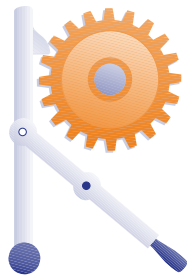
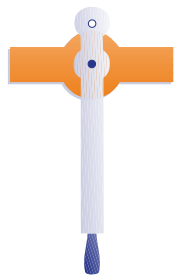


mechanical



reasoning



test

Trades
Supplementary
Information

ACER Mechanical Reasoning Test

Australian Supplementary Information

Electrical Trades Apprenticeship and Trainee Applicants

Dr Andrew Armstrong

Additional normative data for the *ACER Mechanical Reasoning Test (MRT) Form A*, derived from an Australian reference sample of electrical trades apprenticeship and trainee applicants, is presented in this supplement.

Sample Characteristics

The reference sample comprised 321 persons who applied for apprenticeships or traineeships within a large Australian energy company in 2007. Apprenticeships applied to the roles of communications technician, electrical meter technician, power systems electrician, and powerline worker. Traineeships applied to the roles of electrical tester and technical officer.

Sex data is provided in Table 1. Age data was not available.

Table 1. Reference Sample by Sex

Gender	Number of participants
Male	303
Female	6
Missing data	12

N = 321.

The data in Table 1 shows that the reference sample were male with very few exceptions.

Performance of Electrical Trades Apprenticeship and Trainee Applicants on the MRT

Summary performance statistics for the reference sample are presented in Table 2.

Table 2. Summary Performance Statistics for Electrical Trades Apprenticeship and Trainee Applicants on the MRT.

	Min	Max	Mean	Std. Deviation	Percentage of Items Correct
<i>MRT</i>	0	32	18.92	5.05	59%

N = 321.

Table 3 below contains the data necessary to convert *MRT* raw scores into percentage of items correct and percentile ranks. The data allow the performance of test-takers to be ranked in relation to the current reference group.

Table 3. Score Conversion data for the *MRT*

Raw Score	*Percentile Rank
0	<1
1	<1
2	<1
3	<1
4	<1
5	<1
6	<1
7	<1
8	1
9	2
10	3
11	5
12	7
13	11
14	17
15	20
16	27
17	33
18	37
19	46
20	53
21	60
22	71
23	75
24	81
25	85
26	89
27	94
28	97
29	98
30	99.7
31	99.8
32	100

N = 321. * Rounded to nearest whole figure

Score Classification Ranges for the MRT

Below in Table 4, reference group raw scores and percentile ranks are converted into the classification ranges commonly applied to measures of ability. While less precise than percentile rankings, these ranges allow the performance of any *MRT* test-taker to be classified and discussed in common terms, in relation to the reference sample.

Table 4. *MRT* raw scores and percentile ranks by classification range

Classification range	Percentile Ranks	Raw scores
Extremely low	1 to 4	1 to 10
Very low	5 to 11	11 to 13
Below average	12 to 23	14 to 15
Slightly below average	24 to 40	16 to 18
Average	41 to 60	19 to 21
Slightly above average	61 to 77	22 to 23
Above average	78 to 89	24 to 26
Well above average	90 to 96	27
Superior	97 to 100	28 to 32

Looking at Table 4, it can be seen that a raw score of 24 to 26 falls in the 'Above average' range. Persons scoring in this range are likely to very comfortable performing mechanical reasoning tasks.

References

Australian Council for Educational Research. (1997). *ACER Mechanical Reasoning Test* [Revised 1997]. Melbourne, Australia: ACER Press.