

## **Attachment 4 : Teacher Post-PD and Post-MWEE Power and Effect Size Analysis Results**

**Note:** The question text indicated by the codes in these tables can be found in Attachments 3 and 5.

## PD Chi-Square

	PDMQ5_1	PDMQ5_2	PDMQ5_3	PDMQ5_4	PDMQ5_5	PDGMQ1
Nquery Column	1	2	3	4	5	6
Test Significance level, $\alpha$	0.05	0.05	0.05	0.05	0.05	0.05
Number of groups, G	2	2	2	2	2	8
Average proportion, $\pi_0$	0.078	0.078	0.076	0.074	0.074	0.19
Variance of proportions, $V = \sum r_i (\pi_i - \pi_0)^2 / \sum r_i$	0.006038	0.006038	0.005724	0.005505	0.005505	0.008447
Effect size, $\Delta^2 = V / [\pi_0(1-\pi_0)]$	0.084249	0.084249	0.081851	0.080139	0.080139	0.054878
Power (%)	95	95	94	94	94	53
N as multiple of $n_1$ , $\sum r_i = \sum n_i/n_1$						
Total sample size, N	156	156	156	156	156	156

<b>PDGQ4_4</b>	<b>PDGQ4_5</b>	<b>PDGQ4_6</b>	<b>PDGQ4_7</b>
<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>
0.05	0.05	0.05	0.05
2	2	2	2
0.139	0.135	0.181	0.181
0.00002	0.000199	0.000977	0.000193
0.000168	0.001701	0.0066	0.001304
5	8	17	6
156	156	156	120

	<b>Lowest Value</b>	<b>Highest Value</b>
<b>Range of Power</b>	5	95
<b>Range of Effect Sizes</b>	0.00	0.08
Mean Power	44	
Mean Effect Size	0.04	

**PD T-Test**

	<b>PDQ6</b>	<b>PDGQ23</b>	<b>PDQ37</b>	<b>PDGQ84_1_1</b>	<b>PDGQ84_2_1</b>
<b>NQuery Column</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Test Significance level, $\alpha$	0.05	0.05	0.05	0.05	0.05
1 or 2 sided test?	2	2	2	2	2
Group 1 mean, $\mu_1$	4.39849615 1	4.34351158 1	11.6999998 1	3.275590658	2.590551138
Group 2 mean, $\mu_2$	4.72727251 1	4.60869550 7	11.3000001 9	3.826086998	3.695652246
Difference in means, $\mu_1 - \mu_2$	-0.329	-0.265	0.400	-0.550	-1.105
Common standard deviation, $\sigma$	1.83165583 9	2.28302782 5	2.45918354 5	3.734180383	3.051204118
Effect size, $\delta =  \mu_1 - \mu_2  / \sigma$	0.179	0.116	0.163	0.147	0.362
Power (%)	12	8	7	9	35
$n_1$	133	131	90	127	127
$n_2$	22	23	10	23	23
Ratio, $n_2 / n_1$	0.165	0.176	0.111	0.181	0.181
$N = n_1 + n_2$	155	154	100	150	150

<b>PDGQ84_1_2</b>	<b>PDGQ84_2_2</b>	<b>PDGQ84_1_3</b>	<b>PDGQ84_2_3</b>
<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
0.05	0.05	0.05	0.05
2	2	2	2
6.040322781	5.699186802	6.28000021	5.905405521
6.136363506	6	6.318181992	6.227272511
-0.096	-0.301	-0.038	-0.322
1.03742563	1.481607705	1.177818227	1.300015769
0.093	0.203	0.032	0.248
6	14	5	17
124	123	75	74
22	22	22	22
0.177	0.179	0.293	0.297
146	145	97	96

	<b>Lowest Value</b>	<b>Highest Value</b>
<b>Range of Power</b>	5	35
<b>Range of Effect Sizes</b>	0.03	0.36
Mean Power	13	
Mean Effect Size	0.17	

**MWEE Chi-Square**

	<b>MPDQ5_1</b>	<b>MPDQ5_2</b>
<b>Nquery Column</b>	<b>1</b>	<b>2</b>
Test Significance level, $\alpha$	0.05	0.05
Number of groups, G	2	2
Average proportion, $\pi_0$	0.101	0.101
Variance of proportions, $V=\sum r_i(\pi_i-\pi_0)^2 / \sum r_i$	0.010	0.010
Effect size, $\Delta^2 = V / [\pi_0(1-\pi_0)]$	0.112	0.112
Power (%)	97	97
N as multiple of $n_1$ , $\sum r_i = \sum n_i/n_1$		
Total sample size, N	140	140
	<b>Lowest Value</b>	<b>Highest Value</b>
<b>Range of Power</b>	97	97
<b>Range of Effect Sizes</b>	0.11	0.11
Mean Power	97	
Mean Effect Size	0.11	

**MWEE T-Test**

NQuery Column	MGQ45	MGQ43	MGQ44	MGQ52_1A	MGQ52_2A
1	2	3	4	5	
Test Significance level, $\alpha$	0.5	0.5	0.5	0.5	0.5
1 or 2 sided test?	2	2	2	2	2
Group 1 mean, $\mu_1$	5.434	4.080	3.097	6.126	5.827
Group 2 mean, $\mu_2$	4.259	4.000	2.481	5.852	5.667
Difference in means, $\mu_1 - \mu_2$	1.174	0.080	0.616	0.274	0.161
Common standard deviation, $\sigma$	6.442	2.886	2.121	1.571	1.539
Effect size, $\delta =  \mu_1 - \mu_2  / \sigma$	0.182	0.028	0.290	0.175	0.104
Power (%)	13	5	27	12	7
$n_1$	113	113	113	111	110
$n_2$	27	27	27	27	27
Ratio, $n_2 / n_1$	0.239	0.239	0.239	0.243	0.245
$N = n_1 + n_2$	140	140	140	138	137

MGQ52_3A	MGQ52_4A	MGQ52_5A	MGQ52_6A	MGQ52_7A	MGQ52_8A	MGQ52_9A
6	7	8	9	10	11	12
0.5	0.5	0.5	0.5	0.5	0.5	0.5
2	2	2	2	2	2	2
5.486	5.655	5.685	5.768	5.768	5.550	5.658
5.407	5.296	5.556	5.778	5.852	4.852	5.556
0.079	0.358	0.130	-0.010	-0.084	0.699	0.102
1.708	1.485	1.413	1.172	1.265	1.689	1.483
0.046	0.241	0.092	0.010	0.066	0.414	0.069
5	20	7	5	6	48	6
111	110	108	112	112	109	111
27	27	27	27	27	27	27
0.243	0.245	0.250	0.241	0.241	0.248	0.243
138	137	135	139	139	136	138

<b>MGQ52_10A</b>	<b>MGQ52_11A</b>	<b>MGQ52_12A</b>
13	14	15
0.5	0.5	0.5
2	2	2
5.349	4.923	6.000
4.667	4.037	6.037
0.682	0.886	-0.037
1.827	2.313	1.478
0.373	0.383	0.025
40	42	5
109	104	111
27	27	27
0.248	0.260	0.243
136	131	138

	<b>Lowest Value</b>	<b>Highest Value</b>
<b>Range of Power</b>	5	48
<b>Range of Effect Sizes</b>	0.01	0.41
Mean Power	17	
Mean Effect Size	0.17	