Comment on Eric Bradlow's Paper

Jordan J. Louviere, Professor
School of Marketing
Co-Director, Centre for the Study of Choice
Faculty of Business
University of Technology, Sydney
Email: Jordan.louviere@uts.edu.au

Below I discuss each of Eric's points in turn.

1. Latin square designs can be used to study within-task learning to see if model parameters vary with order. We find that parameters do not change, but error variability does. Failure to control for error variability differences probably is linked to beliefs that parameters vary (See [1],[2],[3]).

2. Embedded prices - many studies use independent price levels instead of attribute-level related prices, but, one can vary prices for each attribute independently. One then can display each separately or one can display a "total price".

3. There are no technical constraints to designing experiments with "massive numbers of attributes" and we routinely use 20+. It is unclear why many think one cannot "over-burden" subjects as examples of "complex tasks abound in real life (eg, many supermarket categories have many options – eg, rte cereals - and labels often display much attribute information).

4. I agree with Eric that additive rules are naïve and probably wrong. For example, if subjects respond yes/no to 8 profiles, there can be 256 response patterns, and very few are consistent with additive rules. Even a simple choice task with 4 options and 16 choice sets yields more than 4 billion patterns, and almost none are consistent with additivity. Moreover, response patterns associated with fractional designs are consistent with (literally) thousands of observationally equivalent processes. Thus, current methods tell us little about process.

5. I agree with Eric about "true integration of conjoint data with other sources," but this requires behavioral theory, not statistics (See [1],[2],[4]).

6. I'm not sure we can learn much from the education literature; and so-called "adaptive" methods select treatments based on dependent variables; hence are subject to selection bias. More importantly, optimally efficient choice experiment designs are available, and many are very small. No design can be >100% efficient, so "adaptive" designs should not be used if optimal designs can be easily constructed, and the theory to do that is available ([5],[6],[7]).

7. Resources are needed to get attributes and levels "right," but few commercial projects devote enough time/resources to pilot testing. Random utility theory (RUT) tells us that failure to do so impacts random component variances, degrading inferences. Many papers show how to use RUT to rescale stated choice models to real choices, and almost all show that well-designed choice experiments allow accurate estimates of preferences and predictions of behavior. The latter suggests one often gets attributes and levels "right".

8. As noted above, 15+ years of research on the predictive validity of choice experiments consistently shows that experiments and associated choice models produce accurate estimates of real preferences that lead to accurate predictions of real choices.

9. One can study product bundling choices using various combinations of choice experiments and real market data, but this remains under-researched, as Eric suggests.

10. Conclusions - while useful and widely applied, many serious unresolved issues in choice experiments and choice models remain. Many of these issues are reviewed in [3],[4] and [8], which suggests that specification errors and bias are likely to be common, and that current methods need radical, not cosmetic, surgery to address the issues. Existing choice modeling methods and experiments probably cannot be "fixed", "extended" or adapted to deal with the fundamental identification, generalization and behavioral issues.

References

1. Hensher, D.A., Louviere, J. J., and Swait, J. (1999) "Combining sources of preference data," *Journal of Econometrics*, 89, 197-221.
2. Louviere, J. J., Hensher, D. A,. and Swait, J. D. (2000) *Stated Choice Methods: Analysis and Application*, Cambridge, U.K.: Cambridge University Press.
3. Louviere, J.J. (2001) "What If Consumer Experiments Impact Variances As Well As Means: Response Variability As A Behavioral Phenomenon," *Journal of Consumer Research*, 28, 506-511.
4. Louviere, J.J. (2003) "Random Utility Theory-Based Stated Preference Elicitation Methods: Applications In Health Economics With Special Reference To Combining Sources of Preference Data," Keynote Address, Australian Health Economics Society Conference, Canberra, ACT (3 October)
5. Louviere, J.J., Street, D.J. and L. Burgess (2003) Chapter 8: "A 20+ Years Retrospective on Choice Experiments" In *Marketing Research and Modeling: Progress and Prospects*, Yoram Wind and Paul E. Green (Eds), New York, Kluwer Academic Publishers.
6. Burgess, L. and Street, D. J. (2003) "Optimal designs for 2^k choice experiments," *Communications in Statistics-Theory and Methods*, 32, 2185-2206.
7. Street, D. J. and Burgess, L. (2004) "Optimal and near-optimal pairs for the estimation of effects in 2-level choice experiments," *Journal of Statistical Planning and Inference*, 118, 185-199 (forthcoming)
8. Louviere, J.J. Street, D., Carson, R., Ainslie, A., DeShazo, J.R. Cameron, T., Hensher, D., Kohn, R. and T. Marley (2002) "Dissecting the Random component of Utility," *Marketing Letters*, 13, 177-193.

Brief Bio of Jordan J. Louviere

Jordan J. Louviere received a PhD from the University of Iowa (1973). Jordan pioneered the design of discrete choice experiments. He has authored/co-authored more than 140 papers, chapters and books on conjoint analysis, choice experiments and choice modeling. From 1999 to 2003 he was a private consultant and director of R&D for Memetrics P/L (Sydney). In July 2003 he became Professor of Marketing at The University of Technology, Sydney.