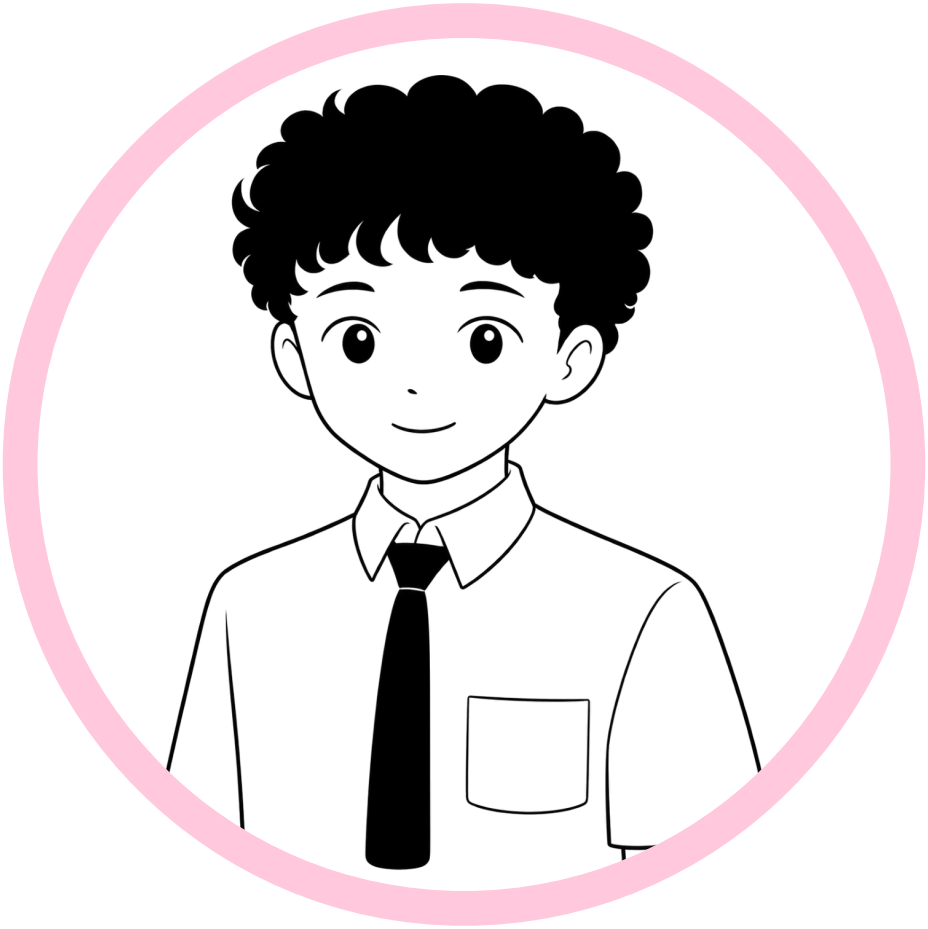
AQA A-LEVEL PSYCHOLOGY · 7182

PSYCHOLOGY



MARK SCHEME

3.2.3.1 VARIABLES: MANIPULATION AND CONTROL

SCORE	PERCENTAGE
/24	%

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Q1.

(a) **[AO2 = 2]**

2 marks for a clear explanation of why it was important to match the students for this variable.

1 mark for a limited or muddled explanation, or for an answer without application.

Content:

- level of interest could affect their satisfaction scores so needs to be controlled; matching students' levels of interest in business studies keeps this participant variable constant.

2

(b) **[AO2 = 2]**

1 mark for a suggestion of an appropriate variable – interest in using computers (e.g., for studying), past experience of using computers (e.g., for studying), disability issues, prior knowledge of this business studies topic.

Accept other appropriate suggestions.

1 mark for an explanation of how it might relate to satisfaction scores.

2

(c) **[AO2 = 2]**

2 marks for a clear outline of one benefit of random allocation in this situation.

1 mark for a limited or muddled explanation, or for an answer without application.

Relevant points:

- removal of researcher bias in determining which participant has the most to least number of online hours
- increased validity as the researcher will not be biased in how students are allocated
- removal of participant bias as each participant has the same chance of having a particular number of online hours as any other participant.

2

(d) **[AO3 = 3]**

3 marks for a clear and coherent explanation of how stratified sampling would improve the design.

2 marks for some explanation of how stratified sampling would improve the design.

1 mark for a muddled / limited explanation.

Content:

- stratified sampling ensures each identified sub group of the whole target

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population of possible participants is represented in the sample so generalisation of the results to the target population is more valid than if the participants were just available at the time of asking
- stratified sampling is an improvement because people who are identified by opportunity are likely to be present at same time, doing similar things, possibly of similar personality types etc which may limit representativeness of sample.

Accept other appropriate explanation points.

3

(e) **[AO2 = 1]**

1 mark for a question which would generate qualitative data: what did you like / dislike about the online / classroom lessons?

Accept any appropriate question or item that generates qualitative data.

1

(f) **[AO2 = 2]**

2 marks for a clear and coherent explanation of a possible problem.

1 mark for a muddled / limited explanation.

Possible problems:

- analysis of qualitative data relies on interpretation by the researcher which could be inaccurate / biased / subjective
- qualitative data may not be easy to categorise / collate into a sensible number of answer types
- the researcher could be left with lots of individual responses that cannot be summarised.

Do not accept answers which simply identify a problem with no further appropriate elaboration e.g. ‘hard to analyse’, ‘time consuming’.

2

(g) **[AO2 = 1]**

1 mark for an outline of an appropriate ethical issue that would be relevant when using a questionnaire: issues such as anonymity, protection from harm, treating with respect, parental consent.

Possible issues:

- the students should be treated with respect by explaining that their answers will be kept confidential
- the students must be assured that they can withdraw their answers if they want to
- the students must be told exactly what the researcher was trying to find out about the relationship between satisfaction and the way information was delivered.

Answer must be an outline and not just a name or term.

1

(h) **[AO2 = 4]**

Award **1 mark** for each of the following points.

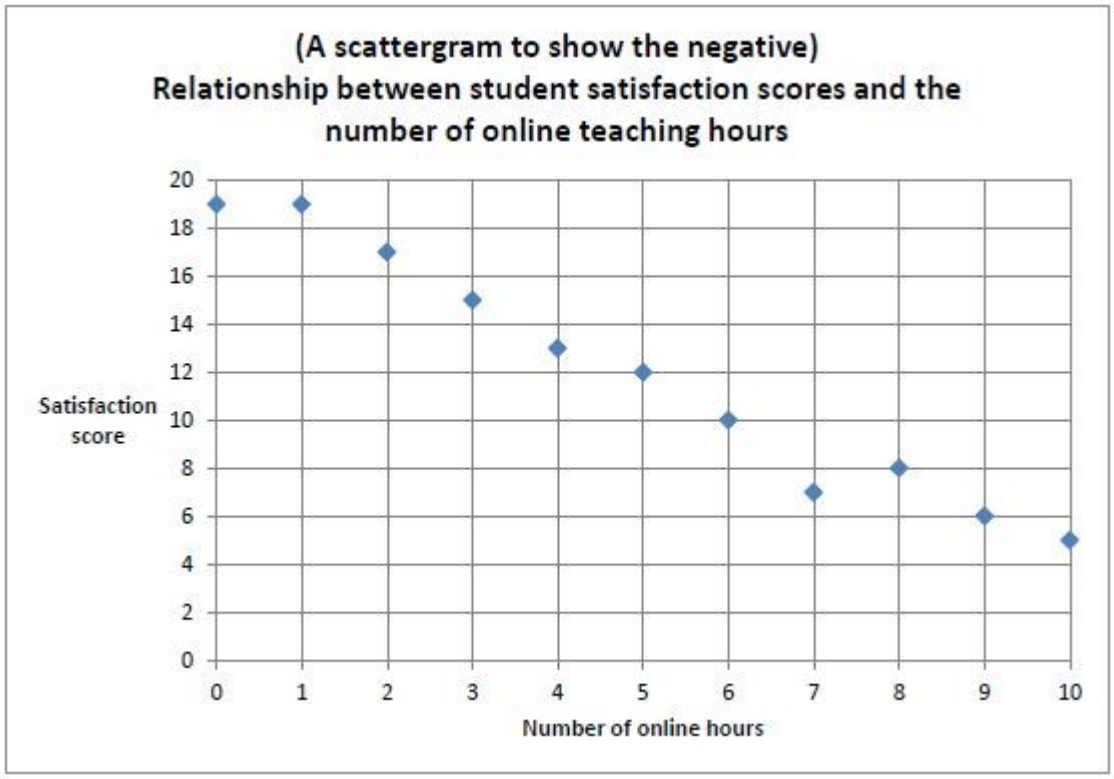
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Content:

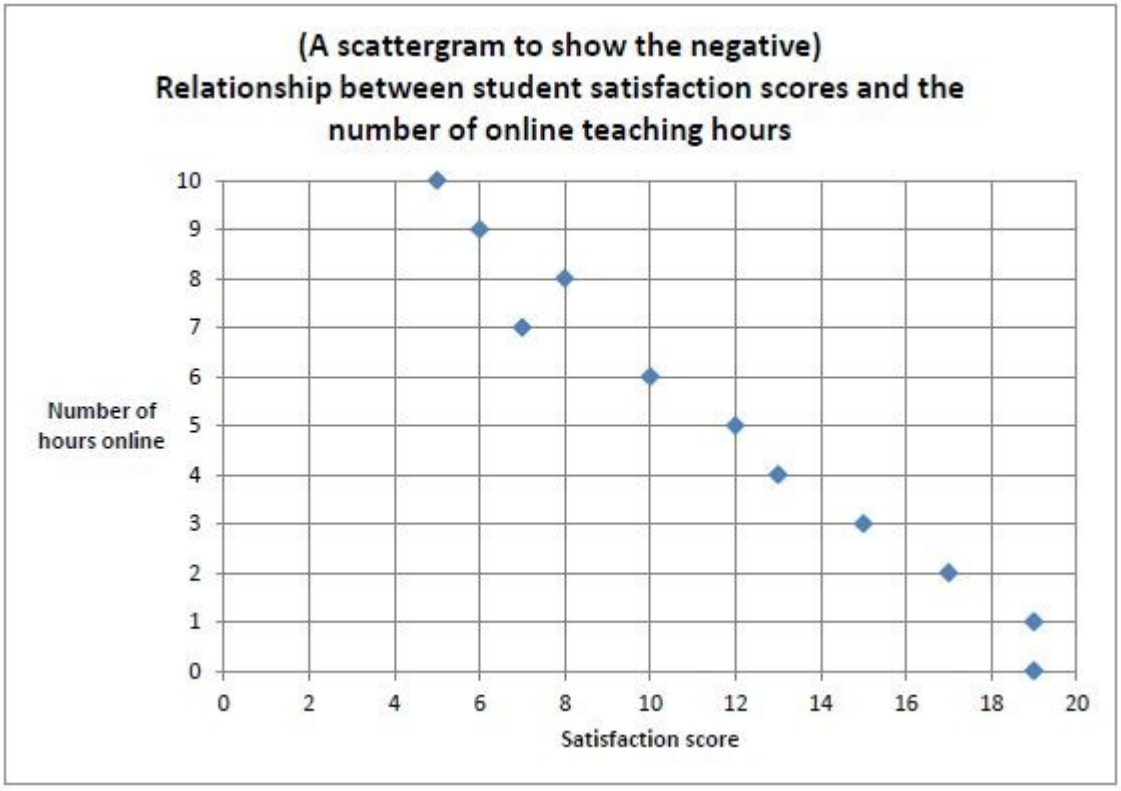
- appropriate title, including reference to (negative) relationship and the two variables
- axis 1 – number of online hours and suitable scale 0-10
- axis 2 – satisfaction score and suitable scale 0-20
- accurate plotting of 11 points on scattergram.

No penalty for drawing a line of best fit.

If display is not a scattergram award max 1 mark if title is appropriate.



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4

(i) **[AO2 = 2]**

1 mark for saying there is a negative relationship / correlation (between the number of online hours and satisfaction scores).

1 mark for further detail e.g. the **more** hours they have online the **less** they are satisfied with the course (or vice versa), however this does not indicate a cause and effect relationship.

Accept other valid conclusions.

2

(j) **[AO2 = 2]**

1 mark for the mode = 19

1 mark for the median = 12

2

(k) **[AO2 = 2]**

2 marks for a clear and coherent explanation.

1 mark for a muddled or limited explanation.

- The median is more representative than the mode because the mode is at the top end of the set of scores, whereas more of the scores are numerically closer to the median.

Accept other explanations, for example, in terms suitability in relation to ordinal data vs nominal data.

2

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(l) **[AO1 = 1]**

1 mark for B

1

[24]

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Q1.

Part (a) was generally answered very well and most students were able to explain why matching the students was important. However, some failed to apply their response to this specific situation as thus were limited to 1 mark.

In part (b) many students were able to identify an appropriate variable to match the students on and then go onto explain how this might affect satisfaction scores. There were many possible accurate responses with the most common being how difficult they may find the topic (often linked to IQ) and prior knowledge of business studies. A significant minority of students identified an appropriate variable but then failed to apply it to this situation and explain how it may have affected satisfaction scores. There was also a significant number of students who failed to engage with the question and simply suggested one of a number of generic variables such as IQ, gender or age. Unless these variables were clearly linked to an appropriate variable (such as linking age to interest/experience of using computers) they would not be appropriate variables to match students on in this study and thus would not receive credit. It is important to remind students to engage with the question posed and tailor their answer to that specific question not to simply produce a response of non-specific rote-learned material.

In part (c) it was clear from student responses that the vast majority of students appeared to have some understanding of the process of random allocation. However, fewer students seem to clearly understand the reasons why random allocation is used and thus failed to answer the question posed. Of those students who did answer the question correctly some failed to apply it to this situation and thus were limited to 1 mark. It is important to note that simply referring to removal of bias without any outline or application is not sufficient to gain any credit. Reference to bias needed to be clearly focused on either removal of researcher bias or removal of participant bias and should be outlined and applied for full credit.

In part (d) most students clearly understood the strengths of stratified sampling and / or the weaknesses of opportunity sampling. However, many failed to tailor this knowledge to the actual question posed and did not explain why stratified sampling might be better than opportunity sampling in this study. Most students produced limited responses where they simply explained the strengths of stratified sampling or the weaknesses of opportunity sampling. Some students did explain why stratified sampling was an improvement in general but failed to apply their reasoning to this specific design. Equally there were many responses which had implicit explanation of improvements which was not clear and so not sufficient for full marks. A significant minority of students either produced responses which had no relevant content or did not attempt the question suggesting that some students did not have the knowledge to enable them to answer this question. There was also some confusion with systematic sampling. This is particularly disappointing considering there was a similar question on the previous examination paper in the June 2017 series which also asked about how stratified sampling could be an improvement (although in comparison to volunteer sampling). It is important to remind students that just because a topic appears on an exam in one series does not mean that the same topic cannot appear on the exam in the following series. It is also important to use previous examination questions with students to ensure they are familiar with the style and type of questions which they may be presented with in their actual examination.

In part (e) the overwhelming majority of students answered correctly and there was a wide range of appropriate questions which would generate qualitative data seen in student responses. Unfortunately, a very small minority of students wrote Likert scale questions which would have generated quantitative data.

In part (f) there were some excellent responses with a range of different appropriate problems with analysing qualitative data seen. Most students who identified an appropriate problem went on to clearly explain it and thus gain full credit. However, some students failed to address the actual question posed and explained problems either with collecting qualitative data (such as ‘it takes time for participants to complete’) or with the validity of the qualitative data (such as ‘participants might lie in their responses’). Responses must be based on analysis to gain credit and the most common error seen was where students were focusing on subjectivity of the participants when answering the questions to produce the qualitative data rather than subjectivity of the researcher when analysing the qualitative data.

In part (g) most students answered correctly and a wide range of outlined ethical issues was seen in responses. Unfortunately, a few students simply named an ethical issue without outlining it.

In part (h) most students were able to draw an accurate scattergram with two appropriately labelled axes on suitable scales. A small minority of these students also produced an accurate and appropriate title which referred to the relationship between the two co-variables. However, many students failed to either provide a title for their graph or produced an inaccurate or vague title which was not sufficient for credit. There were also errors in plotting points in some responses and some students produced very small graphs with inappropriate scaling. Some students failed to read the question correctly and did not draw a scattergram. A variety of incorrect types of graph were seen but the most common was a line graph where students had joined up the plotted points ethical issue without outlining it.

The vast majority of students scored one mark in part (i) as few responses had both components required for two marks. Most responses only included a description of the relationship between online hours and satisfaction but did not identify the relationship as a negative correlation. The description of the relationship was expressed in several different accurate ways but the most common was more online hours the less satisfied they were. A small number of students produced confused conclusions based on causal relationships which were incorrect.

Part (j) was answered very well with the vast majority of students correctly calculating both the mode and median satisfaction scores and thus being awarded full marks. A very small minority made a mistake in their calculations leading them to produce an incorrect median and/or mode. Unfortunately, a very small number of students failed to fully answer the actual question posed and calculated a mean value instead of either the median or mode.

In part (k) there was evidently much confusion amongst students as to why the median would be more representative than the mode in this data set. Most responses simply consisted of statements of how to calculate the median and the mode rather than explaining a reason why the median might be more suitable to represent the average score in this study. Some students were able to explain why the mode was less representative of the average satisfaction scores and thus produced a limited explanation but very few were able to explain why the median was more representative. Only a very small minority of students were able to explain that the median was more representative as it is numerically closer to more of the other scores in the data set compared to the mode and thus few students gained 2 marks. Some students simply repeated the question stating that the median is more representative than the mode without any explanation.

There were a lot of correct answers to part (l) and it was apparent that many students had the knowledge to be able to identify the negative skew in this data. However, when compared to the other MCQ on this paper, more students did not attempt this question and the number of correct responses was lower. This suggests that their knowledge of negative skew was poorer than their knowledge of introspection and overt observations.