

Running Head

CHINESE AND FLEMISH LEARNER

Title

**A cross-cultural study of Chinese and Flemish university students:  
Do they differ in learning conceptions and approaches to learning?**

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### Abstract

This paper reports findings with regard to learning conceptions and approaches to learning of Flemish and Chinese students. The Conceptions of Learning Inventory (COLI) and the Approaches and Study Skills Inventory for Students (ASSIST) were administered to first-year university students from China (N=362) and Flanders (N=360). The 3-factor model of the ASSIST and a modified 4-factor model of the COLI were fitted across the cultural groups. The results revealed that Chinese students reflected to a greater extent conceptions of learning that stress understanding, personal change and development of social competence as compared to Flemish students. No differences were found with regard to their conception of learning as remembering. Approaches to learning were dependent on the learning context. Correlations between learning conceptions and approaches were identified, with some variations between the two groups. It appears that both cultural and learning contexts need to be considered to understand variables related to student learning.

*Keywords:* Conceptions of learning; Approaches to learning; Cultural context; Learning context

## 1. Introduction

This study investigates whether the learning conceptions and approaches to learning of Chinese and Flemish university students are different taking into account the cultural and learning context. This research problem builds on an assumption frequently put forward in the literature that the way students learn is affected by cultural traditions (Kelly, 1973; Säljö 1979; Woodrow, 2001). In this view, each culture engenders a particular style of thought and particular values, resulting in varying perceptions of learning (Pillay, Purdie, Boulton-Lewis, 2000). Säljö (1979) also suggests a systematic cultural difference in how learning is conceptualized.

Conceptions of learning have been explored mainly in terms of “cognitive processes”, “motivation”, and “behavior changes”. Approaches to learning have been studied with reference to how students tackle specific learning tasks and “deep and surface approaches” have been identified as two different levels of processing (Marton & Säljö, 1976). *Deep learning* implies the analysis of new ideas, linking them to already known concepts and principles, thus leading to understanding and long-term retention of concepts. In contrast, *surface learning* is the memorization and tacit acceptance of information as isolated facts. The deep approach correlates with an intention to understand, whereas the surface approach refers to task completion or meeting task requirements, focusing on memorizing information. A third learning approach, labeled *strategic learning* is defined as a well-organised form of surface approach, with a focus on attaining good marks (Entwistle & Ramsden, 1983).

Previous research reveals that Chinese students reflect a strong sense of duty in learning and see learning as personal fulfillment (Wong, Wen & Marton, 2002; Xu, 2004). They tend to

prefer memorization, but do not dominantly adopt surface approaches to learning (Biggs, 1996; Marton, Tse & Dall'Alba, 1996). Other empirical studies conclude that Asian students do not significantly differ from Western students when it comes to the adoption of a surface or deep approach (Kember & Gow, 1991; Ramburuth, 1997; Ling et al., 2004). Learning approaches seem to be context-dependent (Case & Marshall, 2004). Chinese students often see memorizing and understanding as interlocking processes (Biggs, 1996; Marton & Booth, 1997), whereas other research stresses that memorizing is clearly distinct from understanding and should be considered as unconnected learning conceptions (Sachs & Chan, 2003). We adopt the latter position in the present study.

The literature suggests a relationship between conceptions of learning and particular learning approaches, e.g., between the conception of remembering and surface approaches and between the conception of understanding and deep approaches (Watkins & Biggs, 1996). But the theoretical and empirical base is not sufficiently developed to be able to define specific causal relationships between the conceptions and approaches. Neither is it clear how this might be different in particular cultural contexts. In addition to the cultural context, we also study the learning context as an important variable to understand students' learning conceptions and approaches.

### *1.1. Cultural contexts*

Giroux (2001) describes culture as a site where identities are constructed. It is intrinsically pedagogical (Soetaert, Mottart & Verdoodt, 2004). Chinese culture is regarded as part of the Confucian-heritage cultures (Baron, 1998; Smith, P. & Smith, S., 1999; Watkins &

Biggs, 2001). Flanders is the Dutch-speaking part of Belgium. Flemish culture inherits major elements of European culture, reflecting elements of Anglo-Saxon, French and Latin cultures... Cultural variables such as philosophical perspectives, value orientation, and motivation have an impact on learning and how learning is perceived (Marinetti & Dunn, 2002; Tweed & Lehman, 2002; Watkins, 2000). As to the *philosophy* of both cultures, European-Socratic philosophy favors questioning knowledge and expects students to evaluate beliefs and to generate personal hypotheses. Confucian philosophy values effortful, respectful, absorptive, and pragmatic learning, and expects learners to absorb defined knowledge (Tweed & Lehman, 2002). With regard to *values*, collectivistic cultures such as the Chinese, put forward the cardinal values of reciprocity, obligation, duty, tradition, dependence, obedience to authority, equilibrium, self-development and proper behavior. In contrast, individualistic cultures stress creativity, bravery, self-reliance and individual responsibility as key values (Triandis, 1990). With regard to *motivation*, Niles (1995) states that 'competition' is a major motivating factor for Western students whereas for Asian students it is 'social approval'.

### *1.2. Learning contexts*

The learning context influences the learner and the learning process (Kelly, 2000). Student learning conceptions and approaches to learning are influenced by personal experiences within the cultural context, and individual intentions versus the contextual demands. The findings of Van Rossum, Deijkers & Hammer (1985) suggest student learning is strongly influenced by the contexts in which actions are performed. The knowledge domain is a key

factor in the learning context. How students learn and approach their learning appears to be different in different knowledge domains (Entwistle, 1997; Ramsden, 1988).

The Chinese and Flemish learning contexts reflect specific differences. For Chinese students, national entry examinations are an important issue in view of university access. Compared to Chinese students, Flemish students have easier access to university. But, recent program reforms have resulted in a more intensive student involvement, requiring active student engagement and introducing continuous assessment and evaluation practices that require students to be constantly busy with their study. This has resulted in a tougher screening of Flemish university freshmen, leading to a success ratio of 50%. Compared to this, Chinese university students endure competitive entry screening, but experience less pressure after starting their university study program. If we compare the curriculum of the study programs in both cultural contexts, we notice that they are quite similar in terms of the main course contents, but there are differences in their teaching and learning approaches.

In the research design, cultural context and knowledge domain (as an indicator of the learning context) are taken as two independent variables to examine their particular effects and interaction effect on students' conceptions and approaches to learning (see Fig. 1).

<Insert Figure 1 about here>

### *1.3 Research questions*

Building on the theoretical base, we firstly hypothesized that Chinese students would perceive learning to a greater extent as remembering, personal change and social competence as compared to Flemish students. In contrast we expected that Flemish students would perceive learning more as understanding as compared to Chinese students. Secondly, addressing the

potential relations between learning conceptions and approaches to learning, we expected that remembering and understanding would correlate with different approaches to learning for Chinese and Flemish students. Finally, we focused on an exploratory research question about the nature of interaction effects between culture and knowledge domain on learning conceptions and approaches to learning.

## **2. Method**

### *2.1. Research context and participants*

Students from the Ghent University (Flanders) and Beijing Normal University (China) and from two subject domains, Educational Sciences and Communication Studies, participated in the study. Selecting students from two different knowledge domains - but both from the social sciences - gives us the possibility to study the impact of the learning context next to the impact of culture and their possible interaction effects. Table 1 summarizes characteristics of the respective learning settings.

<Insert Table 1 about here>

A total of 360 Flemish and 362 Chinese first-year students took part in the study. The nature and composition of the samples are presented in Table 2.

<Insert Table 2 about here>

## 2.2. *Instruments*

### 2.2.1. ASSIST

The short version of Approaches and Study Skills Inventory for Students (ASSIST, 18 items) was used in this study (Tait, Entwistle, & McCune, 1998), reflecting three subscales: a deep, surface and strategic approach. Students were expected to indicate their agreement with statements about learning approaches on a 5-point Likert scale (5 =completely agree and to 1 =completely disagree).

### 2.2.2. COLI

The Conceptions of Learning Inventory (COLI) (Purdie & Hattie, 2002) was used to assess students' conceptions of learning. The COLI consists of 32 statements, reflecting 6 subscales: (1) gaining information (INFO); (2) remembering, using and understanding information (RUU); (3) a duty (DUTY); (4) personal change (PERS); (5) a process not bound by time or place (PROC); (6) the development of social competence (SOC). Respondents indicated on a 6-point Likert scale to what extent they agree or disagree with the statements.

### 2.2.3. Translation

The two instruments were used in Chinese and Dutch as appropriate. The back-translation method (Brislin, 1986) was applied to ensure cross-cultural conceptual equivalence. Two English-Chinese and two English-Dutch bilingual experts in the field of Educational Sciences were involved and back translation was compared until the consistent meanings were obtained.

### 2.3. Reliability and data model fit

Confirmatory factor analysis (CFA) using structural equation modeling (SEM) was applied to test whether the factor constructs fitted with our sample. The 3-factor model of ASSIST was confirmed with satisfactory goodness-of-fit indexes ( $GFI > .9$ ,  $RMSEA < .06$ ,  $X^2/df < 3$ ). The internal reliability of the three factors was satisfactory ( $\alpha > .65$ ). Appendix A represents the factor structural model of approaches to learning for the total sample.

The internal reliability of three subscales (INFO, DUTY and PROC) of the COLI was too low ( $\alpha < .60$ ). These scales were not included in further analyses. The factor structure of the four subscales was tested: remembering information (MEM), understanding and using information (UND), personal change (PERS) and social competence (SOC). Item changes were made based on the modification indices (MI). The modified model resulted in 3 items for each factor and improved the model fit to an adequate level ( $GFI > .9$ ,  $RMSEA < .06$ ,  $X^2/df < 3$ ). Appendix B depicts the factor structural model of conceptions of learning for the total sample.

Model fit analyses across the groups were conducted by testing cross-group nested hierarchical constrained models. The results showed that the Unconstrained, Measurement weights and Structural covariances models were satisfactory ( $X^2/df < 3$ ,  $CFI > .90$ ,  $RMSEA < .05$ ), indicating that the model displayed measurement invariance and can be applied across groups. Introducing the equality factor means reduced the model fit, indicating that the mean of at least one variable is different between the Chinese and Flemish sample. Table 3 presents the goodness-of-fit indices for both subsamples and the total sample.

<Insert Table 3 about here>

### 3. Results

#### 3.1. Mean level differences and similarities

The descriptive results for learning conceptions and approaches of students across cultural and knowledge domain groups are presented in Table 4. No significant differences were found between male and female students ( $p < .001$ ).

<Insert Table 4 about here>

The results showed that Chinese students scored significantly higher than Flemish students with regard to the conception of learning as personal change ( $F_{(1,729)} = 17.04, p < .001$ ), and development of social competence ( $F_{(1,729)} = 3.96, p < .05$ ). This is in line with our expectation. However, Chinese and Flemish students displayed no significant differences in the learning conception as remembering ( $F_{(1,729)} = .09, p > .05$ ). And contrary to our expectation, Flemish students scored significantly lower in the conception of understanding than Chinese students ( $F_{(1,729)} = 31.85, p < .001$ ).

Chinese and Flemish students did not differ in the adoption of deep and strategic approaches ( $p > .05$ ). But Flemish students adopted to a greater extent surface approaches ( $p < .01$ ). The patterns of learning approaches of the two groups were similar: strategic approaches were the highest, deep approaches the second highest, and surface approaches the lowest.

#### 3.2. Correlations between conceptions and approaches to learning

Table 5 presents the correlations between learning conceptions and approaches to learning for both cultural groups. The following correlations were shared by students in both cultures. The conception of understanding correlated positively with deep approaches ( $p < .01$ ). Learning as personal change correlated positively with deep and strategic approaches, and negatively with surface approaches ( $p < .05$ ). The conception of social competence correlated positively with deep and strategic approaches ( $p < .05$ ).

In contrast, some clear differences were observed. The conception of remembering correlated positively with surface approaches for Flemish students ( $p < .05$ ), but not for Chinese students. For the latter students, remembering correlated positively with deep and strategic approaches ( $p < .01$ ). Learning as understanding correlated positively with strategic approaches and negatively with surface approaches for Chinese students. But these correlations were not significant for Flemish students. In summary, correlations between learning conceptions and approaches to learning were identified, but some differences in correlations were observed between Chinese and Flemish students.

<Insert Table 5 about here>

### *3.3. Interaction effects of culture and knowledge domain*

Multivariate analysis of variance (MANOVA) tests were performed with culture and knowledge domain as independent variables and the learning conceptions and approaches as dependent variables. Results are presented in Table 6. Culture, knowledge domain, and the interaction between both variables all had a significant impact ( $p < .01$ ). There was a significant effect of knowledge domain on personal change, surface and strategic approaches. The

interaction effects of culture and knowledge domain were significant on conceptions of understanding and social competence. The interaction effects were significant on the three learning approaches, with a larger effect size for surface and strategic approaches.

<Insert Table 6 about here>

## **4. Discussion**

### *4.1 The impact of the cultural context*

Our study suggests that both similarities and differences can be observed when looking at learning conceptions and approaches to learning of students in different cultures. As predicted, Chinese students reflected to a greater extent conceptions of learning that stress personal change and social competence. Traditionally in the Chinese context, learning and passing examinations have been considered as a means of changing personal life circumstances and springboards for achieving a higher social status (Matthews, 2000; Xu, 2004). This conforms to the view of Chinese students that value learning as a means of self-development and social approval.

However, and in contrast to our expectations, there were no significant differences regarding the conception of learning as remembering between the two groups. In addition, Chinese students also reflected to a greater extent that they view learning as understanding. This is in opposition to our theoretical assumptions. A possible explanation for this unexpected result can be found in Sachs and Chan (2003). They state that Chinese students do not consider memorization to be in sharp opposition to learning for understanding. Our findings clearly

suggest that the conception of learning as remembering is not related to surface approaches for Chinese students. This can be linked to what other authors have called the “Chinese paradox”. On the one hand Chinese learners rely heavily on memorization, but they clearly also look for better understanding (Watkins, 2000). This paradox can be partially solved by the reflection that high achieving Chinese students make a distinction between mechanical memorization (rote learning) and memorization in view of understanding (Marton et al, 1993). This can help to explain why the learning approaches of Flemish and Chinese students are less different than expected. Chinese students adopted to the same extent deep learning approaches as Flemish students. Also unexpected was the higher adoption of a surface learning approach by Flemish students. This can be explained by referring to the more selective nature of the first year at Flemish universities.

#### *4.2. The impact of the learning context*

Our results indicate that knowledge domain as well as the interaction between culture and knowledge domain has an impact on learning conceptions and approaches. The results support previous findings that students adopt different approaches according to the differing requirements of the subject matter (Atherton, 2005; Desmedt & Valcke, 2004; Ling et al., 2004). The significant interaction effect of knowledge domain and culture indicates that different learning approaches have been adopted by Flemish and Chinese students in each knowledge domain. For example, Chinese Education students tended to adopt to a greater extent the surface approach than Flemish Education students; while this was the other way around for Communication students. Flemish Education students adopted to a greater extent the strategic

approach than Chinese students, and it was the opposite way for Communication students. These interaction effects suggest that a particular knowledge domain might be approached differently in the two different cultures and that other variables have to be considered to explain the differences observed in this study. As suggested earlier, the same knowledge domain can be implemented in a significantly different way in two cultures depending on the learning and teaching strategies adopted. In this context it is relevant to repeat the remark about the larger workload that is invoked due to a program reform in the Flemish educational sciences curriculum. Students are now expected to be more active and continuously engaged as compared to the earlier curriculum. This instructional approach can be expected to invoke a deep learning approach of learners.

‘Learning does not exist as a general phenomenon; to learn is to act within man made institutions and to adapt to the particular definitions of learning that are valid in the educational environment in which one finds oneself’ (Säljö, 1987, p.106). Based on the current results, we notice a relationship between the features of learning environment and surface and deep approaches. A constructivist or application-oriented learning environment tends to promote a deeper approach to learning, while students in a more didactic-oriented learning environment tend rather to adopt a surface approach to learning. This seems to support the assertion of Atherton (2005) that the design of the learning environment encourages students to adopt a particular approach. However, further research with a focus on the relationship between the learning environment and approaches to learning is needed.

## **5. Implications and limitations**

Dimmock (2000) raised the awareness as to the significance of culture related variables in the area of instructional design. At a theoretical level, the present study contributes to a better understanding of cross-cultural similarities and differences in terms of learning conceptions and approaches to learning. Next to the cultural context, the learning context, in this case 'knowledge domain', has been found to interact with the cross-cultural findings. At the empirical level, the current findings are helpful to support the instructional design of learning environments in view of catering for student differences in learning conceptions and approaches.

However, the present study reflects a number of limitations. First, the extent to which the results can be generalized for students in similar Chinese and Flemish contexts is unclear. A generalization should depend on additional research in other academic contexts, curricula, and considering a broader range of characteristics of the learning environment. Secondly, next to the cultural and learning context, other independent variables might contribute to the differences and similarities identified in the present study. Follow-up research is needed including such additional variables in the study design.

### **Acknowledgements**

This study was partially funded by the Flemish Government under the BOF program of the University of Ghent, BOF05/DOS/006/ZHU.

We thank Mr. B. De Wever for collecting the data for the Flemish students in Educational Sciences and Prof. Li Jiayong for collecting the data for the Chinese students in Educational Sciences.

**Appendix A**

<Insert Appendix A about here>

**Appendix B**

<Insert Appendix B about here>

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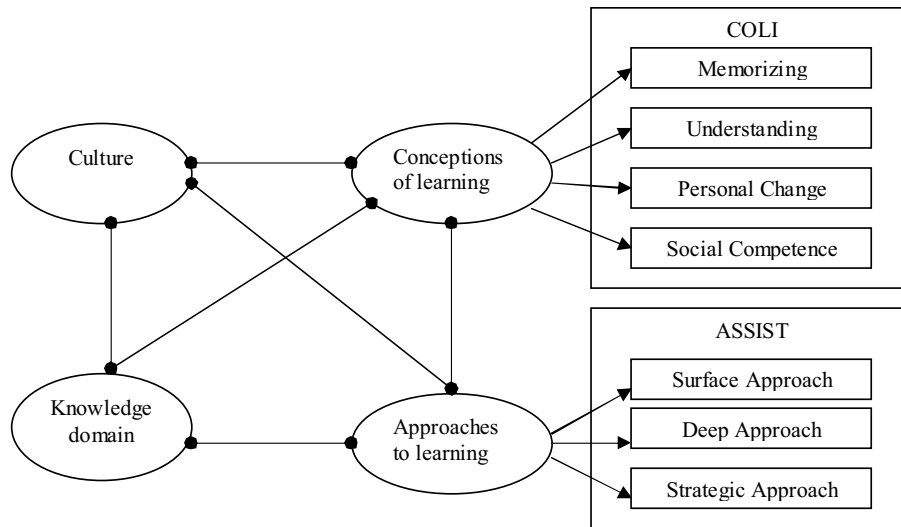


Figure 1. Conceptual base of the present study. The ASSIST and COLI are presented as instrumental elaborations of the learning conceptions and approaches to learning.

**Table**

Table 1.  
Features of the respective learning settings concerned

	Teaching/learning methods	Use of ICT	Group work & hours of practice
Flemish Education	Emphasize learners' activity & knowledge construction via group work ++++	Multimedia, Internet (e-learning environment with asynchronous online discussion) +++	++++
Chinese Communication	Emphasize learners' activity & practice +++	Multimedia ++	+++
Flemish Communication	Emphasize learners' activity & self-learning ++	Multimedia ++	++
Chinese Education	Focus on didactic teaching +	Limited multimedia +	+

The number of + indicates the degree that a certain feature has been implemented.

Table 2.

Composition and background variables of sample students

	Flemish	Chinese
Knowledge domain		
Educational Sciences (N)	207	103
Communication Studies (N)	153	259
Average Age		
	19.35	18.94
Gender		
Male N (%)	65 (17.5%)	102 (28.1%)
Female N (%)	303 (82.5%)	261 (71.9%)

Table 3.

Goodness-of-Fit Indexes for the model of ASSIST and modified model of COLI

Indexes	ASSIST			Adapted COLI		
	Flemish group	Chinese group	Total	Flemish group	Chinese group	Total
Goodness-of-fit (GFI)	.91	.92	.92	.96	.94	.95
Adjusted goodness-of-fit (AGFI)	.89	.90	.90	.93	.90	.91
Root mean square error of approximation (RMSEA)	.037	.042	.039	.059	.064	.047
Ratio of chi- square ( $X^2/df$ )	2.57	2.26	2.41	2.29	2.96	2.62

Table 4.

Factor means of learning conceptions and approaches to learning for cross-cultural and knowledge domain groups

	Mean (sd)					
	Flemish			Chinese		
	Total (N=360)	Education	Communication	Total (N=362)	Education	Communication
MEM	4.15 (.86)	4.13(.92)	4.17(.77)	4.13 (.92)	4.08(.78)	4.15(.97)
UND	4.65 (.64)	4.69(.65)	4.59(.62)	4.97 (.89)	4.79(.85)	5.04(.89)
PERS	4.65 (.87)	4.63(.89)	4.67(.85)	4.93 (.95)	4.69(.74)	5.02(1.01)
SOC	4.41 (.78)	4.55(.77)	4.24(.74)	4.54 (.94)	4.48(.82)	4.56(.98)
Surface	2.86(.66)	2.77(.61)	2.99(.71)	2.71(.84)	3.27 (.80)	2.49(.75)
Deep	3.59(.55)	3.67(.52)	3.48(.58)	3.59(.64)	3.43(.62)	3.66(.64)
Strategic	3.69(.73)	3.93(.56)	3.35(.79)	3.75(.68)	3.59(.69)	3.81(.66)

MEM=remembering, UND=understanding, PERS=personal change, SOC=social competence.

Table 5.

Correlations between conceptions of learning and approaches to learning for Flemish and Chinese students

	MEM	UND	PERS	SOC	Deep	Strategic	Surface
MEM		.480**	.183**	.164**	.035	-.074	.109*
UND	.451**		.421**	.408**	.245**	.091	-.050
PERS	.352**	.538**		.386**	.333**	.131*	-.112*
SOC	.290**	.451**	.498**		.181**	.132*	.028
Deep	.205**	.258**	.217**	.225**		.281**	-.105*
Strategic	.149**	.224**	.229**	.269**	.564**		-.270**
Surface	-.016	-.134*	-.139**	-.021	-.057	-.232**	1

Correlations for Flemish students (n=368) are presented above the diagonal, and correlations for Chinese

students (n=363) are presented below the diagonal. \* $p < .05$ . \*\* $p < .01$

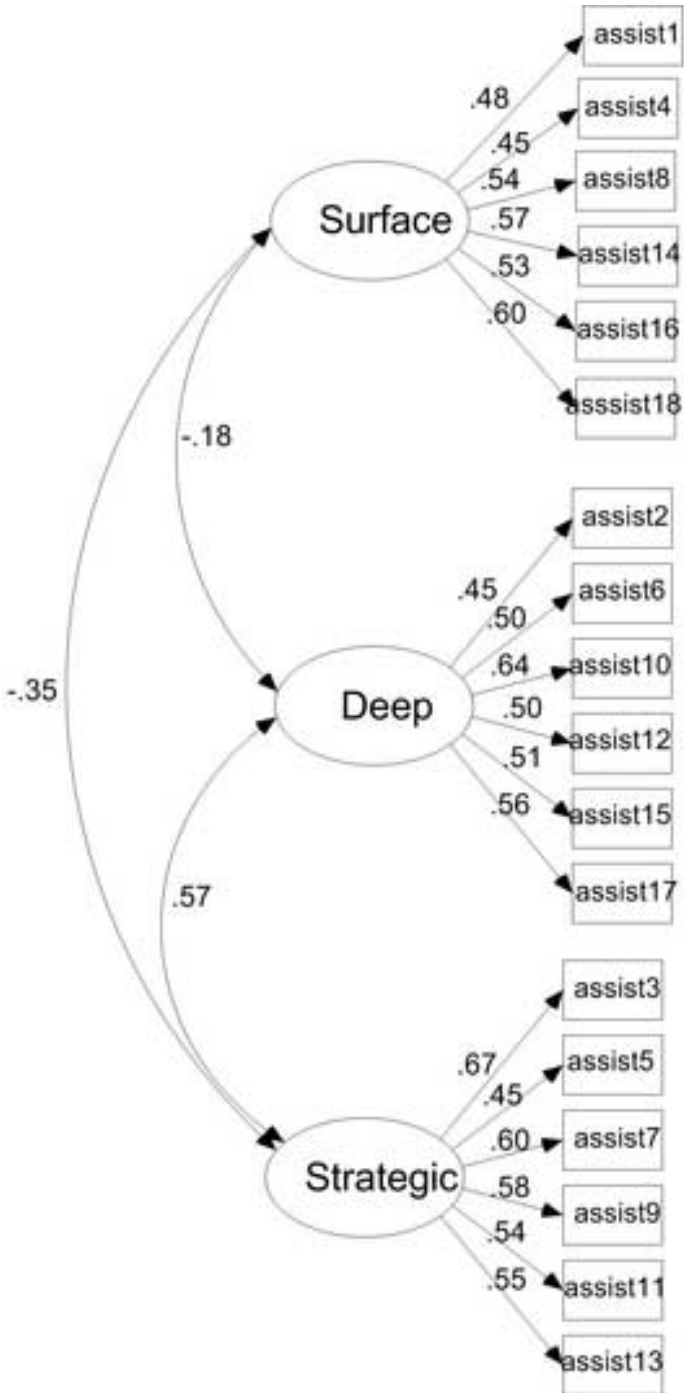
Table 6.

MANOVA results for group differences in conceptions and approaches to learning

Source	Dependent variable	F	Sig.	Partial Eta Square
Culture	MEM	.29	.590	.000
	UND	20.69	.000***	.028
	PERS	8.32	.004**	.01
	SOC	3.74	.047*	.005
	Surface	.001	.969	.000
	Deep	.364	.546	.001
	Strategic	1.173	.279	.002
Knowledge domain	MEM	.58	.447	.001
	UND	1.61	.205	.002
	PERS	6.80	.009**	.009
	SOC	2.95	.086	.004
	Surface	23.63	.000***	.032
	Deep	.198	.656	.000
	Strategic	11.27	.001**	.015
Culture * Knowledge domain	MEM	.064	.800	.000
	UND	8.63	.003**	.012
	PERS	3.84	.051	.005
	SOC	8.53	.004**	.012
	Surface	78.47	.000***	.099
	Deep	18.99	.000***	.026
	Strategic	58.01	.000***	.075

\*\* $p < .01$ . \*\*\* $p < .001$ .

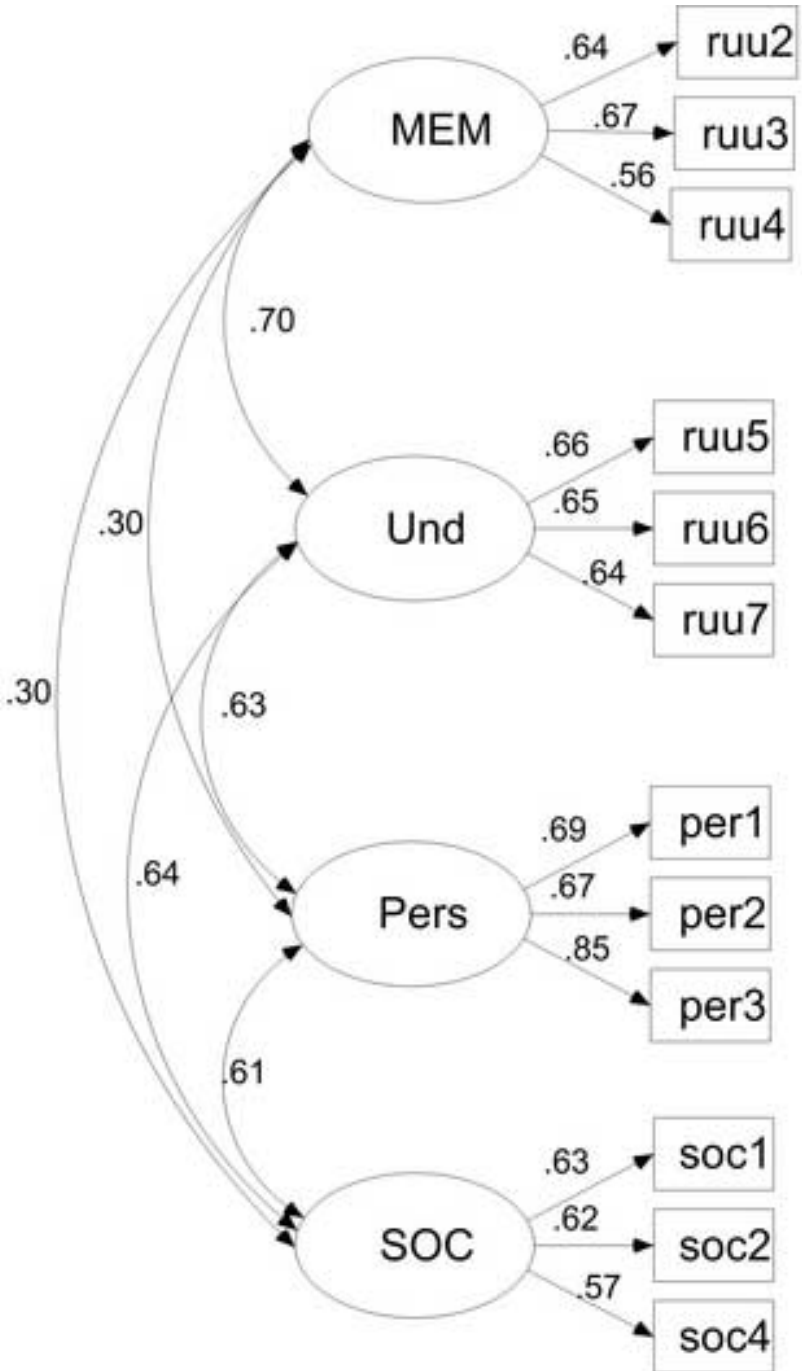
Figure  
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Standardised results of Confirmatory factor analysis of approaches to learning for the total sample

GFI=.92, AGFI=.90, RMSEA=.039,  $\chi^2/df=2.41$

Figure  
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Standardised results of Confirmatory factor analysis of  
Conceptions of learning for the total sample  
GFI=.95, AGFI=.91, RMSEA=.047,  $X^2/df=2.62$