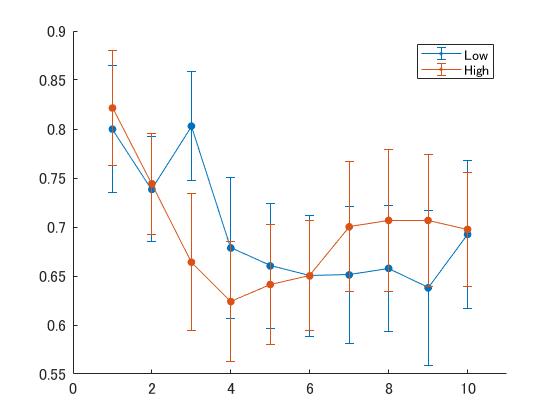
Happiness の高低による記憶課題成績の違い



\*

分散分析

順序の主効果（F(9, 288）=5.18, p<0.001)

Happiness の主効果（F(1, 32)=0.01, p=0.92）

順序×Happinessの交互作用（F(9, 288)=2.01, p=0.03）

下位検定：Happinessの高低に有意な差があるところ

順序3番目：（F(1, 32)=11.39, p=0.002）

===================分散分析表=================

[ sAB-Type Design ]

This output was generated by anovakun 4.8.1 under R version 3.3.1.

It was executed on Sat Dec 23 15:33:55 2017.

<< DESCRIPTIVE STATISTICS >>

--------------------------------------

highlow order n Mean S.D.

--------------------------------------

1 1 33 0.7998 0.2072

1 2 33 0.7384 0.1721

1 3 33 0.8029 0.1777

1 4 33 0.6786 0.2303

1 5 33 0.6603 0.2048

1 6 33 0.6501 0.1992

1 7 33 0.6511 0.2256

1 8 33 0.6578 0.2058

1 9 33 0.6379 0.2533

1 10 33 0.6925 0.2421

2 1 33 0.8214 0.1872

2 2 33 0.7441 0.1654

2 3 33 0.6641 0.2251

2 4 33 0.6238 0.1960

2 5 33 0.6413 0.1959

2 6 33 0.6502 0.1803

2 7 33 0.7002 0.2126

2 8 33 0.7068 0.2330

2 9 33 0.7067 0.2167

2 10 33 0.6975 0.1865

--------------------------------------

<< SPHERICITY INDICES >>

== Mendoza's Multisample Sphericity Test and Epsilons ==

---------------------------------------------------------------------------------

Effect Lambda approx.Chi df p LB GG HF CM

---------------------------------------------------------------------------------

Global 0.0000 241.1899 189 0.0128 \* 0.0526 0.5709 0.8856 0.8756

highlow 1.0000 -0.0000 0 1.0000 1.0000 1.0000 1.0000

order 0.0000 37.6145 44 0.7479 ns 0.1111 0.8031 1.0609 1.0489

highlow x order 0.0000 73.0255 44 0.0043 \*\* 0.1111 0.6908 0.8756 0.8657

---------------------------------------------------------------------------------

LB = lower.bound, GG = Greenhouse-Geisser

HF = Huynh-Feldt-Lecoutre, CM = Chi-Muller

<< ANOVA TABLE >>

-------------------------------------------------------------------

Source SS df MS F-ratio p-value

-------------------------------------------------------------------

s 8.2683 32 0.2584

-------------------------------------------------------------------

highlow 0.0003 1 0.0003 0.0105 0.9190 ns

s x highlow 0.8773 32 0.0274

-------------------------------------------------------------------

order 1.5776 9 0.1753 5.1821 0.0000 \*\*\*

s x order 9.7417 288 0.0338

-------------------------------------------------------------------

highlow x order 0.5395 9 0.0599 2.0112 0.0380 \*

s x highlow x order 8.5833 288 0.0298

-------------------------------------------------------------------

Total 29.5880 659 0.0449

+p < .10, \*p < .05, \*\*p < .01, \*\*\*p < .001

<< POST ANALYSES >>

< MULTIPLE COMPARISON for "order" >

== Shaffer's Modified Sequentially Rejective Bonferroni Procedure ==

== The factor < order > is analysed as dependent means. ==

== Alpha level is 0.05. ==

-----------------------------

order n Mean S.D.

-----------------------------

1 66 0.8106 0.1962

2 66 0.7412 0.1675

3 66 0.7335 0.2131

4 66 0.6512 0.2140

5 66 0.6508 0.1991

6 66 0.6502 0.1886

7 66 0.6757 0.2189

8 66 0.6823 0.2195

9 66 0.6723 0.2364

10 66 0.6950 0.2144

-----------------------------

--------------------------------------------------------

Pair Diff t-value df p adj.p

--------------------------------------------------------

1-6 0.1605 5.5812 32 0.0000 0.0002 1 > 6 \*

1-5 0.1598 5.4308 32 0.0000 0.0002 1 > 5 \*

1-4 0.1594 4.4128 32 0.0001 0.0039 1 > 4 \*

1-8 0.1283 4.1563 32 0.0002 0.0081 1 > 8 \*

1-9 0.1383 4.0142 32 0.0003 0.0121 1 > 9 \*

1-7 0.1349 3.9594 32 0.0004 0.0141 1 > 7 \*

2-5 0.0904 3.5000 32 0.0014 0.0501 2 = 5

2-6 0.0911 3.2986 32 0.0024 0.0860 2 = 6

1-10 0.1156 3.2158 32 0.0030 0.1070 1 = 10

2-4 0.0900 3.0566 32 0.0045 0.1617 2 = 4

1-2 0.0694 2.9788 32 0.0055 0.1617 1 = 2

3-6 0.0834 2.4755 32 0.0188 0.5449 3 = 6

3-5 0.0827 2.4343 32 0.0207 0.5996 3 = 5

1-3 0.0771 2.2774 32 0.0296 0.8580 1 = 3

3-4 0.0823 2.2011 32 0.0351 1.0000 3 = 4

2-7 0.0656 2.1225 32 0.0416 1.0000 2 = 7

2-9 0.0690 2.1080 32 0.0430 1.0000 2 = 9

2-8 0.0589 1.9076 32 0.0655 1.0000 2 = 8

3-9 0.0612 1.7819 32 0.0843 1.0000 3 = 9

3-7 0.0578 1.7282 32 0.0936 1.0000 3 = 7

2-10 0.0462 1.6228 32 0.1144 1.0000 2 = 10

3-8 0.0512 1.5886 32 0.1220 1.0000 3 = 8

5-10 -0.0442 1.3289 32 0.1933 1.0000 5 = 10

3-10 0.0385 1.2478 32 0.2212 1.0000 3 = 10

5-8 -0.0315 1.2073 32 0.2362 1.0000 5 = 8

6-10 -0.0448 1.1519 32 0.2579 1.0000 6 = 10

4-10 -0.0438 1.1488 32 0.2592 1.0000 4 = 10

6-8 -0.0321 1.0081 32 0.3209 1.0000 6 = 8

5-7 -0.0249 0.9245 32 0.3621 1.0000 5 = 7

4-8 -0.0311 0.8888 32 0.3807 1.0000 4 = 8

6-7 -0.0255 0.7782 32 0.4421 1.0000 6 = 7

4-7 -0.0244 0.7723 32 0.4456 1.0000 4 = 7

5-9 -0.0215 0.6911 32 0.4945 1.0000 5 = 9

6-9 -0.0221 0.6447 32 0.5237 1.0000 6 = 9

4-9 -0.0211 0.6321 32 0.5318 1.0000 4 = 9

7-10 -0.0193 0.6127 32 0.5444 1.0000 7 = 10

9-10 -0.0227 0.6026 32 0.5510 1.0000 9 = 10

8-10 -0.0127 0.4214 32 0.6763 1.0000 8 = 10

8-9 0.0100 0.3479 32 0.7302 1.0000 8 = 9

2-3 0.0077 0.2638 32 0.7936 1.0000 2 = 3

7-8 -0.0066 0.2100 32 0.8350 1.0000 7 = 8

7-9 0.0034 0.1020 32 0.9194 1.0000 7 = 9

4-6 0.0011 0.0353 32 0.9721 1.0000 4 = 6

5-6 0.0007 0.0218 32 0.9827 1.0000 5 = 6

4-5 0.0004 0.0145 32 0.9885 1.0000 4 = 5

--------------------------------------------------------

< SIMPLE EFFECTS for "highlow x order" INTERACTION >

--------------------------------------------------------------------------------

Effect Lambda approx.Chi df p LB GG HF CM

--------------------------------------------------------------------------------

highlow at 1 1.0000 -0.0000 0 1.0000 1.0000 1.0000 1.0000

highlow at 2 1.0000 -0.0000 0 1.0000 1.0000 1.0000 1.0000

highlow at 3 1.0000 -0.0000 0 1.0000 1.0000 1.0000 1.0000

highlow at 4 1.0000 -0.0000 0 1.0000 1.0000 1.0000 1.0000

highlow at 5 1.0000 -0.0000 0 1.0000 1.0000 1.0000 1.0000

highlow at 6 1.0000 -0.0000 0 1.0000 1.0000 1.0000 1.0000

highlow at 7 1.0000 -0.0000 0 1.0000 1.0000 1.0000 1.0000

highlow at 8 1.0000 -0.0000 0 1.0000 1.0000 1.0000 1.0000

highlow at 9 1.0000 -0.0000 0 1.0000 1.0000 1.0000 1.0000

highlow at 10 1.0000 -0.0000 0 1.0000 1.0000 1.0000 1.0000

order at 1 0.0000 53.2820 44 0.1668 ns 0.1111 0.7415 0.9574 0.9465

order at 2 0.0000 49.1971 44 0.2825 ns 0.1111 0.7296 0.9380 0.9273

--------------------------------------------------------------------------------

LB = lower.bound, GG = Greenhouse-Geisser

HF = Huynh-Feldt-Lecoutre, CM = Chi-Muller

----------------------------------------------------------------

Source SS df MS F-ratio p-value

----------------------------------------------------------------

highlow at 1 0.0077 1 0.0077 0.5125 0.4792 ns

s x highlow at 1 0.4826 32 0.0151

----------------------------------------------------------------

highlow at 2 0.0006 1 0.0006 0.0296 0.8646 ns

s x highlow at 2 0.5962 32 0.0186

----------------------------------------------------------------

highlow at 3 0.3182 1 0.3182 11.3932 0.0019 \*\*

s x highlow at 3 0.8938 32 0.0279

----------------------------------------------------------------

highlow at 4 0.0495 1 0.0495 2.0749 0.1595 ns

s x highlow at 4 0.7631 32 0.0238

----------------------------------------------------------------

highlow at 5 0.0059 1 0.0059 0.1911 0.6650 ns

s x highlow at 5 0.9947 32 0.0311

----------------------------------------------------------------

highlow at 6 0.0000 1 0.0000 0.0000 0.9979 ns

s x highlow at 6 1.2896 32 0.0403

----------------------------------------------------------------

highlow at 7 0.0397 1 0.0397 1.3538 0.2532 ns

s x highlow at 7 0.9393 32 0.0294

----------------------------------------------------------------

highlow at 8 0.0395 1 0.0395 0.8393 0.3665 ns

s x highlow at 8 1.5072 32 0.0471

----------------------------------------------------------------

highlow at 9 0.0781 1 0.0781 2.7010 0.1101 ns

s x highlow at 9 0.9256 32 0.0289

----------------------------------------------------------------

highlow at 10 0.0004 1 0.0004 0.0125 0.9118 ns

s x highlow at 10 1.0685 32 0.0334

----------------------------------------------------------------

order at 1 1.1398 9 0.1266 3.8526 0.0001 \*\*\*

s x order at 1 9.4676 288 0.0329

----------------------------------------------------------------

order at 2 0.9772 9 0.1086 3.5303 0.0004 \*\*\*

s x order at 2 8.8575 288 0.0308

----------------------------------------------------------------

+p < .10, \*p < .05, \*\*p < .01, \*\*\*p < .001

< MULTIPLE COMPARISON for "order at 1" >

== Shaffer's Modified Sequentially Rejective Bonferroni Procedure ==

== The factor < order at 1 > is analysed as dependent means. ==

== Alpha level is 0.05. ==

--------------------------------------------------------

Pair Diff t-value df p adj.p

--------------------------------------------------------

1-6 0.1497 4.1824 32 0.0002 0.0094 1 > 6 \*

3-9 0.1651 3.9701 32 0.0004 0.0137 3 > 9 \*

1-9 0.1619 3.9331 32 0.0004 0.0152 1 > 9 \*

1-8 0.1420 3.6244 32 0.0010 0.0357 1 > 8 \*

3-6 0.1529 3.5942 32 0.0011 0.0388 3 > 6 \*

3-7 0.1518 3.4513 32 0.0016 0.0572 3 = 7

3-8 0.1451 3.4098 32 0.0018 0.0639 3 = 8

3-5 0.1426 3.1828 32 0.0032 0.1166 3 = 5

1-5 0.1395 3.1155 32 0.0039 0.1389 1 = 5

1-7 0.1487 3.0905 32 0.0041 0.1482 1 = 7

2-5 0.0781 2.7830 32 0.0090 0.2599 2 = 5

1-4 0.1212 2.6615 32 0.0121 0.3498 1 = 4

2-9 0.1005 2.6036 32 0.0139 0.4023 2 = 9

2-6 0.0883 2.5833 32 0.0146 0.4223 2 = 6

3-4 0.1243 2.3608 32 0.0245 0.7104 3 = 4

2-7 0.0872 2.1276 32 0.0412 1.0000 2 = 7

2-8 0.0805 2.0779 32 0.0458 1.0000 2 = 8

3-10 0.1105 2.0755 32 0.0461 1.0000 3 = 10

1-10 0.1073 1.9743 32 0.0570 1.0000 1 = 10

1-2 0.0614 1.7528 32 0.0892 1.0000 1 = 2

2-4 0.0597 1.6280 32 0.1133 1.0000 2 = 4

2-3 -0.0646 1.5955 32 0.1204 1.0000 2 = 3

9-10 -0.0546 1.1028 32 0.2783 1.0000 9 = 10

2-10 0.0459 0.9769 32 0.3359 1.0000 2 = 10

4-9 0.0407 0.9405 32 0.3540 1.0000 4 = 9

8-10 -0.0347 0.8316 32 0.4118 1.0000 8 = 10

6-10 -0.0424 0.7778 32 0.4424 1.0000 6 = 10

7-10 -0.0414 0.7555 32 0.4555 1.0000 7 = 10

5-10 -0.0322 0.6617 32 0.5129 1.0000 5 = 10

4-6 0.0285 0.6111 32 0.5454 1.0000 4 = 6

4-7 0.0275 0.5720 32 0.5713 1.0000 4 = 7

4-5 0.0183 0.5154 32 0.6098 1.0000 4 = 5

5-9 0.0224 0.4903 32 0.6273 1.0000 5 = 9

8-9 0.0199 0.4513 32 0.6548 1.0000 8 = 9

4-8 0.0208 0.3991 32 0.6925 1.0000 4 = 8

4-10 -0.0139 0.2715 32 0.7878 1.0000 4 = 10

7-9 0.0132 0.2675 32 0.7908 1.0000 7 = 9

6-9 0.0122 0.2633 32 0.7940 1.0000 6 = 9

5-6 0.0102 0.2219 32 0.8258 1.0000 5 = 6

5-7 0.0092 0.2037 32 0.8399 1.0000 5 = 7

6-8 -0.0077 0.1860 32 0.8537 1.0000 6 = 8

7-8 -0.0067 0.1386 32 0.8906 1.0000 7 = 8

1-3 -0.0032 0.0912 32 0.9279 1.0000 1 = 3

5-8 0.0025 0.0517 32 0.9591 1.0000 5 = 8

6-7 -0.0010 0.0230 32 0.9818 1.0000 6 = 7

--------------------------------------------------------

< MULTIPLE COMPARISON for "order at 2" >

== Shaffer's Modified Sequentially Rejective Bonferroni Procedure ==

== The factor < order at 2 > is analysed as dependent means. ==

== Alpha level is 0.05. ==

--------------------------------------------------------

Pair Diff t-value df p adj.p

--------------------------------------------------------

1-5 0.1801 5.2516 32 0.0000 0.0004 1 > 5 \*

1-4 0.1976 5.2289 32 0.0000 0.0004 1 > 4 \*

1-6 0.1712 3.9004 32 0.0005 0.0167 1 > 6 \*

1-3 0.1574 3.5447 32 0.0012 0.0444 1 > 3 \*

1-7 0.1212 3.4712 32 0.0015 0.0542 1 = 7

2-4 0.1203 3.0700 32 0.0043 0.1563 2 = 4

1-10 0.1239 3.0101 32 0.0051 0.1822 1 = 10

1-9 0.1147 2.8001 32 0.0086 0.3093 1 = 9

2-5 0.1028 2.5664 32 0.0152 0.5458 2 = 5

1-2 0.0773 2.5314 32 0.0165 0.5930 1 = 2

1-8 0.1147 2.5104 32 0.0173 0.5930 1 = 8

2-6 0.0939 2.3466 32 0.0253 0.7337 2 = 6

4-9 -0.0829 1.8853 32 0.0685 1.0000 4 = 9

2-3 0.0801 1.8535 32 0.0730 1.0000 2 = 3

4-8 -0.0829 1.8080 32 0.0800 1.0000 4 = 8

4-7 -0.0764 1.7551 32 0.0888 1.0000 4 = 7

4-10 -0.0737 1.7033 32 0.0982 1.0000 4 = 10

5-9 -0.0654 1.5738 32 0.1254 1.0000 5 = 9

5-7 -0.0589 1.4186 32 0.1657 1.0000 5 = 7

5-8 -0.0654 1.4114 32 0.1678 1.0000 5 = 8

2-10 0.0466 1.2915 32 0.2058 1.0000 2 = 10

6-8 -0.0565 1.2715 32 0.2127 1.0000 6 = 8

6-9 -0.0565 1.2466 32 0.2216 1.0000 6 = 9

5-10 -0.0562 1.1841 32 0.2451 1.0000 5 = 10

2-7 0.0439 1.0695 32 0.2928 1.0000 2 = 7

6-7 -0.0500 0.9737 32 0.3375 1.0000 6 = 7

3-4 0.0402 0.9405 32 0.3540 1.0000 3 = 4

6-10 -0.0473 0.9215 32 0.3637 1.0000 6 = 10

3-7 -0.0361 0.9084 32 0.3705 1.0000 3 = 7

3-9 -0.0426 0.8900 32 0.3801 1.0000 3 = 9

3-10 -0.0334 0.8526 32 0.4002 1.0000 3 = 10

3-8 -0.0427 0.8314 32 0.4119 1.0000 3 = 8

2-8 0.0374 0.7933 32 0.4334 1.0000 2 = 8

2-9 0.0374 0.7721 32 0.4457 1.0000 2 = 9

4-6 -0.0264 0.6522 32 0.5189 1.0000 4 = 6

3-5 0.0227 0.4667 32 0.6439 1.0000 3 = 5

4-5 -0.0175 0.4653 32 0.6449 1.0000 4 = 5

3-6 0.0138 0.2805 32 0.7809 1.0000 3 = 6

5-6 -0.0089 0.2217 32 0.8260 1.0000 5 = 6

8-10 0.0093 0.1958 32 0.8460 1.0000 8 = 10

9-10 0.0092 0.1939 32 0.8474 1.0000 9 = 10

7-9 -0.0065 0.1537 32 0.8789 1.0000 7 = 9

7-8 -0.0066 0.1284 32 0.8986 1.0000 7 = 8

7-10 0.0027 0.0748 32 0.9408 1.0000 7 = 10

8-9 0.0001 0.0022 32 0.9983 1.0000 8 = 9

--------------------------------------------------------