

Contents

1	Learning 2.0	1
1.1	A Current View: Emerging Needs of Learning 2.0	2
1.1.1	Collaborative and Interactive Learning	2
1.1.2	Initiative and Self-Directed Learning	4
1.2	A Glance Back: Underlying Constructivism Theories	5
1.2.1	Exogenous Constructivism	6
1.2.2	Endogenous Constructivism	6
1.2.3	Dialectical Constructivism	7
1.2.4	Integrated Principles to Guide Learning 2.0	9
1.3	A Look Forward: Computer-Supported Collaborative Learning	10
2	Introduction to Collaboration Scripts	13
2.1	Previous Works on Conceptualize Collaboration Scripts	14
2.1.1	Internal Versus External Scripts	15
2.1.2	Macro Versus Micro Scripts	16
2.2	Script Theory of Guidance	17
2.2.1	Central Components	17
2.2.2	Guiding Principles	18
3	How to Realize Flexible Scripting in CSCL	25
3.1	Over-Scripting	25
3.1.1	Quantitative Over-Scripting	26
3.1.2	Qualitative Over-Scripting	27
3.1.3	Motivational Over-Scripting	27
3.2	Script with Fading	28
3.2.1	Forward & Backward Fading	28
3.2.2	Horizontal & Vertical Fading	28
3.2.3	Fading Effects	29

3.3	Adaptive Scripting	30
3.3.1	Adaptivity	30
3.3.2	Intelligent Tutoring Systems	31
3.3.3	Adaptive Collaboration Scripts	32
3.4	Adaptable Scripting	33
3.4.1	Adaptability.	33
3.4.2	Learner Control with Hypermedia.	34
3.4.3	Adaptable Scripting.	34
4	An Empirical Study on Adaptive Scripting	37
4.1	Designing Adaptive Collaboration Scripts—An Example	37
4.1.1	Play: Argumentative Dialogue.	38
4.1.2	Scene and Scriptlet: Argumentation and Counter-Argumentation	39
4.1.3	Role: Analyst, Critic and Replier	42
4.1.4	Overview of the Designed External Collaboration Scripts.	42
4.2	Dependent Variable: What Can We Learn from Argumentation	45
4.3	Independent Variable: Degrees of Scripting	47
4.3.1	Low Degree of Scripting.	47
4.3.2	High Degree of Scripting	48
4.3.3	Medium Degree of Scripting.	48
4.4	Research Questions.	49
4.4.1	RQ 1: To What Extent Does the Degree of Scripting Affect Students' Participation?	50
4.4.2	RQ 2: How Does the Degree of Scripting Affect Learning Outcomes of Argumentative Knowledge Construction?	51
4.5	Methods	51
4.5.1	Participants	51
4.5.2	Study Design.	51
4.5.3	Learning Materials	52
4.5.4	Learning Environment.	52
4.5.5	Procedure	56
4.5.6	Variable Measurements	57
4.6	Statistics	59
4.7	Results	60
4.7.1	Preliminary Analyses	60
4.7.2	RQ 1: To What Extent Does the Degree of Scripting Affect Students' Participation?	61
4.7.3	RQ 2: How Does the Degree of Scripting Affect Learning Outcomes of Argumentative Knowledge Construction?	64

4.8	Summary of Results and Discussion.	67
4.8.1	RQ 1: To What Extent Does the Degree of Scripting Affect Learning Processes of Argumentative Knowledge Construction?	67
4.8.2	RQ 2: To What Extent Does the Degree of Scripting Affect Learning Outcomes of Argumentative Knowledge Construction?	68
4.9	Overall Discussions	69
5	An Empirical Study on Adaptable Scripting.	75
5.1	Learning Environment	75
5.1.1	Asynchronous Online Discussions.	75
5.1.2	Learning with Complex Problem Cases	76
5.1.3	Desirable Collaborative Knowledge Construction Processes.	77
5.2	Research Questions and Hypotheses.	81
5.3	Methods	82
5.3.1	Design and Sample	82
5.3.2	Learning Material and CSCL Environment	83
5.3.3	Procedure	84
5.3.4	Experimental Conditions	87
5.3.5	Operationalization of Dependent Variables	89
5.3.6	Control Variables	92
5.3.7	Statistical Analyses	93
5.3.8	Qualitative Approach	94
5.4	Results	94
5.4.1	Preliminary Analyses	95
5.4.2	Effects of Adaptable Script on Cognitive Processes (RQ1)	95
5.4.3	Effects of Adaptable Script on Social Processes (RQ2)	96
5.4.4	Effects of Collaboration Script on the Pattern of Discussion Threads (RQ3)	101
5.5	Discussion and Conclusions	118
5.5.1	Effects of Adaptable Script on Cognitive Processes	118
5.5.2	Effects of Adaptable Script on Social Processes	119
5.5.3	Effects of Collaboration Script on the Pattern of Discussion Threads	121
5.5.4	Limitations and Implications	122
5.5.5	Conclusions.	124
	References	125

<http://www.springer.com/978-981-10-4019-1>

Flexible Scripting to Facilitate Knowledge Construction
in Computer-supported Collaborative Learning

Wang, X.; Mu, J.

2017, VII, 137 p. 47 illus., Hardcover

ISBN: 978-981-10-4019-1