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Homework Key

Please enter your email address:

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Today in class we used the "science" dataset to test if collaboration policy influenced interest in a class through communal goal affordance and difficulty in parallel. Now consider if we thought of these two mediators in serial. Assume that difficulty causes communal goal affordance. Estimate this model using PROCESS and answer the following questions about your analysis.

What variable is the independent variable (X)?

- ☒ **collaboration policy (Pro or No)**
- ☐ interest
- ☐ communal goal affordance
- ☐ difficulty

What variable is the outcome variable (Y)?

- ☐ collaboration policy (Pro or No)
- ☒ **interest**
- ☐ communal goal affordance
- ☐ difficulty

What variable is the FIRST mediator variable (M1)?

- ☐ collaboration policy (Pro or No)
- ☐ interest
- ☐ communal goal affordance
- ☒ **difficulty**

What variable is the SECOND mediator variable (M2)?

- ☐ collaboration policy (Pro or No)
- ☐ interest
- ☒ **communal goal affordance**
- ☐ difficulty

Paste the PROCESS code that you would use to estimate this model.

```
process y = interest / x = PRoNO /m = diff comm /total = 1 / boot = 10000 /model = 6 /normal = 1.
```

What is the estimate of the a1-path, or the effect of the independent variable (X) on the first mediator (M1)?

-.1536

Provide a one sentence interpretation of what the a1-path means in this context

If the stage is changed from no collaboration to pro-collaboration, the perceived difficulty of the class decreases by 0.1536 units.

What is the estimate of the a2-path, or the effect of the independent variable (X) on the second mediator (M2), controlling for the first mediator (M1)?

0.7689

Provide a one sentence interpretation of what the a2-path means in this context

Being assigned to the collaborating condition, was associated with increase in communal goal affordance by .7689 units after controlling for difficulty.

What is the estimate of the a3-path, or the effect of the first mediator (M1) on the second mediator (M2), controlling for the independent variable (X)?

-.0929

Provide a one sentence interpretation of what the a3-path means in this context

When controlling for collaboration policy, and increase of difficulty by one unit leads to an decrease in communal goal affordance of 0.0929.

What is the estimate of the b1-path, or the effect of the first mediator (M1) on the outcome (Y), controlling for X and M2?

0.1364

Provide a one sentence interpretation of what the b1-path means in this context

Controlling for communal goal affordance and collaboration policy, if difficulty increases by one unit then interest would increase by .1364 per unit.

What is the estimate of the b2-path, or the effect of the second mediator (M2) on the outcome (Y), controlling for X and M1?

0.5367

Provide a one sentence interpretation of what the b2-path means in this context

With every increase of one unit of communal goal affordance, interest increases by 0.5367, accounting for collaboration policy and difficulty.

What is the estimate of the direct effect (c'-path), or the effect of the independent variable (X) on the outcome (Y), controlling for M1 and M2?

-0.0895

Provide a one sentence interpretation of what the direct effect means in this context

Regardless/controlling for/accounting for of how difficult participants perceived the class or communal goal affordances, being in a pro collaboration group results in 0.0895 less interest compared to the no collaboration group.

What is the estimate of the total effect (c-path), or the effect of the independent variable (X) on the outcome (Y)?

0.3099

Provide a one sentence interpretation of what the total effect means in this context

For someone who reads the collaboration course description they are expected to have 0.3099 more interest in the class compared to someone who reads the no collaboration description.

What is the estimate of the indirect effect of X on Y through ONLY the FIRST mediator?

-0.0209

Provide a one sentence interpretation of what this indirect effect means in this context

If the stage is changed from no collaboration to pro collaboration the interest in the class decreases by 0.0209 units where a change from no collaboration decreases the perceived difficulty of the class and thus leads to decreased interest, controlling for communal goal affordance.

What is the estimate of the indirect effect of X on Y through ONLY the SECOND mediator?

0.4127

Provide a one sentence interpretation of what this indirect effect means in this context

A one unit increase in the treatment group results in a 0.4127 unit increase in interest through the mediator perceived fulfillment of communal goals, controlling for difficulty.

What is the estimate of the indirect effect of X on Y through the FIRST then SECOND mediator in serial?

0.0077

Provide a one sentence interpretation of what this indirect effect means in this context

Considering only the serial indirect effect, the inclusion of collaboration policy results in an increase of 0.0077 of interest in class, through both difficulty then communal goals. Collaboration decreases perceived difficulty which then increasing communal goals which then increases interest.

Check which indirect effects are significantly different from zero according to the percentile bootstrap confidence interval

☒ **Total indirect effect**

☐ Indirect effect through ONLY difficulty

☒ **Indirect effect through ONLY communal goals**

☐ Serial indirect effect through difficulty and communal goals

What concerns might you have about making causal claims related to this specific mediation analysis?

Measurements issue - a difference causality in the measurement vs. things we hope we're measuring. Theory - hard to know if this is supported by theory Some effects are not significant - can't make causal claims (covariation) Assumptions in regression - haven't tested Causality criteria: Covariation, temporal ordering, elimination of competing explanations

This is the end of the homework. Please feel free to submit questions, concerns, or comments to the anonymous feedback link

here: https://uclapsych.qualtrics.com/jfe/form/SV_e4IPhyaZGVKnIRT