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Candidate Style Answers

PSYCHOLOGY

H567
For first teaching in 2015

Unit 03 - Environmental Psychology

Version 1

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Contents

Introduction

This resource has been produced by a senior member of the A Level Psychology examining team to offer teachers an insight into how the assessment objectives are applied.

As these responses have not been through full moderation, they are banded to give an indication of the level of each response.

Please note that this resource is provided for advice and guidance only and does not in any way constitute an indication of grade boundaries or endorsed answers.

The sample assessment material for these answers and commentary can be found on the A Level Psychology web page and accessed via the following link: http://www.ocr.org.uk/Images/171772-unit-h567-03-applied-psychology-sample-assessment-materials.pdf

Question 8a

Question 8a

Using the research by Drews and Doig (2014), explain how ergonomic research can influence workplace design. **[10]**

Mark scheme

9–10 marks	Response demonstrates good relevant knowledge and understanding. Appropriate selection of material to address the question. There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.
6–8 marks	Response demonstrates reasonable relevant knowledge and understanding. lacking some detail with some evidence of material to address the question. There is a line of reasoning presented with some structure and the information is in the most-part relevant and supported by some evidence.
3–5 marks	Response demonstrates limited relevant knowledge and understanding with some material to address the question but may be related to the general topic area rather than the specific question. The information has some relevance and is presented with limited structure and supported by limited evidence.
1–2 marks	Response demonstrates basic knowledge and understanding. Responses will be generalised; lacking focus on the question. The information is basic and unstructured supported by limited evidence and the relationship to the evidence may not be clear.
0 marks	No creditworthy response.

Specific content

Responses must refer to the key study by Drews et al. to access the top band.

Knowledge and understanding should be demonstrated through describing the psychological evidence of the key study appropriately and effectively.

Candidates should apply knowledge and understanding of the Drews et al. study to explain how the ergonomic design of the VDU display was developed from the results of better reactions and spotting of problems from the graphical display.

It is important for the answer to make the link between ergonomic research (such as Drews et al.) and its influence on workplace design.

Less detailed answers or answers that simply describe the study without reference to the explanation will only gain marks in the lower bands.

High band answer

Ergonomics is the study of designing equipment and devices to work with humans both physically and cognitively. This type of research can take into account such factors as attention span, perception and problem solving in order to ensure that the workplace is as effective as possible. One such design was researched by Drews and Doig who worked with nurses in an intensive care unit. They gave half of the 42 nurses who were the participants information about the vital signs, such as blood pressure, oxygen saturation, and heart and respiratory rates, of patients with pulmonary embolisms or septic shock, on a 15-inch desktop computer using a configural vital signs (CVS) display, where the data is presented graphically and in context with each other and the norm. The other half of the participants had a 'traditional' ICU display that consisted of the 'numerical data' as the primary display with trend information accessible through a single key press. They found that the response time of participants in the CVS display condition could identify the patient's state 48% quicker than participants in the control display condition in the septic shock scenario and 38% quicker in the pulmonary embolism scenario. They also were more than a third more accurate when making an assessment of the septic shock and pulmonary embolism patients using the CVS compared to the normal display. This research shows that the design of the workplace, in this case the display, the impact on both speed of processing information, and the accuracy of assessments can be influenced by the display and therefore the patient care in hospital can be improved if ergonomic design based on research such as Drews is used.

Commentary

This question does not ask for a description of the study, but the answer refers to the study to answer the question of how ergonomic research can influence workplace design. This answer has good knowledge of the study, and is detailed. It links back to the question regarding how the workplace has been influenced by research in terms of the VDU display.

Middle/lower band answer

Drew et al's study was carried out on 42 nurses who worked in the intensive care department of a hospital in America. They were given a machine which showed them the information about the patient in terms of a graph, which compared the patient to the norm and could show any changes for the better or worse. They were compared with nurses who had a traditional display which was numbers showing things like heart rate and blood pressure as a figure rather than a graph. Each nurse was then assessed to see how long it took them to identify the patient's status and how accurate they were at making an assessment of the patient. They were tested on patients with pulmonary embolism and septic shock. The findings were that the nurses were much quicker in the graphical display condition at responding to the patients and a third more accurate at making an assessment. Drews concluded that the display helped the nurses make an assessment.

Commentary

This answer focuses on the study with very little link to the question about how it can influence workplace design. This will therefore keep it in middle of the mark scheme 'some material to address the question but may be related to the general topic area rather than the specific question.'

Bottom band answer

Ergonomics is the use of research into people in the workplace and how the results of that can improve the workplace. We might design chairs for people that can be moved to particular height and a particular angle and schools will have furniture that is suitable for young children. We can also look at cognition and how the way we think can influence the best workplace design, by using screens and colours which make things clearer. B-17 bombers had switches for the landing gear next to the switches for the landing flaps and the pilots were pressing the wrong switch and landing without their wheels down.

Commentary

This answer doesn't really address the question, 'Responses will be generalised; lacking focus on the question.' It doesn't refer to the study as requested in the question, and has some basic knowledge and understanding on ergonomics and the workplace with very limited evidence which is not elaborated on to explain how the workplace (the cockpit of the bombers) would be changed in light of this.

Question 8b

Question 8b

Assess the methodological issues involved when researching the impact of observation in the workplace. **[15]**

Mark scheme

12–15 marks	Response demonstrates good relevant knowledge and understanding. Response demonstrates many points of analysis, interpretation and evaluation covering a range of issues. The argument is competently organised, balanced and well developed. The answer is explicitly related to the context of the question. Effective use of examples where appropriate. Valid conclusions that effectively summarise issues and argument is highly skilled and shows good understanding. There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.
8–11 marks	Response demonstrates good relevant knowledge and understanding with a reasonable number of points of analysis, interpretation and evaluation covering a range of issues. The argument is well organised, but may lack balance or development, and is related to the context of the question. Reasonable use of examples where appropriate. Valid conclusions that effectively summarise issues and arguments are competent and understanding is reasonable. There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.
4–7 marks	Response demonstrates reasonable knowledge and understanding with a limited number of points of analysis, and interpretation and evaluation which are limited in range. Argument and organisation is limited, and some points are related to the context of the question. Some valid conclusions that summarise issues and arguments. The information has some relevance and is presented with limited structure. The information is supported by limited evidence.
1–3 marks	Response demonstrates basic knowledge and understanding with a few basic points of analysis, interpretation and evaluation and no evidence of argument. Points are not organised, and are of peripheral relevance to the context of the question with sparse use of or no supporting examples. Basic or no valid conclusions that attempt to summarise issues and arguments show little understanding. The information is basic and communicated in an unstructured way.
0 marks	No creditworthy response.

Specific content

Knowledge and understanding is demonstrated through the identification of methodological issues in observations such as bias, demand characteristics or even more likely social desirability bias.

These issues must be specifically linked to research in the workplace, such as Drews et al. Evaluation of issues such as sampling are unlikely to address the question as the answer should be linked to the method of observation not carrying out research.

Examples from research can show the candidates understanding, and development of an argument will indicate a higher band answer. In order to demonstrate analytical, interpretative and evaluative skills candidates must discuss the issues identified and make conclusions.

High band answer

One methodological issue involved in researching the impact of observation is that of researcher bias. This is where a researcher may want to find certain behaviours to support his hypothesis. In the Gilbreths' research their aim was to standardise the bricklaying trade and so they may have ensured that their observation of the motions made by workers showed the most efficient movements. This would decrease the validity of the study as there is nothing to suggest the accuracy of the observation. It would be possible to assess this research against other research to ensure concurrent validity, and this would make the research by Gilbreth more useful.

Another issue could be the demand characteristics and social desirability shown by participants if they know they are being observed. Mayo's study into the workers at the Hawthorne factory was looking at the impact of lighting levels on production. However it was found that all workers showed an increase in production and this was considered to show the social desirability of working hard, whether in the experimental condition or not, and so just by being observed the behaviour changed. This would reduce the validity, but one way would be to carry out covert observations. Obviously this would result in more natural behaviour but may have ethical considerations. Observational research of workplace behaviour has to be a balance between workers' rights to know they are being observed and the need to gain valid data, unaffected by participant interpretations of the research situation. The BPS guidelines for carrying out research now highlight the need for respecting a person's right to know they are participants in research by gaining consent. However it is this that may impact on the behaviour, and simply being observed suggests extraneous variables may affect the dependent variable, as in Mayo's study. These guidelines are current and were not the same for Mayo in the 1920s and 30s in America so we can't judge this research against current British guidelines. However it is an issue which must be taken into consideration for contemporary research. Informed consent must be gained where possible from participants who are being observed in the workplace, and whilst this might make the research more socially responsible it can decrease the validity of the data gathered due to the changes in behaviour caused simply by the observation and not by any manipulation of independent variables.

Finally the issue of ecological validity is less likely to cause concern, as observations in the workplace will by their very nature be high in ecological validity. Both Gilbreth and Mayo observed behaviour in the real life setting of the workplace, and as such will gain validity in the accuracy of their data. However the high ecological validity may result in less control over extraneous variables, such as employees' experience, or health and these may cause some lack of validity in the data gathered.

Commentary

This answer focused on methodological issues, as listed in the specification and is linked to observation method not just any methodological issues. Several references to research are given, which are appropriate. There are some valid conclusions (comments) and the structure is logical.

Middle/lower band answer

One of the issues involved in researching the impact of observation in the workplace is that of demand characteristics. Demand characteristics are when a participant in research works out what they think the person is looking for and shows that behaviour. For example the Hawthorne study the women in both lighting level groups showed an increase in production even when the researchers only pretended to change the lighting levels, showing the impact of observation in the workplace.

Another issue involved in research the impact of observation in the workplace is social desirability. If a person is being observed in the workplace they might want to show socially desirable behaviour, so they would work hard and not take long breaks chatting, this might be why the women in the Hawthorn study showed increased production. This shows that socially describable behaviour might make people act differently from what they would normally.

A final issue involved in the research of the impact of observation in the workplace is ecological validity. Studies in the workplace are set in a natural setting - the workplace - and so will have high ecological validity, that is they are like real life so will show real life behaviour. This is better than setting research in a lab where it might be artificial. The Hawthorne study had high ecological validity as it took place in the actual factory so showed real life behaviour.

The methodological issues involved in researching the impact of observation in the workplace, are demand characteristics, social desirability and ecological validity and researcher have to be aware of these when carrying out research.

Commentary

This answer has identified a reasonable number of points but the argument is limited. The points are related to the question, but there is a lack of valid conclusions that summarise the issues and arguments. However there is some evidence of understanding and the use of example is limited to reasonable. It has the hallmarks of a level 2 and 3 boundary answer.

Bottom band answer

The problems with carrying out research into workplaces is that there can be problems with a limited generalisabilty of the sample. For example the Hawthorn study only looked at women in the workplace and can't be generalised to men. Another problem is the issue of ecological validity in that the observation is carried out in a natural setting and so has high EV therefore showing real life behaviour. The Hawthorne study showed real life behaviour in the factory. Observations can also be carried out by participant or non-participant observers, in a structured or unstructured way and these make a difference to the observer's notes. They might be biased or more detailed, and they might miss some things if they don't have a structure.

Commentary

Basic analysis points with no development of argument and sparse use of examples. There is some creditworthy material but much that is an evaluation of the problems of carrying out research rather than carrying out observations. It is basic and unstructured.

Question 8c

Question 8c

Angie is an air traffic controller, one of the most stressful jobs according to suicide statistics. She often has several planes to manage in and out of a busy regional airport. She has to monitor their speed, flight path and height as well as have an ongoing dialogue with the pilot throughout their landing and take-off. It's no wonder she is exhausted at the end of a shift as she is very aware of how easy it would be to miss a vital piece of information.

Discuss how a psychologist could design Angie's work station to prevent cognitive overload. **[10]**

Mark scheme

9–10 marks	Response demonstrates a good application of psychological knowledge and understanding to the question. Application will be explicit, accurate, with a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.
6–8 marks	Response demonstrates a reasonable application of psychological knowledge and understanding to a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.
3–5 marks	Response demonstrates a limited application of psychological knowledge and understanding to the question and may relate to the general topic area rather than the specific question. The information has some relevance and is presented with limited structure. The information is supported by limited evidence.
1–2 marks	Response demonstrates a basic application of psychological knowledge and understanding only partially relevant to the question: Responses will be generalised; with basic information communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.
0 marks	No creditworthy response.

Specific content

Candidates are expected to apply their knowledge of cognitive overload to the practical context of designing a work station. Knowledge of cognitive overload should include what can cause it, plus knowledge of the key study on how to design work stations, this knowledge should be specifically applied to the situation of Angie. They could consider graphical display, pushing some data into the background, automatic support, i.e. computers filtering out unnecessary data, the organisation of data into patterns so that unusual data stands out based on perceptual skills, or only using a few colours.

To gain top band, candidates should apply their background knowledge specifically to the context of the design of Angie's work station

High band answer

Psychologists would need to know what the problem is in terms of cognitive overload and so would then be able to design a work station to reduce this. Bell et al highlighted four aspects of cognitive overload which included Angie's capacity to process the information, which will be limited to the speed of her processing and the speed in which the information is being presented to her. If these stimuli come in too quickly for Angie to process, such as several planes at once needing managing, then she will focus on one task and block out other incoming information – which may be more important in Angie's case such as an aeroplane with low fuel, or an engine problem, or on the wrong flight path. Computers could be designed to ensure that only the important information that Angie needed was given to her, and non-essential information was filtered out, but accessible if necessary. Bell also suggested that we give most attention to stimuli that are unpredictable and intense and which need a response to sort the situation. So if Angie does focus on the problem flight then she is more likely to take her attention away from all of the other flights. There is also the problem of the length of time cognitive information is being processed for, as the longer this happens the higher the chance of cognitive overload. Having worked out what might make Angie suffer from cognitive overload a psychologist would need to ensure that Angie can manage the rate at which she is given information, and maybe has to switch some flights to other air controllers who are not so busy at that time. She also needs to know which information is most important, such as planes with problems or if a plane is off the flight path, and this will be attended to according to Bell, but again Angie needs to be able to take her attention away from other non-urgent flights, either by switching to other flight controllers who are not dealing with information or by keeping the non-urgent flights updated with automatic recordings that Angie could instigate. Drews found that more accurate and quicker assessments could be made if the data was presented visually in graphical form, with comparisons for context and normal situations, and this could be how the display was designed for Angie so that they could see in graph from if any plane was not following the normal path, or had highlighted a problem. In order to reduce the chance of cognitive overload Angie also needs to have frequent breaks to stop the length of time she is managing flights from becoming too long and increasing the likelihood of cognitive overload.

Commentary

This answer uses knowledge of the key research and some information from the background on cognitive overload, to identify the problem and suggest practical solutions based on the context of Angie's job and the psychological research substantiates this.

Middle/lower band answer

Cognitive overload can be caused by a person's limited ability to process information which is coming in too much at a time. The person may then miss vital information or make mistakes as they can't fully process all of the information. The psychologist needs to ensure that the important information is available for Angie and the less important information is much less visible unless Angie needs it. The psychologist could suggest a visual display rather than a numerical display – as Drews found this increased the accuracy and speed of assessment. So they could show an arrow which is green if the plane is a safe distance away and red if it is too close, with colours going from green to red via amber. This would be better than just showing the distance in numbers. If Angie can then focus on the important information, and not take too long processing information she should be able to manage the flights she is responsible for.

Commentary

This answer does address the question in a limited way, with some evidence to substantiate the suggestion. There is a clear link to the scenario, and there is some understanding of what cognitive overload is and how it might be overcome in a practical way. It is limited rather than reasonable but has features that would suggest it would be at the top end of band 2.

Bottom band answer

Angie is an air traffic controller and needs to avoid the exhaustion she feels at the end of each shift. She could do this by taking more breaks, so that she is less tired, and having a chair and desk at the right height so that she is not looking at the wrong angle. She could also have colours to tell her which plane is nearer and which is further away so that she can focus on the immediate planes. Research has shown that by overcoming cognitive overload the workplace can be a better place for everyone.

Commentary

This answer has some basic information about ergonomics and workplace design, but there is not much focus on the specific scenario, and there is no substantiation to the suggestions in terms of evidence. It is a generalised answer with basic detail, and is unstructured.

The small print

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