

# Assignment 6

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## Exercise 1

Pretherapy training of clients has been shown to have beneficial effects on the process and outcome of counseling and psychotherapy.

Sauber (1971) investigated four different approaches to pretherapy training: 1. Control (no treatment). 2. Therapeutic reading (TR) (indirect learning). 3. Vicarious therapy pretraining (VTP) (videotaped, vicarious learning). 4. Group, role induction interview (RII) (direct learning).

Treatment conditions 2-4 were expected to enhance the outcome of counseling and psychotherapy as compared with a control group, those subjects receiving no prior set of structuring procedures.

The data is "psychotherapeutic attraction" according to each of the four experimental conditions.

Control	Reading (TR)	Videotape (VTP)	Group (RII)
0	0.5	0.8	1
0.5	6	5	5
2.5	7	8	12
3	9	9	13
5	11	11	19
10	13	13	22
13	20	16	25
17	20	17	27
26	24	20	29

- (1) Specify the hypotheses. Apply the Kruskal-Wallis test, both the (exact) permutation test and large-sample approximation test.
- (2) Summarize your findings in (1).
- (3) Pretend we only observe the first observation in the Control, (TR), and the first two observations in (VTP) group. That is,  $k = 3$ ,  $n_1 = n_2 = 1$ , and  $n_3 = 2$ . Calculate by hand, the permutation null distribution of the test statistic in (1) and p-value.
- (4) Suppose the researchers postulate that there is an increasing benefit among four different approaches to pretherapy training, in the ordering of Control, (TR), (VTP) and (RII). Specify the hypotheses. Conduct an appropriate test for this purpose, both the (exact) permutation test and the large-sample approximation test.
- (5) Summarize your findings in (4).
- (6) Pretend we only observe the first observation in the Control, (TR), and the first two observations in (VTP) group. That is,  $k = 3$ ,  $n_1 = n_2 = 1$ , and  $n_3 = 2$ . Calculate by hand, the permutation null distribution of the test statistic in (4) and p-value.