Latin American Research Consortium

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The Planning Fallacy: The Cognitive Process

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The planning fallacy theory (Kahneman* & Tversky, 1979)

"People, who underestimate the amount of time that will be required to complete a task, are those who rely primarily on singular information and give insufficient weight to distributional information in the planning process"

Singular information *consists of evidence about the particular case under consideration (inside factors)*

Distributional information *consists of knowledge about the distribution of outcomes in similar situations (outside factors)*

*Nobel Prize 2002

The planning fallacy theory (Kahneman & Tversky, 1979)

However, did experimental participants relied primarily on singular information and gave insufficient weight to distributional information in the planning process, or they chose one type of information over another for other reasons different to reliability?

The planning fallacy theory (Kahneman & Tversky, 1979)

¿How this theory has been tested?

Let's see what it has been found so far

The planning fallacy theory (Kahneman & Tversky, 1979)

- *Buehler, Griffin, and Ross (1994)*
- *Buehler, Griffin, and MacDonald (1997)*
- *Buehler and Griffin (2003)*
- *Newby-Clark, Ross, Buehler, Koehler, and Griffin (2000)*

All these studies test the planning fallacy through its final outcomes, that is, they have proved that actually people underestimate completion times for tasks

The planning fallacy: the cognitive process

These experiments did not tell us if actually the experimental participants underestimated the completion time of the task, because they decided to chose singular over distributional information.

People may underestimate completion times due to: individual differences (including the tendency to use heuristics mechanisms) or context factors, like social pressure or just not having or knowing the whole set of information required to estimate the task execution time.

The planning fallacy: the cognitive process

Then, accepting that, when estimating completion times for tasks, there could be factors different to reliability on the type of information required to perform the task, this study was set to test the original cognitive process of the theory—relying in singular rather than distributional information—but not through time estimates' outcomes, but by observing the actual information selection process.

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Nonetheless, having observed the information choosing process, the experiment asked for a time estimation to check for the relationship between the type of information selected and the time estimated for the task presented. Even more, the experiment checked for the amount of confidence that experimental planners had in their time estimates. Correlations between this last variable and the type of information selected was also verified.

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Method:

To develop hypotheses

To design a hypothetical case with both types of information: singular and distributional

Using the BARS (behavioral anchored raters scale) technique, to determine what information actually belongs to each type

Statistically aggregate BARS' outcomes using the Average Deviation Index (AD) (Burke & Dunlap, 2002)

Designing a questionnaire

Deliver the questionnaire to experimental participants

To test the hypotheses

Hypotheses:

Hypothesis 1a: When first assessing the importance of a preliminary set of task-related factors, planners will assign greater importance to inside factors than to outside factors (M = .44, SD = 1.651, t = 2.120, p < 0.05)

Hypothesis 1b: When asked to budget the costs of investigating the possible effects of various factors on a task-completion schedule, planners will allocate more money to investigating inside factors than outside factors (M = 2.04, SD = 3.172, t = 8.896, p < 0.01)

Hypotheses:

Hypothesis 2a: When performing initial time estimates for tasks, planners who give more importance to inside factors will estimate shorter completion times for the task (r = 0.166, p = 0.022)

Hypothesis 2b: When asked to budget the costs of investigating the possible effects of various factors on task-completion schedule, planners who spend more money investigating inside factors will estimate shorter completion times for the task (r = 0.168, p = 0.021)

Hypotheses:

Hypothesis 3a: When performing initial time estimates for tasks, planners who give more importance to inside factors will show higher degrees of confidence in their estimate for completion times for the task $(r = -0.160, p = 0.027)$

Hypothesis 3b: When asked to budget the costs of investigating the possible effects of various factors on task-completion timing, planners who allocate more money to investigating inside factors will show higher degrees of confidence in their estimate for completion times for the task $(r = -0.116, p = .11)$

Discussion:

Information selection process:

Consistently, experimental participants showed their preference for singular over distributional information. A high correlation between phases 2 and 3 of the test (r = .508, p = .001) suggests that both constructs—importance of inside/outside information, and budget allocation—are related with people's preference for the inside or outside perspective of the task.

Discussion:

Information selection and time estimation:

Experimental participants that preferred singular over distributional information estimated longer completion times, contrary to what the theory states.

Possible reason:

Availability process.

However, these outcomes may suggest that there could be a possibility that time underestimation is not caused by the sole action of selecting singular over distributional information; hence, there could be some other different determinants.

Discussion:

Information selection and degree of confidence in time estimates:

Planners who gave more importance to inside factors showed lower degrees of confidence in their time estimations; contrary to what was hypothesized.

Possible reasons:

Non-experts could not trust what they just did (on the side of singular information choosers)

Availability process (on the side of distributional information choosers)

Implications

This study provides empirical support to the cognitive process of Kahneman and Tversky's (1979) "planning fallacy" theory

Outcomes from hypotheses suggests that the cognitive process and the time estimation process could not be related, that is, underestimation of the completion time of a task, not necessarily is only caused by distributional information overlooking