your investigation.

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.... **[2]**

(b) (i) Give **one** example of a question you would use in your questionnaire.

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.... **[1]**

(ii) Explain why you would use this type of question in your questionnaire.

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....

....

.... **[2]**

(c) Briefly outline how you would carry out the questionnaire to investigate whether there are gender differences in addiction to computer games.

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.... **[3]**

(d) Outline how social desirability could affect your investigation.

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....

.... **[3]**

(e) Describe **one** strength of using a questionnaire in your investigation.

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....

.... **[2]**

(f) Outline how you would present the data you collect from your questionnaire.

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....

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.... **[2]**

GREEN QUESTIONS

(a)

1 mark for recognising this hypothesis predicts no difference. 1 mark for including both variables in a clear statement. For example: 'There will be no difference [1] in the levels of addiction between males and females'. [1] or 'There will be no gender differences [1] in addiction to computer games'. [1]	2	A response that is an aim/question/correlation/relationship is capped at 1 mark. For 2 marks the hypothesis must be a null hypothesis. Allow gender difference as IV. Allow addiction as DV. NB: hypotheses can be phrased in either the present or future tense, but not the past tense. If both no difference and a correlation/relationship are given, marks are capped at [1].

(b)

(b)	i	1 mark for giving a question that could be used in this questionnaire (the question can be open or closed). For example, 'how many hours do you spend a day playing computer games?' [1]	1	Closed questions do not need to include a set of responses to gain credit. The question should focus on gender or computer (video) games.
(b)	ii	1 mark for briefly explaining why the type of question was chosen. 1 mark for an elaborated explanation of why this type of question was chosen. For example 'I would get quantitative data [1] which means I can put the data into a graph / calculate the mean (time spent playing computers)'. [1] 'I would get numerical data [1] and so I can compare the data more easily' [1] 'I would get qualitative data [1] so I get in-depth information about their thoughts on computer games.' [1]	2	Refer back to 13(b)i. Reference to type of question only = 0 marks. For example, 'I would use a closed question' as the focus of the question is on why.

(c)

1 mark for an attempt to describe how the investigation would be done. For example, 'I would write a questionnaire with 10 questions asking people about playing computer games and I would give it to 10 males and 10 females from my school.' 2 marks for describing a reasonable feasible procedure For example, 'I would write a questionnaire with 10 questions asking people about how much time they spent playing computer games and I would give it to 10 males and 10 females from my school. I would use a rating scale with different timings like 0-2 hours, 2-4 hours 4-6 hours a week.' 3 marks for describing, in some detail within the time constraints, a feasible procedure. For example, 'I would write a questionnaire with 10 questions asking people about how much time they spent playing computer games and I would give it to 10 males and 10 females from my school. I	3	**NB: Refer back to 13(b) i & ii and to 13(f) before marking this question to check for repetition.** The question is on **how** not why so justifications are not creditworthy. No marks can be awarded for descriptions of question types or examples given in the previous question. *Although if a closed question is given in 13(b) i and no set of responses (i.e. rating scale) is given, this can be credited in this question.* No marks can be awarded for descriptions of how data would be presented as this is credited in question 13 (f). Credit any feasible features of the design not already asked for in other questions. For example:
would use a rating scale with different timings like 0-2 hours, 2-4 hours 4-6 hours a week. I would gain their informed consent first and assure them that I wouldn't use their names for confidentiality'.		• Sample/target population • Sampling technique • Examples of questions not previously credited • Administration of the questionnaire • Piloting the questionnaire • Details of ethical guidelines followed • Details of controls • How data would be collected and/or analysed. If the answer reads like a list (e.g. simple identification of features) marks are capped at 2. If there is no mention of males / females / gender marks are capped at 2 (but reference to gender would not get credit alone).

(d)

Social desirability is when participants give answers that they think the researchers want to hear/make themselves appear in a positive light, rather than give their true answers. 1 mark for a vague response which states that social desirability is where participants may lie in questionnaires. 1 mark for an accurate description of social desirability which includes reference to participants giving answers they think the researchers want to hear/they believe society expects of them. 1 mark for placing the answer in context of the investigation in the source. (For example, 'social desirability is when participants do not give true answers [1], it may be a problem in questionnaires as the participant may guess the aim of the investigation and so try to fit their answer in line with what the researcher is investigating [1], so participants may tell the researcher that they spent less time playing computer games than they	3	If there is no reference to the source (un-contextualised), marks are capped at 2.
really do.' [1] 'Social desirability is where the participants answering the questionnaire do not give their honest answer [1], they give the answer they think makes them look good [1], so in this study they may say that they don't play computer games very often'. [1]		

(e)

1 mark for the identification of a generic strength of using a questionnaire. 1 mark for explaining **why** it is a strength in **their** investigation. For example, 'One strength of using questionnaires is they are standardised [1], so everyone is asked the same questions on computer games.' [1] 'Questionnaires are normally quick and easy to administer [1] because lots of people are able to complete the questionnaire at the same time.' [1]	2	Generic strengths of questionnaires, not contextualised can be awarded 1 mark e.g. 'questionnaires are often answered more honesty than interviews.' [1] **NB: refer back to 13(b)i, 13(b)ii, 13(c)** and do not double credit for repetition. For example, if 'quantitative data' has been credited in 13(b)ii, it cannot be re-credited in 13(e). The strength identified must not contradict the candidate's previous responses. For example, if the candidate has used closed questions in 13(b)i and 13(c) and then puts their strength as gathering qualitative data, this is not creditworthy.

(f)

1 mark for identifying a means of presenting the data. 1 mark for illustrating how it could work for this investigation. (For example, 'I would put the data in to a bar chart. [1] That way I would be able to see if males spend more time playing computer games than females.' [1]	2	For full marks reference to an analysis / comparison of gender difference is required. Allow implicit references, for example 'I would draw a bar graph [1] with one bar for males and one for females.' [1] Focus is on the presentation of data, not how they would analyse it. The method of presentation must not contradict data. For example, a pie chart using mean scores is not creditworthy, but a pie chart using percentages is.