

Paired T-Test: H1 (Learning Ourcome) - JSON

[DataSet1] C:\Users\LocalAdmin\Microsoft Cloud - Bereich Universität Regensburg\IFS - Versionierungsprofis - 04_HAISA\datasetBlockly.sav

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pre_nsk_avg	,4888888889	15	,2133134911	,0550773066
	post_nsk_avg	,6666666667	15	,1781741613	,0460043706
Pair 2	pre_atkk_avg	,6444444444	15	,2662695456	,0687505010
	pst_atkk_avg	,8000000000	15	,2108185107	,0544331054
Pair 3	pre_siemk_avg	,7333333333	15	,2581988897	,0666666667
	post_siemk_avg	,8444444444	15	,2133134911	,0550773066
Pair 4	pre_siemd_avg	,2222222222	15	,2057377999	,0531212715
	post_siemdk_avg	,7555555556	15	,2945717006	,0760580860
Pair 5	pre_all_avg	,5222222222	15	,1316360222	,0339882748
	post_all_avg	,7666666667	15	,1730904892	,0446917721

Paired Samples Correlations						
			N	Correlation	Significance	
					One-Sided p	Two-Sided p
Pair 1	pre_nsk_avg & post_nsk_avg		15	,000	,500	1,000
Pair 2	pre_atkk_avg & pst_atkk_avg		15	,339	,108	,216
Pair 3	pre_siemk_avg & post_siemk_avg		15	,202	,235	,471
Pair 4	pre_siemd_avg & post_siemdk_avg		15	,175	,267	,534
Pair 5	pre_all_avg & post_all_avg		15	,113	,344	,688

Paired Samples Test										
		Paired Differences						Significance		
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	pre_nsk_avg - post_nsk_avg	-,177777778	,2779364626	,0717628861	-,331693860	-,023861695	-2,477	14	,013	,027
Pair 2	pre_atkk_avg - pst_atkk_avg	-,155555556	,2779364626	,0717628861	-,309471638	-,001639473	-2,168	14	,024	,048
Pair 3	pre_siemk_avg - post_siemk_avg	-,111111111	,2999118036	,0774368947	-,277196732	,0549745098	-1,435	14	,087	,173
Pair 4	pre_siemd_avg - post_siemdk_avg	-,533333333	,3285369202	,0848278680	-,715271015	-,351395651	-6,287	14	<,001	<,001
Pair 5	pre_all_avg - post_all_avg	-,244444444	,2052550356	,0529966223	-,358110894	-,130777994	-4,612	14	<,001	<,001

Paired T-Test: H1 (Learning Outcome) - Blockly

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Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pre_nsk_avg	,6444444444	15	,2945717006	,0760580860
	post_nsk_avg	,8000000000	15	,2108185107	,0544331054
Pair 2	pre_atkk_avg	,8000000000	15	,1690308509	,0436435780
	pst_atkk_avg	,9333333333	15	,1380131119	,0356348323
Pair 3	pre_siemk_avg	,8444444444	15	,2133134911	,0550773066
	post_siemk_avg	,8888888889	15	,1626500122	,0419960526
Pair 4	pre_siemd_avg	,3555555556	15	,3876397171	,1000881446
	post_siemdk_avg	,8666666667	15	,2455961325	,0634126487
Pair 5	pre_all_avg	,6611111111	15	,1459325060	,0376796110
	post_all_avg	,8722222222	15	,0989361400	,0255452015

Paired Samples Correlations

		N	Correlation	Significance	
				One-Sided p	Two-Sided p
Pair 1	pre_nsk_avg & post_nsk_avg	15	,179	,262	,523
Pair 2	pre_atkk_avg & pst_atkk_avg	15	,408	,065	,131
Pair 3	pre_siemk_avg & post_siemk_avg	15	,610	,008	,016
Pair 4	pre_siemd_avg & post_siemdk_avg	15	-,133	,318	,636
Pair 5	pre_all_avg & post_all_avg	15	,291	,146	,293

Paired Samples Test

		Paired Differences				Significance			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	
					Lower	Upper			One-Sided p
Pair 1	pre_nsk_avg - post_nsk_avg	-,155555556	,3301434673	,0852426767	-,338382914	,0272718027	-1,825	14	,045
Pair 2	pre_atkk_avg - pst_atkk_avg	-,133333333	,1690308509	,0436435780	-,226939499	-,039727168	-3,055	14	,004
Pair 3	pre_siemk_avg - post_siemk_avg	-,044444444	,1721325932	,0444444444	-,139768297	,0508794084	-1,000	14	,167
Pair 4	pre_siemd_avg - post_siemdk_avg	-,511111111	,4857765288	,1254269604	-,780125186	-,242097036	-4,075	14	<,001
Pair 5	pre_all_avg - post_all_avg	-,211111111	,1506160190	,0388888889	-,294519482	-,127702740	-5,429	14	<,001

Unpaired T-Test: H1 (Learning Outcome)

[DataSet2]

Group Statistics					
	group	N	Mean	Std. Deviation	Std. Error Mean
diff_nsk_avg	Blockly	15	,1555555556	,3301434673	,0852426767
	Json	15	,1777777778	,2779364626	,0717628861
diff_siemk_avg	Blockly	15	,0444444444	,1721325932	,0444444444
	Json	15	,1111111111	,2999118036	,0774368947
diff_atkk_avg	Blockly	15	,1333333333	,1690308509	,0436435780
	Json	15	,1555555556	,2779364626	,0717628861
diff_siemdk_avg	Blockly	15	,5111111111	,4857765288	,1254269604
	Json	15	,5333333333	,3285369202	,0848278680
diff_all_avg	Blockly	15	,2111111111	,1506160190	,0388888889
	Json	15	,2444444444	,2052550356	,0529966223

Independent Samples Test											
Levene's Test for Equality of Variances				t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
diff_nsk_avg	Equal variances assumed	,080	,780	-,199	28	,422	,843	-,022222222	,1114281192	-,250472377	,2060279330
	Equal variances not assumed			-,199	27,209	,422	,843	-,022222222	,1114281192	-,250771522	,2063270775
diff_siemk_avg	Equal variances assumed	4,912	,035	-,747	28	,231	,461	-,066666667	,0892848324	-,249558355	,1162250218
	Equal variances not assumed			-,747	22,321	,232	,463	-,066666667	,0892848324	-,251677977	,1183446433
diff_atkk_avg	Equal variances assumed	4,181	,050	-,265	28	,397	,793	-,022222222	,0839921051	-,194272250	,1498278057
	Equal variances not assumed			-,265	23,110	,397	,794	-,022222222	,0839921051	-,195927404	,1514829600
diff_siemdk_avg	Equal variances assumed	5,961	,021	-,147	28	,442	,884	-,022222222	,1514189209	-,332389821	,2879453767
	Equal variances not assumed			-,147	24,591	,442	,885	-,022222222	,1514189209	-,334338326	,2898938812
diff_all_avg	Equal variances assumed	1,356	,254	-,507	28	,308	,616	-,033333333	,0657342198	-,167983779	,1013171120
	Equal variances not assumed			-,507	25,688	,308	,616	-,033333333	,0657342198	-,168531856	,1018651894

Unpaired T-Test: H2 (Learning Experience) - TLX

Group Statistics

	group	N	Mean	Std. Deviation	Std. Error Mean
task1_tlx_avg	Blockly	15	2,2500	,93063	,24029
	Json	15	2,5333	,90073	,23257
task2_tlx_avg	Blockly	15	1,7833	,82844	,21390
	Json	15	1,8833	,68051	,17571
task3_tlx_avg	Blockly	15	2,6667	1,05926	,27350
	Json	15	2,4500	,90731	,23427
task4_tlx_avg	Blockly	15	2,5667	1,06262	,27437
	Json	15	2,5833	,97590	,25198
task5_tlx_avg	Blockly	15	2,3500	1,01242	,26141
	Json	15	2,6167	,85496	,22075

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
task1_tlx_avg	Equal variances assumed	,028	,869	-,847	28	,202	,404	-,28333	,33440	-,96833	,40166
	Equal variances not assumed			-,847	27,970	,202	,404	-,28333	,33440	-,96836	,40169
task2_tlx_avg	Equal variances assumed	1,380	,250	-,361	28	,360	,721	-,10000	,27682	-,66703	,46703
	Equal variances not assumed			-,361	26,982	,360	,721	-,10000	,27682	-,66800	,46800
task3_tlx_avg	Equal variances assumed	1,085	,306	,602	28	,276	,552	,21667	,36011	-,52099	,95433
	Equal variances not assumed			,602	27,355	,276	,552	,21667	,36011	-,52178	,95511
task4_tlx_avg	Equal variances assumed	,495	,488	-,045	28	,482	,965	-,01667	,37252	-,77974	,74640
	Equal variances not assumed			-,045	27,799	,482	,965	-,01667	,37252	-,77998	,74665
task5_tlx_avg	Equal variances assumed	,286	,597	-,779	28	,221	,442	-,26667	,34215	-,96752	,43419
	Equal variances not assumed			-,779	27,236	,221	,442	-,26667	,34215	-,96841	,43507

Unpaired T-Test: H2 (Learning Experience) - ARCS

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Attention	Blockly	15	4,6667	,40825	,10541
	Json	15	4,4333	,65101	,16809
Relevance	Blockly	15	4,0333	,54989	,14198
	Json	15	4,0667	,56273	,14530
Confidence	Blockly	15	4,0000	,98198	,25355
	Json	15	4,3000	,52780	,13628
Satisfaction	Blockly	15	3,6667	,95743	,24721
	Json	15	4,0000	,56695	,14639

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
Attention	Equal variances assumed	4,063	,054	1,176	28	,125	,249	,23333	,19841	-,17308	,63975
	Equal variances not assumed			1,176	23,536	,126	,251	,23333	,19841	-,17658	,64325
Relevance	Equal variances assumed	,021	,885	-,164	28	,435	,871	-,03333	,20315	-,44947	,38280
	Equal variances not assumed			-,164	27,985	,435	,871	-,03333	,20315	-,44948	,38281
Confidence	Equal variances assumed	1,249	,273	-1,042	28	,153	,306	-,30000	,28785	-,88963	,28963
	Equal variances not assumed			-1,042	21,466	,154	,309	-,30000	,28785	-,89783	,29783
Satisfaction	Equal variances assumed	6,300	,018	-1,160	28	,128	,256	-,33333	,28730	-,92183	,25517
	Equal variances not assumed			-1,160	22,743	,129	,258	-,33333	,28730	-,92802	,26136

Unpaired T-Test: Learning Efficiency (H3)

Group Statistics

	group	N	Mean	Std. Deviation	Std. Error Mean
task1_diff	Blockly	15	0:06:38,33	0:06:19,007	0:01:37,859
	Json	15	0:07:06,73	0:06:43,573	0:01:44,202
task2_diff	Blockly	15	0:03:40,47	0:02:11,995	0:00:34,081
	Json	15	0:03:20,80	0:01:44,137	0:00:26,888
task3_diff	Blockly	15	0:08:37,13	0:04:59,122	0:01:17,233
	Json	15	0:06:39,27	0:03:29,439	0:00:54,077
task4_diff	Blockly	15	0:07:27,73	0:05:37,214	0:01:27,068
	Json	15	0:05:21,20	0:03:11,789	0:00:49,520
task5_diff	Blockly	15	0:04:11,13	0:01:25,376	0:00:22,044
	Json	15	0:05:11,93	0:01:44,004	0:00:26,854
total_time	Blockly	15	0:52:32,93	0:12:52,145	0:03:19,367
	Json	15	0:52:16,00	0:11:23,300	0:02:56,427

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
task1_diff	Equal variances assumed	,704	,409	-,199	28	,422	,844	-0:00:28,40	0:02:22,949	-0:05:21,22	0:04:24,419
	Equal variances not assumed			-,199	27,890	,422	,844	-0:00:28,40	0:02:22,949	-0:05:21,27	0:04:24,471
task2_diff	Equal variances assumed	1,790	,192	,453	28	,327	,654	0:00:19,667	0:00:43,411	-0:01:09,26	0:01:48,589
	Equal variances not assumed			,453	26,562	,327	,654	0:00:19,667	0:00:43,411	-0:01:09,47	0:01:48,807
task3_diff	Equal variances assumed	,614	,440	1,250	28	,111	,222	0:01:57,867	0:01:34,283	-0:01:15,26	0:05:10,996
	Equal variances not assumed			1,250	25,067	,111	,223	0:01:57,867	0:01:34,283	-0:01:16,29	0:05:12,019
task4_diff	Equal variances assumed	1,164	,290	1,263	28	,108	,217	0:02:06,533	0:01:40,165	-0:01:18,65	0:05:31,713
	Equal variances not assumed			1,263	22,199	,110	,220	0:02:06,533	0:01:40,165	-0:01:21,09	0:05:34,155
task5_diff	Equal variances assumed	,452	,507	-1,750	28	,046	,091	-0:01:00,80	0:00:34,743	-0:02:11,97	0:00:10,367
	Equal variances not assumed			-1,750	26,976	,046	,091	-0:01:00,80	0:00:34,743	-0:02:12,09	0:00:10,489
total_time	Equal variances assumed	,145	,706	,064	28	,475	,950	0:00:16,933	0:04:26,221	-0:08:48,40	0:09:22,263
	Equal variances not assumed			,064	27,592	,475	,950	0:00:16,933	0:04:26,221	-0:08:48,76	0:09:22,627