

# Summary of nonparametric statistics analysis for the latent trait estimates of Relevance in the third study for students with effective participation

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

	Df	Sum Sq	H	p.value	Sig
Type					
Type:Type	1	38.928	0.238	0.626	
Type:CLRole	1	101.179	0.619	0.431	
Type:Type:CLRole	1	607.952	3.720	0.054	
Type:Residuals	40	6279.441			

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 students with effective participation

	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	9.61	86.5	41.5	1.72	0.045	0.445	medium
Type:CLRole.greater.2	w/o-gamified.Master	6	-0.16	5.58	33.5	41.5	1.72	0.045	0.445	medium

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

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type.less.1	ont-gamified	25	0.08	23.32	583.0	258.0	0.49	0.688	0.074	none
Type.less.2	w/o-gamified	19	0.08	21.42	407.0	258.0	0.49	0.688	0.074	none
Type.greater.1	ont-gamified	25	0.08	23.32	583.0	258.0	0.49	0.317	0.074	none
Type.greater.2	w/o-gamified	19	0.08	21.42	407.0	258.0	0.49	0.317	0.074	none
Type.two.sided.1	ont-gamified	25	0.08	23.32	583.0	258.0	0.49	0.633	0.074	none
Type.two.sided.2	w/o-gamified	19	0.08	21.42	407.0	258.0	0.49	0.633	0.074	none
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	13.84	221.5	85.5	-0.82	0.213	0.152	small
Type:CLRole.less.21	w/o-gamified.Apprentice	13	0.08	16.42	213.5	85.5	-0.82	0.213	0.152	small
Type:CLRole.greater.11	ont-gamified.Apprentice	16	-0.08	13.84	221.5	85.5	-0.82	0.793	0.152	small
Type:CLRole.greater.21	w/o-gamified.Apprentice	13	0.08	16.42	213.5	85.5	-0.82	0.793	0.152	small
Type:CLRole.two.sided.11	ont-gamified.Apprentice	16	-0.08	13.84	221.5	85.5	-0.82	0.427	0.152	small
Type:CLRole.two.sided.21	w/o-gamified.Apprentice	13	0.08	16.42	213.5	85.5	-0.82	0.427	0.152	small
Type:CLRole.less.12	ont-gamified.Apprentice	16	-0.08	11.91	190.5	54.5	0.48	0.687	0.103	small
Type:CLRole.less.22	w/o-gamified.Master	6	-0.16	10.42	62.5	54.5	0.48	0.687	0.103	small
Type:CLRole.greater.12	ont-gamified.Apprentice	16	-0.08	11.91	190.5	54.5	0.48	0.325	0.103	small
Type:CLRole.greater.22	w/o-gamified.Master	6	-0.16	10.42	62.5	54.5	0.48	0.325	0.103	small
Type:CLRole.two.sided.12	ont-gamified.Apprentice	16	-0.08	11.91	190.5	54.5	0.48	0.650	0.103	small
Type:CLRole.two.sided.22	w/o-gamified.Master	6	-0.16	10.42	62.5	54.5	0.48	0.650	0.103	small
Type:CLRole.less.13	ont-gamified.Master	9	0.87	13.50	121.5	76.5	1.21	0.887	0.258	small
Type:CLRole.less.23	w/o-gamified.Apprentice	13	0.08	10.12	131.5	76.5	1.21	0.887	0.258	small
Type:CLRole.greater.13	ont-gamified.Master	9	0.87	13.50	121.5	76.5	1.21	0.119	0.258	small
Type:CLRole.greater.23	w/o-gamified.Apprentice	13	0.08	10.12	131.5	76.5	1.21	0.119	0.258	small
Type:CLRole.two.sided.13	ont-gamified.Master	9	0.87	13.50	121.5	76.5	1.21	0.239	0.258	small
Type:CLRole.two.sided.23	w/o-gamified.Apprentice	13	0.08	10.12	131.5	76.5	1.21	0.239	0.258	small
Type:CLRole.less.14	ont-gamified.Master	9	0.87	9.61	86.5	41.5	1.72	0.960	0.445	medium
Type:CLRole.less.24	w/o-gamified.Master	6	-0.16	5.58	33.5	41.5	1.72	0.960	0.445	medium
Type:CLRole.greater.14	ont-gamified.Master	9	0.87	9.61	86.5	41.5	1.72	0.045	0.445	medium
Type:CLRole.greater.24	w/o-gamified.Master	6	-0.16	5.58	33.5	41.5	1.72	0.045	0.445	medium
Type:CLRole.two.sided.14	ont-gamified.Master	9	0.87	9.61	86.5	41.5	1.72	0.091	0.445	medium
Type:CLRole.two.sided.24	w/o-gamified.Master	6	-0.16	5.58	33.5	41.5	1.72	0.091	0.445	medium
Type:CLRole.less.15	ont-gamified.Apprentice	13	0.08	10.81	140.5	49.5	0.93	0.823	0.213	small
Type:CLRole.less.25	w/o-gamified.Master	6	-0.16	8.25	49.5	49.5	0.93	0.823	0.213	small
Type:CLRole.greater.15	w/o-gamified.Apprentice	13	0.08	10.81	140.5	49.5	0.93	0.196	0.213	small
Type:CLRole.greater.25	w/o-gamified.Master	6	-0.16	8.25	49.5	49.5	0.93	0.196	0.213	small

Table 3: *(continued)*

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type:CLRole.two.sided.15	w/o-gamified.Apprentice	13	0.08	10.81	140.5	49.5	0.93	0.379	0.213	small
Type:CLRole.two.sided.25	w/o-gamified.Master	6	-0.16	8.25	49.5	49.5	0.93	0.379	0.213	small