

Appendix C

Results of the Wilcoxon Rank Sum Test on TPACK in 2018 to Compare the Gender Variable

Component	Test	Gender	<i>M</i>	<i>SD</i>	Ranks			Test Statistics			
					<i>N</i>	Mean Rank	Sum of Ranks	Mann Whitney <i>U</i>	Wilcoxon <i>W</i>	<i>Z</i>	Asymp. Sig. (2-tailed)
TK	Pre	M	3.0000	.95209	140	380.16	53223.00	30147.000	168222.000	-3.435	.001 *
		F	2.6876	.92955	525	320.42	168222.00				
		Total	2.7534	.94228	665						
	Post	M	3.6250	.87334	168	351.98	59132.00	38560.000	162313.000	-1.600	.110
		F	3.5332	.85631	497	326.59	162313.00				
		Total	3.5564	.86091	665						
CK of Science	Pre	M	3.2833	.97584	60	188.37	11302.00	4028.000	29453.000	-5.050	.000***
		F	2.6000	.87117	225	130.90	29453.00				
		Total	2.7439	.93504	285						
	Post	M	3.5000	.85580	72	153.92	11082.50	6881.500	29672.500	-1.395	.163
		F	3.3803	.80739	213	139.31	29672.50				
		Total	3.4105	.82001	285						
CK of Literacy (Korean)	Pre	M	3.3667	1.02456	60	123.01	7380.50	5550.500	7380.500	-2.237	.025*
		F	3.7022	.89903	225	148.33	33374.50				
		Total	3.6316	.93507	285						
	Post	M	3.4444	.78523	72	121.26	8730.50	6102.500	8730.500	-2.806	.005**
		F	3.7793	.77286	213	150.35	32024.50				
		Total	3.6947	.78821	285						
PK	Pre	M	3.3286	.95543	140	311.06	43549.00	33679.000	43549.000	-1.640	.101
		F	3.5200	1.53275	525	338.85	177896.00				
		Total	3.4797	1.43219	665						
	Post	M	3.6131	.78858	168	298.06	50073.50	35877.500	50073.500	-3.034	.002**
		F	3.8149	.71416	497	344.81	171371.50				
		Total	3.7639	.73830	665						
PCK	Pre	M	3.3625	.88937	80	191.85	15348.00	11892.000	57042.000	-.134	.893
		F	3.3433	.80058	300	190.14	57042.00				
		Total	3.3474	.81889	380						
	Post	M	3.4167	.70587	96	146.05	14020.50	9364.500	14020.500	-5.051	.000***
		F	3.8380	.74850	284	205.53	58369.50				
		Total	3.7316	.75950	380						
TCK	Pre	M	2.8625	.88223	80	198.74	15899.00	11261.000	56111.000	-.850	.395
		F	2.7826	.93204	299	187.66	56111.00				
		Total	2.7995	.92118	379						
	Post	M	3.4063	.76197	96	166.47	15981.00	11325.000	15981.000	-2.700	.007**

Component	Test	Gender	M	SD	Ranks			Test Statistics			
					N	Mean Rank	Sum of Ranks	Mann Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
TPK	Pre	F	3.6761	.79352	284	198.62	56409.00	18601.500	23651.500	-1.28	.898
		Total	3.6079	.79340	380						
		M	3.0300	.84632	100	236.52	23651.50				
	Post	F	3.0080	.90598	375	238.40	89398.50	16061.000	23321.000	-4.673	.000***
		Total	3.0126	.89292	475						
		M	3.6167	.73546	120	194.34	23321.00				
TPACK	Pre	F	3.0967	.84173	600	386.47	231883.50	44416.500	57296.500	-1.552	.121
		Total	3.0816	.83164	760						
		M	3.0250	.79265	160	358.10	57296.50				
	Post	F	3.8451	.69815	568	402.92	228859.00	41793.000	60321.000	-5.302	.000***
		Total	3.7658	.71342	760						
		M	3.5313	.70826	192	314.17	60321.00				
Total	Pre	F	3.0993	1.07050	3524	2221.25	7827670.50	1616620.500	7827670.500	-1.187	.235
		Total	3.1093	1.04338	4464						
		M	3.1468	.93434	940	2274.69	2138209.50				
	Post	F	3.7156	.77412	3337	2304.77	7691008.00	1642581.000	2279337.000	-6.991	.000***
		Total	3.6665	.78352	4465						
		M	3.5213	.79343	1128	2020.69	2279337.00				

Note. M = Male, F = Female
 * $p < .05$, ** $p < .01$, *** $p < .001$