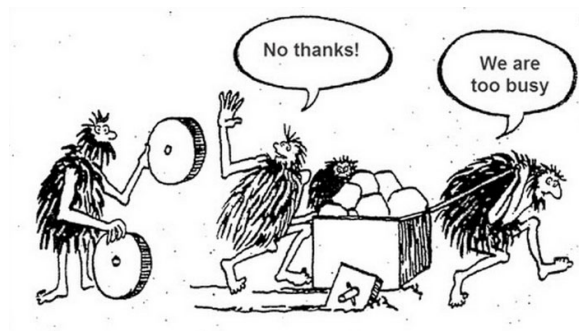


When Project-based learning meets PLS-SEM



Yan LIU
Delft University of Technology
& University College London



Intel's neuro guru slams deep learning: 'it's not actually learning'

Intel's director of its neuromorphic computing initiative, Mike Davies, chided Facebook's Yann LeCun at an industry conference for failing to appreciate the virtues of the Intel technology. He derided the deep learning approach of LeCun and others as failing to truly add up to 'learning.'

By Tieman Ray | February 23, 2019 -- 18:22 GMT (8:22 GMT) | Topic: Artificial Intelligence

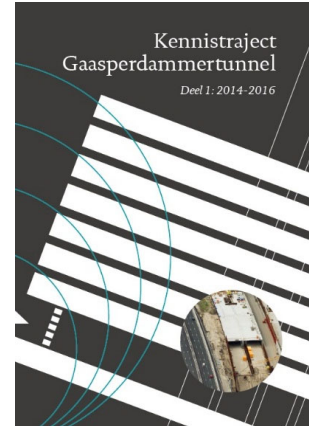
Qualitative Methods



Case 1 Co-creation



Case 2 Exploitative learning



Case 3 Explorative learning



Co-creation

Explorative learning

Exploitative learning

The Role of Co-Creation in Enhancing Explorative and Exploitative Learning in Project-Based Settings

Per Erik Eriksson, Roine Leiringer, Henrik Szentes

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Abstract

We study how co-creation practices influence explorative and exploitative learning in five collaborative construction projects with partnering arrangements. Drawing on a longitudinal case study, our findings reveal two different types of explorative learning processes (i.e., adaptation and radical development) and three different exploitative learning processes (i.e., incremental development, knowledge sharing, and innovation diffusion). Furthermore, co-creation practices enhance adaptation, radical development, and incremental development, which are typical intra-project learning processes. Co-creation practices do not, however, enhance knowledge sharing and innovation diffusion across projects. These findings concur with previous insights that the temporary and one-off nature of projects makes inter-project learning problematic.

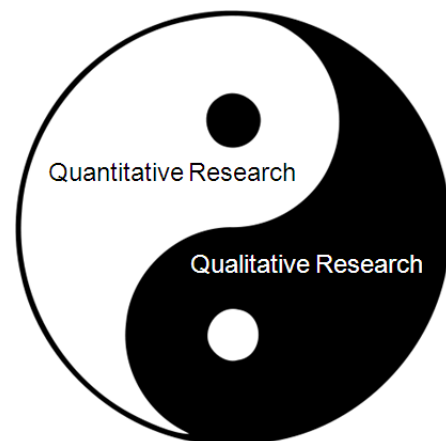
Keywords

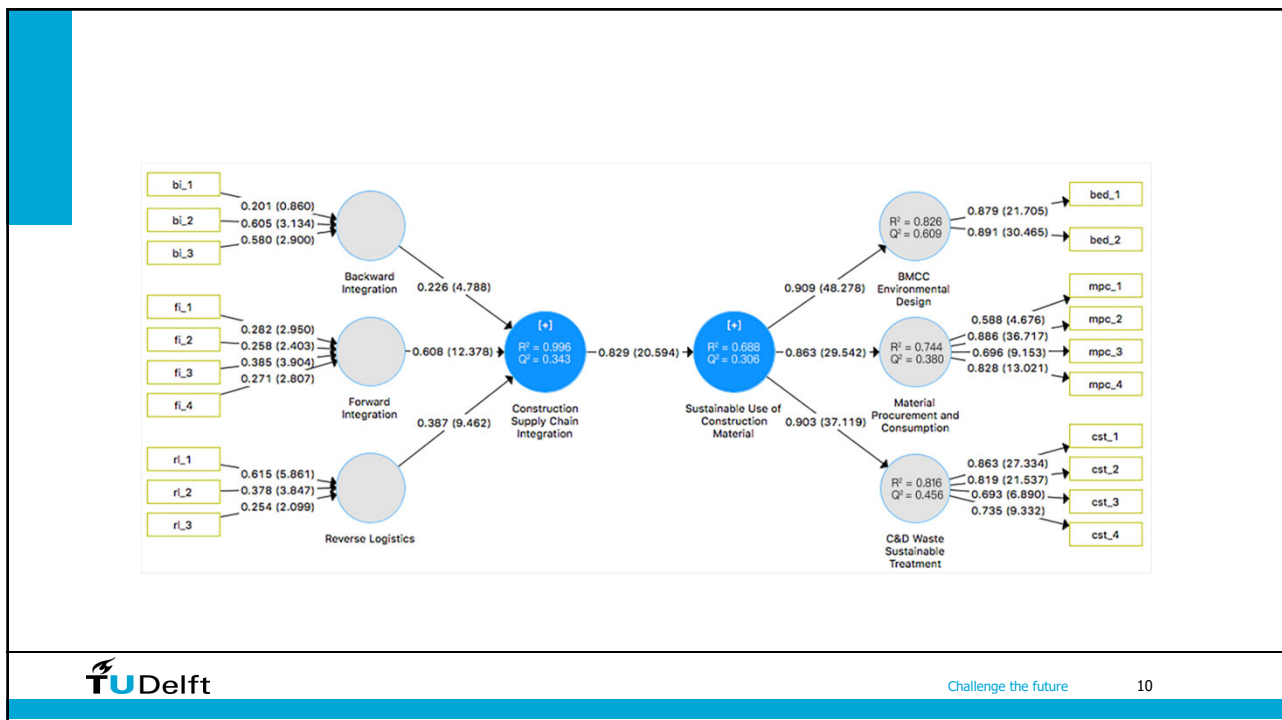
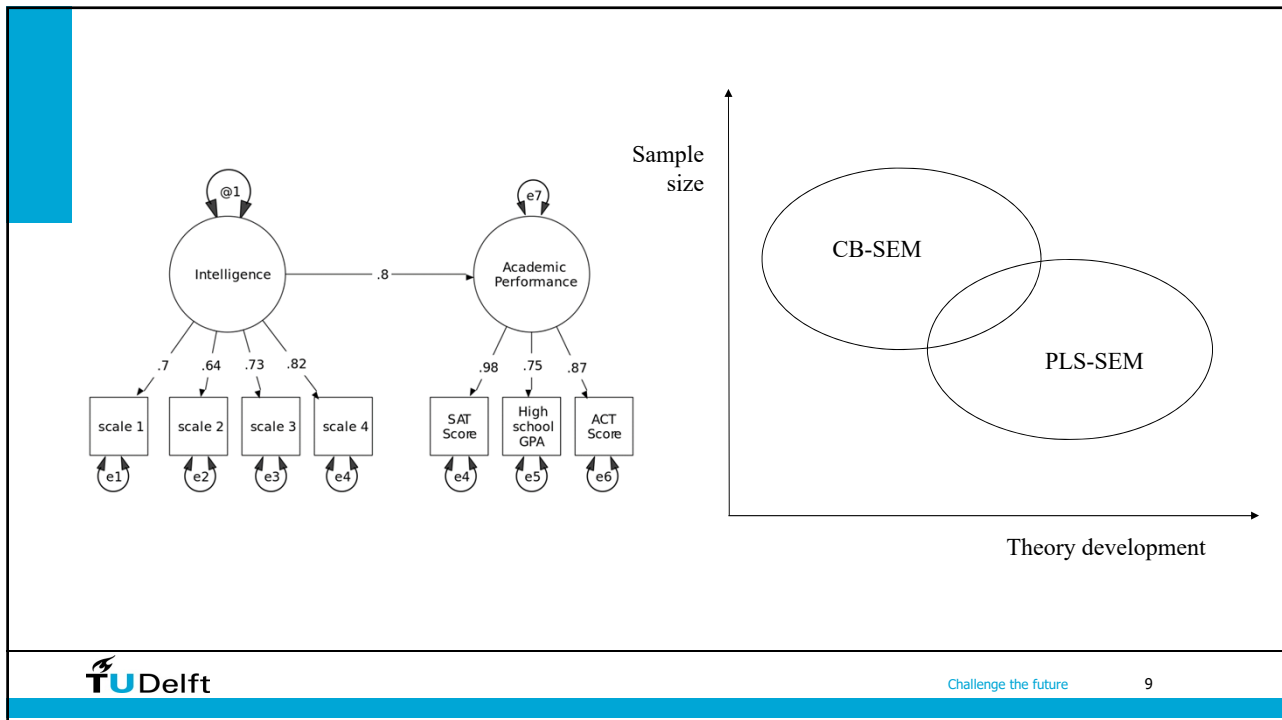
project-based learning, exploration, exploitation, co-creation, collaboration, partnering, construction

TO BE OR NOT TO BE?

That is the
question.

—WILLIAM SHAKESPEARE





Sample

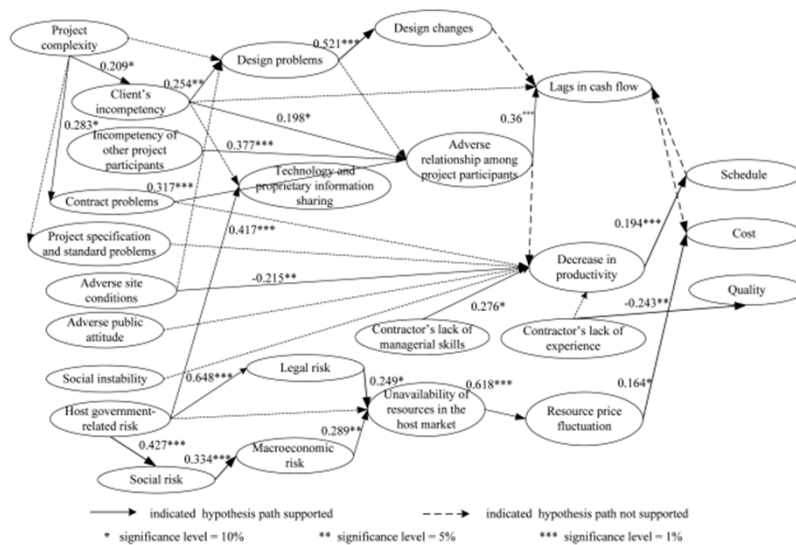
understanding and interpretation of research findings (Janow and Schwartz-Shea, 2015). (4) A questionnaire based upon the preliminary findings was designed and sent to all participants. There were approximately 120 attendees in all co-creation sessions, including representatives at the administrative level from RWS, BNL (the Dutch association of companies in the construction and infrastructure sector) and NLingenieurs (the Dutch association of consulting engineers), and the market level from contractors, engineering firms and knowledge partners. Unfortunately, only 29 respondents accessed the online questionnaire, while only eight were potentially usable. Therefore, we did not use this information for the analysis, only as background information. (5) Based upon all the preliminary findings, a semi-



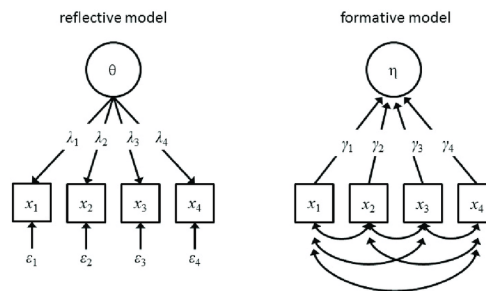
NETIPSH
networking knowledge



Research design



Measurement model



Mode of Measurement Models	Only Reflective	56	70.00
	Only formative	8	10.00
	Reflective and Formative	11	13.75
	Not specified, evaluated by reflective criteria	5	6.25

Measurement model evaluation

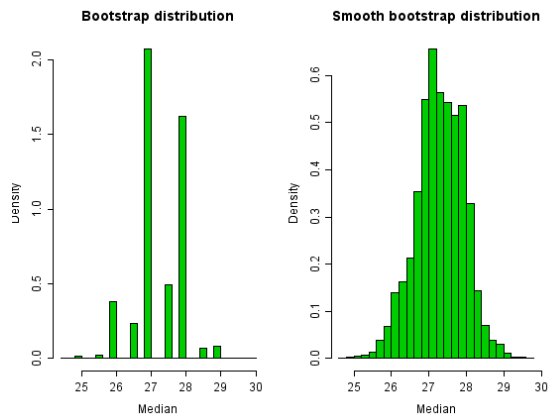
Reflective Measurement Model Statistics

Criteria	Empirical test criteria in PLS-SEM	Number of Articles (N)	Percentage (%)
Indicator Reliability	Indicator loadings	48	66.67
	None	24	33.33
	Cronbach's α & CR	38	52.78
	Cronbach's α (only)	23	31.94
Internal Consistency Reliability	CR (only)	7	9.72
	None	4	5.56
	AVE	70	97.22
Convergent Validity	None	2	2.78
	Fornell-Larcker criterion & Cross-loadings	29	40.28
	Fornell-Larcker criterion (only)	29	40.28
Discriminant Validity	Cross-loadings (only)	1	1.39
	None	13	18.06
Evaluation Overview	All reflective criteria evaluated	31	43.06
	Partial reflective criteria evaluated	40	55.56
	No evaluation reported	1	1.39

Formative Measurement Model Statistics

Criteria	Empirical test criteria in PLS-SEM	Number of Articles (N)	Percentage (%)
Absolute Indicator Contribution to the Construct	Indicator Weights	12	63.16
	None	7	36.84
Significance of Weights	t-values p-values, significance levels	11	57.89
	None	8	42.11
Multicollinearity	VIF tolerance	10	52.63
	None	9	47.37
Evaluation overview	All formative criteria evaluated	8	42.11
	Partial formative criteria evaluated	6	31.58
	Reflective evaluation criteria applied	4	21.05
	No evaluation reported	1	5.26

Bootstrapping (resampling)



Run the Bootstrapping Algorithm
Applies the standard bootstrapping procedure.

Missing Values - Settings

Data File: BASE394.csv
Configured Missing Value: <not configured> (doubleclick the datafile for configuration)
Missing Value Algorithm: Mean Replacement
Apply Missing Value Algorithm: ☐

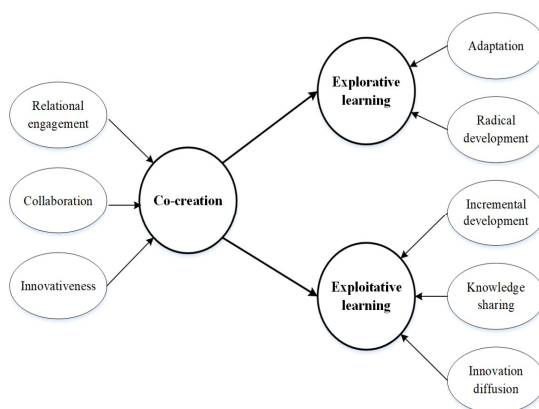
PLS Algorithm - Settings

OT Bootstrapping - Settings

Sign Changes: No Sign Changes
Cases: 393
Samples: 5000

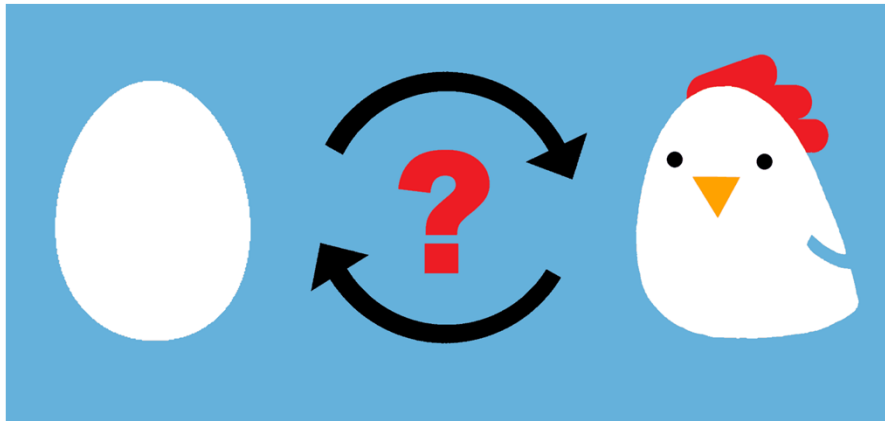
Running Bootstrapping Procedure: Calculating Bootstrapping Sample Nr. 795 of 5.000

Finish Cancel

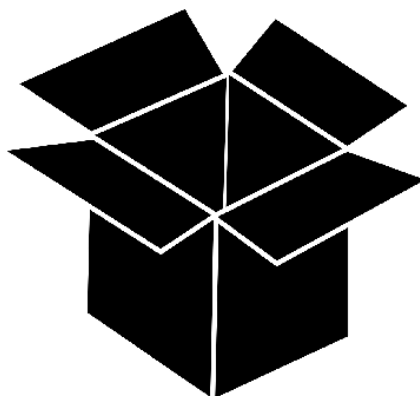


- (Small) Sample
- Measurement model
- Follow all the criteria

Qualitative + Quantitative = 100



Right number + Right math = 100



In summary

- Research on learning in projects is exploratory
- PLS has a demonstrated ability to support the theoretical exploration
- CPM knowledge belongs to the middle range theory
- CPM practices have a strong contextual dependency
- Quantitative research and qualitative research can collaborate

Thank you for listening!

