**Statistical Analysis Code**

All the statistical analyses in our study were conducted on Stata 17.0. The analysis steps are as follows.

First, we used the following code to describe data, and obtain such information as mean, median, standard deviation and 95% CI.

* mean *variable*

For example:

mean Con-FDSW

Mean estimation Number of obs = 596

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| Mean Std. err. [95% conf. interval]

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Con-FDSW | .1506871 .0034605 .1438909 .1574833

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* sum *variable*, detail

For example:

sum Con-FDSW, detail

Con-FDSW

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Percentiles Smallest

1% .0195317 .0142557

5% .0385825 .0143385

10% .0510475 .0146692 Obs 596

25% .0874905 .01842 Sum of wgt. 596

50% .1357238 Mean .1506871

Largest Std. dev. .0844804

75% .1986428 .4132675

90% .26646 .4199314 Variance .0071369

95% .32332 .4286557 Skewness .8777839

99% .40097 .4385043 Kurtosis 3.531659

Then, we conducted Shapiro–Wilk tests to check the normality of data.

* swilk *variable*

For example:

swilk Con-FDSW

Shapiro–Wilk W test for normal data

Variable | Obs W V z Prob>z

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Con-FDSW | 596 0.94583 21.354 7.416 0.00000

Eye-tracking data are not normally distributed (*p*<.01), we thus conducted Wilcoxon rank-sum tests on eye-tracking data. Comprehension test scores are normally distributed (*p*>.05), we thus conducted independent samples t test on the data. We used the following code.

* ranksum *variable*, by (Group)

For example:

ranksum FDSW, by (Group)

Two-sample Wilcoxon rank-sum (Mann–Whitney) test

Group | Obs Rank sum Expected

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Condensed | 596 371844 349554

Non-condensed | 576 315534 337824

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Combined | 1172 687378 687378

Unadjusted variance 33557184

Adjustment for ties -3.3768985

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Adjusted variance 33557181

H0: FDSW(Group==Condensed) = FDSW(Group==Non-condensed)

z = 3.848

Prob > |z| = 0.0001

* ttest *varible 1*=*variable 2*, unpaired

For example:

ttest Non-condensed QS=Condensed QS, unpaired

Two-sample t test with equal variances

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Variable | Obs Mean Std. err. Std. dev. [95% conf. interval]

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Non-condensed QS | 23 7.043478 .414549 1.988107 6.183756 7.9032

Condensed QS | 22 6.727273 .4660872 2.186143 5.757991 7.696554

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Combined | 45 6.888889 .3085028 2.0695 6.267142 7.510635

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diff | .3162055 .6224279 -.9390399 1.571451

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diff = mean(Non-condensed QS) - mean(Condensed QS) t = 0.5080

H0: diff = 0 Degrees of freedom = 43

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0

Pr(T < t) = 0.6930 Pr(|T| > |t|) = 0.6140 Pr(T > t) = 0.3070

Finally, we conducted a correlation test on comprehension test score and eye-tracking data to explore the relationship between cognitive effort and comprehension accuracy. We used the following code.

* spearman *variable 1, variable 2*, stats (rho p)

For example:

