

Ollscoil na hÉireann, Gaillimh

NATIONAL UNIVERSITY OF IRELAND, GALWAY

Second Arts, First Semester Examination, 1999 - 2000

Psychology, Paper 4

PS234 Experimental Psychology, Research Methods, and
Psychological Statistics I (Unit value 2.0)

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Time allowed: 2 hours

Answer two questions from section A and one question from section B.
(Candidates will be provided with the necessary statistical tables and formulae.)

SECTION A – Statistics (Answer two questions from this section)

1. A study was carried out to examine the immediate effects of yoga on ratings of relaxation, when compared with a matched control group. The results are reported below:

Ratings of feelings of relaxation from two independent samples

<i>Yoga group</i>	20, 12, 18, 16, 14, 11, 16, 19, 15, 15.
<i>No yoga (controls)</i>	10, 9, 14, 6, 12, 10, 6, 13, 13, 15, 11, 8.

- (a) Is yoga effective in inducing a relaxed state in this case?

(90%)

- (b) Justify your choice of test.

(10%)

2. Data were collected from a sample of 12 college students on their rating (on a 10-point scale, 10 = very intense) of the intensity of the aromatherapy fragrance lavender, with and without blindfolds. The results are reported below:

<i>Subject</i>	A	B	C	D	E	F	G	H	I	J	K	L
<i>No Blindfold</i>	5	6	4	3	6	2	4	6	7	8	5	4
<i>Blindfolded</i>	4	8	2	3	7	5	8	7	9	10	7	6

(a) Using the sign test, determine if wearing a blindfold resulted in significantly higher ratings of intensity of odour.

AND

(b) A facilitative style of teaching was compared to a more traditional teacher-oriented approach on student test scores in English. Results showed that in the latter condition, a class of 21 students had a mean score of 66.4 with a standard deviation of 3.2. In the former condition, a class of 31 students had a mean score of 74, with a standard deviation of 7.6. Determine, using the F-ratio test, the suitability of the t-test to compare the effectiveness of two methods of teaching.

3. The number of nonsense syllables recalled correctly one minute after learning a list and again five minutes after learning a list (with a distractor task in-between the two trials) was recorded in a sample of 13 students. The results are reported below:

Recall of nonsense syllables	
Trial 1 (1 min)	Trial 2 (5 mins)
7	6
6	3
8	5
5	5
6	4
4	3
7	7
6	6
7	2
6	4
2	1
3	3
5	4

- (a) Was there a significant decrease in the number of nonsense syllables recalled from Trial 1 to Trial 2? (90%)
- (b) Justify your choice of test. (10%)

4. Data were collected from a sample of aged pensioners on self-esteem and level of physical activity. The data are reported in the table below:

Participant	Self-esteem	Physical activity
1	45	24
2	13	15
3	24	16
4	33	21
5	41	22
6	19	11
7	27	18
8	23	16
9	43	20
10	53	16

- (a) Assuming that both scales used have equal interval measurement, is there a significant relationship between self-esteem and level of physical activity in the present sample?
- (b) Justify your use of test.

SECTION B – Research Methods (Answer one question from this section)

1. 'The validity of the survey methodology is dependent on the process of questionnaire construction and the reliability and validity of questionnaires used.' Discuss this statement in light of recent methodological debate and research on the survey method.
2. 'Observational methods of research are instrumental in providing a rich source of data and often form the basis for a variety of experiments in psychological research.' Discuss the various techniques used in observational research (using examples where appropriate), outlining the disadvantages and advantages of each.
3. 'The relationship between research, theory and application in psychology is a complex one. Not only does psychological theory affect the kinds of research problems addressed and applications pursued, research findings and real world applications also feed back into the development and advancement of theory'.

- (a) In light of this statement, describe the process of theory development in psychology

(50%)

- (b) Explain the importance of experimental control, reliability and validity as dimensions of the research process.

(50%)