

Statistical Analysis in the first study for students with effective participation

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Table 1: Two-way ANOVA and Scheirer-Ray-Hare in the first study for students with effective participation

	Sum Sq	Df	F value	Pr(>F)	Sig	Df	Sum Sq	H	p.value	Sig
gain.theta.(Intercept)	10.287	1	228.937	0.000						
gain.theta.Type	0.095	1	2.124	0.152		1	102.128	0.543	0.461	
gain.theta.CLRole	0.280	1	6.242	0.016	*	1	1420.158	7.554	0.006	**
gain.theta.Type:CLRole	0.342	1	7.609	0.009	**	1	748.997	3.984	0.046	*
gain.theta.Residuals	1.887	42				43	6376.717			

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

Table 2: Summary of Tukey post-hoc in the first study for students with effective participation

	N	mean	lsmean	SE	df	lwr.CI	upr.CI	t.ratio	p.value	p.adj	g	sig	mag
gain.theta.non-gamified.Master - ont-gamified.Master	22	0.271	0.271	0.094		0.02	0.522	2.885	0.006	0.03	1.108	*	large

Table 3: Summary of Pair wilcoxon in the first study for students with effective participation

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
gain.theta.Type:CLRole.greater.1	non-gamified.Apprentice	10	0.56	16.80	168	113	2.52	0.005	0.514	large
gain.theta.Type:CLRole.greater.2	ont-gamified.Master	14	0.32	9.43	132	113	2.52	0.005	0.514	large
gain.theta.Type:CLRole.two.sided.1	non-gamified.Apprentice	10	0.56	16.80	168	113	2.52	0.011	0.514	large
gain.theta.Type:CLRole.two.sided.2	ont-gamified.Master	14	0.32	9.43	132	113	2.52	0.011	0.514	large
gain.theta.Type:CLRole.greater.11	ont-gamified.Apprentice	14	0.65	19.93	279	174	3.49	0.000	0.660	large
gain.theta.Type:CLRole.greater.21	ont-gamified.Master	14	0.32	9.07	127	174	3.49	0.000	0.660	large
gain.theta.Type:CLRole.two.sided.11	ont-gamified.Apprentice	14	0.65	19.93	279	174	3.49	0.000	0.660	large
gain.theta.Type:CLRole.two.sided.21	ont-gamified.Master	14	0.32	9.07	127	174	3.49	0.000	0.660	large