Summary of nonparametric statistics analysis for Gain in Skill/Knowledge as the latent trait estimates in the second study for students with effective participation

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Table 1: Summary of Scheirer-Ray-Hare results for Gain in Skill/Knowledge as the latent trait estimates in the second study for students with effective participation

	Df	Sum Sq	H	p.value	Sig
gain.theta					
gain.theta:Type	1	14.009	0.089	0.766	
gain.theta:CLRole	1	68.029	0.431	0.511	
gain.theta:Type:CLRole	1	36.434	0.231	0.631	
gain.theta:Residuals	39	6503.528			

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

Table 2: Full descriptive statistic of the pair wilcoxon analysis for Gain in Skill/Knowledge as the latent trait estimates in the second study for students with effective participation

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type.less.1	non-gamified	26	0.01	21.54	560	209	−0.30	0.389	0.045	none
Type.less.2	ont-gamified	17	0.05	22.71	386	209	−0.30	0.389	0.045	none
Type.greater.1	non-gamified	26	0.01	21.54	560	209	−0.30	0.621	0.045	none
Type.greater.2	ont-gamified	17	0.05	22.71	386	209	−0.30	0.621	0.045	none
Type.two.sided.1	non-gamified	26	0.01	21.54	560	209	−0.30	0.778	0.045	none
Type.two.sided.2	ont-gamified	17	0.05	22.71	386	209	−0.30	0.778	0.045	none
Type:CLRole.less.1	non-gamified.Apprentice	18	0.01	13.61	245	74	0.11	0.554	0.022	none
Type:CLRole.less.2	non-gamified.Master	8	0.00	13.25	106	74	0.11	0.554	0.022	none
Type:CLRole.greater.1	non-gamified.Apprentice	18	0.01	13.61	245	74	0.11	0.468	0.022	none
Type:CLRole.greater.2	non-gamified.Master	8	0.00	13.25	106	74	0.11	0.468	0.022	none
Type:CLRole.two.sided.1	non-gamified.Apprentice	18	0.01	13.61	245	74	0.11	0.935	0.022	none
Type:CLRole.two.sided.2	non-gamified.Master	8	0.00	13.25	106	74	0.11	0.935	0.022	none
Type:CLRole.less.11	non-gamified.Apprentice	18	0.01	14.94	269	98	−0.42	0.346	0.077	none
Type:CLRole.less.21	ont-gamified.Apprentice	12	0.05	16.33	196	98	−0.42	0.346	0.077	none
Type:CLRole.greater.11	non-gamified.Apprentice	18	0.01	14.94	269	98	−0.42	0.669	0.077	none
Type:CLRole.greater.21	ont-gamified.Apprentice	12	0.05	16.33	196	98	−0.42	0.669	0.077	none
Type:CLRole.two.sided.11	non-gamified.Apprentice	18	0.01	14.94	269	98	−0.42	0.692	0.077	none
Type:CLRole.two.sided.21	ont-gamified.Apprentice	12	0.05	16.33	196	98	−0.42	0.692	0.077	none
Type:CLRole.less.12	non-gamified.Apprentice	18	0.01	12.33	222	51	0.45	0.681	0.093	none
Type:CLRole.less.22	ont-gamified.Master	5	−0.09	10.80	54	51	0.45	0.681	0.093	none
Type:CLRole.greater.12	non-gamified.Apprentice	18	0.01	12.33	222	51	0.45	0.346	0.093	none
Type:CLRole.greater.22	ont-gamified.Master	5	−0.09	10.80	54	51	0.45	0.346	0.093	none
Type:CLRole.two.sided.12	non-gamified.Apprentice	18	0.01	12.33	222	51	0.45	0.691	0.093	none
Type:CLRole.two.sided.22	ont-gamified.Master	5	−0.09	10.80	54	51	0.45	0.691	0.093	none
Type:CLRole.less.13	non-gamified.Master	8	0.00	9.00	72	36	−0.93	0.192	0.207	small
Type:CLRole.less.23	ont-gamified.Apprentice	12	0.05	11.50	138	36	−0.93	0.192	0.207	small
Type:CLRole.greater.13	non-gamified.Master	8	0.00	9.00	72	36	−0.93	0.828	0.207	small
Type:CLRole.greater.23	ont-gamified.Apprentice	12	0.05	11.50	138	36	−0.93	0.828	0.207	small
Type:CLRole.two.sided.13	non-gamified.Master	8	0.00	9.00	72	36	−0.93	0.384	0.207	small
Type:CLRole.two.sided.23	ont-gamified.Apprentice	12	0.05	11.50	138	36	−0.93	0.384	0.207	small
Type:CLRole.less.14	non-gamified.Master	8	0.00	7.50	60	24	0.59	0.738	0.162	small
Type:CLRole.less.24	ont-gamified.Master	5	−0.09	6.20	31	24	0.59	0.738	0.162	small
Type:CLRole.greater.14	non-gamified.Master	8	0.00	7.50	60	24	0.59	0.311	0.162	small
Type:CLRole.greater.24	ont-gamified.Master	5	−0.09	6.20	31	24	0.59	0.311	0.162	small
Type:CLRole.two.sided.14	non-gamified.Master	8	0.00	7.50	60	24	0.59	0.622	0.162	small
Type:CLRole.two.sided.24	ont-gamified.Master	5	−0.09	6.20	31	24	0.59	0.622	0.162	small
Type:CLRole.less.15	ont-gamified.Apprentice	12	0.05	9.42	113	35	0.53	0.713	0.128	small
Type:CLRole.less.25	ont-gamified.Master	5	−0.09	8.00	40	35	0.53	0.713	0.128	small
Type:CLRole.greater.15	ont-gamified.Apprentice	12	0.05	9.42	113	35	0.53	0.323	0.128	small
Type:CLRole.greater.25	ont-gamified.Master	5	−0.09	8.00	40	35	0.53	0.323	0.128	small

Table 2: *(continued)*

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type:CLRole.two.sided.15	ont-gamified.Apprentice	12	0.05	9.42	113	35	0.53	0.646	0.128	small
Type:CLRole.two.sided.25	ont-gamified.Master	5	−0.09	8.00	40	35	0.53	0.646	0.128	small