Summary of correlation analysis between participants' motivation and learning outcomes in the second empirical study

1 Diference in Scores and Motivation

Table 1: Correlation matrix of Diference in Scores and Motivation between participants' motivation and learning outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	1.0000	−0.1850	−0.2084	−0.0273	−0.1588
Level of Motivation	−0.1850	1.0000	0.9229	0.8294	0.6508
Attention	−0.2084	0.9229	1.0000	0.6106	0.4794
Relevance	−0.0273	0.8294	0.6106	1.0000	0.5879
Satisfaction	−0.1588	0.6508	0.4794	0.5879	1.0000

method: spearman

Table 2: Correlation matrix with p-values of Diference in Scores and Motivation between participants' motivation and learning outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	0.0000	0.2407	0.1854	0.8639	0.3151
Level of Motivation	0.2407	0.0000	0.0000	0.0000	0.0000
Attention	0.1854	0.0000	0.0000	0.0000	0.0013
Relevance	0.8639	0.0000	0.0000	0.0000	0.0000
Satisfaction	0.3151	0.0000	0.0013	0.0000	0.0000

method: spearman

2 Diference in Scores and Motivation for the group non-gamified

Table 3: Correlation matrix of Diference in Scores and Motivation for the group non-gamified between participants' motivation and learning outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	1.0000	−0.1624	−0.2101	0.0190	−0.0557
Level of Motivation	−0.1624	1.0000	0.9082	0.8054	0.6750
Attention	−0.2101	0.9082	1.0000	0.5419	0.4160
Relevance	0.0190	0.8054	0.5419	1.0000	0.7030
Satisfaction	−0.0557	0.6750	0.4160	0.7030	1.0000

method: spearman

Table 4: Correlation matrix with p-values of Diference in Scores and Motivation for the group non-gamified between participants' motivation and learning outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	0.0000	0.4379	0.3135	0.9283	0.7913
Level of Motivation	0.4379	0.0000	0.0000	0.0000	0.0002
Attention	0.3135	0.0000	0.0000	0.0051	0.0386
Relevance	0.9283	0.0000	0.0051	0.0000	0.0001
Satisfaction	0.7913	0.0002	0.0386	0.0001	0.0000

method: spearman

3 Diference in Scores and Motivation for the group ont-gamified

Table 5: Correlation matrix of Diference in Scores and Motivation for the group ont-gamified between participants' motivation and learning outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	1.0000	−0.3939	−0.3832	−0.2488	−0.3469
Level of Motivation	−0.3939	1.0000	0.9171	0.8570	0.7509
Attention	−0.3832	0.9171	1.0000	0.6503	0.8119
Relevance	−0.2488	0.8570	0.6503	1.0000	0.5123
Satisfaction	−0.3469	0.7509	0.8119	0.5123	1.0000

method: spearman

Table 6: Correlation matrix with p-values of Diference in Scores and Motivation for the group ont-gamified between participants' motivation and learning outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	0.0000	0.1178	0.1289	0.3356	0.1725
Level of Motivation	0.1178	0.0000	0.0000	0.0000	0.0005
Attention	0.1289	0.0000	0.0000	0.0047	0.0001
Relevance	0.3356	0.0000	0.0047	0.0000	0.0355
Satisfaction	0.1725	0.0005	0.0001	0.0355	0.0000

method: spearman

4 Diference in Scores and Motivation for the group Apprentice

Table 7: Correlation matrix of Diference in Scores and Motivation for the group Apprentice between participants' motivation and learning outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	1.0000	-0.1859	-0.2321	0.0506	-0.0904
Level of Motivation	-0.1859	1.0000	0.8939	0.8180	0.6382
Attention	-0.2321	0.8939	1.0000	0.5256	0.4460
Relevance	0.0506	0.8180	0.5256	1.0000	0.5944
Satisfaction	-0.0904	0.6382	0.4460	0.5944	1.0000

method: spearman

Table 8: Correlation matrix with p-values of Diference in Scores and Motivation for the group Apprentice between participants' motivation and learning outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	0.0000	0.3344	0.2258	0.7942	0.6411
Level of Motivation	0.3344	0.0000	0.0000	0.0000	0.0002
Attention	0.2258	0.0000	0.0000	0.0034	0.0153
Relevance	0.7942	0.0000	0.0034	0.0000	0.0007
Satisfaction	0.6411	0.0002	0.0153	0.0007	0.0000

method: spearman

5 Diference in Scores and Motivation for the group Master

Table 9: Correlation matrix of Diference in Scores and Motivation for the group Master between participants' motivation and learning outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	1.0000	0.1876	0.3228	0.1108	-0.0305
Level of Motivation	0.1876	1.0000	0.9557	0.8999	0.7663
Attention	0.3228	0.9557	1.0000	0.8915	0.5730
Relevance	0.1108	0.8999	0.8915	1.0000	0.5838
Satisfaction	-0.0305	0.7663	0.5730	0.5838	1.0000

method: spearman

Table 10: Correlation matrix with p-values of Diference in Scores and Motivation for the group Master between participants' motivation and learning outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	0.0000	0.5394	0.2821	0.7186	0.9213
Level of Motivation	0.5394	0.0000	0.0000	0.0000	0.0022
Attention	0.2821	0.0000	0.0000	0.0000	0.0407
Relevance	0.7186	0.0000	0.0000	0.0000	0.0362
Satisfaction	0.9213	0.0022	0.0407	0.0362	0.0000

method: spearman

6 Diference in Scores and Motivation for the group non-gamified.Apprentice

Table 11: Correlation matrix of Diference in Scores and Motivation for the group non-gamified.Apprentice between participants' motivation and learning outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	1.0000	-0.0699	-0.1365	0.1232	0.0865
Level of Motivation	-0.0699	1.0000	0.8276	0.8261	0.6741
Attention	-0.1365	0.8276	1.0000	0.4289	0.2963
Relevance	0.1232	0.8261	0.4289	1.0000	0.7418
Satisfaction	0.0865	0.6741	0.2963	0.7418	1.0000

method: spearman

Table 12: Correlation matrix with p-values of Diference in Scores and Motivation for
the group non-gamified.Apprentice between participants' motivation and learning
outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	0.0000	0.7897	0.6013	0.6377	0.7414
Level of Motivation	0.7897	0.0000	0.0000	0.0000	0.0030
Attention	0.6013	0.0000	0.0000	0.0858	0.2481
Relevance	0.6377	0.0000	0.0858	0.0000	0.0007
Satisfaction	0.7414	0.0030	0.2481	0.0007	0.0000

method: spearman

7 Diference in Scores and Motivation for the group non-gamified.Master

Table 13: Correlation matrix of Diference in Scores and Motivation for the group
non-gamified.Master between participants' motivation and learning outcomes in the
second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	1.0000	0.3095	0.3095	0.3416	0.1807
Level of Motivation	0.3095	1.0000	1.0000	0.9027	0.7229
Attention	0.3095	1.0000	1.0000	0.9027	0.7229
Relevance	0.3416	0.9027	0.9027	1.0000	0.5679
Satisfaction	0.1807	0.7229	0.7229	0.5679	1.0000

method: spearman

Table 14: Correlation matrix with p-values of Diference in Scores and Motivation
for the group non-gamified.Master between participants' motivation and learning
outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	0.0000	0.4618	0.4618	0.4076	0.6684
Level of Motivation	0.4618	0.0000	0.0000	0.0021	0.0427
Attention	0.4618	0.0000	0.0000	0.0021	0.0427
Relevance	0.4076	0.0021	0.0021	0.0000	0.1419
Satisfaction	0.6684	0.0427	0.0427	0.1419	0.0000

method: spearman

8 Diference in Scores and Motivation for the group ont-gamified.Apprentice

Table 15: Correlation matrix of Diference in Scores and Motivation for the group
ont-gamified.Apprentice between participants' motivation and learning outcomes in
the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	1.0000	−0.6410	−0.6596	−0.4288	−0.4654
Level of Motivation	−0.6410	1.0000	0.9095	0.8187	0.7883
Attention	−0.6596	0.9095	1.0000	0.5990	0.9009
Relevance	−0.4288	0.8187	0.5990	1.0000	0.5268
Satisfaction	−0.4654	0.7883	0.9009	0.5268	1.0000

method: spearman

Table 16: Correlation matrix with p-values of Diference in Scores and Motivation for
the group ont-gamified.Apprentice between participants' motivation and learning
outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	0.0000	0.0247	0.0196	0.1642	0.1273
Level of Motivation	0.0247	0.0000	0.0000	0.0011	0.0023
Attention	0.0196	0.0000	0.0000	0.0396	0.0001
Relevance	0.1642	0.0011	0.0396	0.0000	0.0784
Satisfaction	0.1273	0.0023	0.0001	0.0784	0.0000

method: spearman

9 Diference in Scores and Motivation for the group ont-gamified.Master

Table 17: Correlation matrix of Diference in Scores and Motivation for the group
ont-gamified.Master between participants' motivation and learning outcomes in the
second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	1.0000	−0.1000	0.2108	−0.1000	−0.7182
Level of Motivation	−0.1000	1.0000	0.9487	1.0000	0.5643
Attention	0.2108	0.9487	1.0000	0.9487	0.3515
Relevance	−0.1000	1.0000	0.9487	1.0000	0.5643
Satisfaction	−0.7182	0.5643	0.3515	0.5643	1.0000

method: spearman

Table 18: Correlation matrix with p-values of Diference in Scores and Motivation for the group ont-gamified.Master between participants' motivation and learning outcomes in the second empirical study

round	Diference in Scores	Level of Motivation	Attention	Relevance	Satisfaction
Diference in Scores	0.0000	0.9500	0.7336	0.9500	0.1718
Level of Motivation	0.9500	0.0000	0.0138	0.0167	0.3217
Attention	0.7336	0.0138	0.0000	0.0138	0.5619
Relevance	0.9500	0.0167	0.0138	0.0000	0.3217
Satisfaction	0.1718	0.3217	0.5619	0.3217	0.0000

method: spearman