

DOES FEEDBACK IMPROVE THE ACCURACY OF RECURRENT JUDGMENTAL FORECASTS?

William Remus
University of Hawaii
remus@dscience.cba.hawaii.edu

Marcus O'Connor
University of New South Wales

Kenneth Griggs
University of Arizona

Extended Abstract

Feedback has been shown to be a useful tool improving decision making [1] and might also be a useful tool in improving the accuracy of recurrent judgmental forecasts. The objective of this study was to examine the impact of feedback on accuracy when forecasting time series with structural instabilities. The underlying model and definitions were derived from Balzer *et al.* [1]; the experimental design was similar to that used in Remus, O'Connor, and Griggs [5]

The research reported in this paper examined different kinds of feedback and their impact on forecasting accuracy when structural instabilities occur. The analysis found the best way to provide feedback (task feedback - prompting on the underlying structure of the time series) and thus improve the accuracy of judgmental forecasts. In the state revenue forecasts reported in Mocan and Azad [4], this kind of feedback could result in forecasts that would be in the order of millions of dollars more accurate.

Task feedback had a significant effect on absolute forecasting error. Task feedback also resulted in lower forecast error than performance outcome feedback (prompting with graphical indicators of forecasting accuracy or prompting words expressing levels of forecasting accuracy) and lower forecast error than simple outcome feedback (just providing the actual data point following each forecast). This replicates Balzer *et al.* [1] work using a Multiple Cue Probability Learning model.

In the experiment we also examined whether cognitive information feedback (prompting on

desirable forecasting behaviors) improved forecasting accuracy beyond that found with task information feedback alone. Consistent with the Balzer *et al.* [1] study on decision making, we found no significant evidence that forecasting accuracy was improved by adding cognitive information to task feedback.

We also examined a controversial observation that the graphical mode of feedback was more effective than other modes; this observation was tested using performance outcome feedback. Consistent with the Balzer *et al.* [2] study on decision making and contrary to the Ganzach [3], we found no significant evidence that graphical feedback was superior to the qualitative mode of feedback presentation.

Task feedback is not supported by current forecasting software packages and is relatively uncommon in industry. Thus, it is important that the designers of forecasting systems should also build task feedback into their systems so that the software will better support forecasters. The shortage of task feedback in software can to some extent be by the programmability inherent in some software packages. For example, many simple forecasts are made using spreadsheets that would allow macros to be built to provide the needed task feedback.

Alternatively, it is possible to use formal analysis of the data to ascertain the changing nature of the task structure. As in the software development process, the use of a formal discussion of the data structure with peers could lead to discovery of changes and revisions of the forecasters' mental models of the data.

Programmers refer to this process as a structured walk-through.

The current study found the Balzer *et al.* [1] model to be robust to differing task type, to performance measures, and to both stable and unstable task environments. The current experimental task corresponds well to the real world task of making unaided forecasts about the future. Thus, the current study helps establish the external validity and practical usefulness of the Balzer *et al.* [1] model.

(See our revised and much more detailed article of the same title in *Organizational Behavior and Human Decision Processes*, 1996, Volume 66, pages 22-30.)

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