

**Factors in the Comprehension of Verbal Instructions**

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Lab 4

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## 1. Introduction

High school teachers frequently encounter problems with lower ability students because they are unable to read the texts provided for them. Often these students are two or more years behind their age group in reading levels, while the texts are written for students two to three years older. Similarly, often only 50 to 66% of the general public understand instructions, and timetables. Ninety five percent of the public should understand directions.

The texts often contain these problems. There is excessive factual content, long sentences with less common words and abstract information. Illustrations may be lacking or unclear. Use of negatives, passive tense, and metaphors may confuse meanings. Oral instructions Ley (1981) demonstrates are often misunderstood and not followed because of vagueness, or lack of order or category. 37% to 54% of the patients forgot their doctor's advice within eighty minutes of the interview.

Communications are improved by active tense, using high frequency words which express ideas clearly and briefly. Readers may be clued to the word meanings by use of illustrations, titles and subtitles, good introductions which summarise ideas, brief paragraphing, and word charts, contingency, flow or tree diagrams. Appropriate type size is important with colour photos, cartoons, larger type and increased line and word spacing being motivational for poor readers. Use of logical order, specificity and logical categories increases understanding and recall.

The purpose of this lab is to analyse readability of text and to determine the effect of categorisation on recall. It is hypothesised that recall will be improved by grouping information under logical categorical headings.

Instructions should meet user needs with detailed instructions for beginners and general ones for experts. Saunders and McCormick (1987) suggest the warnings should contain the warning, hazard, instructions and consequences, illustrated by familiar symbols.

## 2. Readability Measures

The readability of materials may be calculated by using the Kincaid method. The age of reading is found by analysing a 100 word sample for the average number of syllables in each word, and average number of words in a sentence.

The formula is 11.8 times the syllables per word added to .39 times the averaged number of words per sentence subtract 15.59.

The method was tried for two one hundred word samples in the Murdoch university handbook. (See appendix 1 for reading sample.) Results are in Table 1.

*Table 1: Results from Analysis of Two Reading Samples from the Murdoch Calendar*

### SAMPLE 1.

Word Sample Size, 100 words

Average # of Words 19.7

Average # of Syllables 1.67

Reading Age  $(11.8 * 1.67) + (.39 * 19.7) - 15.59 = 13.11$  years of age.

### SAMPLE 2.

Word Sample 135 words

Average # of Words  $221/135 = 1.64$

Average # of words 17 per sentence

Reading Age  $(11.8 * 1.64) + (.39 * 17) - 15.59 = 10.392$

These two examples indicate that the readability level of the university calendar for the samples analysed are readable for the university audience. For any prose, readability levels must be matched to the reading levels and prior knowledge of the audience who will be using the materials.

### **3. Method**

#### **3.1 Subjects**

Subjects were 14 Murdoch University third year students of mixed sex.

#### **3.2 Apparatus**

Two sets of interview sheets were provided. The first was an interview schedule and the second a marriage counsellor interview. Two versions of each interview were available, the first with randomised questions, the second with block categories.

#### **3.3 Procedures**

Pairs were randomly selected. Each person was randomly assigned either a random or block category interview for either an Interview or Marriage Counsellor.

Interview questions were asked one's partner who listened to the questions but did not respond. A four minute break followed with irrelevant conversation. The respondent was then asked to recall the questions. The number of correct responses were summed. Partners then reversed roles, utilising the second interview schedule.

### **4. Results**

Results are graphed in Fig. 1 below.

*Fig. 1*

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Insert Fig. 1 Here  
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Means were tested using a Mann Whitney U Test to determine significance of the difference of means for

the population. Results are in Table 2.

*Table 2: Mann Whitney U Test Results*

	U1	U2	Critical Value
Interview	5	7	7
Marriage Counsellor	4	8	6

Both means were found to be significant. ( $p < .05$  two tail)

### **5. Discussion**

Support was found for the hypothesis that logical categorisation of questions increases recall of information after a short interval. The implications of this experiment are substantial for writing materials that need to be recalled. If the materials are clearly sequenced in logical patterns and these patterns are made apparent by headings, the reader is more likely to understand and recall the information. For doctors giving medical instructions, recall by patients may be crucial for their health.

# Memory Recall of Questions

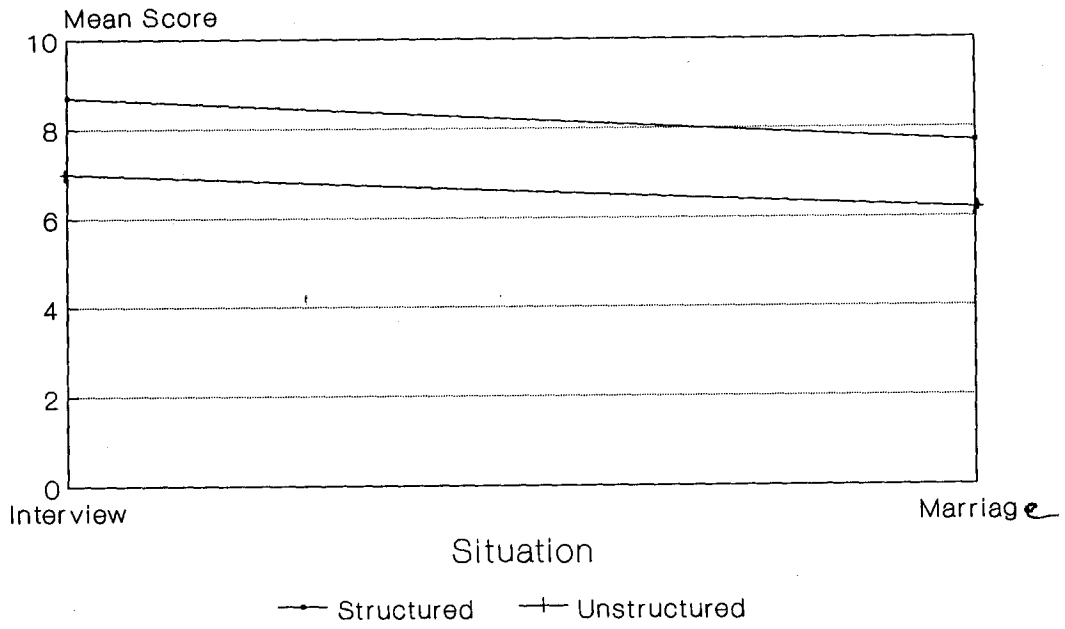


Fig. 1.

(iv) Degrees: Bachelor of Education, Bachelor of Divinity, Bachelor of Psychology, Bachelor of Literature and Communication, and Bachelor of Theology.

(v) Honours Programmes.

Application forms for admission to these programmes are available from the Admissions Office at Murdoch University. Applications close on 1 December each year.

*Interstate Candidates*

Applications from prospective students in other Australian states are assessed using criteria similar to those considered in assessing Western Australian applicants. With the exception of the Veterinary Studies programme, where enrolment in the main is restricted to residents from Western Australia, South Australia, the Northern Territory and Tasmania, no specific quotas are imposed on the enrolment of interstate students in undergraduate programmes at Murdoch University.

Prospective students from interstate should write to the Tertiary Institutions Service Centre for application forms.

~~Overseas Candidates - the Full Fee-Paying Programme~~  
Overseas students may enrol at the University as full fee-paying students, paying the full cost of tuition for their chosen degree programme. Most undergraduate and postgraduate programmes are available for full-fee enrolment. Qualified students may apply to commence study in either first or second semester, the closing dates being 1 December for students wishing to commence in first semester (late February) and 1 June for second semester entry (late July).

Further inquiries on level of tuition fees, eligibility and application procedures should be directed to the Overseas Student Office or the Admissions Office.

The Australian Government is providing financial assistance to overseas students under its Equity and Merit Scholarship Scheme. The Scholarships are competitive and will cover tuition fees and/or living allowances for selected students. Further information can be obtained through Australian Government posts overseas. Applications closed on 31 August 1989 for 1990 scholarships.

**CREDIT AND EXEMPTION**

The University will normally be prepared to accept applications from prospective students for credit in their degree programmes for tertiary work completed elsewhere. Credit for previous studies will be granted where they are of an acceptable standard and suitable as a basis for a Murdoch University programme.

*Notes on Credit and Exemption*

1. Under Statue 13 and the Degree Regulations a student may be granted credit towards a degree for studies completed elsewhere. An upper limit on the grant of credit is set by the requirement that to complete a degree the student must complete at this University Part II courses with a total value of at least 24 points or, for a student transferring from The Univer-

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sity of Western Australia, under the arrangement for the transfer to Murdoch University of responsibility for external studies, 18 points.

To complete a graduate/postgraduate diploma students awarded credit must complete at this University Part II courses with a total value of at least 15 points, or 12 points for a student transferring from The University of Western Australia under the arrangements for transfer of responsibility for external studies.

The concessions available to University of Western Australia students under the transfer arrangements for external studies shall be available for a total period of three years in the case of Bachelor degree students and two years for Graduate/Postgraduate Diploma students from the time of the student's first enrolment at Murdoch University. Transferring students who do not complete their programmes within these time limits shall be required to comply with the normal provisions of the University's Degree Regulations.

2. Credit will be granted only for studies of tertiary standard at recognised universities, colleges of advanced education or similar institutions. In some cases credit may also be awarded for Graduate/Postgraduate Diploma studies undertaken through Technical and Further Education.

3. The amount of credit to be granted will be determined by the Accreditation Committee. Credit is awarded on a block basis and is related to the proportion of the course, on which the application is based, which was completed previously. For example, a completed first year at another recognised university would, subject to the provision mentioned in section 4, attract the equivalent of 24 Part I points of credit.

4. The amount of credit which may be granted for studies completed elsewhere may be reduced if those studies were undertaken more than ten years previously.

5. Where credit is granted on the basis of previous studies which include any course whose content duplicates or clearly overlaps the content of a Part I or Part II course at Murdoch, the student may not take that course for additional credit towards a Murdoch degree.

6. The granting of any credit at Part I or Part II level does not automatically carry any exemption from any required course in a student's programme of study.

7. All students are required to undertake a University foundation course in Part I. Exemption from this requirement will be granted only in special circumstances or if the following conditions have been met—

(a) if a student holds a degree or another qualification requiring three academic years of attendance at a university, college of advanced education, or similar recognised institution; and

(b) if a student has a partly completed qualification from one of those institutions and is required to pass 54 or fewer points for the award of a pass degree of Murdoch University.

8. Applications for credit for previous studies must be submitted at the time of making application for admission to the University. Any application made after the third week of the student's first semester at Murdoch will

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words 23 average