Statistical Analysis in the pilot study for signed-up students

Table 1: Two-way ANOVA and Scheirer-Ray-Hare in the pilot study for signed-up students

	Sum Sq	Df	F value	Pr(>F)	Sig	Df	Sum Sq	H	p.value	Sig
difScore.(Intercept)	77.012	1	3.740	0.064						
difScore.Type	53.583	1	2.602	0.119		1	164.062	2.126	0.145	
difScore.CLRole	107.626	1	5.227	0.031	*	1	283.938	3.680	0.055	
difScore.Type:CLRole	0.410	1	0.020	0.889		1	8.761	0.114	0.736	
difScore.Residuals	535.361	26				26	1780.739			

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

Table 2: Summary of Pair wilcoxon in the pilot study for signed-up students

	Group	N	Median	Mean.Ranks	Sum.Ranks	U	Z	p.value	r	magnitude
difScore.Type:CLRole.greater.1	non-gamified.Apprentice	11	6	10.05	110.5	44.5	1.93	0.027	0.483	medium
difScore.Type:CLRole.greater.2	ont-gamified.Master	5	−3	5.10	25.5	44.5	1.93	0.027	0.483	medium

1 Descriptive Statistics and Assumptions for Parametric Tests

Table 3: Descriptive statistics in the pilot study for signed-up students

	n	Mean	Std.Dev	Median	Min	Max	25th	75th	Skew	Kurtosis
variable	30	2.767	5.038	3.5	-7	11	-0.724	6.75	-0.241	-1.01

Table 4: Univariate normality test in the pilot study for signed-up students

	Test	Variable	Statistic	p value	Normality
W	Shapiro-Wilk	variable	0.964	0.394	YES

Table 5: Notes to be taken into account about sample size in the pilot study for signed-up students

	code	description
difScore.Type.1	WARN: sample.size	current size is 11 and recommended size is 15 for the group: 'non-gamified:Apprentice'.
difScore.Type.2	WARN: sample.size	current size is 11 and recommended size is 15 for the group: 'ont-gamified:Apprentice'.
difScore.Type.3	FAIL: min.size	current size is 3 but the minimal recomended size is 5 for the group: 'non-gamified:Master'.
difScore.Type.4	WARN: sample.size	current size is 5 and recommended size is 15 for the group: 'ont-gamified:Master'.

Recent studies carried out through simulations have indicated that ANOVA is reliable even when the data are non-normally distributed and the sample size is greater thatn 15 observations for each group. This size value is based on the Reference: Rana, R. K., Singhal, R., & Dua, P. (2016). Deciphering the dilemma of parametric and nonparametric tests. Journal of the Practice of Cardiovascular Sciences, 2(2), 95.

The sample size to carried out any parametric and non-parametric analysis is 5, and it was established using common sense. The warning and fails indicated in this section should be taking into account when a paper or report will be elaborated.