

Results

Mental Demands. A linear mixed effects model, using random intercepts for participants, was run to assess the effect of condition on the mental demands scale. The overall model predicting mental demands score has a total explanatory power (conditional R^2) of 70.80%, in which the fixed effects explain 16.99% of the variance. The model's intercept is at 22.51 (SE = 5.70, 95% CI [11.34, 33.68]). The effect of condition is statistically significant, $F(5,180)=25.72$, $p<.001$. Bonferroni-Holm corrected comparisons indicated that, as predicted, mental demands were significantly increased in the multitasking condition relative to other conditions ($ps<.001$; Figure 2)

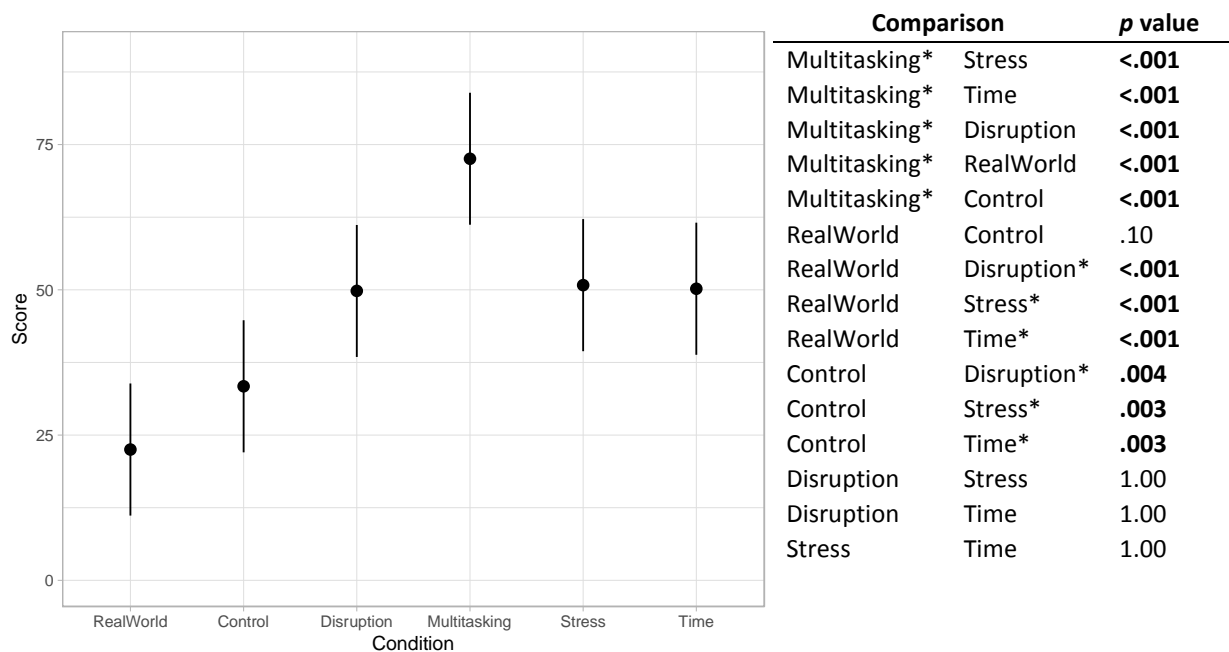


Figure 1 - Mean mental demand scores (with 95% CIs) across conditions (left) and paired comparisons for mental demands scale (right; the higher scoring condition is indicated with an asterisk).

Physical Demands. A linear mixed effects model was run to assess the effect of condition on the physical demands scale. The overall model predicting physical demands score has a conditional R^2 of 77.82%, in which the fixed effects explain 5.30% of the variance. The model's intercept is at 4.51 (SE = 3.29, 95% CI [-1.96, 10.99]). The effect of condition is statistically significant, $F(5,180)=10.56$, $p<.001$. Bonferroni-Holm corrected comparisons indicated that, as predicted, Physical Demands were higher in the disruption condition than all conditions ($ps<.05$), apart from stress (Figure 3).

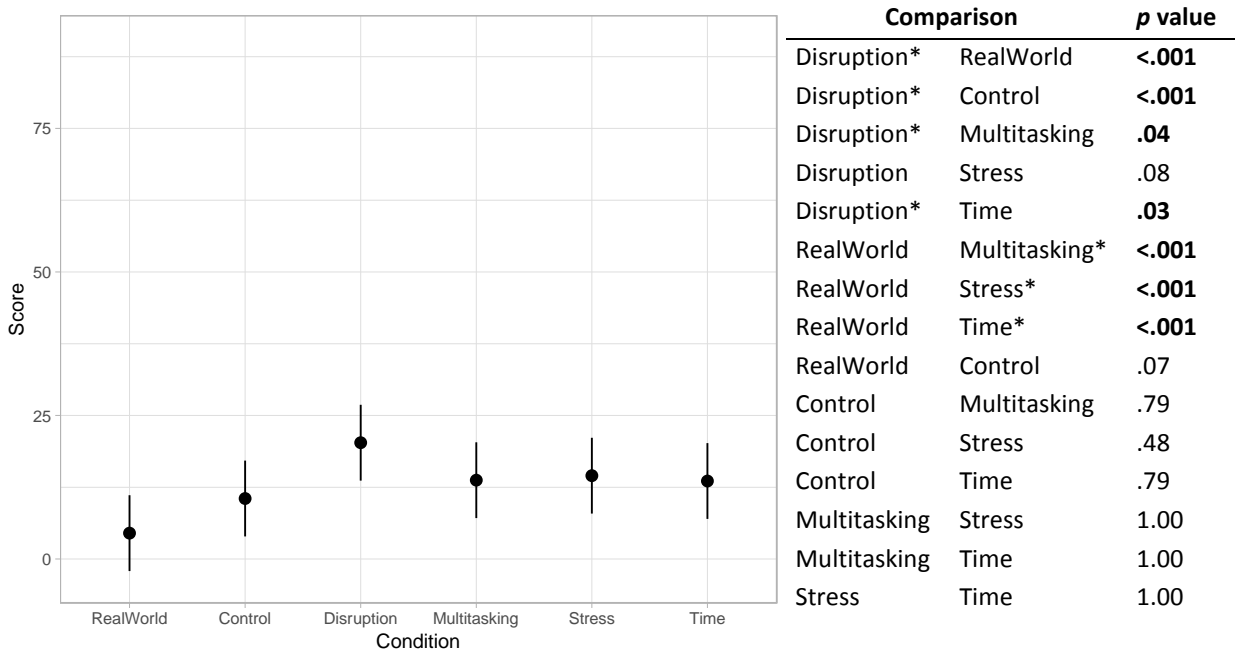


Figure 3 - Mean physical demand (with 95% CIs) scores across conditions (left) and paired comparisons for physical demands scale (right; the higher scoring condition is indicated with an asterisk).

Temporal demands. A linear mixed effects model was run to assess the effect of condition on the temporal demands scale. The overall model predicting temporal demands score has a conditional R^2 of 65.55%, in which the fixed effects explain 25.69% of the variance. The model's intercept is at 10.11 (SE = 4.33, 95% CI [1.65, 18.57]). The effect of condition is statistically significant, $F(5,180)=32.96, p<.001$. Bonferroni-Holm corrected comparisons indicated that, as predicted, temporal demands were increased in the time restriction condition relative to all other conditions ($ps<.001$), apart from stress (Figure 4).

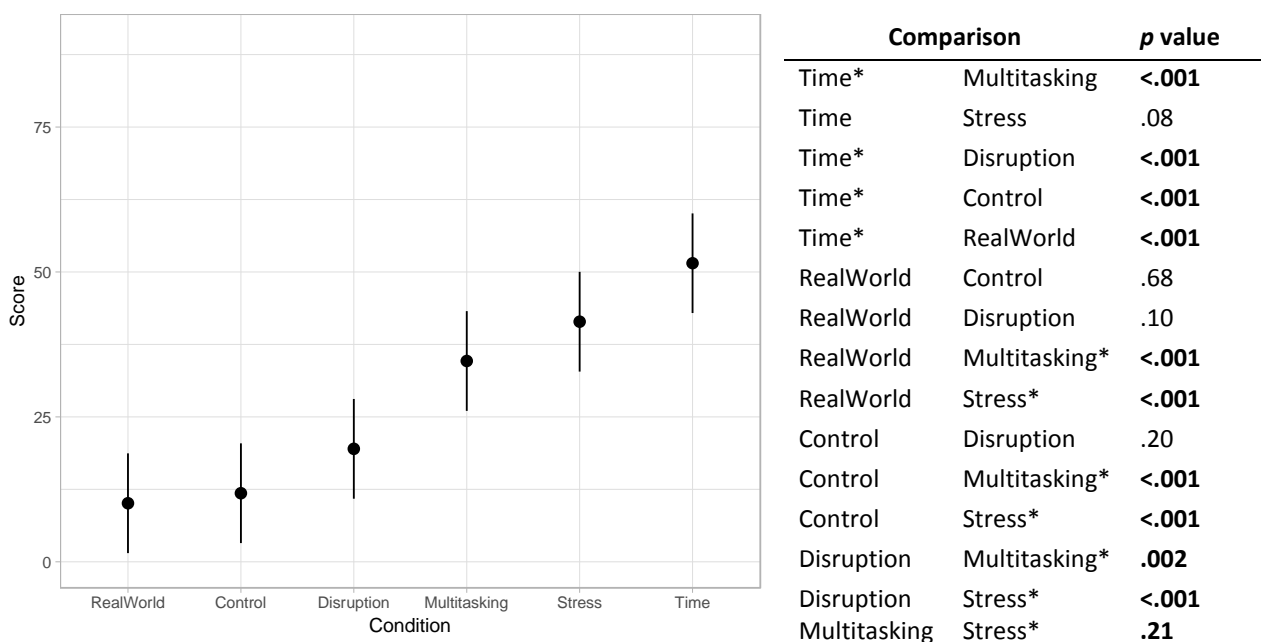


Figure 4 - Mean temporal demand scores (with 95% CIs) across condition (left) and comparisons for temporal demands scale (right; the higher scoring condition is indicated with an asterisk).

Frustration. A linear mixed effects model was run to assess the effect of condition on the frustration scale. The overall model predicting frustration score has a conditional R^2 of 69.82%, in which the fixed effects explain 10.18% of the variance. The model's intercept is at 15.54 (SE = 6.84, 95% CI [2.14, 28.94]). The effect of condition is statistically significant, $F(5,180)=14.90$, $p<.001$. Bonferroni-Holm corrected comparisons indicated that, as predicted, frustration was increased in the time restriction, disruption and multitasking conditions. It was also increased in the stress condition (Figure 5).

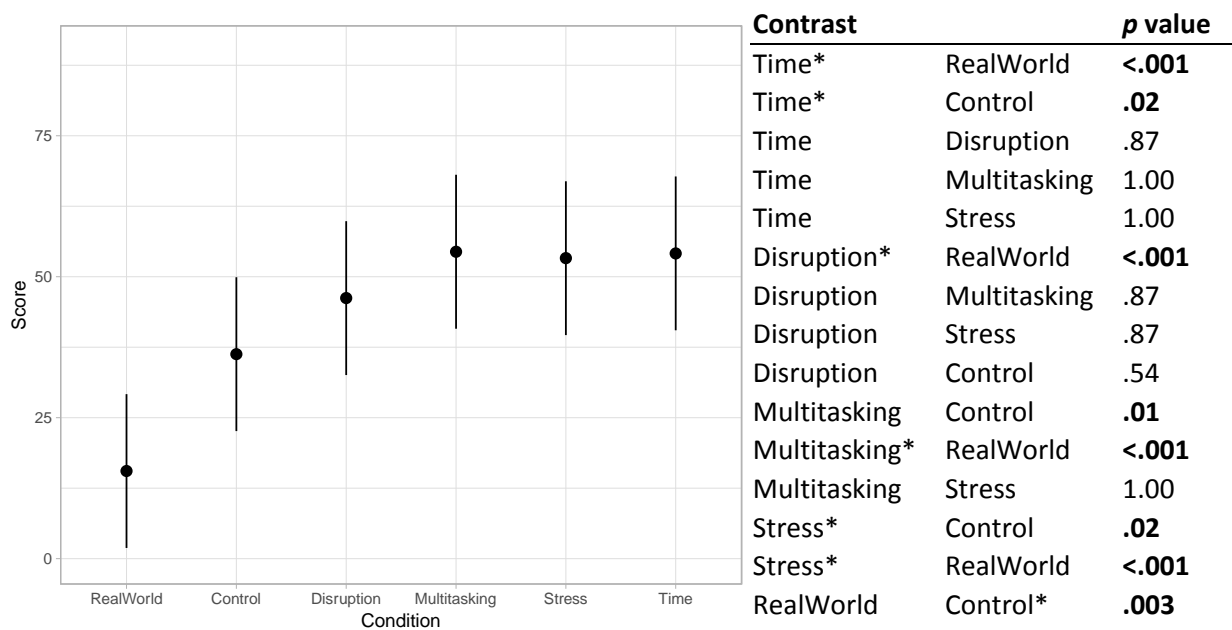


Figure 5 - Mean frustration scores (with 95% CIs) across conditions (left) and paired comparisons for frustration scale (right; the higher scoring condition is indicated with an asterisk).

Task Complexity. A linear mixed effects model was run to assess the effect of condition on the task complexity scale. The overall model predicting task complexity score has a conditional R^2 of 78.45%, in which the fixed effects explain 19.47% of the variance. The model's intercept is at 23.81 (SE = 6.47, 95% CI [11.10, 36.52]). The effect of condition is statistically significant, $F(5,180)=39.95$, $p<.001$. Bonferroni-Holm corrected comparisons indicated that, as predicted, task complexity scores were increased in the multitasking condition relative to all other conditions ($ps<.001$) (Figure 6).

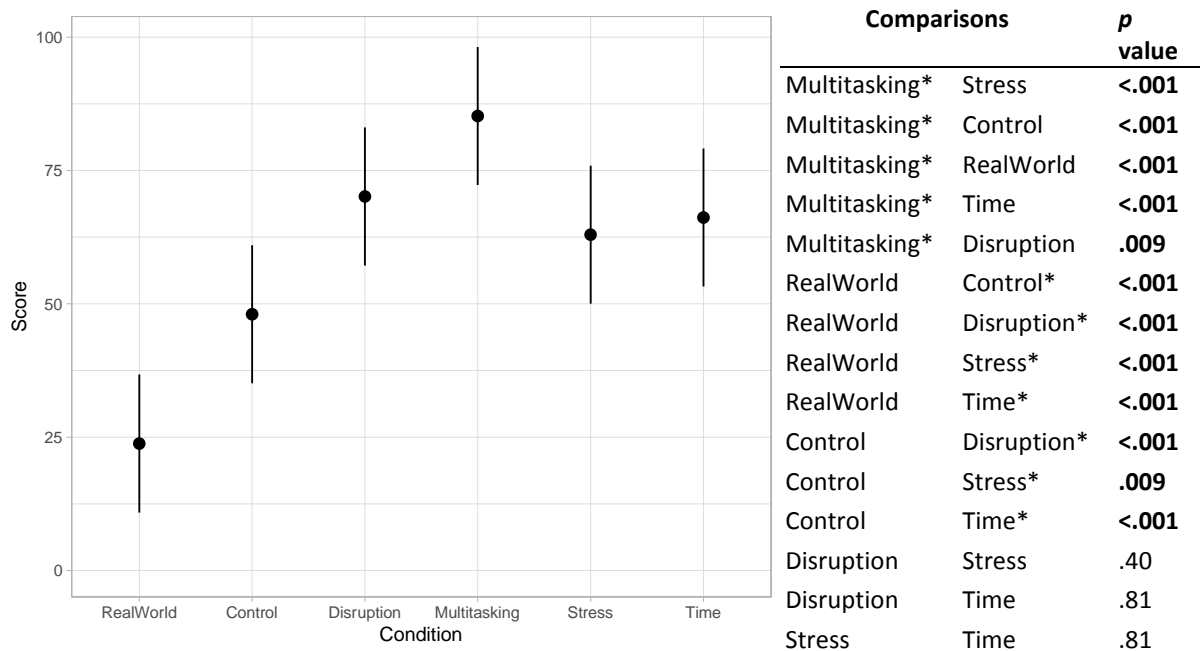


Figure 6 - Mean (and 95% CIs) task complexity scores across conditions (left) and paired comparisons for task complexity scale (right; the higher scoring condition is indicated with an asterisk).

Stress. A linear mixed effects model was run to assess the effect of condition on the stress scale. The overall model predicting stress score has a conditional R^2 of 63.67%, in which the fixed effects explain 20.19% of the variance. The model's intercept is at 14.51 (SE = 5.46, 95% CI [3.85, 25.18]). The effect of condition is statistically significant, $F(5,180)=24.57$, $p<.001$. Bonferroni-Holm corrected comparisons indicated that, as predicted, stress scores were increased in the stress condition (Figure 7), relative to disruption, control and real world conditions ($ps<.05$). There was no difference in stress scores between multitasking, stress and time pressure conditions ($ps>.36$).

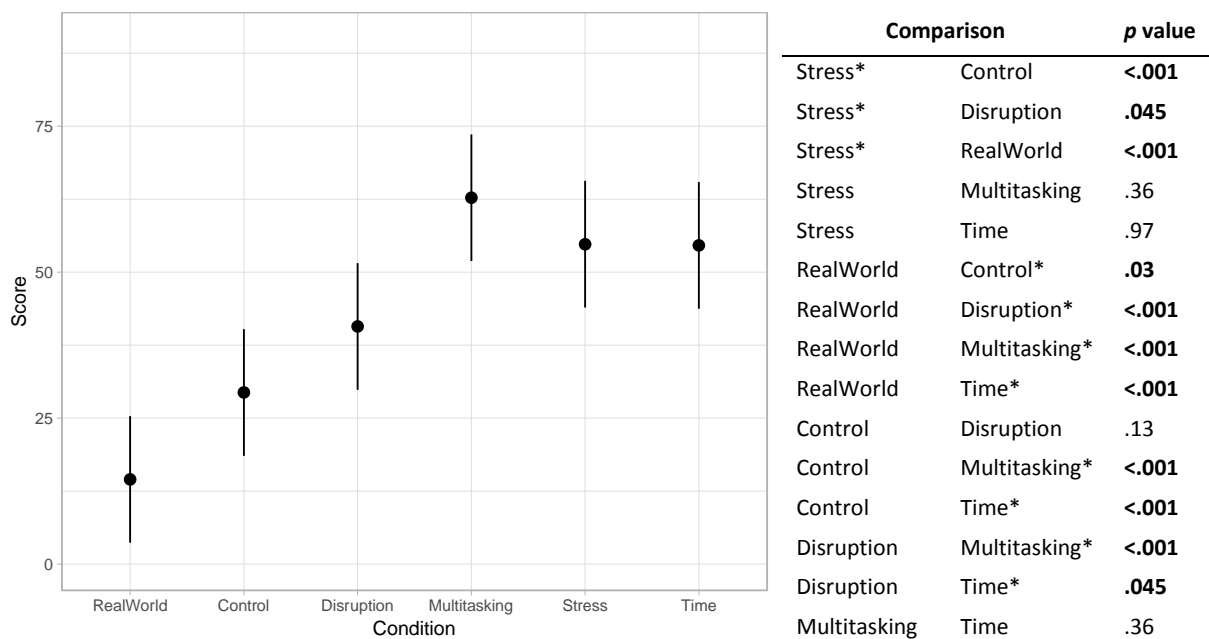


Figure 7 - Mean (and 95% CIs) stress scores across conditions (left) and paired comparisons for stress scale (right; the higher scoring condition is indicated with an asterisk).

Distraction. A linear mixed effects model was run to assess the effect of condition on the distraction scale. The overall model predicting distraction score has a conditional R^2 of 65.71%, in which the fixed effects explain 5.92% of the variance. The model's intercept is at 9.35 (SE = 4.53, 95% CI [0.47, 18.23]). The effect of condition is statistically significant, $F(5,180)=7.63, p<.001$. Bonferroni-Holm corrected comparisons indicated that, as predicted, distraction scores were increased in the multitasking and disruption conditions, relative to all other conditions ($ps<.05$) (Figure 8).

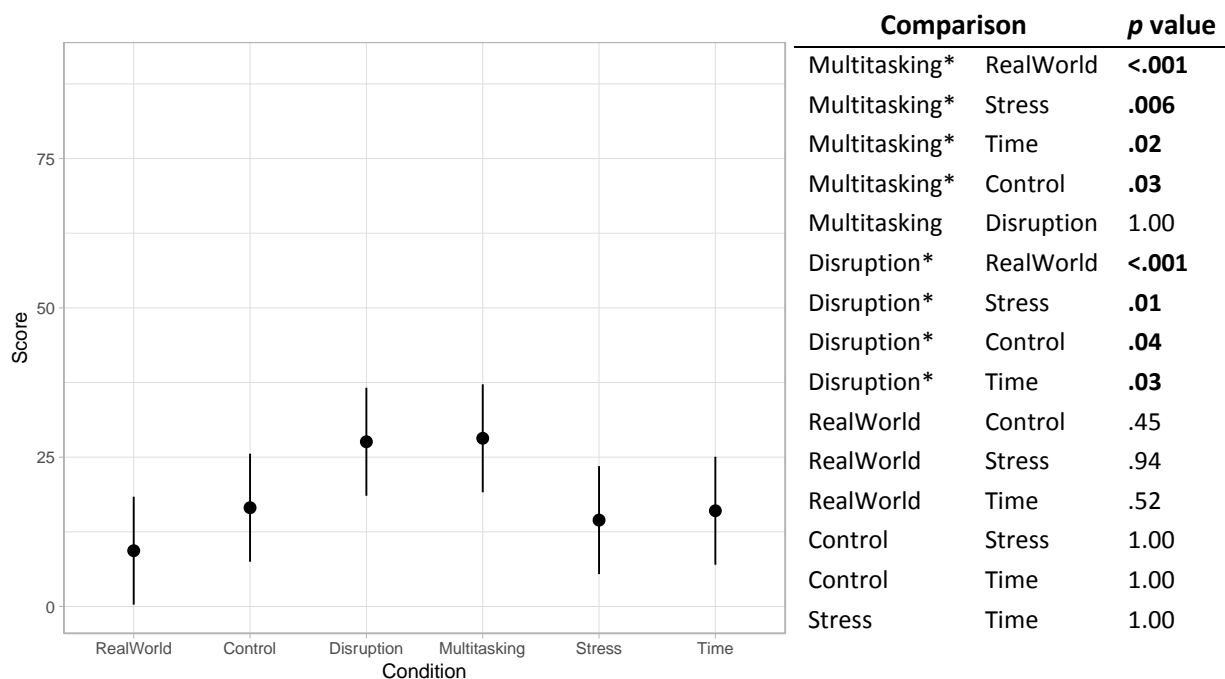


Figure 8 - Mean (and 95% CIs) distraction scores across conditions (left) and paired comparisons for distraction scale (right; the higher scoring condition is indicated with an asterisk).

Perceptual strain. A linear mixed effects model was run to assess the effect of condition on the perceptual strain scale. The overall model predicting perceptual strain score has a conditional R^2 of 62.25%, in which the fixed effects explain 15.53% of the variance. The model's intercept is at 3.84 (SE = 2.65, 95% CI [-1.34, 9.02]). The effect of condition is statistically significant, $F(5,180)=18.18, p<.001$. Bonferroni-Holm corrected comparisons indicated that, as predicted, perceptual strain scores were elevated in the disruption condition relative to all other conditions ($ps<.001$) except multitasking (Figure 9).

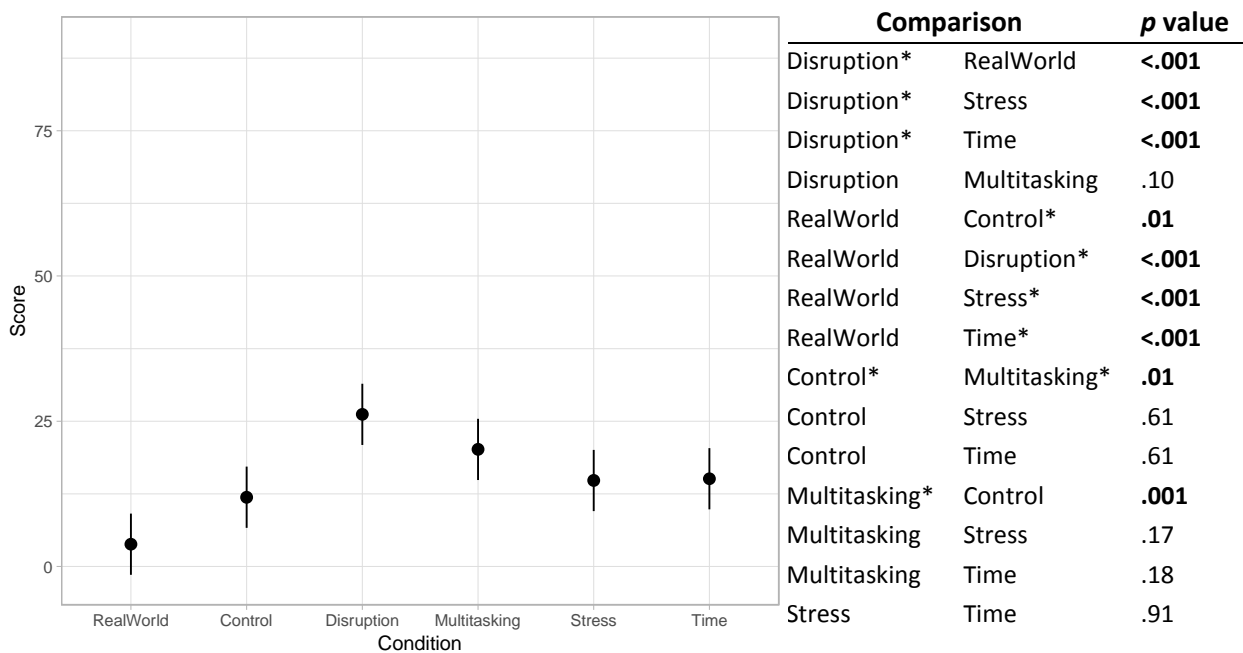


Figure 9 - Mean (and 95% CIs) perceptual strain scores across conditions (left) and paired comparisons for perceptual strain scale (right; the higher scoring condition is indicated with an asterisk).

Task control. A linear mixed effects model was run to assess the effect of condition on the task control scale. The overall model predicting task control score has a conditional R^2 of 80.45%, in which the fixed effects explain 17.26% of the variance (marginal R^2). The model's intercept is at 23.84 (SE = 7.45, 95% CI [9.17, 38.50]). The effect of condition is statistically significant, $F(5,180)=39.03$, $p<.001$. Bonferroni-Holm corrected comparisons indicated that task control scores were elevated in the disruption condition relative to control and real world conditions, but not multitasking, stress or time (Figure 10).

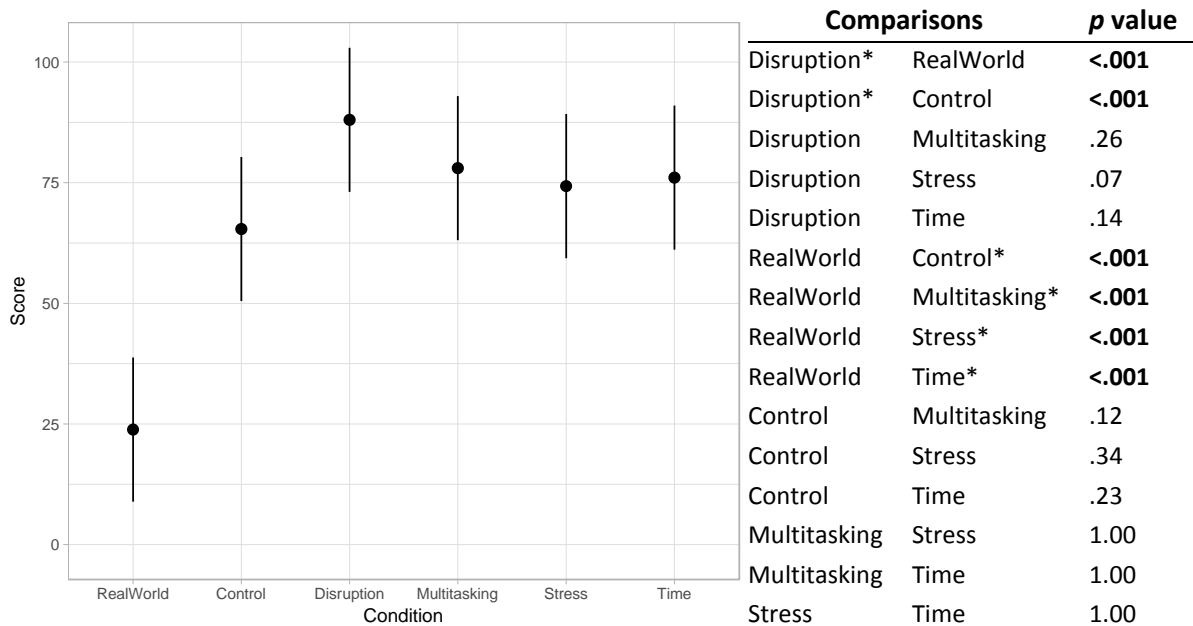


Figure 10 - Mean (and 95% CIs) task control scores across conditions (left) and paired comparisons for task control scale (right; the higher scoring condition is indicated with an asterisk).

Presence/immersion. A linear mixed effects model was run to assess the effect of condition on the presence scale. The overall model predicting presence score has a conditional R^2 of 81.51%, in which the fixed effects explain 1.25% of the variance. The model's intercept is at 57.24 (SE = 7.93, 95% CI [41.62, 72.87]). The effect of condition is statistically significant, $F(5,180)=3.00$, $p=.01$. Bonferroni-Holm corrected comparisons indicated that there were only small differences in presence scores across conditions (Figure 11). Presence only differed between time and real world and real world and stress.

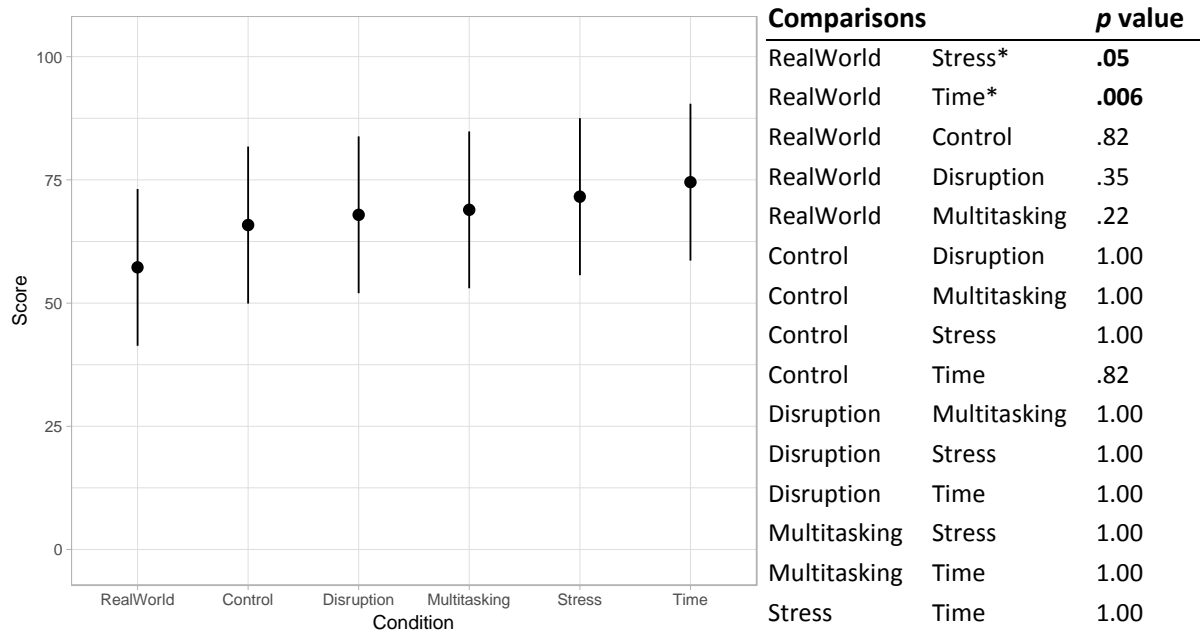


Figure 11 - Mean (and 95% CIs) presence scores across conditions (left) and paired comparisons for presence scale (right; the higher scoring condition is indicated with an asterisk).