Summary of nonparametric statistics analysis for the latent trait estimates of Relevance in the third study for signed up students

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Table 1: Summary of Scheirer-Ray-Hare results for the latent trait estimates of Relevance in the third study for signed up students

	Df	Sum Sq	H	p.value	Sig
Type					
Type:Type	1	310.633	1.365	0.243	
Type:CLRole	1	467.303	2.053	0.152	
Type:Type:CLRole	1	280.216	1.231	0.267	
Type:Residuals	48	10548.849			

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

Table 2: Descriptive statistic of the pair wilcoxon analysis for the latent trait estimates of Relevance in the third study for signed up students

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type:CLRole.less.1	ont-gamified.Apprentice	16	−0.08	11.03	176.5	40.5	−1.79	0.038	0.358	medium
Type:CLRole.less.2	ont-gamified.Master	9	0.87	16.50	148.5	40.5	−1.79	0.038	0.358	medium
Type:CLRole.greater.1	ont-gamified.Master	9	0.87	18.83	169.5	124.5	1.93	0.027	0.364	medium
Type:CLRole.greater.2	w/o-gamified.Apprentice	19	−0.08	12.45	236.5	124.5	1.93	0.027	0.364	medium
Type:CLRole.greater.11	ont-gamified.Master	9	0.87	10.94	98.5	53.5	1.69	0.048	0.411	medium
Type:CLRole.greater.21	w/o-gamified.Master	8	−0.08	6.81	54.5	53.5	1.69	0.048	0.411	medium

Table 3: Full descriptive statistic of the pair wilcoxon analysis for the latent trait estimates of Relevance in the third study for signed up students

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type.less.1	ont-gamified	25	0.08	29.04	726.0	401.0	1.17	0.878	0.162	small
Type.less.2	w/o-gamified	27	−0.08	24.15	652.0	401.0	1.17	0.878	0.162	small
Type.greater.1	ont-gamified	25	0.08	29.04	726.0	401.0	1.17	0.123	0.162	small
Type.greater.2	w/o-gamified	27	−0.08	24.15	652.0	401.0	1.17	0.123	0.162	small
Type.two.sided.1	ont-gamified	25	0.08	29.04	726.0	401.0	1.17	0.247	0.162	small
Type.two.sided.2	w/o-gamified	27	−0.08	24.15	652.0	401.0	1.17	0.247	0.162	small
Type:CLRole.less.1	ont-gamified.Apprentice	16	−0.08	11.03	176.5	40.5	−1.79	0.038	0.358	medium
Type:CLRole.less.2	ont-gamified.Master	9	0.87	16.50	148.5	40.5	−1.79	0.038	0.358	medium
Type:CLRole.greater.1	ont-gamified.Apprentice	16	−0.08	11.03	176.5	40.5	−1.79	0.965	0.358	medium
Type:CLRole.greater.2	ont-gamified.Master	9	0.87	16.50	148.5	40.5	−1.79	0.965	0.358	medium
Type:CLRole.two.sided.1	ont-gamified.Apprentice	16	−0.08	11.03	176.5	40.5	−1.79	0.076	0.358	medium
Type:CLRole.two.sided.2	ont-gamified.Master	9	0.87	16.50	148.5	40.5	−1.79	0.076	0.358	medium
Type:CLRole.less.11	ont-gamified.Apprentice	16	−0.08	18.47	295.5	159.5	0.25	0.601	0.042	none
Type:CLRole.less.21	w/o-gamified.Apprentice	19	−0.08	17.61	334.5	159.5	0.25	0.601	0.042	none
Type:CLRole.greater.11	ont-gamified.Apprentice	16	−0.08	18.47	295.5	159.5	0.25	0.406	0.042	none
Type:CLRole.greater.21	w/o-gamified.Apprentice	19	−0.08	17.61	334.5	159.5	0.25	0.406	0.042	none
Type:CLRole.two.sided.11	ont-gamified.Apprentice	16	−0.08	18.47	295.5	159.5	0.25	0.812	0.042	none
Type:CLRole.two.sided.21	w/o-gamified.Apprentice	19	−0.08	17.61	334.5	159.5	0.25	0.812	0.042	none
Type:CLRole.less.12	ont-gamified.Apprentice	16	−0.08	12.47	199.5	63.5	−0.03	0.494	0.006	none
Type:CLRole.less.22	w/o-gamified.Master	8	−0.08	12.56	100.5	63.5	−0.03	0.494	0.006	none
Type:CLRole.greater.12	ont-gamified.Apprentice	16	−0.08	12.47	199.5	63.5	−0.03	0.518	0.006	none
Type:CLRole.greater.22	w/o-gamified.Master	8	−0.08	12.56	100.5	63.5	−0.03	0.518	0.006	none
Type:CLRole.two.sided.12	ont-gamified.Apprentice	16	−0.08	12.47	199.5	63.5	−0.03	0.988	0.006	none
Type:CLRole.two.sided.22	w/o-gamified.Master	8	−0.08	12.56	100.5	63.5	−0.03	0.988	0.006	none
Type:CLRole.less.13	ont-gamified.Master	9	0.87	18.83	169.5	124.5	1.93	0.974	0.364	medium
Type:CLRole.less.23	w/o-gamified.Apprentice	19	−0.08	12.45	236.5	124.5	1.93	0.974	0.364	medium
Type:CLRole.greater.13	ont-gamified.Master	9	0.87	18.83	169.5	124.5	1.93	0.027	0.364	medium
Type:CLRole.greater.23	w/o-gamified.Apprentice	19	−0.08	12.45	236.5	124.5	1.93	0.027	0.364	medium
Type:CLRole.two.sided.13	ont-gamified.Master	9	0.87	18.83	169.5	124.5	1.93	0.055	0.364	medium
Type:CLRole.two.sided.23	w/o-gamified.Apprentice	19	−0.08	12.45	236.5	124.5	1.93	0.055	0.364	medium
Type:CLRole.less.14	ont-gamified.Master	9	0.87	10.94	98.5	53.5	1.69	0.957	0.411	medium
Type:CLRole.less.24	w/o-gamified.Master	8	−0.08	6.81	54.5	53.5	1.69	0.957	0.411	medium
Type:CLRole.greater.14	ont-gamified.Master	9	0.87	10.94	98.5	53.5	1.69	0.048	0.411	medium
Type:CLRole.greater.24	w/o-gamified.Master	8	−0.08	6.81	54.5	53.5	1.69	0.048	0.411	medium
Type:CLRole.two.sided.14	ont-gamified.Master	9	0.87	10.94	98.5	53.5	1.69	0.095	0.411	medium
Type:CLRole.two.sided.24	w/o-gamified.Master	8	−0.08	6.81	54.5	53.5	1.69	0.095	0.411	medium
Type:CLRole.less.15	w/o-gamified.Apprentice	19	−0.08	13.68	260.0	70.0	−0.32	0.381	0.062	none
Type:CLRole.less.25	w/o-gamified.Master	8	−0.08	14.75	118.0	70.0	−0.32	0.381	0.062	none
Type:CLRole.greater.15	w/o-gamified.Apprentice	19	−0.08	13.68	260.0	70.0	−0.32	0.628	0.062	none
Type:CLRole.greater.25	w/o-gamified.Master	8	−0.08	14.75	118.0	70.0	−0.32	0.628	0.062	none

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type:CLRole.two.sided.15	w/o-gamified.Apprentice	19	−0.08	13.68	260.0	70.0	−0.32	0.763	0.062	none
Type:CLRole.two.sided.25	w/o-gamified.Master	8	−0.08	14.75	118.0	70.0	−0.32	0.763	0.062	none