



National Qualifications 2013-14

Psychology Higher C263 12

Research Investigation Briefs for use in Session 2013/14

This document contains briefs for each of the Research Investigation titles to be used in session 2013/14. Candidates must choose one of the Research Investigation Briefs from the list below:

<i>Psychology: Understanding the Individual</i>	
Page 3	1. Memory An investigation into the use of images to aid memory.
4	2. Stress A laboratory experiment on the effect of a mild 'stressor' on a biological response.
<i>Psychology: The Individual in the Social Context</i>	
5	3. Conformity An experimental investigation of the influence of others' judgments on estimation of number of sweets in a jar/pasta pieces in a pack.
6	4. Atypical Behaviour A correlational study investigating whether specific phobias of animals (zoophobia) are related to the animals' appearance.
8	5. Intelligence A questionnaire survey investigating age differences in people's lay beliefs about the nature of intelligence.

NB Several references are provided with each brief. Most of these are cited in widely available texts, and it is not necessary for teachers and candidates to access all of these primary sources, for the RI report. In all cases, many other relevant research studies are covered in various textbooks and online.

Psychology Higher C263 12

Research Investigation Briefs for Session 2013/14

Note

Higher Psychology candidates are required to undertake a Research Investigation (RI) as one of the two components of the external Course assessment. Teachers/lecturers and candidates should select **one** of the five research investigation briefs provided here. For session 2013-14: two are based on a topic from the Unit 'Psychology: Understanding the Individual', and three are from 'Psychology: The Individual in the Social Context'.

Please also refer to the current Arrangements document, particularly the Guidance on Learning and Teaching in the 'Investigating Behaviour' Unit specification. The practical skills of planning and logging research are required for internal assessment of that Unit, therefore the NAB materials for the Unit provide a template for a research plan and log; it is recommended that this forms the basis of the RI. Comprehensive guidance on the conduct and reporting of the RI is given in the SQA document *Higher Psychology Research Investigation Guidelines* (Revised 2010). Information on Course Assessment can be found in the *Course Assessment Specification (CAS)*. All information and guidance relevant to the RI, including this document, can be found on the SQA website – www.sqa.org.uk.

The research design to be followed is provided in this document. The references provide useful background information on the topic under investigation. Teachers/lecturers are encouraged to promote candidates' active participation in the design process, rather than simply giving the brief as a handout.

It is the centre's responsibility to ensure that candidates follow ethical procedures with all participants. See the BPS *Code of Ethics and Conduct* (2009), at www.bps.org.uk; and the ATP *Guide to Ethics for Teachers and Students of Psychology at Pre-Degree Level* (2003), the latter being included in the SQA document *Higher Psychology Research Investigation Guidelines* (Revised 2010).

Psychology Higher C263 12

Research Investigation Briefs for Session 2013/14

(1) Memory

An investigation into the use of images to aid memory.

Background: this research is based on research by Paivio (1969; 1986) and is concerned with the use of images as an aid to recall. Paivio suggested the dual-coding approach ie information can be stored in memory based on verbal codes and sensory codes. He found that abstract nouns (eg psychology) were harder to recall than concrete nouns (eg dog). This is because it is easier to store concrete nouns visually as well as verbally – the dual-coding approach. This could be regarded as a mnemonic device to aid memory. Other related research was undertaken by Bower (1972) who asked participants to create a mental image of pairs of unrelated nouns eg 'cat' and 'skateboard', where the two nouns interacted eg the cat riding a skateboard. He found that more bizarre the image the greater the recall. Anderson (1995) found bizarre images produced the best recall due to their distinctiveness.

Aim: To investigate the use of images as a mnemonic device to aid memory.

Hypothesis: Candidates should devise suitable null and experimental hypotheses for the investigation.

Method: A laboratory based experiment using an independent groups (between subjects) design; the two conditions of the Independent Variable (IV) are: presentation of words **with** and **without** images.

The dependent variable (DV) is the amount of information recalled. Controls should be discussed, with particular reference being made to the use of an independent groups design. Candidates should identify an appropriate sampling method (opportunity sampling is acceptable) and devise an ethical standardised procedure. Stimulus materials should be prepared in the form of approximately 20 concrete nouns: 20 will be presented with an image and **the same** 20 without an image. Images may be obtained from Clipart or other copyright-free sources. Apparatus/materials should be prepared, including brief/request for consent, standardised instructions, debrief.

Specific Ethical Considerations: As well as routine ethical procedures (informed consent, right to withdraw, confidentiality, debrief, participants must be 16+ etc), candidates should be encouraged to explore ethical issues specific to this investigation. They should be aware of the need to ensure privacy, and for sensitive treatment of participants. For example, participants should be assured that the memory task is not an intelligence test.

Results: Raw data obtained should be tabulated (number of items recalled). Descriptive statistics should be applied which are appropriate to the data, eg a mean recall score; suitable type(s) of graph(s) should be selected, eg bar chart, frequency histogram.

References:

- Anderson, J.R. (1995b) *Cognitive Psychology and its Implications*. New York: W. H. Freeman & Company
Bower, G. H. (1972) Mental Imagery and Associative Learning. L. Gregg (ed.), *Cognition in Learning and Memory*. New York: Wiley
Paivio, A.(1969) Mental imagery in associative learning and memory. *Psychological Review*, 76, pp 241 – 263
Paivio, A. (1986) *Mental Representations: A Dual Coding Approach*. Oxford: Oxford University Press

Additional Reading

- Gross, R. D. (2005) *Psychology: The Science of Mind and Behaviour*, London: Hodder Arnold, Chapter 17, pp 296-297.
Williamson, M. et al (2007) *Higher Psychology*, Cheltenham: Nelson Thornes, Chapter 2 pp 46-51

Psychology Higher C263 12

Research Investigation Briefs for Session 2013/14

(2) Stress

A laboratory experiment on the effect of a mild stressor on a biological response.

Background: From the 1930s onwards Hans Selye led research into stress. Selye (1946) found that our bodies react to stress with a recognisable three-stage pattern of responses, which he named the General Adaptation Syndrome (GAS). Sources of stress may be individual, for example certain personality characteristics are associated with greater susceptibility to stress (eg Friedman & Rosenman, 1974); other stressors are social, occupational (eg Marmot et al, 1997) or environmental. Research in this area often involves putting individuals under stress experimentally, or by taking advantage of a real-life stressful situation, such as students taking exams (eg Kiecolt-Glaser et al, 1984). Many experimental studies have been conducted on non-human animals (eg Brady, 1958). In one study on human participants, Glass et al (1969) induced frustration by giving participants unsolvable puzzles, and found that those who had been subjected to unpredictable loud noise showed highest levels of stress.

Aim: To investigate the effect of a mild stressor on a specific biological response.

Hypotheses: Candidates should devise suitable null and experimental hypotheses.

Method: A laboratory experiment using independent measures (independent groups) design. The two conditions of the independent variable (IV) are two versions of a word-search task, where one has a complete set of words available in the word-search grid, and the other has a word(s) missing in the grid (alternatively, a dot-to-dot task where one version has a complete set of dots and the other has one dot missing). The dependent variable (DV) is the biological response, measured by, for example, "biodots" (which change colour in response to skin temperature change), or a heart rate monitor, or manual measurement of pulse using a stop-watch. Candidates should take a resting rate of the biological measure to act as a control between groups prior to measuring under the IV conditions. Certain variables should be controlled, especially those relevant to an independent measures design. Opportunity sampling is acceptable, and candidates should devise an ethical standardised procedure. Materials should be prepared in the form of a task with two versions. Other materials should include a brief and request for consent, standardised instructions for participants, and debrief.

Specific Ethical Considerations: As well as routine ethical procedures (informed consent, right to withdraw, participants must be 16+, confidentiality, debrief, etc.), candidates should consider ethical issues specific to this investigation, such as deliberately putting participants under stress. However, the stress will be 'mild', and less than participants experience in everyday life. Even so, sensitive treatment of participants is essential, as some participants may see this as a test of ability and therefore feel embarrassed. Testing participants individually may reduce possible embarrassment.

Results: Raw data obtained should be tabulated. Descriptive statistics should be applied which are appropriate to the data, eg means, medians, ranges (see Ready Reckoner from SFEU). Suitable graph(s) should be selected, eg bar chart of means/medians.

References:

- Brady, J.V. (1958) Ulcers in executive monkeys. *Scientific American*, 199, 95-100.
Friedman, M. and Rosenman, R.H. (1974) *Type A Behaviour and Your Heart*, New York: Knopf.
Glass, D.C., Singer, J.E. and Friedman, L.W. (1969) Psychic cost of adaptation to an environmental stressor. *Journal of Personality and Social Psychology*, 12, 200-210.
Kiecolt-Glaser, J.K., Garner, W., Speicher, C.E., Penn, G.M., Holliday, J. and Glaser, R. (1984) Psychosocial modifiers of immunocompetence in medical students. *Psychosomatic Medicine*, 46, 7-14.
Marmot, M., Bosma, H., Hemingway, H., Brunner, E. and Stansfield, S. (1997) Contribution of job control and other risk factors to social variation in coronary heart disease incidence. *The Lancet*, 350, 235-239.
Selye, H. (1946). The general adaptation syndrome and the diseases of adaptation. *Journal of Clinical Endocrinology* 6:117-230

Psychology Higher C263 12

Research Investigation Briefs for Session 2013/14

(3) Conformity

An experimental investigation of the influence of others' judgments on estimation of number of sweets in a jar/pasta pieces in a pack.

Background: In 1932 Jenness asked participants individually to guess the number of beans in a jar. Participants were then given the opportunity to discuss their estimates with each other and asked to guess the number of beans in the jar again. It was found that the wide-ranging individual estimates converged towards a narrower group norm. Sherif (1935) investigated participants' responses to an ambiguous task. Using a procedure based on the autokinetic effect individual participants had to estimate how far a light appeared to move in a darkened room. Then, working in groups of four they discussed how far they thought the light had moved and then again individually estimated how far they thought the light had moved. The results again demonstrated that when people are exposed to the judgment of others their responses tend to become similar, suggesting conformity to group norms. Later researchers, notably Asch (1951, 1952), developed theories of conformity which provide explanations for such findings.

Aim: To discover whether people will conform to a group norm in an ambiguous task; more precisely, to discover whether people's responses in a task will differ if they are exposed to other people's judgements.

Hypothesis: Candidates should devise suitable null and experimental hypotheses, reflecting the variables under investigation.

Method: A laboratory or field experiment using an independent measures (independent groups) design. The two conditions of the independent variable (IV) are the use of a pre-completed high estimate sheet and a blank estimate sheet, and the dependent variable (DV) is the participant's estimate of the number of sweets in a jar/pasta pieces in a pack. Controls should be incorporated in the procedure, including those relevant to the use of an independent measures design. Opportunity sampling is acceptable, and an ethical standardised procedure should be devised. Materials should be prepared in the form of:

- a jar of sweets (or pack of pasta), or a good quality (A4 size) photograph of the jar of sweets or of the pack of pasta
- two types of estimate sheets: one with fictitious high estimates, as if given by previous participants and the other a blank one with no previous estimates shown.

Other materials should include a brief and request for consent, standardised instructions for participants, debrief. Researchers should count the sweets/pasta pieces first, in order to decide on fictitious high estimates which are plausible.

Specific Ethical Considerations: As well as routine ethical procedures (informed consent, right to withdraw, participants must be 16+, confidentiality, debrief, etc), candidates should consider ethical issues specific to this investigation. They should be sensitive to the possibility that some participants may see the task as an ability test, and therefore feel threatened or embarrassed. Candidates should address the issue of deception involved in the study, eg by careful debriefing. Although this task appears similar to popular competitions, participants should not be asked to pay to take part.

Results: Participants' estimates should be tabulated as raw data. Descriptive statistics should be applied, which are appropriate to the data and the hypothesis, ie measure(s) of central tendency and measure(s) of dispersion; suitable type(s) of graph(s) should be selected, eg bar chart of means/medians, frequency histograms.

References:

- Asch, S. (1951). Effects of group pressure upon the modification and distortion of judgements. In H. Guetzkow (ed.), *Groups, Leadership and Men* (pp.177-90). Pittsburgh: Carnegie Press.
- Asch, S. (1952). *Social Psychology*. Englewood Cliffs, NJ: Prentice Hall.
- Jenness, A. (1932). The role of discussion in changing opinion regarding matter of fact. *Journal of Abnormal and Social Psychology*, 27, 279-296.
- Sherif, M. (1935) A study of some factors in perception. *Archives of Psychology*, 27(187).

Psychology Higher C263 12

Research Investigation Briefs for Session 2013/14

(4) Atypical Behaviour

A correlational study investigating whether specific phobias of animals (zoophobia) are related to the animals' appearance.

Background: A number of different explanations have been proposed for the origins of specific phobias, from various psychological perspectives, in particular the psychoanalytical, behaviourist, and biological approaches; accordingly, these approaches offer a range of treatments for phobic disorders, based on their respective explanations of the causes of the disorder.

Bennett-Levy and Marteau (1984) demonstrated that people's fear of a range of small animals was strongly correlated with the animals' appearance. In particular, the amount of fear expressed related to the extent of the animals' "ugliness" or "strangeness", ie difference from the human form, for example in terms of skin texture. The findings appear to confirm that there may be a biological "readiness" to learn fear of particular stimuli (eg certain animals), which Seligman (1971) has termed "preparedness": due to our evolutionary history we may have a genetic predisposition that means we can be easily conditioned to fear things that are likely to pose an actual threat to our survival, eg snakes and spiders (which may or may not be poisonous). It may be that the ugliness/strangeness of a stimulus animal, ie perceived difference in appearance from ourselves, triggers fear and avoidance. In this way, biological and conditioning factors interact. This view of the origins of phobias has implications for the treatment of animal phobias. Reviews of the background literature on the development and treatment of animal phobias are presented in Bennet-Levy and Mateau (1984), Gross (1987). McIlveen et al (1993), Roth (1990) and Atkinson et al (1990, or later editions); all give excellent coverage.

Aim: To investigate the basis of people's fear of animals.

Hypothesis: Candidates should devise suitable null and alternative hypotheses for the investigation. These should be hypotheses of correlation between the two co variables of fear of specified animals, and perceived strangeness/ugliness of these animals. Selection of a one- or two-tailed alternative hypothesis should be based on previous research findings.

Method: Non-experimental study: a survey by means of a questionnaire consisting of rating scales. Two variables will be investigated for a range of animals and insects: fear and perceived strangeness/ugliness. Each of these will be measured by having participants rate a number of animals and insects on a 10-point scale (a list of 29 animals and insects of varying degrees of attractiveness, in random order, can be found in McIlveen et al (1993); alternatively a list can be generated by candidates) On one scale participants will be asked to indicate how afraid they are of each of the animals and insects. On the other scale perceived strangeness will be assessed by (the same) participants rating how "ugly" they find certain animals. Participants should complete the ratings for each *variable* in turn; this may be achieved by presenting each participant with two sheets (one scale on each). The same list of animals/insects should appear on both sheets, with space for the participant to write their rating (0-10) alongside each creature. Candidates should identify an appropriate sampling method (opportunity sampling is acceptable). Participants may be fellow students, but **all must be over 16 years**.

Specific Ethical Considerations: As well as routine ethical procedures (informed consent, right to withdraw, participants must be 16+, confidentiality, debrief, etc), candidates should consider ethical issues specific to this investigation. Candidates should avoid using any potential participants who suffer from phobic disorder, and plan for contingencies such as how they might deal with any participants who show high fear ratings, and/or express concern about their fears.

Results: Descriptive statistics should be selected which are appropriate for the data. The raw data table will show all participants' ratings for all animals/insects, on both scales. The initial analysis of the data involves computing the mean **fear** value for each of the animals and insects, then the mean **ugliness** value for each animal/insect (note that although mean scores are more usually calculated for the purpose of *comparison* between conditions in respect of a hypothesis of difference, here the purpose is to obtain one score per animal, on each variable, for the purpose of discovering a *relationship*, in respect of a hypothesis of correlation). A summary table can then be constructed

showing, for each animal/insect, a pair of scores (one for fear and one for ugliness). To test the
Psychology Higher C263 12

Research Investigation Briefs for Session 2013/14

(4) Atypical Behaviour (contd)

correlation hypothesis a suitable type of graph would be a scatter gram. Additional descriptive statistics may also be informative, such as bar graphs of animal fear and ugliness mean values in rank order.

References:

- Atkinson, R.L., Atkinson, R.C., Smith, E.E., Bem, J.D. and Hilgard, E.R. (1990). *Introduction to Psychology* (10th ed.) Orlando: Harcourt Brace Jovanovich.
- Bennett-Levy, J. and Marteau, T. (1984) Fear of Animals: What is prepared? *British Journal of Psychology*, 75, 37-42.
- Gross, R.D. (1990) *Key Studies in Psychology*. London: Hodder & Stoughton.
- McIlveen, R., Higgins, L., Wadeley, A. and Humphreys, P. (1993). *BPS Manual of Psychology Practicals*. Leicester: BPS Books.
- Roth, I. (ed) (1990) *Introduction to Psychology*. Milton Keynes: Open University.
- Seligman, M. (1971) Phobias and Preparedness. *Behaviour Therapy*, 2, 307-320.

Psychology Higher C263 12

Research Investigation Briefs for Session 2013/14

(5) Intelligence

A questionnaire survey investigating age differences in people's lay beliefs about the nature of intelligence.

Background: The nature of intelligence remains an area of controversy amongst psychologists. One way of illuminating the issue has been to investigate lay people's beliefs about intelligence, such as: what abilities / characteristics it comprises, to what extent it is influenced by 'nature' and 'nurture', whether it is fixed or can be changed through experience etc. As long ago as 1947, Flugel investigated "popular views on intelligence", using a short questionnaire of 16 items; in 1973 a replication of his study by Shipstone and Burt found that lay and professional views of intelligence had moved closer, for example in terms of there being more than one type of intelligence, greater recognition of environmental influence, reduced belief in gender differences (see Furnham, 2000), etc. Goodnow (1980) described various research techniques for investigating lay beliefs: simply asking people (as in Flugel's study), using rating scales, even analysing local proverbs (eg "thinkers are not doers"), etc. Such research has identified differences in beliefs between cultures, between groups (eg parents and teachers, students from different disciplines, etc), between adults and children etc. Another branch of research has attempted to link beliefs about intelligence with other variables; for example, Stella Cottrell (2003) suggests that students' academic performance is affected by such beliefs, and therefore advises students to reflect on their own views of the nature of intelligence (Cottrell, 2003, p.46).

Aim: to discover whether there are age differences in lay beliefs about the nature of intelligence, in terms of three features:

- Is intelligence one general underlying ability or does it comprise a number of different abilities/characteristics?
- To what extent is intelligence influenced by genes or by our environment (eg education, parents, diet etc)?
- To what extent is intelligence 'fixed' in a person, or can it be changed/improved?

Hypothesis: Candidates should devise suitable null and alternative hypotheses for the investigation. These should be hypotheses of difference, between age groups. It is acceptable to provide one alternative hypothesis (and one null), but data analysis of score differences will have to be conducted for each questionnaire item separately. (Three pairs of hypotheses may be used if preferred, ie one alternative and one null for each questionnaire item.)

Method:

A non-experimental study: a survey by means of a short 3-item questionnaire, adapted from items used in Shipstone and Burt's questionnaire. The variables being tested are age, and three types of beliefs about the nature of intelligence (these should not be termed "IV" and "DV", as the method is non-experimental). Each questionnaire item should offer a choice of positions along a dimension between opposite views, therefore a semantic differential scale (Osgood et al, 1957) is appropriate, eg:

Item: Is intelligence one general ability or does it comprise a number of different abilities?								
One general ability	1	2	3	4	5	6	7	A number of different abilities

Participants place a cross in the box that most closely represents their view on the dimension. Opportunity sampling is acceptable, and candidates should obtain roughly equal numbers of participants in each age-group. Participants may be fellow students of two different age groups, or students and older adults (eg parents / teachers).

Psychology Higher C263 12

Research Investigation Briefs for Session 2013/14

(5) Intelligence (contd)

Specific Ethical Considerations: As well as routine ethical procedures (informed consent, right to withdraw, participants must be 16+, confidentiality, debrief, etc), candidates should consider ethical issues specific to this investigation. **They must ensure that their brief, debrief and /or standard instructions make it clear to the participant that they are *not* being intelligence-tested nor being asked for their beliefs about their *own* intelligence.**

Results: Scores obtained should be tabulated as raw data, and should be presented in respect of all three items. Presentation of results should make it clear what the scores mean, in terms of the content of the questionnaire items. Descriptive statistics should be applied, which are appropriate to the data, to enable comparison between groups on each item, eg measure(s) of central tendency and dispersion, suitable graph(s), eg barcharts of means/medians (other types of graph are possible, eg frequency histograms). Explanation of results in relation to the hypotheses should be given in respect of each item. In the Discussion section of the report, findings should be interpreted for each item in turn.

References:

- Cottrell, S. (2003). *The Study Skills Handbook* (2nd Edition). Basingstoke: Palgrave Macmillan.
- Flugel, J. (1947). An inquiry as to popular views on intelligence and related topics. *British Journal of Educational Psychology*, 27, 140-152.
- Furnham, A. (2000) Thinking about intelligence. *The Psychologist*, 13(10), 510-514. [URL: <http://www.bps.org.uk/publicationfiles/thepsychologist/furnham.pdf>]
- Goodnow, J. (1980) Everyday concepts of intelligence and its development. In N. Warren (Ed.), *Studies in cross-cultural psychology: Vol 2* (191-219). London: Academic Press.
- Osgood, C.E, Suci, G.J. and Tannenbaum, P.H. (1957). *The Measurement of Meaning*. Urbana: University of Illinois.
- Shipstone, K. and Burt, S. (1973) Twenty-five years on: a replication of Flugel's (1947) work on lay popular views of intelligence and related topics. *British Journal of Educational Psychology*, 56, 183-187.