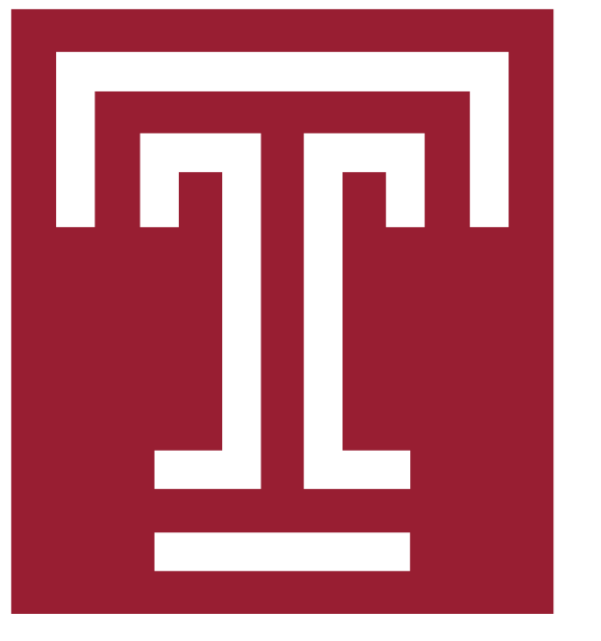


# Exploratory behavior in a foraging task links to real world risk-taking and digital media use



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## Background

### Digital Media Use

Individual differences in media habits are known to relate to differences in reward seeking and impulsiveness<sup>1,2,3</sup>

### Exploration

Digital media habits may reflect information/reward seeking, and thus also relate to exploratory preference

**Exploration-Exploitation Tradeoff:** The decision to continue to use known resources, i.e exploit, or to seek out new resources, i.e explore<sup>4</sup>

**Hypothesis: Those who exhibit stronger exploratory preference will report greater media technology use**

## Participant Demographics

- Adolescents (N=86, 69 Female) ranged from 18 – 23 years old (M = 19.7)
- Recruited from Temple University's undergraduate psychology subject pool
- 17% Caucasian/White, % African American, 15% Asian, 5% Biracial, 3% Middle Eastern, 2% unspecified

## Methods: Self-Report Measures

### Digital Media Measures

#### Mobile Technology Engagement Scale (MTES)<sup>1</sup>

- Measures everyday phone use by quantifying hours spent checking social media, posting status updates, and phone checking behavior

#### Media Multiuse Questionnaire (MMI)<sup>3</sup>

- Quantified multitasking habits with technology

### Risk Taking Measures

#### Benthin Risk Perception Scale

- Measured risk perception for extremely risky behaviors
- ex. "How RISKY would smoking be?"

#### Positive and Negative Risk-Taking Scale<sup>5</sup>

- Quantified positive and negative regular risk-taking activities
- **Positive Example:** "Have you ever tried a new food you thought you might not like?"
- **Negative Example:** Have you ever driven faster than the legal speed limit?

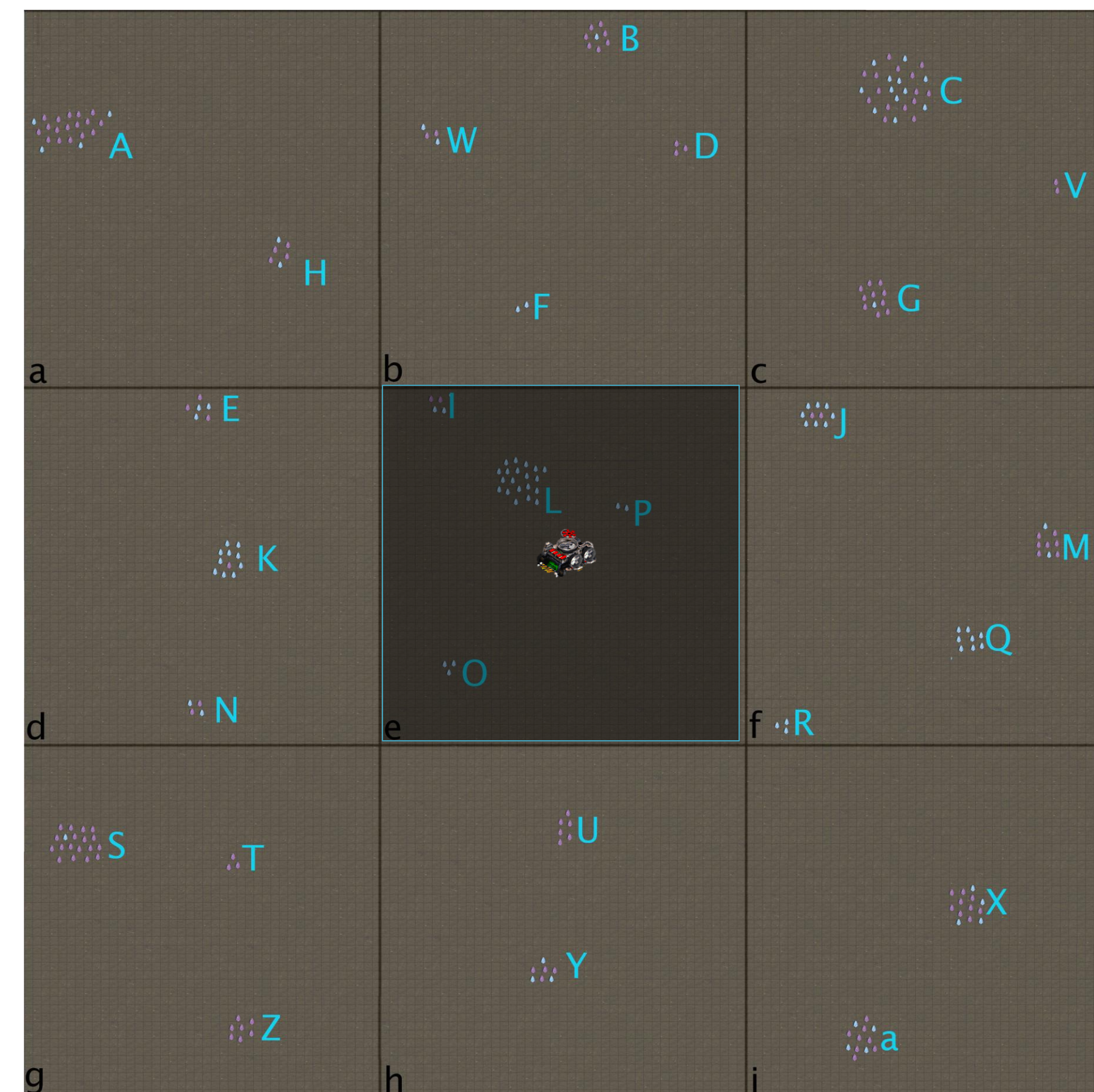
#### Zuckerman Sensation Scale

- 19 items that quantified sensation seeking behaviors
- ex. "I usually act before I think about what I want to do"

#### Barratt Impulsiveness Scale

- Measured impulsive behaviors in three ways: Attentional, Motor, and Non-planning
- ex. "When I see something I like, I just buy it."

## Methods: StarCraft Foraging Game (SFG)



**Goal:** Gain as many points as possible within 10 minutes

**How:** Control the Miner and gather *hidden* crystals dispersed in patches over a map

### Key Components

**Miner:** the character controlled in task

**Crystals:** worth varying points

**Base:** the place the Miner drops off the crystals

## Exploratory Measures

Map Percentage Revealed (Map %)	the percentage of the map that was explored
Unique Patches Found	the number of patches found on the map
Outskirt Quadrant Ratio (OQR)	The ratio between the amount of events spent outside the middle quadrant and the total amount of events

## Exploratory Measures: Correlated Behaviors

	Map %	OQR
Unique Patches Found	.752 ***	.456 ***
OQR	.522 ***	

Three measures of exploration were collapsed into one Z-score

## Results

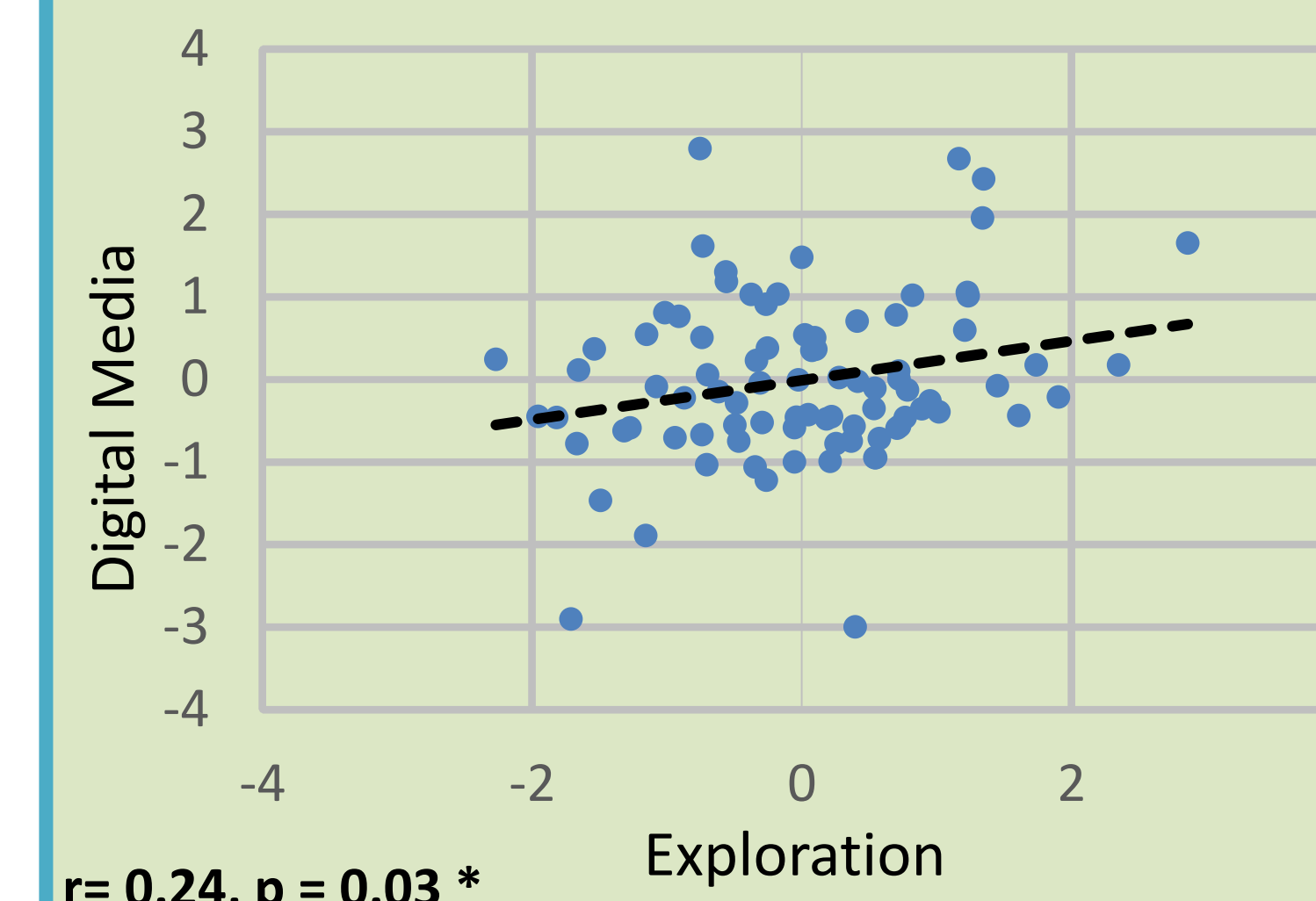
### Regression Analysis: Digital Media

	Standardized Coefficients Data	t	p-value
Exploration Total	.258	-1.521	.018 *
Risk Total	-.087	-.811	.419
Zuckerman's Sensation Scale	-.174	-1.570	.120
Impulsivity Scale	.085	.781	.437
Gender	.168	1.572	.120

\* p < .05, \*\* p < .01, \*\*\* p < .001

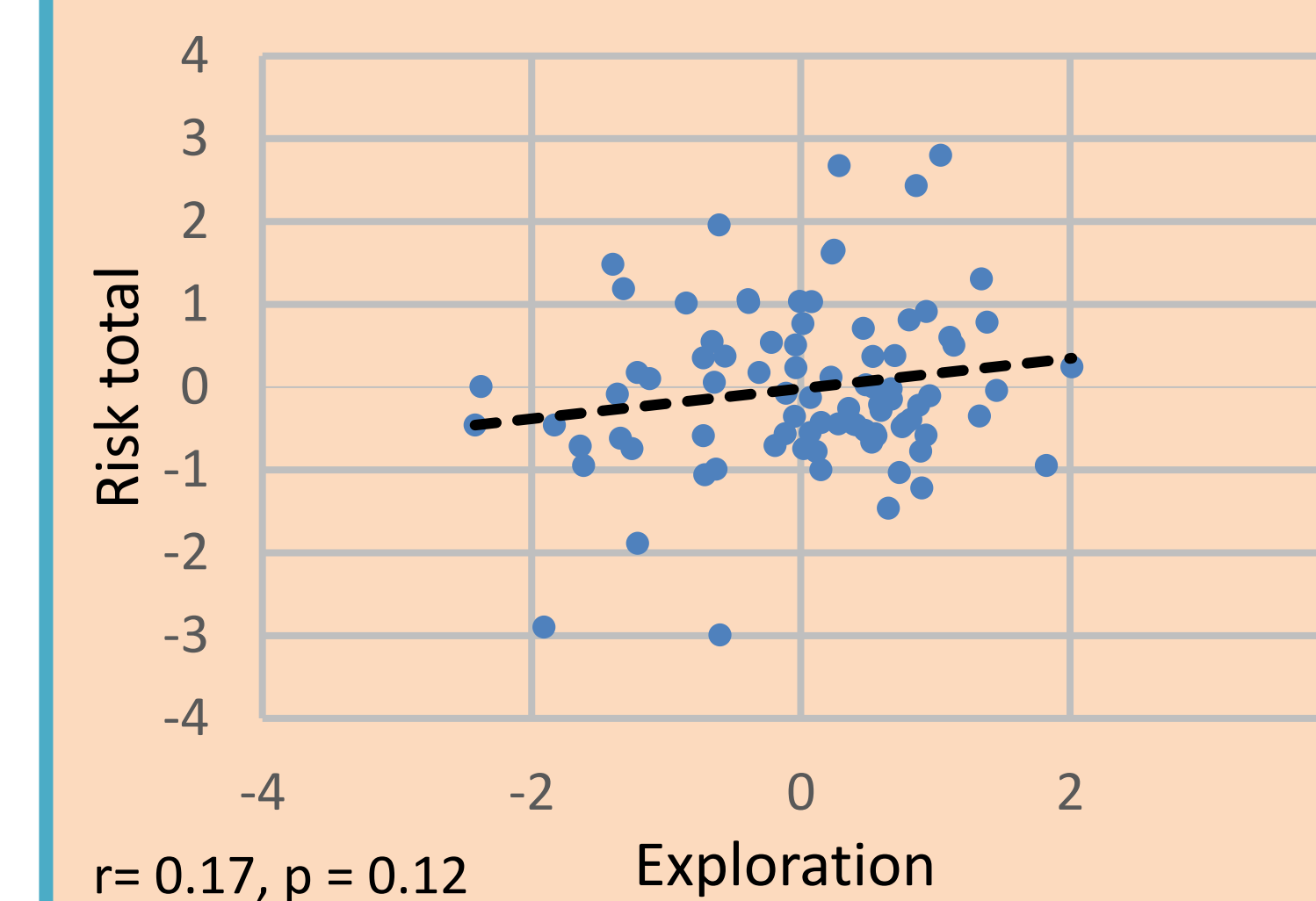
## Results

### Exploration and Digital Media

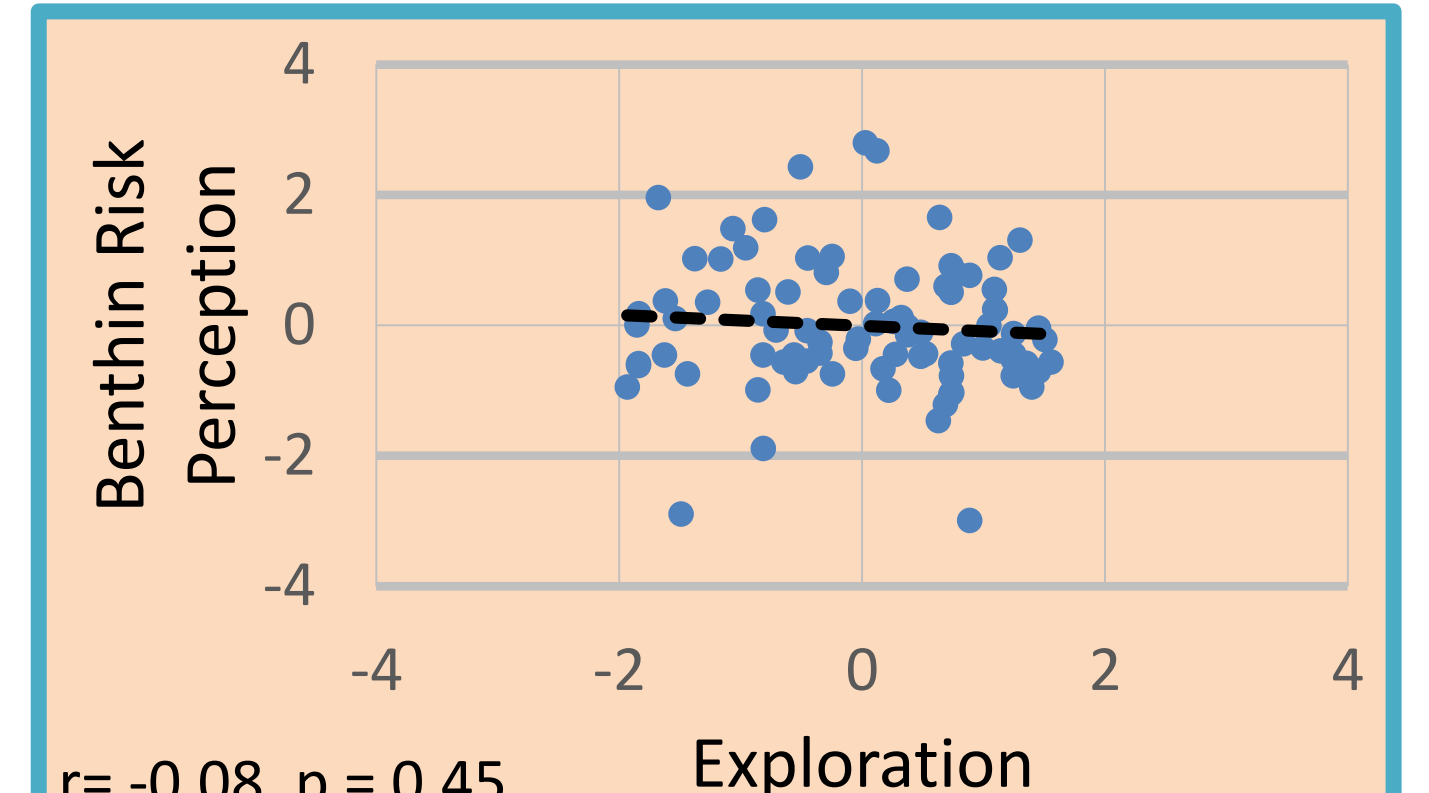
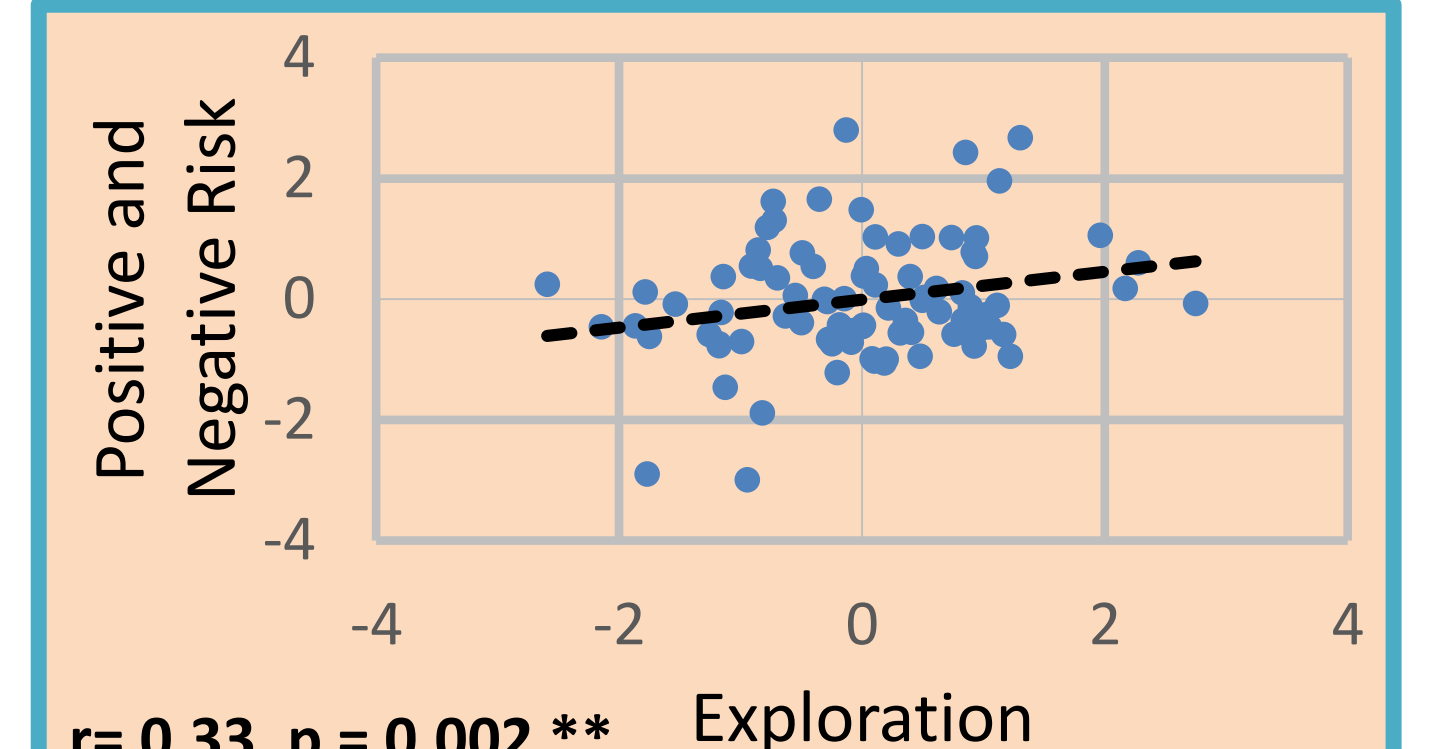
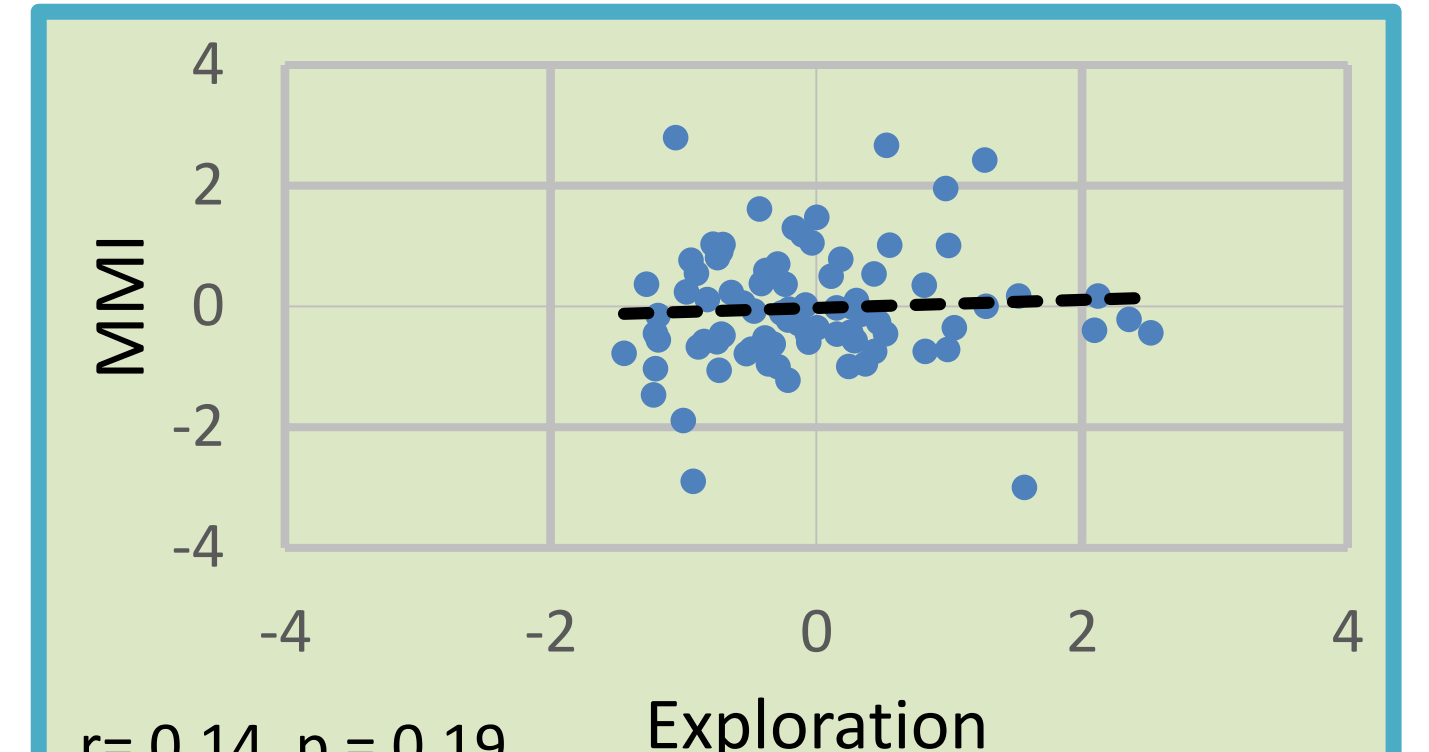
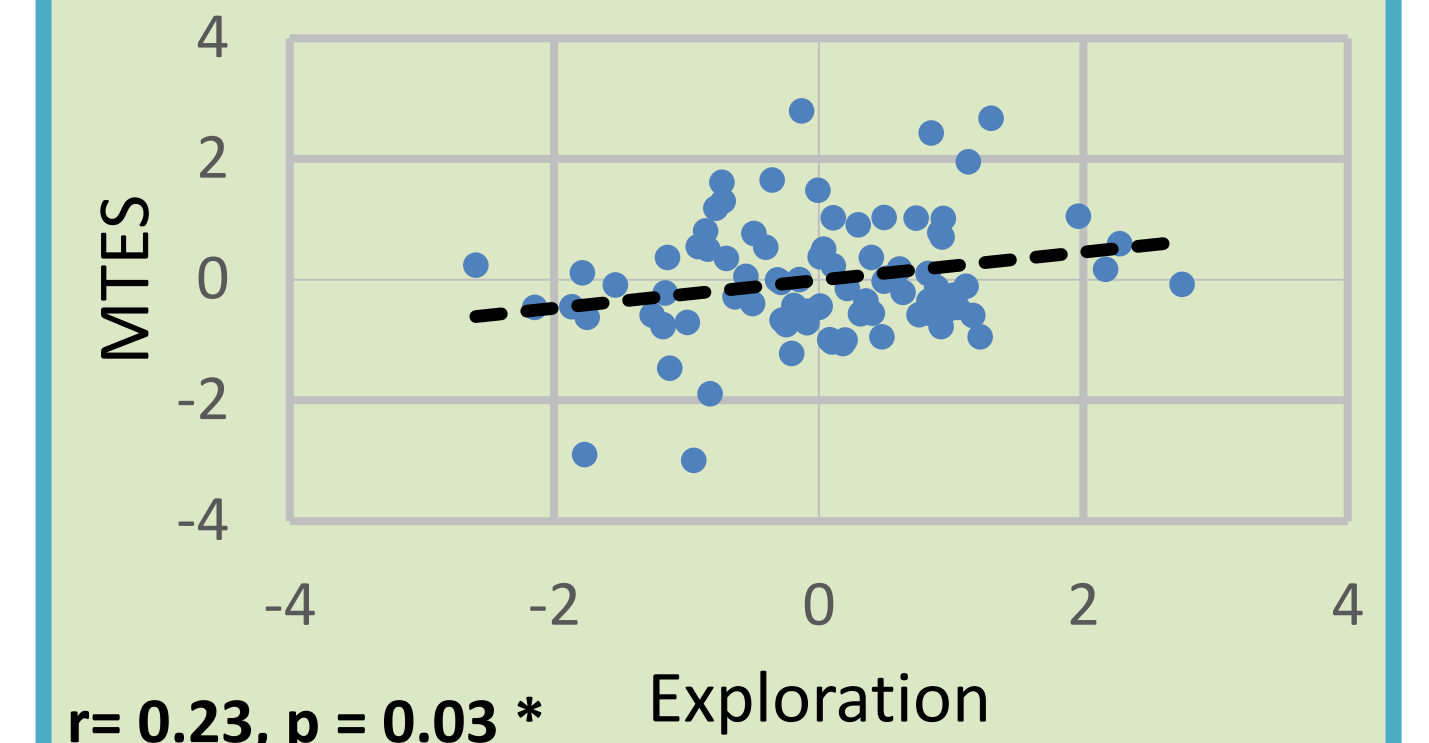


There was a significant positive relationship between Exploration and digital media, driven by the MTES

### Exploration and Risk Total



There was not a significant relationship between Exploration and Risk total, but there was a positive significant relationship with the Positive and Negative Risk Scale



## Discussion

### Summary

- Those with higher rates of exploration in the SFG also had higher self-reported digital media use, specifically in regards to mobile phone use.
- Exploratory behaviors aligned more with everyday risk-taking, rather than more extreme forms of risk-taking

### Conclusions

- Exploratory behaviors may be important in understanding variation in digital media use

### Future Directions

- Examine the specific mechanisms that drive increased digital media use among those who show stronger exploratory behaviors.