

# Statistical Analysis in the third study for signed up students

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Table 1: Two-way ANOVA and Scheirer-Ray-Hare in the third study for signed up students

	Sum Sq	Df	F value	Pr(>F)	Sig	Df	Sum Sq	H	p.value	Sig
gain.theta.(Intercept)	0.011	1	2.046	0.159						
gain.theta.Type	0.039	1	7.066	0.011	*	1	1290.572	6.321	0.012	*
gain.theta.CLRole	0.038	1	6.848	0.012	*	1	1029.892	5.045	0.025	*
gain.theta.Type:CLRole	0.000	1	0.060	0.808		1	3.010	0.015	0.903	
gain.theta.Residuals	0.248	45				45	7476.026			

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

Table 2: Summary of Tukey post-hoc in the third study for signed up students

	N	mean	lsmean	SE	df	lwr.CI	upr.CI	t.ratio	p.value	p.adj	g	sig	mag
ont-gamified - w/o-gamified	49	0.063	0.063	0.024		0.020	0.106	2.658	0.011	0.005	0.792	**	medium
ont-gamified.Apprentice - w/o-gamified.Apprentice	35	0.068	0.068	0.025		0.001	0.136	2.708	0.010	0.045	0.993	*	large

Table 3: Summary of Pair wilcoxon in the third study for signed up students

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
gain.theta.Type.greater.1	ont-gamified	23	0.04	30.46	700.5	424.5	2.51	0.006	0.359	medium
gain.theta.Type.greater.2	w/o-gamified	26	-0.04	20.17	524.5	424.5	2.51	0.006	0.359	medium
gain.theta.Type.two.sided.1	ont-gamified	23	0.04	30.46	700.5	424.5	2.51	0.011	0.359	medium
gain.theta.Type.two.sided.2	w/o-gamified	26	-0.04	20.17	524.5	424.5	2.51	0.011	0.359	medium
gain.theta.Type:CLRole.greater.1	ont-gamified.Apprentice	16	0.07	22.84	365.5	229.5	2.57	0.005	0.434	medium
gain.theta.Type:CLRole.greater.2	w/o-gamified.Apprentice	19	-0.03	13.92	264.5	229.5	2.57	0.005	0.434	medium
gain.theta.Type:CLRole.two.sided.1	ont-gamified.Apprentice	16	0.07	22.84	365.5	229.5	2.57	0.009	0.434	medium
gain.theta.Type:CLRole.two.sided.2	w/o-gamified.Apprentice	19	-0.03	13.92	264.5	229.5	2.57	0.009	0.434	medium
gain.theta.Type:CLRole.greater.11	ont-gamified.Apprentice	16	0.07	14.69	235.0	99.0	2.87	0.001	0.599	large
gain.theta.Type:CLRole.greater.21	w/o-gamified.Master	7	-0.07	5.86	41.0	99.0	2.87	0.001	0.599	large
gain.theta.Type:CLRole.two.sided.11	ont-gamified.Apprentice	16	0.07	14.69	235.0	99.0	2.87	0.003	0.599	large
gain.theta.Type:CLRole.two.sided.21	w/o-gamified.Master	7	-0.07	5.86	41.0	99.0	2.87	0.003	0.599	large
gain.theta.Type:CLRole.greater.12	w/o-gamified.Apprentice	19	-0.03	15.21	289.0	99.0	1.88	0.032	0.368	medium
gain.theta.Type:CLRole.greater.22	w/o-gamified.Master	7	-0.07	8.86	62.0	99.0	1.88	0.032	0.368	medium