OCR
RECOGNISING ACHIEVEMENT

GCE

Psychology

Advanced Subsidiary GCE

Unit **G541:** Psychological Investigations

Mark Scheme for January 2013

Oxford Cambridge and RSA Examinations

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

Annotations

Annotation	Meaning
	Unclear
	Attempts evaluation
	Benefit of doubt
	Context
	Cross
	Evaluation
	Extendable horizontal line
	Extendable horizontal wavy line
	Significant amount of material which doesn't answer the question
	Not answered question
	Good use of resources
	Tick
	Development of point
	Omission mark

Section A

Researchers conducted a study investigating the correlation between how tall a person is and how confident they are. Each participant's height was first measured in centimetres (cms) and then they were asked to rate themselves on a scale of 1 to 100 how confident they would be about giving a public speech (where 1 = not confident at all and 100 = totally confident).

Question			Answer	Marks	Guidance
1			An acceptable alternate hypothesis would be something like: *'There will be/is a correlation (or relationship) between a person's height and how confident they are'*	Max 4	-Candidates who state an *experimental* alternate hypothesis (*there will be a difference …)* or state a null hypothesis should be awarded zero. If two groups/conditions are implied (eg 'taller than'/'smaller than') then zero -Responses phrased as a research question cap at 3 -The variable 'confidence' needs to refer to 'confidence in public speaking', rather than just 'confidence' per se -Candidates do not have to commence with *There will be …* , or use the word 'significant'. -Either a one- or two-tailed hypothesis is acceptable. -Note: variables do not have to be operationalized for full marks
			The candidate has not provided any creditworthy information	0	
			The candidate has written an appropriate alternate hypothesis but has simply stated 'there will be/is a correlation'. There is no indication of either variable	1	
			The candidate has written an appropriate alternate hypothesis but has only referred to one variable (eg 'there will be/is a correlation with the person and their height')	2	
			The candidate has written an appropriate alternate hypothesis referring to both variables, but there is a lack of clarity for either one or both variables (eg there will be/is a correlation between a person's height and how confident they are')	3	
			The candidate has written a clearly stated appropriate alternate hypothesis referring to both variables	4	

Question			Answer		Marks	Guidance
2			Strengths include: generates quantitative data which is easy to analyze; less subjective than qualitative assessment methods, degree of confidence etc Weaknesses include: individual differences in the interpretation of the scale social desirability; dishonesty lowering validity, not informed about why they feel confident or not etc. Up to 3 marks for strength, and up to 3 marks for weakness		Max 6	-Context = confidence -Comments must relate to the measurement of the variable (confidence) – eg it is not creditworthy to discuss how an individual's mood on the day could influence the measurement of the variable -2 marks example = *could be demand characteristics when rating confidence* -Strength/weakness can refer to the use of self-report here in general and need not be specific to the use of the rating scale per se -Comments relating to the measurement of just one aspect of confidence (ie in giving a public speech) being limited are creditworthy
			The candidate has not provided any creditworthy information		0	
			Brief, unclear and general outline of the strength/weakness		1	
			Clear outline of the strength/weakness but not in context of investigation	**OR** unclear, but in context	2	
			Clear outline of the strength/weakness in context of investigation		3	

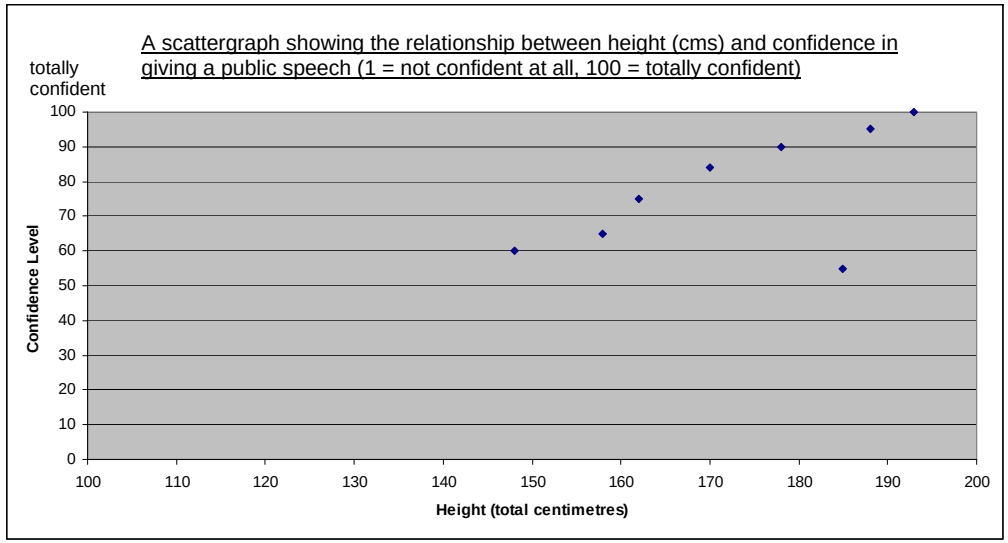
Question			Answer	Marks	Guidance
3			A scatter graph looking something like this should be produced ... 	Max 4	-Units of measurement must be indicated on axes -Note scales on axes do not have to start at zero (given the data plotted it may be preferable to commence a scale commensurate to the data obtained). However, it is acceptable to commence scales at zero, providing all the necessary data is plotted. -A title is not necessary for full marks, providing there is sufficient clarity in the labelling of the axes to convey what the study is about. -Confidence rating scale must clarify what 'low' and 'high' confidence is on the scale (this could be done as part of the title if a title is provided) -Zero if no data (or just one data point) is plotted
			The candidate has not provided any creditworthy information	0	
			Appropriate graph, but no labelling	1	
			Appropriate graph but incomplete, inaccurate in more than one way or unclear labelling in more than one way	2	
			Appropriate graph, but a slight lack of clarity (eg labelling on one axis is inaccurate or unclear but OK on the other, or some data not plotted)	3	
			Appropriate graph with clear labelling on both axes	4	

Table of data for reference when marking the scattergraph question

Participant (initials)	Height (total cms)	Confidence level about giving a public speech (1 to 100)
MM	185	55
GS	158	65
VW	188	95
MJ	148	60
EP	170	84
HA	178	90
HC	193	100
JW	162	75

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>4</td><td></td><td></td><td>Findings could include: In general, there is a positive correlation between how tall a person is and their confidence in giving a public speech; there was one outlier with one participant who was tall (185cm) rating their confidence in giving a public speech low (55)

Up to 2 marks for each finding ...</td><td>Max 4</td><td rowspan="4">-Context = confidence and/or height (or how tall), depending on which variable/finding being referred to

-Findings can be taken from the table OR from the scattergraph

-Reference to causation (eg claiming affect/effect of one variable on another), or mention of DV should be awarded zero.

-Reference to data from individual participants is acceptable

-Approximate correlation coefficient value is acceptable

-Accept descriptive statistics. Confidence (mean = 78.0, median = 79.5, range = 45.0) Height (mean = 172.75, median = 174.0, range = 45.0)</td></tr>
<tr><td></td><td></td><td>The candidate has not provided any creditworthy information</td><td>0</td></tr>
<tr><td></td><td></td><td>Finding identified, but could be clearer</td><td>1</td></tr>
<tr><td></td><td></td><td>Finding clearly identified in context

<table>
<tr><td colspan="3">Table of data for reference when marking the findings question</td></tr>
<tr><td>Participant (initials)</td><td>Height (total cms)</td><td>Confidence level about giving a public speech (1 to 100)</td></tr>
<tr><td>MM</td><td>185</td><td>55</td></tr>
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<tr><td>HA</td><td>178</td><td>90</td></tr>
<tr><td>HC</td><td>193</td><td>100</td></tr>
<tr><td>JW</td><td>162</td><td>75</td></tr>
</table>
</td><td>2</td></tr>
</table>

Question			Answer	Marks	Guidance
5			A positive correlation is where as the values of one variable increase, related values of the second variable also tend to increase (although not necessarily at the same rate)	Max 2	-Context = confidence and/or height (or how tall) -Reference to causation (eg claiming affect/effect of one variable on another) should be awarded zero. -Appropriate visual displays (sketches) are acceptable for one mark only (if no explanation is provided) -Reference to DV should be awarded zero. Eg As the IV increases the DV increases. -Reference to the word 'link' and/or 'association' on its own = zero
			The candidate has not provided any creditworthy information	0	
			Attempt to explain what a positive correlation is, but could be clearer	1	
			Clear explanation of a positive correlation	2	

Section B

A group of psychologists are interested in conducting an observation study of how people behave on a beach when on holiday.

Question			Answer	Marks	Guidance
6	(a)		For full marks the description of the procedure should allow replication and include information about **what** is being observed and **how** this is being done.	Max 6	-Major omissions is details of the 'what' (eg behavioural categories such as swimming and sunbathing etc) and 'how' (eg use of tally chart, time or event sampling, location of observers etc) exactly the observation would be conducted -Minor omissions = the 'when', 'where' and 'who' -Note that it is not always necessary to have full details of behavioural categories for maximum marks to be awarded -Reference to 'people' on its own is not enough for the 'who', but some additional information accompanying it (eg stating '40 people' or 'adults', or 'people on the beach') is acceptable
			The candidate has not provided any creditworthy information	0	
			Minimal description of procedure with major omissions that does not allow replication	1-2	
			Description of procedure with minor omissions that make a full and exact replication difficult (eg the duration of the observation period is unknown or some of the behavioural categories are unclear)	3-4	
			Detailed description of procedure that would allow a full and exact replication. 5 marks = replicable, but some lack of clarity (eg the 'who' is not explicit)	5-6	

Question			Answer		Marks	Guidance
6	(b)		For full marks the evaluation of the reliability and validity must be in context reference to beach or holiday etc) Up to 3 marks for evaluation of the reliability, and up to 3 marks for evaluation of the validity of the study		Max 6	-Context = the beach or holiday related (eg bikini, sand, swimming etc) **-Reliability** refers to issues concerned with the extent to which the observation could be conducted again in the same/similar way, and *not* whether the results obtained would be the same if repeated (although this can gain some credit as it demonstrates an understanding of the concept of reliability applied to observational research.) Examples could include reference to the extent to which the coding scheme is clear and observers trained to interpret the behaviour they are observing in the same way as each other. Comments about inter-rater reliability are creditworthy here, but note that simply having more observers does *not* necessarily increase reliability. Just stating 'easy to repeat' can gain one mark. **-Validity** is the extent to which the observation investigates what it set out to study. Reference to the validity of the operational details of the behavioural categories and also ecological validity are creditworthy. Also accept reference to population validity, sampling issues, observer bias and demand characteristics. -Accept comments about improvements that could be made to the procedure when discussing reliability and validity
			The candidate has not provided any creditworthy information		0	
			Brief and/or unclear evaluation of the reliability/validity of the study (whether in context or not)		1	
			Clear evaluation of the reliability/validity of the study but not in context	**OR** attempt to evaluate the reliability/validity of the study that is in context	2	
			Clear evaluation of the reliability/validity of the study that is in context		3	

Question			Answer	Marks	Guidance
7	(a)		Event sampling is when the observer(s) record specific occurrences of behaviour each and every time they occur continuously, and uninterrupted throughout the whole duration of the observation period.	Max 2	-Context not required here (but acceptable/creditworthy if included)
			The candidate has not provided any creditworthy information	0	
			Attempt to explain what event sampling is	1	
			Clear explanation of what event sampling is	2	

Question			Answer		Marks	Guidance
7	(b)		Strengths include: less likely to miss things as behaviour is monitored/recorded continuously and all occurrences of the behaviours being studied are noted, thereby potentially increasing the overall validity of the research, as well as the reliability of it's findings; also reference to the strengths of obtaining quantitative data Weaknesses include: might get difficult to record all specified behaviours at times and may miss some behaviours whilst recording others. Up to 2 marks for strength, and up to 2 marks for weakness		Max 4	-Context = the beach or holiday related (eg bikini, sand, swimming etc) -Accept strengths/weaknesses related to use of a coding scheme (eg weakness = the pre-determined categories used may not cover all behaviours witnessed).
			The candidate has not provided any creditworthy information		0	
			General description of strength/weakness but not in the context of the research outlined in the source material	**OR** attempt to describe strength/weakness (but lacks some clarity) that is in the context of the research outlined in the source material	1	-Do not accept general strengths / weaknesses of the observation method (eg ecological validity) -Reference to time consuming alone as a disadvantage is not creditworthy
			Clear description of strength/weakness that is in the context of the research outlined in the source material		2	

Question			Answer		Marks	Guidance
8			Ethical issues could include: lack of consent from participants; invasion of privacy; (although in both these cases it is acknowledged that the observation is occurring in a public place, which the candidate could mention and be credited for as this still shows awareness of a relevant ethical issue related to the study); possible harm from fear of being watched if the observer is spotted etc.		Max 2	-Context = the beach or holiday related (eg bikini, sand, swimming etc) -Ethical issue can be described but not named necessarily
			The candidate has not provided any creditworthy information		0	
			Ethical issue identified but not discussed in the context of the research outlined in the source	**OR** ethical issue identified, but lacks clarity, but is in context	1	
			Ethical issue identified and discussed in the context of the research outlined in the source material		2	

Section C

Psychologists wanted to investigate if the colour of food influenced how it tasted. To do this they made two bowls of mashed potato. One was normal creamy white in appearance, whereas the other had a green, tasteless and odourless food colouring added. Each participant had to taste both the normal and the green potato and rate how much they liked each one using a scale of 1 (don't like it at all) to 10 (like it a lot).

Question			Answer	Marks	Guidance
9	(a)		The experimental design used is a 'repeated measures design' (RMD). Also accept the term 'within subjects design'.	Max 2	-Stating 'lab experiment = zero -Stating 'same subjects design' = 1 -Simply stating RMD = 1 -Only naming design is required (unclear description, instead of naming eg *using same participants* = zero) *-If design named correctly, but described incorrectly (eg description of IMD after naming/identifying it as RMD) = zero*
			The candidate has not provided any creditworthy information	0	
			Attempt to identify the experimental design (eg simply saying 'repeated', or clear description of design but not named	1	
			Experimental design clearly identified	2	

Question			Answer		Marks	Guidance
9	(b)		Strengths include: control of individual differences in response to taste preferences; provides a better (purer) test of the effect of the IV on the DV; fewer participants needed; Weaknesses include: possible order (or carry-over) effects from having participated in one condition already; insight into aim of research increasing demand characteristics. Also accept more time consuming for participants. Up to 3 marks for strength, and up to 3 marks for weakness		Max 6	-Design can be named incorrectly here, but can receive up to 2 marks for strength, and 2 for weakness if comments relate to correct design (repeated measures). -Context = reference to taste, mashed potato or the colour (green and/or creamy white) -Reference to demand characteristics in relation just to use of the laboratory experimental method is not creditworthy
			The candidate has not provided any creditworthy information		0	
			Attempt to describe strength/weakness, but lacks clarity/detail and not in the context of the research outlined in the source material (eg strength/weakness identified but not *explained*)		1	
			Clear and detailed outline of strength/weakness, but in general – not in the context of the research outlined in the source material	**OR** Attempt to describe strength/weakness, but lacks clarity, but is in context of the research outlined in the source material	2	
			Clear and detailed outline of strength/weakness in the context of the material presented in the source material		3	

Question			Answer	Marks	Guidance
10			The IV is the colour of the mashed potato (white or green colour). The DV is the taste preference for the mash potato (or how much is was liked).	Max 2	-Zero if IV and DV not labelled/differentiated, or referred to incorrectly. -Reference to the *colour* of the mashed potato for the IV without operational details (green vs white) is acceptable.
			The candidate has not provided any creditworthy information	0	
			One variable correctly identified	1	
			Both variables correctly identified	2	

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>11</td><td></td><td></td><td>Possible suggestions here include: recording verbal comments made in response to tasting the mash potato; facial expressions; amount of mash potato eaten or length of time taken eating from each bowl of mash potato etc.

Evaluation issues will be dependent upon the alternative measurement method suggested, but could include problems associated with behavioural coding schemes (reliability etc), difficulties quantifying verbalisations made about the taste of the mash potato and accuracy of self-report measures etc.</td><td>Max 10</td><td rowspan="8">-Note that the alternative measurement can be basic/simple and still be clear and replicable

-Changes to the nature/theme of the study, such as changes to the IV – eg using different coloured mash potato (red) are not creditworthy

-Evaluation issues must clearly be related to the measurement of the DV

-Context = taste and or mashed potato

-Detailed evaluation can be about just one point</td></tr>
<tr><td colspan="3"></td><td>The candidate has not provided any creditworthy information</td><td>0</td></tr>
<tr><td colspan="3"></td><td>Minimal information – attempt to describe a way to measure the DV only – replication not possible
OR attempt to evaluate a way to measure the DV that has not been described (ie attempted evaluation only</td><td>1-2</td></tr>
<tr><td colspan="3"></td><td>Clear description of a way to measure the DV that would allow full replication, but no evaluation. If only minor omissions 3 marks
OR attempt to describe a way to measure the DV, but with some omissions that make replication difficult and attempt to evaluate it</td><td>3-4</td></tr>
<tr><td colspan="3"></td><td>Clear description of a way to measure the DV that would allow full replication, and attempt at evaluation (6 marks = evaluation attempted in context)
OR attempt to describe a way to measure the DV, with just minor omissions that make replication difficult, but detailed evaluation not in context (5 marks = evaluation attempted in context)
OR attempt to describe how to measure the DV but with some omissions that make replication difficult, but with clear and detailed evaluation, in context or not = 5 marks</td><td>5-6</td></tr>
<tr><td colspan="3"></td><td>Clear description of a way to measure the DV that would allow full replication and clear, detailed evaluation but not in context
OR attempt to describe a way to measure the DV, with just minor omissions that make replication difficult, but detailed evaluation mainly in context</td><td>7-8</td></tr>
<tr><td colspan="3"></td><td>For 9 marks – Clear description of a way to measure the DV that would allow replication and clear, detailed evaluation with reference to at least one evaluation issue in context

For 10 marks – Clear description of a way to measure the DV that would allow replication and clear, detailed evaluation with reference to two or more appropriate evaluation issues in context</td><td>9-10</td></tr>
</table>

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