The Impact of Visual vs. Auditory Interruptions on Tetris Gameplay Performance

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Hypothesis

There is a negative correlation between usability (SUS) and task load (RTLX); as usability increases, perceived task load decreases.

Results

Key Findings

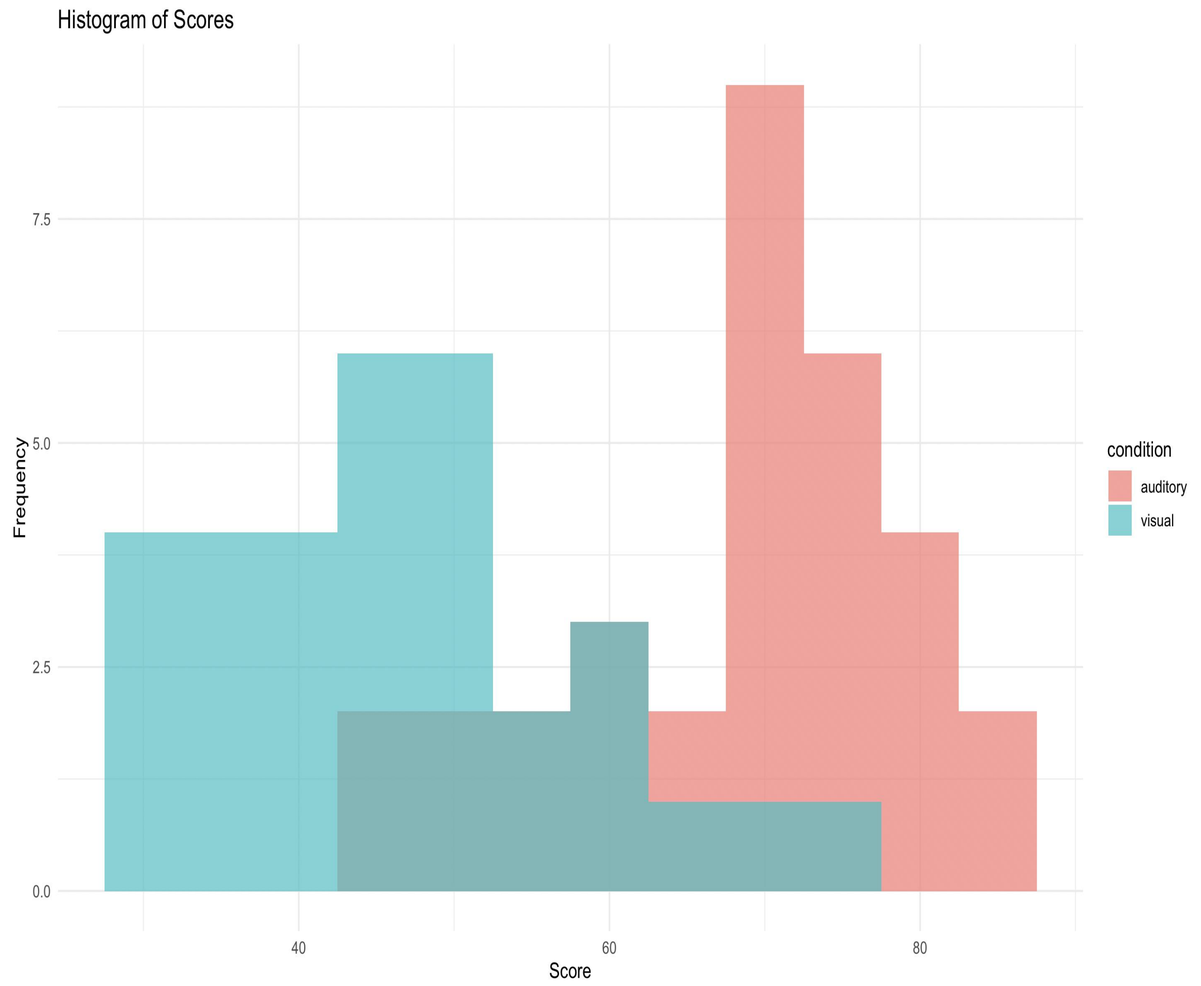
•Auditory interruptions resulted in significantly better scores than visual interruptions.

•Likely explanation: Auditory cues require fewer visual/cognitive resources, aligning with resource allocation theories in multitasking studies (e.g., Wickens et al., 2005).

Descriptive Statistics

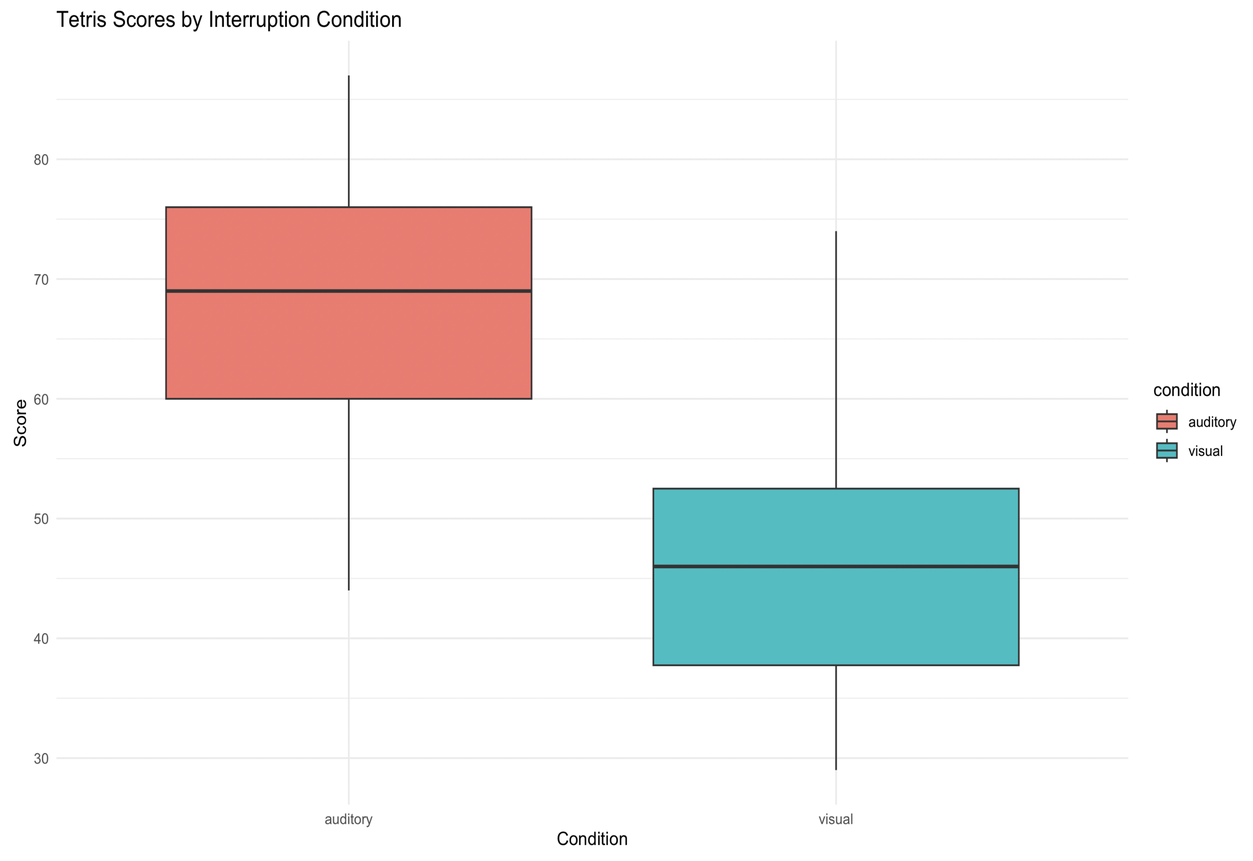
Participants in the auditory interruption condition scored higher (M = 67.94, SD = 11.05) compared to those in the visual interruption condition (M = 46.63, SD = 11.80).

Condition	Mean	SD	Median	Min	Max
Auditory	67.9	11.1	69	44	87
Visual	46.6	11.8	46	29	74



Statistical Analysis

- An independent samples t-test found a significant difference between auditory and visual interruption conditions, **t(62) = 7.46, p < .001**.
- Participants in the auditory interruption condition scored significantly higher (M=67.94M=67.94) than those in the visual condition (M=46.63M=46.63), with a 95% confidence interval of **[15.60, 27.03]**.
- These results indicate that auditory interruptions are less disruptive to Tetris gameplay than visual interruptions.
- The findings align with Wickens et al. (2005), highlighting the cognitive load imposed by visual distractions, which directly compete with the visual-spatial demands of gameplay.



Discussion

Limitations

•The sample size (64) limits generalizability.

•Results may not hold for novice Tetris players or non-gamers.

•Interruptions tested were artificial and may not reflect real-world complexity.

•Sample limited to regular Tetris players.

•Interruptions may not reflect real-world notifications.

Future Work

•Study the effect of combined auditory and visual interruptions.

•Examine performance in more complex tasks.

•Test different types of interruptions (e.g., text, environmental sounds) and their frequency.

•Investigate effects on different games.

•Study multimodal interruptions.

•Explore duration and frequency of interruptions.

References

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