



Cultural differences in the perception of a social constructivist e-learning environment

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Introduction

Social constructivism emphasizes the social and cultural context of cognition (Duffy & Cunningham, 1996). This explains the value attached to collaboration as a base for individual and group learning. How students engage in learning is also influenced by personal experiences within particular cultural contexts (Zhu, Valcke, Schellens, 2008). China and Flanders (Dutch speaking part of Belgium) feature distinct cultures as the former is part of the Confucian-heritage cultures and the latter inherits major elements of West-European culture. In China, the teacher-centered didactic approach is still predominant in most universities. In Flanders, blended learning approaches – combining face-to-face settings with e-learning solutions reflecting social constructivist conceptions - started being implemented in higher education since the late 1990s. Student reactions to the latter social constructivist learning environments differ depending on learners' prior experiences, but also on the distinct communication norms across cultures (Chang & Lim, 2002). In addition, student perceptions of the learning environment are an important factor to evaluate the nature and quality of educational interventions. This study examines whether there are cultural differences in student perceptions of a social constructivist e-learning environment in China and Flanders. We examine student perceptions about group

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3 discussions, critical thinking, problem solving, peer learning, interaction and
4 getting/giving help in the actual learning environment, and their preferences with
5 regard to an “ideal” learning environment. In addition, we investigate changes over
6 time of student perceptions, motivation and learning strategies due to the actual
7 involvement in an innovative e-learning environment.
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15 16 **Method**

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18 A parallel e-learning environment for a first-year university course in "Instructional
19 Sciences" was implemented at Ghent University and Beijing Normal University.
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21 Participants were 165 Chinese and 217 Flemish freshmen taking a course on
22 “instructional sciences” ($m=18.74$ for Chinese and $m=19.15$ for Flemish students).
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24 Students participated in online asynchronous discussions in small groups ($n= 5$ to 7),
25 working on authentic tasks for about three months. The discussion tasks were
26 designed to invoke students’ critical thinking, problem-based learning, peer
27 interaction and social construction of knowledge. Pre- and post-tests were
28 administered. Students were asked to report whether critical social-constructivist
29 features were present in the actual learning environment, and to what extent they
30 would like the features to be present in an “ideal” learning environment. The
31 Motivated Strategies of Learning Questionnaire (Pintrich, Smith, Garcia &
32 McKeachie, 1993) was used to measure student motivation and learning strategies.
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34 Research instruments reflected acceptable reliability levels ($\alpha > .70$). Student prior
35 computer competence was also measured. Qualitative data were collected via
36 interviews.
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Results

Perceptions of the e-learning environment: Flemish and Chinese students

From the start, Chinese students reflected more positive perceptions towards peer learning, interaction and help giving/getting, while the Flemish students were more positive about critical thinking and problem-based learning. Chinese students expressed a higher preference for discussions, peer learning, interaction and help as compared to Flemish students. But after the e-learning experience, the Flemish group adopted a more positive attitude towards the social constructivist e-learning environment as compared to their initial perceptions. In contrast, the Chinese group adopted a more negative position as compared to their initial perceptions (Table 1). The Flemish group was more positive towards the e-learning environment than the Chinese group (Figure 1). The multivariate test revealed a significant impact of the variable culture in relation to all social-constructivist e-learning characteristics.

Evolution of motivation and learning strategies of Flemish and Chinese students

At the pre-test level, Flemish and Chinese students did not differ in their intrinsic and extrinsic motivational orientations (Table 2). But Chinese students reported a higher level of control of learning beliefs and self-efficacy, while the Flemish students reported a higher adoption of learning strategies, such as elaboration, rehearsal, self-regulation, and peer learning. After the social-constructivist e-learning experience, no significant changes were detected in Flemish students; except a significant decrease in the learning strategy dimension 'peer learning'. However, the Chinese group reported a higher adoption of the different learning strategies and higher motivation levels.

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Culture had a significant impact on the adoption of learning beliefs, critical thinking and peer learning.

Discussion

Discussion of the results is enriched by adding elements from the qualitative interviews. First, the results reveal that Flemish students perceived the social constructivist e-learning environment more positively compared to their prior learning contexts. This is in contrast to what Chinese students reported. This could be influenced by the relatively lower level of computer competence of Chinese students, and their lack of experience with this type of innovative learning environments. They might favour to a lesser extent online discussions due to the cultural influence of “talking of the known rather than talking to know” (Jin & Cortazzi, 1998). Some students said they prefer informal discussions after the class than formal online discussions and some expressed concerns about the *correctness* of their contributions. Less teacher presence was also considered as a problem for the Chinese students.

The significant changes between pre- and post tests in Chinese students’ motivation and learning strategies indicate that the social-constructivist design enhanced learners’ motivation and their learning strategies such as critical thinking, elaboration, self-regulation and peer learning. These findings were confirmed during the interviews. In contrast, no significant changes were found in motivation and learning strategies of Flemish students. These students were probably better prepared for the social-constructivist learning environment compared to Chinese students, for example, they already had a higher level of critical thinking, elaboration and self-regulation from the start.

The apparent conflicting findings related to the Chinese students are in line with a typical phenomenon reported in the innovation literature (Roger, 2003). Although

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3 some innovations are motivating and leading to changes in learning and attitudes,
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6 learners might have initial difficulties in defining the relative advantage and suitability
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8 of the innovation in view of their values, beliefs, experiences and needs.
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11 The study provides useful practical implications not only about the effectiveness of a
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13 particular social constructivist e-learning environment, but also the potential
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15 differential impact on students in different cultural settings. In order to implement a
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17 new teaching and learning approach in another cultural setting, student prior
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19 experiences and culture-related variables should be considered. The incurred changes
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21 in students, especially the adaptation of learning strategies of Chinese students could
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23 influence their subsequent studies. Future instructional design can take into account
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25 the changes of student attitudes resulted from this study and be more responsive to
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27 student needs, so that the learners can better benefit from the potential of a social
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29 constructivist instructional design. In addition, instructional designers can and should
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31 combine and choose among the different ideas within constructivism in meeting
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33 student expectations and teaching objectives (Stone & Goodyear, 1995).
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Table 1. Paired mean differences of perceptions of learning environments of Flemish and Chinese students in pre- and post- tests

Variable	Pre- & Post- paired Mean difference			
	Flemish		Chinese	
	Actual	Preferred	Actual	Preferred
Discussion	.48***	.53***	-.72***	-.40***
Critical thinking	.31***	.30***	-1.01***	-.28*
Problem-based learning	.23**	.29***	-.58***	-.54***
Peer learning	1.57***	.96***	-1.09***	-.22*
Interaction	.24**	.27***	-1.81***	-.58***
Help	-.21**	-.29***	-1.82***	-.67***

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 2. Mean and Mean difference of motivation and learning strategies of Flemish and Chinese students in pre- and post- tests

Variable	Flemish			Chinese		
	Pre-test	Post-test	Mean difference	Pre-test	Post-test	Mean difference
Intrinsic motivation	4.99	5.01	.02	5.04	5.42	.38**
Extrinsic motivation	4.87	4.96	.09	4.83	5.30	.47***
Control of Learning Beliefs	4.69	4.64	-.05	4.97	5.48	.51***
Self-efficacy for learning and performance	4.28	4.12	-.16	4.71	5.20	.49***
Critical Thinking	4.48	4.47	-.01	4.39	5.14	.75***
Elaboration	5.19	5.22	.03	4.72	5.36	.64***
Rehearsal	4.77	4.75	-.02	4.48	5.06	.58***
Metacognitive Self-Regulation	4.82	4.85	.03	4.61	5.01	.40***
Peer Learning	4.02	3.80	-.22**	3.76	4.36	.60***

*** $p < .001$, ** $p < .01$

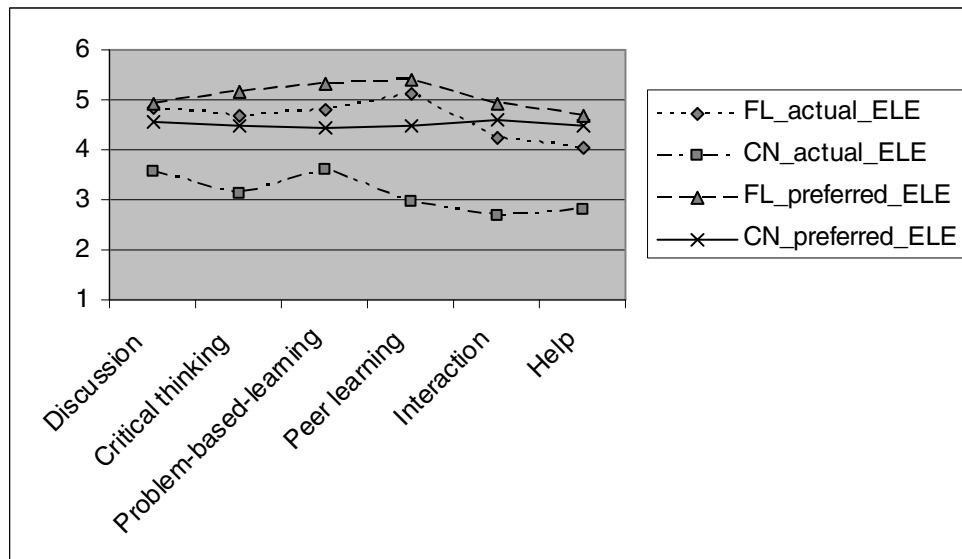


Figure 1: Chinese and Flemish students' perceptions of a social constructivist e-learning environment