Paper 56072

Using common Learning Resources in Academia and Industry
From Practice to Theory

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PhD student, Faculty of Education, Universidad Complutense Madrid

aPi-learning, Funding director, e-learning in Engineering and Sciences

R. Crepon
rcrepon@ucm.es

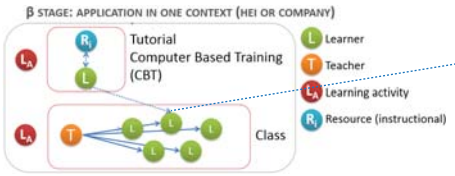
Introduction

Few research is available on the collaborative design of instructional material which could be used in academia and industry.
"How can we design learning resources, specifically multimedia based ones, to guarantee their effective use in two different and identified contexts?"

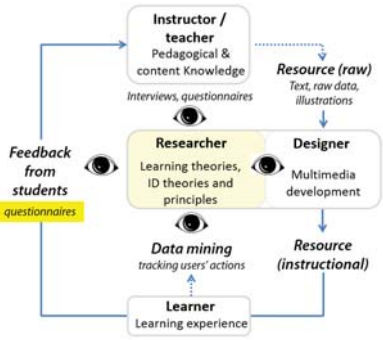
The research

The main phases of the DBR. Adapted from the generic model for design research described by McKenney and Reeves (2012)

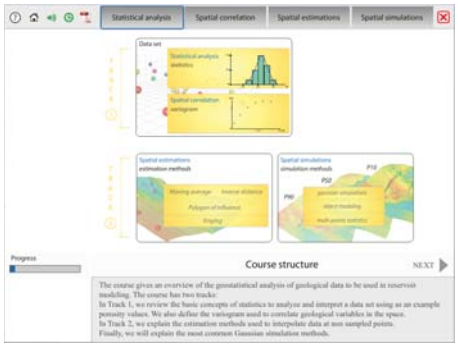
Analysis and exploration	Design and construction	Evaluation and reflection	Design and construction	Evaluation and reflection	Analysis and exploration
Micro cycle	Micro cycle	Micro cycle	Micro cycle	Micro cycle	Micro cycle
	Meso cycle "**prototyping**"			Meso cycle "**analysis and reflection**"	
Research question Literature review	First design and improvement Test of the research methods (data collection)			Empirical testing of the refined design with validated methods	
	72 students / 7 employees, 5 courses			72 students / 24 employees, 6 courses	



Blended learning in Academia and Industry



The methodology: Design Based Research

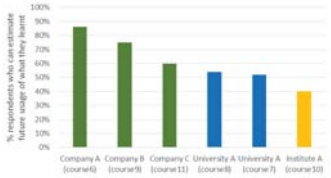


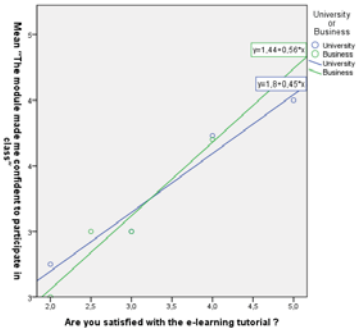
e-tutorial in geostatistics

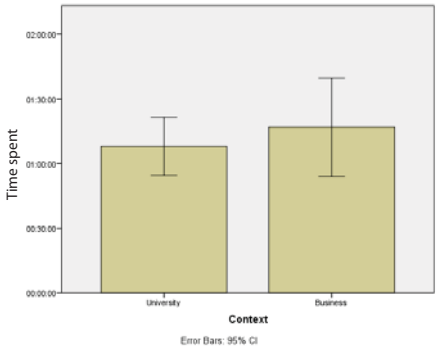
The data

Groups and data collected for the evaluation phase of the study

Course Code	Institution	Number of learners	Number of users		Feedback from learners	
			N	%	N	%
6	Company A	7	7	100	7	100
7	University A	30	30	100	27	90
8	University A	42	29	69	24	57
9	Company B	6	4	67	4	67
10	Institute A	6	5	83	6	100
11	Company C	5	5	100	5	100
Total		**96**	**80**	**83%**	**73**	**76%**







The three-factor model

Summary of EFA results for the questionnaire (*N* = 73)

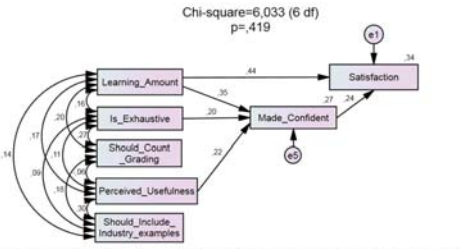
Rotated Factor Matrix[a]

Item	Factor 1	Factor 2	Factor 3
1. Are you satisfied with the e-learning tutorial?	**,748**	,070	,056
2. How much did you learn from the e-learning tutorial?	**,606**	,240	-,035
3. "The module in geostatistics makes me confident to participate in class"	**,537**	,184	,130
4. "The completion of the module should count for my grade"	**,428**	-,105	,093
5. "The module in geostatistics is exhaustive, with all the same detailed explanations as in books"	**,421**	-,101	-,045
6. "An e-learning tutorial should create interaction with the data, with the key concepts"	-,022	**,849**	,076
7. "An e-learning tutorial should explain the main concepts and their relationships"	-,095	**,523**	,222
8. "An e-learning tutorial should include exercises with feedback for self-assessment (quizz)"	,342	**,426**	-,119
9. "An e-learning tutorial should provide a printable file for future inquiries"	,025	-,020	**,626**
10. How much time are you ready to dedicate for your preparation to one day of class?	,197	,221	**,567**
11. "The practical examples and exercises should be reviewed during class"	,086	,130	**,469**
12. Age (5 points scale)	-,150	-,271	,373
13. Was it easy to dedicate some time in order to complete the e-learning module before class?	,335	,334	-,364

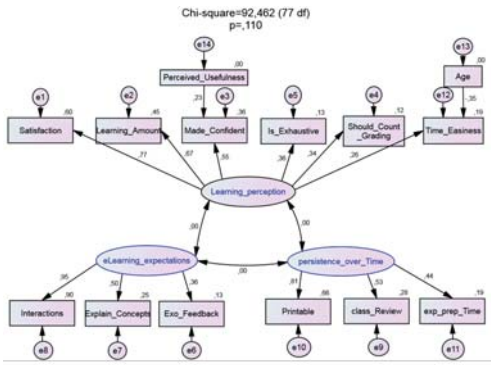
Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 21 iterations.
Bold values above the criterion level of 0.4.

Comparison tests between University (U) and Business (B) on factor scores

	U	B	Mann-Whitney test		Kolmogorov-Smirnoff		t-test	
Factor1	M = 0.18	M = -0.42	U = 370 z = -2.3 p = .022 r = -.27	Significant, medium effect size	$D(22)$ = 0.163 p = .134	did not deviate significantly from normal	$t(71)$ = 2.41 p = 0.019	Significant, medium effect size (r = 0.27 and d = 0.59)
Factor2	M = 0.11	M = -0.27	U = 395 z = -2 p = .046 r = -.24	Significant, small effect size	$D(22)$ = 0.153 p = .196		$t(71)$ = 1.5 p = 0.137	Not significant, small-sized effect, r = 0.17 and d = 0.38
Factor3	M = -0.23	M = 0.54	U = 823 z = 3.15 p = .002 r = -.37	Significant, medium effect size	$D(22)$ = 0.189 p = .04	deviate significantly from normal		



Model of the relations between the observed variables linked to the subscale construct relative to Factor1.



General model of the items clustering on the three latent variables

Conclusions

The understanding of the present research results in addition to the study of their relation with the theories of adult learning, multimedia learning and situated cognition will enable to devise principles for the design of common resources between HEI and industry for blended learning in EE.

Acknowledgements

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