

Preferences and Decision Making in Multiagency Projects

Cassandra Martin, Psychology; Dr. Kristin Weger, Psychology

Background

Preference Formation

- Individual preferences formed with heuristics based on context and risk
- Groups adapt to peer influence

(Bixter, Trimber, & Luhmann, 2017); (Kornhauser, 2003)

Decision Making

- Focus on maximum utility with minimum consequences
- Polarization to avoid cognitive dissonance

(Aramovich & Larson, 2013); (Bhatia, 2018)

Large Scale Product Design

- Synthesis of cultural identities creates brand identity
- Information sharing crucial for success

(MacDonald, Clarke, & Huang, 2018)

Hypotheses and Design

The study addressed how preferences are formed within groups in large scale product design teams.

H ₁ : Agency preferences will differ	H ₂ : Government → reliability and availability	H ₃ : Academia → efficacy, robustness, and resilience	H ₄ : Industry → profitability, efficiency, and maintainability
--	---	---	---

- 3x1 Between Subject (Government, Academia, and Industry)
- N = 265 UAH undergraduate psychology and engineering students
- Qualtrics Survey Platform with Randomizer, Adapted PERVAL Questionnaire

Key Findings

Rank	Government	Academia	Industry
(1) Not at all important	2	6	4
(2) Slightly important	14	15	22
(3) Moderately important	29	25	35
(4) Very important	20	30	23
(5) Extremely important	21	13	6

Rank of importance, from 1 (not important at all) to 5 (extremely important)

“Profitability would be important to the specific part of the system I am working on.”

$\chi^2(2, N = 265) = 7.79, p = .020$, Government and Industry ($p = .019$)

Government: ($M = 3.51, SD = 1.10$)
Academia: ($M = 3.33, SD = 1.13$)
Industry: ($M = 3.06, SD = .976$)

Rank	Government	Academia	Industry
(1) Not at all important	1	1	1
(2) Slightly important	3	10	7
(3) Moderately important	20	31	27
(4) Very important	34	29	40
(5) Extremely important	28	18	15

Rank of importance, from 1 (not important at all) to 5 (extremely important)

“The overall system’s cost would be important to me.”

$\chi^2(2, N = 265) = 9.024, p = .011$, Government and Academia ($p = .013$)

Government: ($M = 3.99, SD = .901$)
Academia: ($M = 3.60, SD = .974$)
Industry: ($M = 3.68, SD = .885$)

Rank	Government	Academia	Industry
1	10	8	17
2	19	12	18
3	10	11	14
4	16	14	8
5	8	11	14
6	6	11	5
7	15	16	9
8	0	3	2

Rank of importance, from 1 (most important) to 8 (least important)

“Please rank EFFICIENCY as according to the importance you feel it would have.”

$\chi^2(2, N = 265) = 7.93, p = .019$, Academia and Industry ($p = .016$)

Government: ($M = 3.85, SD = 2.03$)
Academia: ($M = 4.40, SD = 2.07$)
Industry: ($M = 3.52, SD = 2.06$)

Theoretical Value

- Understand preferences as balances between stakeholder needs
- Encourages attention to values of individuals and groups

Practical Applications

- Multiagency organizations becoming more popular
- Insight into how to address complex work goals

Limitations

- Non-workplace environment
- Hypothetical questions for complex situations
- Complexity of attributes

Future Research

- Global scale and international teams to adapt for cross-national values
- Further research will include actual workplace environments with NASA engineers

Discussion and Future Research