Summary of nonparametric statistics analysis for Gain in Skill/Knowledge as the latent trait estimates in the pilot study for signed up students

September 30, 2018

Table 1: Summary of Scheirer-Ray-Hare results for Gain in Skill/Knowledge as the latent trait estimates in the pilot study for signed up students

	Df	Sum Sq	H	p.value	Sig
gain.theta					
gain.theta:Type	1	59.062	0.763	0.382	
gain.theta:CLRole	1	404.890	5.233	0.022	*
gain.theta:Type:CLRole	1	61.808	0.799	0.371	
gain.theta:Residuals	26	1718.239			

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

Table 2: Descriptive statistic of the pair wilcoxon analysis for Gain in Skill/Knowledge as the latent trait estimates in the pilot study for signed up students

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type:CLRole.greater.1	non-gamified.Apprentice	11	5.21	9.00	99	33	2.58	0.003	0.690	large
Type:CLRole.greater.2	non-gamified.Master	3	0.88	2.00	6	33	2.58	0.003	0.690	large
Type:CLRole.two.sided.1	non-gamified.Apprentice	11	5.21	9.00	99	33	2.58	0.005	0.690	large
Type:CLRole.two.sided.2	non-gamified.Master	3	0.88	2.00	6	33	2.58	0.005	0.690	large
Type:CLRole.greater.11	non-gamified.Apprentice	11	5.21	9.91	109	43	1.76	0.041	0.441	medium
Type:CLRole.greater.21	ont-gamified.Master	5	0.75	5.40	27	43	1.76	0.041	0.441	medium

Table 3: Full descriptive statistic of the pair wilcoxon analysis for Gain in Skill/Knowledge as the latent trait estimates in the pilot study for signed up students

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type.less.1	non-gamified	14	3.60	17.00	238.0	133.0	0.87	0.809	0.160	small
Type.less.2	ont-gamified	16	2.59	14.19	227.0	133.0	0.87	0.809	0.160	small
Type.greater.1	non-gamified	14	3.60	17.00	238.0	133.0	0.87	0.197	0.160	small
Type.greater.2	ont-gamified	16	2.59	14.19	227.0	133.0	0.87	0.197	0.160	small
Type.two.sided.1	non-gamified	14	3.60	17.00	238.0	133.0	0.87	0.394	0.160	small
Type.two.sided.2	ont-gamified	16	2.59	14.19	227.0	133.0	0.87	0.394	0.160	small
Type:CLRole.less.1	non-gamified.Apprentice	11	5.21	9.00	99.0	33.0	2.58	1.000	0.690	large
Type:CLRole.less.2	non-gamified.Master	3	0.88	2.00	6.0	33.0	2.58	1.000	0.690	large
Type:CLRole.greater.1	non-gamified.Apprentice	11	5.21	9.00	99.0	33.0	2.58	0.003	0.690	large
Type:CLRole.greater.2	non-gamified.Master	3	0.88	2.00	6.0	33.0	2.58	0.003	0.690	large
Type:CLRole.two.sided.1	non-gamified.Apprentice	11	5.21	9.00	99.0	33.0	2.58	0.005	0.690	large
Type:CLRole.two.sided.2	non-gamified.Master	3	0.88	2.00	6.0	33.0	2.58	0.005	0.690	large
Type:CLRole.less.11	non-gamified.Apprentice	11	5.21	12.73	140.0	74.0	0.89	0.813	0.189	small
Type:CLRole.less.21	ont-gamified.Apprentice	11	4.68	10.27	113.0	74.0	0.89	0.813	0.189	small
Type:CLRole.greater.11	non-gamified.Apprentice	11	5.21	12.73	140.0	74.0	0.89	0.195	0.189	small
Type:CLRole.greater.21	ont-gamified.Apprentice	11	4.68	10.27	113.0	74.0	0.89	0.195	0.189	small
Type:CLRole.two.sided.11	non-gamified.Apprentice	11	5.21	12.73	140.0	74.0	0.89	0.390	0.189	small
Type:CLRole.two.sided.21	ont-gamified.Apprentice	11	4.68	10.27	113.0	74.0	0.89	0.390	0.189	small
Type:CLRole.less.12	non-gamified.Apprentice	11	5.21	9.91	109.0	43.0	1.76	0.964	0.441	medium
Type:CLRole.less.22	ont-gamified.Master	5	0.75	5.40	27.0	43.0	1.76	0.964	0.441	medium
Type:CLRole.greater.12	non-gamified.Apprentice	11	5.21	9.91	109.0	43.0	1.76	0.041	0.441	medium
Type:CLRole.greater.22	ont-gamified.Master	5	0.75	5.40	27.0	43.0	1.76	0.041	0.441	medium
Type:CLRole.two.sided.12	non-gamified.Apprentice	11	5.21	9.91	109.0	43.0	1.76	0.084	0.441	medium
Type:CLRole.two.sided.22	ont-gamified.Master	5	0.75	5.40	27.0	43.0	1.76	0.084	0.441	medium
Type:CLRole.less.13	non-gamified.Master	3	0.88	4.67	14.0	8.0	−1.32	0.113	0.354	medium
Type:CLRole.less.23	ont-gamified.Apprentice	11	4.68	8.27	91.0	8.0	−1.32	0.113	0.354	medium
Type:CLRole.greater.13	non-gamified.Master	3	0.88	4.67	14.0	8.0	−1.32	0.915	0.354	medium
Type:CLRole.greater.23	ont-gamified.Apprentice	11	4.68	8.27	91.0	8.0	−1.32	0.915	0.354	medium
Type:CLRole.two.sided.13	non-gamified.Master	3	0.88	4.67	14.0	8.0	−1.32	0.214	0.354	medium
Type:CLRole.two.sided.23	ont-gamified.Apprentice	11	4.68	8.27	91.0	8.0	−1.32	0.214	0.354	medium
Type:CLRole.less.14	non-gamified.Master	3	0.88	4.67	14.0	8.0	0.15	0.571	0.053	none
Type:CLRole.less.24	ont-gamified.Master	5	0.75	4.40	22.0	8.0	0.15	0.571	0.053	none
Type:CLRole.greater.14	non-gamified.Master	3	0.88	4.67	14.0	8.0	0.15	0.464	0.053	none
Type:CLRole.greater.24	ont-gamified.Master	5	0.75	4.40	22.0	8.0	0.15	0.464	0.053	none
Type:CLRole.two.sided.14	non-gamified.Master	3	0.88	4.67	14.0	8.0	0.15	0.929	0.053	none
Type:CLRole.two.sided.24	ont-gamified.Master	5	0.75	4.40	22.0	8.0	0.15	0.929	0.053	none
Type:CLRole.less.15	ont-gamified.Apprentice	11	4.68	9.41	103.5	37.5	1.14	0.874	0.284	small
Type:CLRole.less.25	ont-gamified.Master	5	0.75	6.50	32.5	37.5	1.14	0.874	0.284	small
Type:CLRole.greater.15	ont-gamified.Apprentice	11	4.68	9.41	103.5	37.5	1.14	0.140	0.284	small
Type:CLRole.greater.25	ont-gamified.Master	5	0.75	6.50	32.5	37.5	1.14	0.140	0.284	small

Table 3: *(continued)*

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type:CLRole.two.sided.15	ont-gamified.Apprentice	11	4.68	9.41	103.5	37.5	1.14	0.278	0.284	small
Type:CLRole.two.sided.25	ont-gamified.Master	5	0.75	6.50	32.5	37.5	1.14	0.278	0.284	small

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
Type:CLRole.two.sided.15	ont-gamified.Apprentice	11	4.68	9.41	103.5	37.5	1.14	0.278	0.284	small
Type:CLRole.two.sided.25	ont-gamified.Master	5	0.75	6.50	32.5	37.5	1.14	0.278	0.284	small