

COGNITIVE CORRELATES OF ACTION VIDEO GAMING: A CROSS-SECTIONAL STUDY OF COUNTER-STRIKE PLAYERS



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BACKGROUND

- **First-person shooter (FPS)** games are fast-paced, dynamic video games which require quick decision-making.
- Research shows an inconsistent association between AVG play and processing speed^{1, 2}.
- By decomposing reaction times (RTs) using the drift-diffusion model (DDM)³, researchers found AVG training to improve drift rates⁴, whilst others found AVG training to increase boundary separations². These mixed findings may be due to methodological limitations such as small samples, broad definitions of AVGs.

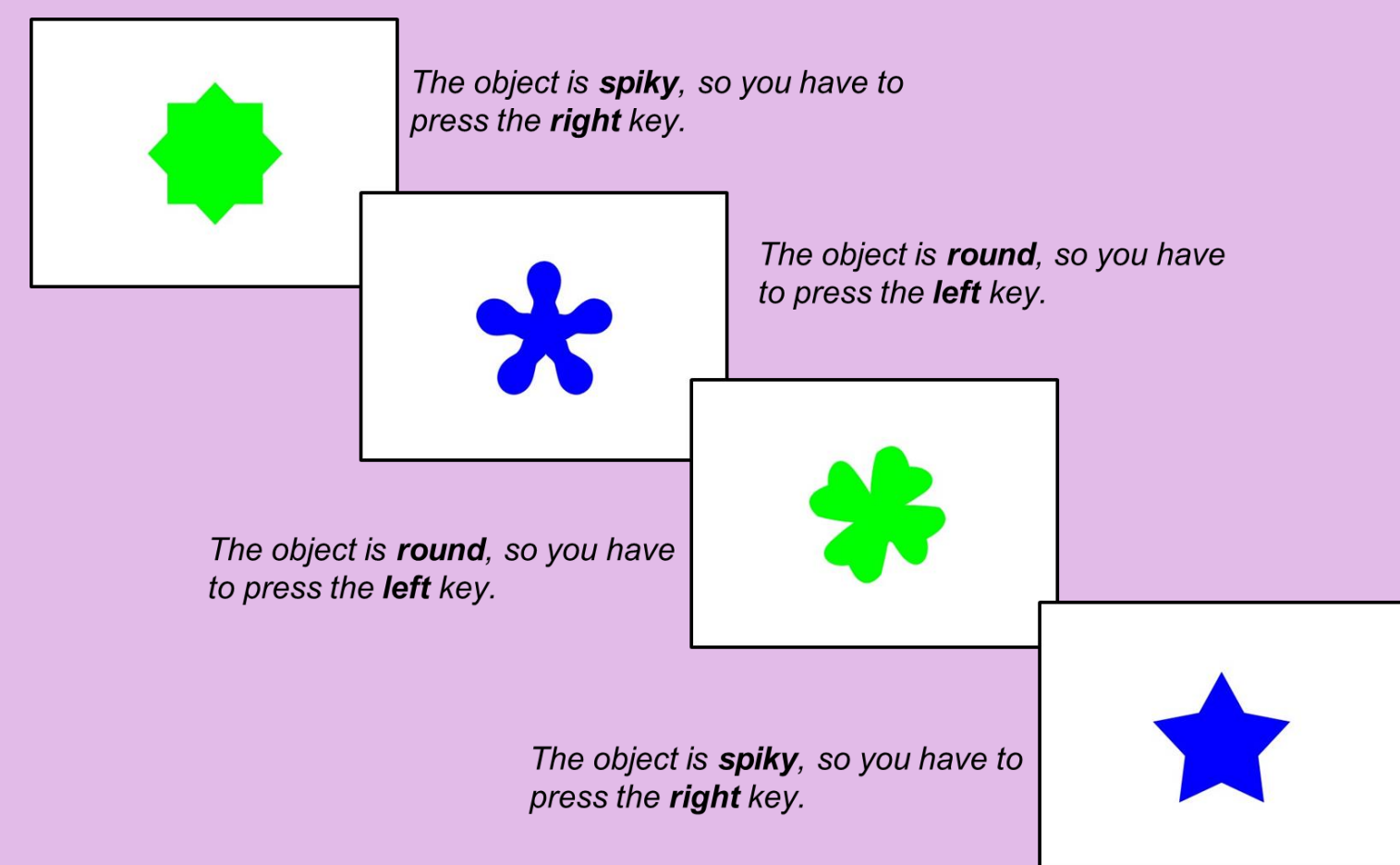


RESEARCH QUESTIONS

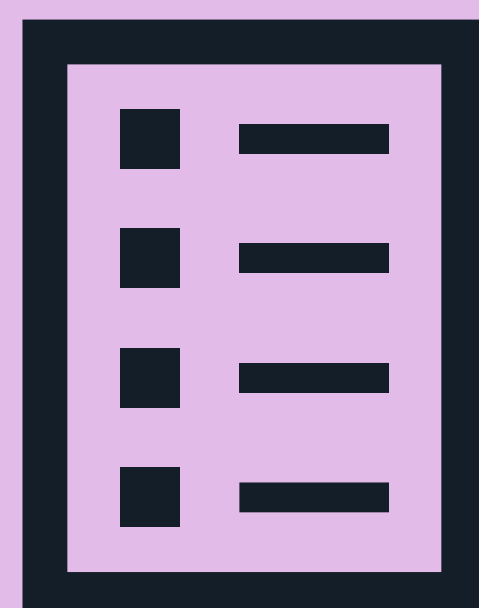
1. How should CS:GO expertise be measured?
2. Is greater CS:GO expertise associated with faster processing speed?
3. Do the decision processes underlying processing speed differ with CS:GO expertise?

METHOD

Choice RT Task

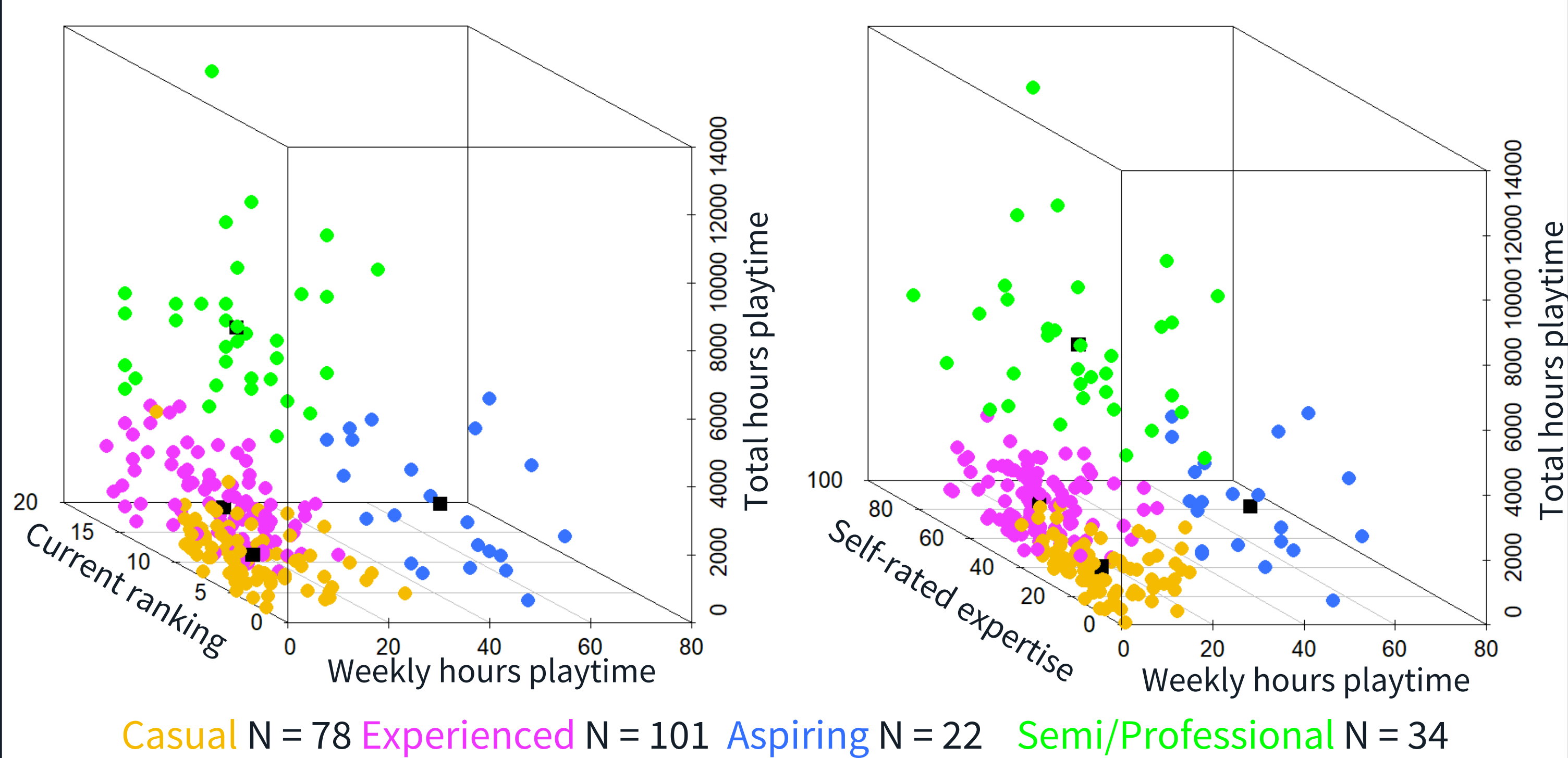


CS:GO Expertise Questionnaire

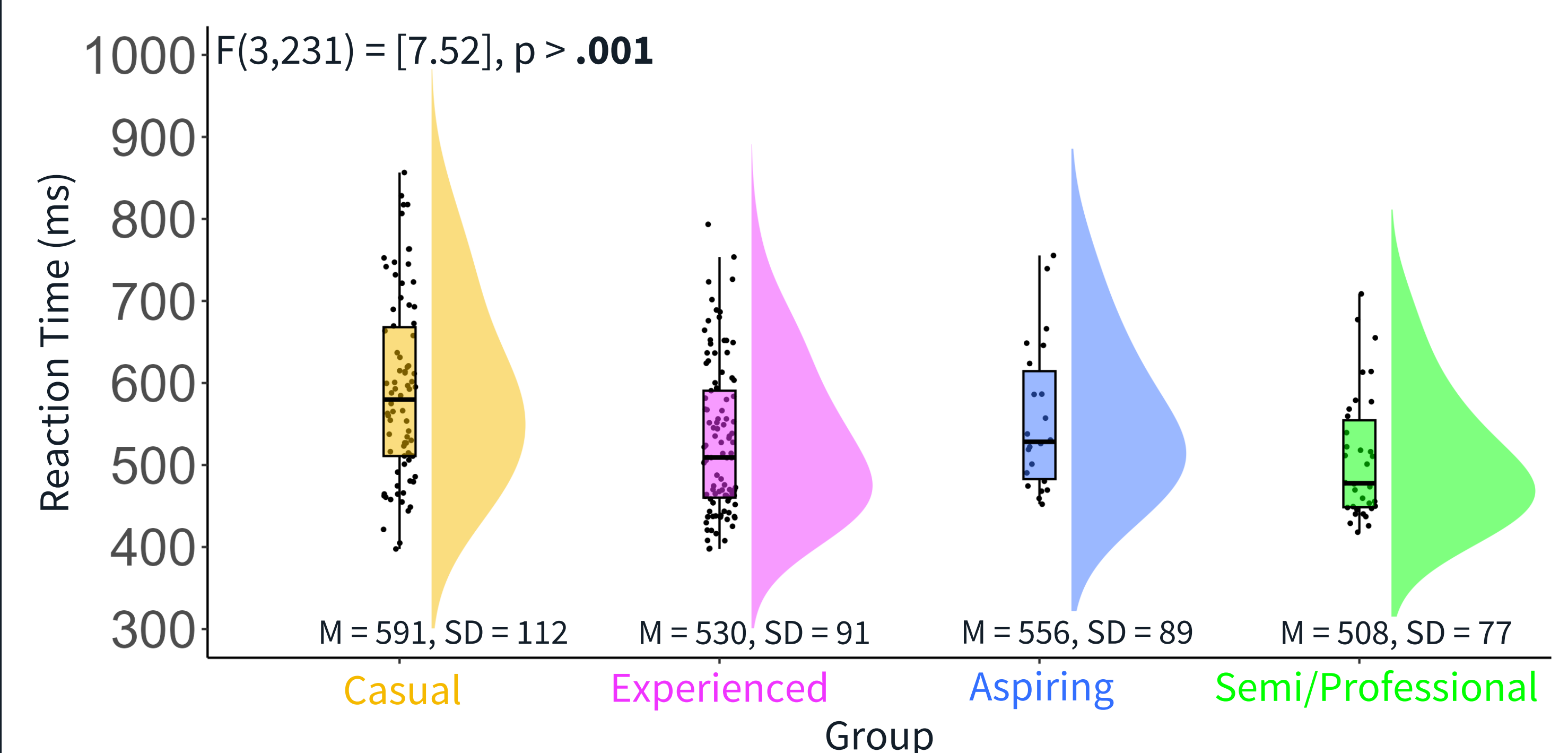


Total hours playtime
Weekly hours playtime
Self-rated expertise
Current ranking

K-MEANS CLUSTERING



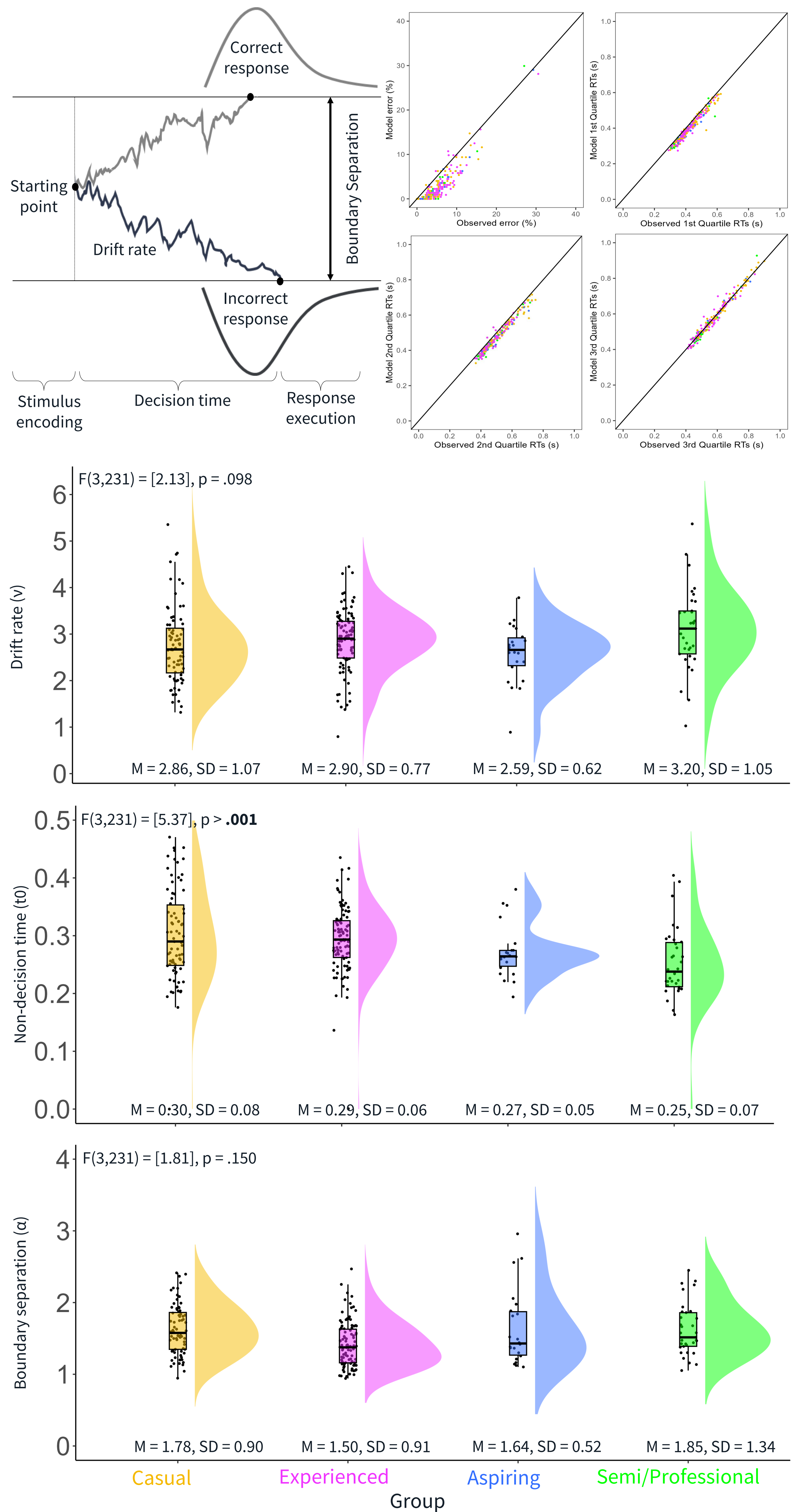
PROCESSING SPEED



REFERENCES

VALANDASKLDLKASDMSA;LKDSA
AKDKSAD;KSAD
SKADASKL;DMNSA
ASDNKLASNDKLSANDKLA

DRIFT-DIFFUSION MODELLING



RESULTS

- Clustering is a viable method of identifying expertise groups in CS:GO players.
- High expertise CS:GO players demonstrate faster processing speed in terms of faster RTs in a Choice RT task, with no differences in accuracy.
- DDM suggests that RT differences were mainly due to faster non-decision times (t0).

TAKE HOME MESSAGE

- AVG expertise is a multi-dimensional construct that should be captured by a range of measures.
- Highly expert AVG players show advantages in processing speed, encoding and response execution – showing transfer from a video game to a cognitive task.