

## **DRL029: Survey research design and PLS-SEM (5 ECTS)**

**Level: PhD**

### **About the course**

Survey-based research has been, and will continue to be, essential in advancing theory and practice across several disciplines. However, publishing survey-based studies in top-ranking journals can be challenging. The main criticism often pertains to the validity of the insights provided by such studies. To be successful, researchers must adhere to the conditions that ensure a study's reliability and validity. This course aims to guide students through the process of developing high-quality survey research, particularly focusing on work targeted for publication in top-ranking journals. It will cover the entire journey from designing to publishing a survey-based study.

### **Learning outcomes**

At the end of this course, a successful candidate will be able:

- To develop suitable research questions and design a solid survey study
- To create an effective questionnaire and data collection strategy
- To conduct PLS-SEM on a survey-based dataset
- To craft a persuasive survey-based paper
- To successfully navigate the review process of a survey-based manuscript

[See a tentative plan in Appendix 1]

### **Recommended background**

Basic knowledge of multiple regression analysis – a quick refresh will be provided

### **Teaching and learning forms**

The course will involve short lectures and students' activities. The lectures will cover theory, frameworks and tools used in survey-based research, while the activities will allow students to practice the core skills that the course aims to develop.

### **Assessment**

Form: A course paper presenting an extended proposal for a survey-based study. The paper must be submitted within two months after attending the course sessions.

Grading: A - F [See assessment criteria and grading matrix in Appendix 2]

## Appendix 1: Tentative plan

### Day 1: Designing high-quality survey research

This session will introduce survey as one of the research methods for developing and testing theories, philosophical underpinning, and applicability. The session will address designing a high-quality survey study, including crafting conceptual models and their corresponding hypotheses. Further, it will cover lessons on the design of an effective questionnaire and data collection strategy. On all these aspects, emphasis will be on issues likely to cause rejection of a survey-based manuscript submitted to a top-ranking journal.

#### Literature

- Bhattacharjee, A. (2012). 'Surveys Research', in Bhattacharjee, A. Social Science Research: Principles, Methods, and Practices. Textbooks Collection. 3. Available at: [https://digitalcommons.usf.edu/oa\\_textbooks/3?utm\\_source=digitalcommons.usf.edu%2Foa\\_textbooks%2F3&utm\\_medium=PDF&utm\\_campaign=PDFCoverPages](https://digitalcommons.usf.edu/oa_textbooks/3?utm_source=digitalcommons.usf.edu%2Foa_textbooks%2F3&utm_medium=PDF&utm_campaign=PDFCoverPages)
- Flynn, B., Pagell, M., & Fugate, B. (2018). Editorial: Survey Research Design in Supply Chain Management: The Need for Evolution in Our Expectations. *Journal of Supply Chain Management*, 54(1), 1–15.
- Krause, D., Luzzini, D., & Lawson, B. (2018). Building the Case for A Single Key Informant in Supply Chain Management Survey Research. *Journal of Supply Chain Management*, 54(1), 42–50.
- Kostyk, A., Zhou, W., & Hyman, M. R. (2019). Using surveytainment to counter declining survey data quality. *Journal of Business Research*, 95, 211–219.

### Day 2: Scale measurement models and introduction to PLS-SEM

Latent variables are commonly used in survey-based research. These are variables that are not directly observed but are instead inferred from other variables that are directly measured. This session will introduce reflective and formative models for measuring latent variables and present PLS-SEM, a method of structural equation modelling that allows estimating complex cause-effect relationship models with latent variables. SmartPLS will be used as a primary software for data analysis. Participants who are already familiar with R will get tips on conducting PLS-SEM using R.

#### Literature

- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). A primer on partial least squares structural equation modeling (PLS-SEM). 3<sup>rd</sup> edition. London: Sage Publications. [Chapter 1, 2, and 3]. [2<sup>nd</sup> edition is also fine].
- Howell, R. D., Breivik, E., & Wilcox, J. B. (2007). Reconsidering formative measurement. *Psychological Methods*, 12(2), 205–218.
- Bagozzi, R. P. (2007). On the Meaning of Formative Measurement and How It Differs From Reflective Measurement: Comment on Howell, Breivik, and Wilcox (2007). *Psychological Methods*, 12(2), 229–237.
- Bollen, K. A. (2007). Interpretational confounding is due to misspecification, not to type of indicator: comment on Howell, Breivik, and Wilcox (2007). *Psychological Methods*, 12(2), 219–228.
- Howell, R. D., Breivik, E., & Wilcox, J. B. (2007a). Is Formative Measurement Really Measurement? Reply to Bollen (2007) and Bagozzi (2007). *Psychological Methods*, 12(2), 238–245.

### **Day 3: Estimation of measurement and structural models using PLS-SEM**

With the foundation built on Day 2, this session will allow participants to exercise estimation and interpretation of the measurement and structural models using SmartPLS. The session will introduce updated standards and criteria for evaluating models, including internal consistency reliability, common method variance, convergent and discriminant validity, and adequacy of the structural model. Finally, the session will introduce mediation and moderation effects.

#### **Literature**

- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). A primer on partial least squares structural equation modeling (PLS-SEM). 3<sup>rd</sup> edition. London: Sage Publications. [Chapter 4, 5, 6 and 7]. [2<sup>nd</sup> edition is also fine].
- Benitez, J., Henseler, J., Castillo, A., & Schuberth, F. (2020). How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information and Management*, 57(2), 103168.

### **Day 4: Reporting PLS-SEM results and crafting a survey-based manuscript**

This session will introduce participants to a typical structure of a survey-based manuscript. Then, we will take a closer look at how to craft each of the main sections of the manuscript. To start with, “The Creating a Research Space (CARS) model” will be introduced as a tool for developing a persuasive introduction section. The session will proceed to address the literature review/theoretical foundation section, including how to present hypotheses. Here we will delve into the artform of developing and presenting clear propositions that link constructs and how to develop sound arguments to support the hypotheses. Finally, we will address the methodology and results sections, followed by discussion and conclusion sections.

**Activity 1 during the session:** A day before, participants will be assigned to read introduction sections of three illustrative papers published in top-ranking journals. During the session, they will be asked to identify the three moves of the CARS model applied in the papers.

**Activity 2 during the session:** Each participant develops one hypothesis (max 30 words) and provides at least one plausible argument to support it (max 75 words).

#### **Literature**

- Swales, J.M. (1990) Genre Analysis: English in Academic and Research Settings. pp. 137. Cambridge: Cambridge University Press. [An excellent summary can be obtained here: <https://libguides.usc.edu/writingguide/CARS>]
- Grant, A. M., & Pollock, T. G. (2011). Publishing in AMJ—Part 3: Setting the Hook. *Academy of Management Journal*, 54(5), 873–879.
- Sparrowe, R. T., & Mayer, K. J. (2012). Publishing in AMJ—Part 4: Grounding Hypotheses. *Academy of Management Journal*, 54(6), 1098–1102.
- Zhang, Y. (Anthea), & Shaw, J. D. (2012). Publishing in AMJ—Part 5: Crafting the Methods and Results. *Academy of Management Journal*, 55(1), 8–12.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). A primer on partial least squares structural equation modeling (PLS-SEM). 3<sup>rd</sup> edition. London: Sage Publications. [Chapter 4, 5, 6 and 7]. [2<sup>nd</sup> edition is also fine].

Geletkanycz, M., & Tepper, B. J. (2012). Publishing in AMJ—Part 6: Discussing the Implications. *Academy of Management Journal*, 55(2), 256–260.

### **Illustrative papers**

Faruquee, M., Paulraj, A., & Irawan, C. A. (2021). Strategic supplier relationships and supply chain resilience: Is digital transformation that precludes trust beneficial? *International Journal of Operations & Production Management*, 41(7), 1192–1219.

Mwesiumo, D., Harun, M., & Hogset, H. (2023). Unravelling the black box between cooptation and firms' sustainability performance. *Industrial Marketing Management*, 114, 110–124.

Mwesiumo, D., Halpern, N., Bråthen, S., Budd, T., & Suau-Sanchez, P. (2023). Perceived benefits as a driver and necessary condition for the willingness of air passengers to provide personal data for non-mandatory digital services at airports. *Transportation Research Part A: Policy and Practice*, 171, 103659.

Paolucci, E., Pessot, E., & Ricci, R. (2021). The interplay between digital transformation and governance mechanisms in supply chains: evidence from the Italian automotive industry. *International Journal of Operations & Production Management*, 41(7), 1119–1144.

### **Day 5: Inside the mind of a reviewer of a survey-based research**

In this final session, participants will get an opportunity to experience being reviewers of a survey-based manuscript. Each participant will be assigned in advance the first version of a survey-based manuscript submitted to a journal. They will be required to provide comments on the introduction section, literature review/theoretical foundation, methodology, results, discussion, and conclusion. During the session, the participants will present their comments and use the knowledge acquired in the last four days to suggest how they would address the identified shortcomings. Eventually, the course facilitator will share comments received from reviewers and how they were addressed before the manuscripts were accepted for publication.

### **Literature**

Lee, A. S. (1995). Reviewing a manuscript for publication. *Journal of Operations Management*, 13(1), 87–92.

## Appendix 2: Assessment criteria and grading matrix

<i>Assessment criteria</i>	<i>Full marks</i>	<i>0.7 * Full marks</i>	<i>0.2 * Full marks</i>
Persuasive introduction section (20 pts)	All three moves of the CARS model are applied to write an excellent introduction.	One or two moves of the CARS model are applied to write a good introduction.	A weak introduction that does not adhere to the CARS model.
Solid literature review/theoretical foundation and hypotheses (40 pts)	A comprehensive literature review on the subject is presented, and at least three hypotheses are developed based on solid arguments.	The literature review, hypotheses and their corresponding arguments are acceptable.	The literature review, hypotheses and their corresponding arguments are weak.
Solid methodology section (40 pts)	Conceptual model, Research context, research design, construct operationalization, data collection and analytical approaches are adequately presented.	The presentation of the conceptual model, research context, research design, construct operationalization, data collection and analytical approaches data collection and analytical methods are acceptable.	The presentation of the conceptual model, research context, research design, construct operationalization, data collection and analytical approaches data collection and analytical methods are weak.

Scale: [≥ 88pts → A][≥ 78pts → B][≥ 68pts → C][≥ 58pts → D][≥ 48pys → E][≤ 48pts → F].