

# Summary of nonparametric statistics analysis for Differences of Scores in the first study for students with effective participation

Table 1: Summary of Scheirer-Ray-Hare results for Differences of Scores in the first study for students with effective participation

	Df	Sum Sq	H	p.value	Sig
difScore					
difScore:Type	1	1.789	0.010	0.922	
difScore:CLRole	1	2531.806	13.469	0.000	**
difScore:Type:CLRole	1	286.291	1.523	0.217	
difScore:Residuals	43	5827.114			

Signif. codes: 0 '\*\*\*' 0.01 '\*\*' 0.05

Table 2: Descriptive statistic of the pair wilcoxon analysis for Differences of Scores in the first study for students with effective participation

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type:CLRole.greater.1	non-gamified.Apprentice	10	1.66	16.15	161.5	106.5	2.14	0.016	0.436	medium
Type:CLRole.greater.2	ont-gamified.Master	14	0.30	9.89	138.5	106.5	2.14	0.016	0.436	medium
Type:CLRole.two.sided.1	non-gamified.Apprentice	10	1.66	16.15	161.5	106.5	2.14	0.032	0.436	medium
Type:CLRole.two.sided.2	ont-gamified.Master	14	0.30	9.89	138.5	106.5	2.14	0.032	0.436	medium
Type:CLRole.less.1	non-gamified.Master	9	0.66	7.67	69.0	24.0	-2.46	0.006	0.512	large
Type:CLRole.less.2	ont-gamified.Apprentice	14	2.72	14.79	207.0	24.0	-2.46	0.006	0.512	large
Type:CLRole.two.sided.11	non-gamified.Master	9	0.66	7.67	69.0	24.0	-2.46	0.013	0.512	large
Type:CLRole.two.sided.21	ont-gamified.Apprentice	14	2.72	14.79	207.0	24.0	-2.46	0.013	0.512	large
Type:CLRole.greater.11	ont-gamified.Apprentice	14	2.72	20.21	283.0	178.0	3.68	0.000	0.695	large
Type:CLRole.greater.21	ont-gamified.Master	14	0.30	8.79	123.0	178.0	3.68	0.000	0.695	large
Type:CLRole.two.sided.12	ont-gamified.Apprentice	14	2.72	20.21	283.0	178.0	3.68	0.000	0.695	large
Type:CLRole.two.sided.22	ont-gamified.Master	14	0.30	8.79	123.0	178.0	3.68	0.000	0.695	large

Table 3: Full descriptive statistic of the pair wilcoxon analysis for Differences of Scores in the first study for students with effective participation

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type.less.1	non-gamified	19	1.13	24.24	460.5	270.5	0.10	0.541	0.014	none
Type.less.2	ont-gamified	28	1.33	23.84	667.5	270.5	0.10	0.541	0.014	none
Type.greater.1	non-gamified	19	1.13	24.24	460.5	270.5	0.10	0.464	0.014	none
Type.greater.2	ont-gamified	28	1.33	23.84	667.5	270.5	0.10	0.464	0.014	none
Type.two.sided.1	non-gamified	19	1.13	24.24	460.5	270.5	0.10	0.927	0.014	none
Type.two.sided.2	ont-gamified	28	1.33	23.84	667.5	270.5	0.10	0.927	0.014	none
Type:CLRole.less.1	non-gamified.Apprentice	10	1.66	11.70	117.0	62.0	1.39	0.922	0.318	medium
Type:CLRole.less.2	non-gamified.Master	9	0.66	8.11	73.0	62.0	1.39	0.922	0.318	medium
Type:CLRole.greater.1	non-gamified.Apprentice	10	1.66	11.70	117.0	62.0	1.39	0.091	0.318	medium
Type:CLRole.greater.2	non-gamified.Master	9	0.66	8.11	73.0	62.0	1.39	0.091	0.318	medium
Type:CLRole.two.sided.1	non-gamified.Apprentice	10	1.66	11.70	117.0	62.0	1.39	0.182	0.318	medium
Type:CLRole.two.sided.2	non-gamified.Master	9	0.66	8.11	73.0	62.0	1.39	0.182	0.318	medium
Type:CLRole.less.11	non-gamified.Apprentice	10	1.66	11.50	115.0	60.0	-0.59	0.292	0.120	small
Type:CLRole.less.21	ont-gamified.Apprentice	14	2.72	13.21	185.0	60.0	-0.59	0.292	0.120	small
Type:CLRole.greater.11	non-gamified.Apprentice	10	1.66	11.50	115.0	60.0	-0.59	0.727	0.120	small
Type:CLRole.greater.21	ont-gamified.Apprentice	14	2.72	13.21	185.0	60.0	-0.59	0.727	0.120	small
Type:CLRole.two.sided.11	non-gamified.Apprentice	10	1.66	11.50	115.0	60.0	-0.59	0.585	0.120	small
Type:CLRole.two.sided.21	ont-gamified.Apprentice	14	2.72	13.21	185.0	60.0	-0.59	0.585	0.120	small
Type:CLRole.less.12	non-gamified.Apprentice	10	1.66	16.15	161.5	106.5	2.14	0.985	0.436	medium
Type:CLRole.less.22	ont-gamified.Master	14	0.30	9.89	138.5	106.5	2.14	0.985	0.436	medium
Type:CLRole.greater.12	non-gamified.Apprentice	10	1.66	16.15	161.5	106.5	2.14	0.016	0.436	medium
Type:CLRole.greater.22	ont-gamified.Master	14	0.30	9.89	138.5	106.5	2.14	0.016	0.436	medium
Type:CLRole.two.sided.12	non-gamified.Apprentice	10	1.66	16.15	161.5	106.5	2.14	0.032	0.436	medium
Type:CLRole.two.sided.22	ont-gamified.Master	14	0.30	9.89	138.5	106.5	2.14	0.032	0.436	medium
Type:CLRole.less.13	non-gamified.Master	9	0.66	7.67	69.0	24.0	-2.46	0.006	0.512	large
Type:CLRole.less.23	ont-gamified.Apprentice	14	2.72	14.79	207.0	24.0	-2.46	0.006	0.512	large
Type:CLRole.greater.13	non-gamified.Master	9	0.66	7.67	69.0	24.0	-2.46	0.995	0.512	large
Type:CLRole.greater.23	ont-gamified.Apprentice	14	2.72	14.79	207.0	24.0	-2.46	0.995	0.512	large
Type:CLRole.two.sided.13	non-gamified.Master	9	0.66	7.67	69.0	24.0	-2.46	0.013	0.512	large
Type:CLRole.two.sided.23	ont-gamified.Apprentice	14	2.72	14.79	207.0	24.0	-2.46	0.013	0.512	large
Type:CLRole.less.14	non-gamified.Master	9	0.66	13.89	125.0	80.0	1.07	0.859	0.223	small
Type:CLRole.less.24	ont-gamified.Master	14	0.30	10.79	151.0	80.0	1.07	0.859	0.223	small
Type:CLRole.greater.14	non-gamified.Master	9	0.66	13.89	125.0	80.0	1.07	0.149	0.223	small
Type:CLRole.greater.24	ont-gamified.Master	14	0.30	10.79	151.0	80.0	1.07	0.149	0.223	small
Type:CLRole.two.sided.14	non-gamified.Master	9	0.66	13.89	125.0	80.0	1.07	0.298	0.223	small
Type:CLRole.two.sided.24	ont-gamified.Master	14	0.30	10.79	151.0	80.0	1.07	0.298	0.223	small
Type:CLRole.less.15	ont-gamified.Apprentice	14	2.72	20.21	283.0	178.0	3.68	1.000	0.695	large
Type:CLRole.less.25	ont-gamified.Master	14	0.30	8.79	123.0	178.0	3.68	1.000	0.695	large
Type:CLRole.greater.15	ont-gamified.Apprentice	14	2.72	20.21	283.0	178.0	3.68	0.000	0.695	large
Type:CLRole.greater.25	ont-gamified.Master	14	0.30	8.79	123.0	178.0	3.68	0.000	0.695	large

Table 3: *(continued)*

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type:CLRole.two.sided.15	ont-gamified.Apprentice	14	2.72	20.21	283.0	178.0	3.68	0.000	0.695	large
Type:CLRole.two.sided.25	ont-gamified.Master	14	0.30	8.79	123.0	178.0	3.68	0.000	0.695	large