

Criterion Validity of the Work-related Decision-making Style (WDS) measure

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Introduction

- Understanding decision-making in complex, uncertain situations is vital in both organizational and personal contexts. The Work-related Decision-making Style (WDS) scale was developed to capture four dimensions of decision-making relevant to the workplace—Analytical, Intuitive, Collaborative, and Decisive.
- The concept of performance, specifically in tasks revolving uncertainty, may provide a basis for testing the predictive validity by highlighting stylistic differences in decision-making (DM).
- To establish the criterion validity in the WDS, this study examines the relationship with decision-making performance in two clinically validated gambling tasks: the Iowa Gambling Task (IGT) and blackjack,
- **Both tasks:**
 - Require participants to prioritize long-term rewards over short-term gains to perform well.
 - Have established neurophysiological relationships in response to feedback and DM constructs.
 - Offer a nuanced view of decision-making performance by incorporating learning differently through explicit and non-explicit ways.

We propose that each WDS construct will relate with performance outcomes in distinctive ways, extending the relevance of the scale beyond traditional workplace settings.

Hypotheses:

1. Analytical WDS:
 - Analytical decision-makers will significantly predict task performance in both tasks, minimizing risk and maximizing gains through systematic evaluation.
2. Intuitive WDS:
 - Intuitive decision-makers will succeed in the IGT where non explicit DM is shown to be associated with performance, but will struggle in the more explicit Blackjack task.
3. Collaborative WDS:
 - Collaborative decision-makers excel in group tasks but may perform similarly to others in solo tasks like the IGT.
4. Decisive WDS:
 - Decisive decision-makers will succeed in Black-Jack, but will not be associated with IGT performance.

Methods

Participants:

54 students were recruited from a large Southeastern university.

Procedure:

- Participants were given pre-task surveys which assessed DM styles and emotional content.
- Participants were instructed to play two games on a computer
 - Pass-Play version of the Iowa Gambling Task
 - EEG version of Blackjack

Measures:

- Work-related Decision-making Style scale (Gillespie et al., 2024)
 - Assesses DM styles in a workplace context
- General Decision Making Style questionnaire (Scott & Bruce, 1995)
 - Assesses DM styles in a general context
- Iowa Gambling Task (Cui et al., 2015)
 - Participants learn to play on advantageous decks across 400 trials
 - *Performance Metric:* Final Sum taken after 400 trials
- Blackjack EEG Version (West et al., 2014)
 - Participants play a computerized dealer in the traditional version of the game blackjack
 - *Performance Metric:* Final Blackjack Sum after 150 trials

Table 1: Means, Standard Deviations, and Correlations of WDS Subscales and Performance

	<i>M</i>	<i>SD</i>	1	2	3	4	5
Analytical	19.24	2.96					
Intuitive	15.78	3.89	-0.264				
Collaborative	19.07	3.18	0.1	-0.108			
Decisive	15.85	4.01	.270*	0.149	-0.261		
IGT	1970.19	790.1	-0.024	0.039	0.1	0.123	
Blackjack	3494.96	1372.61	0.042	-0.248	-0.039	-0.065	0.145

Note: Listwise *N* = 54. *M* and *SD* represent Means and Standard Deviations, respectively.

* indicates $p < 0.05$, ** indicates $p < 0.01$.

Table 2: Means, Standard Deviations, and Correlations of GDMS Subscales and Performance

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
Rational	15.72	2.69						
Intuitive	16.85	3.46	-0.131					
Dependent	18.19	4.68	-0.323	-0.178				
Avoidant	14.09	5.25	-.596**	0.137	.503**			
Spontaneous	13.66	3.66	-0.034	.422**	-.349*	0.08		
IGT	2020	767.52	0.164	0.063	-0.026	0.154	0.072	
Blackjack	3284.17	1512.01	-0.011	-0.064	-0.142	0.105	0.152	0.288

Note: Listwise *N* = 37. *M* and *SD* represent Means and Standard Deviations, respectively.

* indicates $p < 0.05$, ** indicates $p < 0.01$.

Results

All analyses were performed in IBM SPSS version 29.0

Correlational Analysis was performed on the subscales of the WDS with the performance metrics of the IGT and Blackjack to assess stylistic differences and establish criterion validity.

Listwise deletions were used to handle missing data to maintain findings across analysis.

Performance

- None of the subscales of the GDMS were significantly associated with IGT or Blackjack performance, rejecting Hypothesis: 1, 2, 4 (See *Table 1*).

Post Hoc Analysis

Sought to access if General Decision Making Styles were associated with performance in the IGT and Blackjack, even though WDS is not

- None of the Subscales of the GDMS were significantly associated with IGT or Blackjack Performance (See *Table 2*).
- *Note:* Post-hoc analysis was performed with 17 less participants (*N*=37) and with non-identical groups.

Discussion

- **Neither the Work Decision Styles scale nor the General Decision-Making Style scale correlated with performance outcomes used to establish criterion validity.**
- **Given this, the Blackjack and Iowa Gambling Task performance metrics may not effectively capture differences in decision-making styles among participants.**
- **Computational models may offer greater insights on trait differences in DM, rather than unimodal performance outcomes.**
- **The WDS may require validation using more work-specific decision-making performance tasks to ensure its validity and reliability,**

Future Directions

- Specific vignettes may elicit work related decision-making styles emotional content
- Populations taken from the workplace may offer the WDS more clarified access to underlying relationships
- Work-content specific decision-making tasks may better suit the WDS