A Study of the Effects of Learner Characteristics
on the Self-Regulated Learning Ability:
A Comparison of Korea and China

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The purpose of the study is to report differences in the effects of learner characteristics on the self-regulated learning (SRL) abilities between Chinese and Korean distance learners by using a structured SRL scale. A standardized 54-item self-regulated learning scale (SRAS) was used. The reliability was tested both in China and Korea which showed the scale had good reliability. The comparative study were conducted by administering the SRAS on 1999 Chinese distance learners from the Open Distance Education Center of Beijing Normal University and 1941 Korean distance learners from H Cyber University. Data on four dimensions of SRL – planning, control, regulating, and evaluation – were analyzed using 't-test' and 'ANOVA' with regards to the learner characteristics such as gender, age, prior education level, semesters, location and major. Results indicated that the average participant had an above medium level of SRL ability in all of the four dimensions. There were significant differences in the self-regulated learning ability between Chinese and Korean distance learners. Chinese distance learners scored higher in SRAS than Korean distance learners. The effects of learner characteristics on the SRL ability showed different patterns in the two countries. As for gender, male learners scored better in SRL than female learners in China, whereas it was just the opposite in Korea. No age differences were found in China, but Korean data exhibited a consistent age effect in all dimensions. In Korea, the age group older than 46 scored the highest, followed by the group between 35 to 45 years old, the group between 26 to 35 years old and the group younger than 25. As for location, Korean distance students from metropolitan were better than those from other regions, whereas it was on the contrary in China, albeit the location effect was not statistically significant. Prior education level had a clear and consistent effect on the SRL ability in both countries: the distance learners from junior colleges had better planning, regulating and evaluating abilities than those who came from senior high schools. These results have been discussed in various contexts of distance/online education as well as in relation to different culture between China and Korea. The results will also have implications for designing distance and online learning generally.

Keywords : self-regulated learning, comparative study, distance learner characteristics

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Introduction

Self-regulated learning is the concept whereby learners take an active role in improving their knowledge and ability while studying. As the concept of 'learner-centered learning' becomes increasingly accepted, self-regulated learning becomes a key topic in distance education.

Distance education is a field of education that focuses on the application of educational technology and technology mediation with the aim of delivering instruction to learners who are not physically present in a traditional educational setting such as a classroom. It has been described as "a process to create and provide access to learning when the source of information and the learners are separated by time and space, or both" (Honeyman & Miller, 1993). Thus, distance learning involves a highly learner-centered mode of learning and, as such, perhaps require more self-regulated learning ability than offline learning or should provide a program design that support learners in that regard.

Learner autonomy and self-regulated learning are the most prominent features in distance education. Distance learners generally take responsibility for their own learning (Dembo & Eaton, 2000; Vanijdee, 2003; White, 2003), and they should determine their learning goals, how to accomplish these goals, how much to learn, and create a learning plan, finding resources that support self-study, monitoring the learning process, and evaluating the learning results. So, self-regulated learning in distance education involves the cyclical processes of self-planning, self-monitoring, self-regulating, and self-evaluating one's learning and behavior with the support from distance learning institutions and distance instructors in an open environment and mediated through various technologies.

There have been strands of literature accumulating findings and evidences on the importance of self-regulated learning, its relevance in distance learning, cross-cultural differences in the self-regulated learning ability, and the individual learner characteristics that may be related to the self-regulated learning ability. We drive our

research question by reviewing some of the previous works.

Literature Review

Self-regulated learning

Early research studies have shown that self-regulation and academic achievement had a high correlation, especially in e-learning environment (Zimmerman & Martinez-Pons, 1986; Chen, 2002; Ying, 2005; Shen, Lee & Tsai, 2008). Self-regulation helps learners perform better and achieve more satisfaction in their learning and work (Pintrich, 2000). Barnard-Brak, Paton and Lan (2010) studied the relationship between self-regulated learning ability and academic performance (GPA). Results revealed that GPA was highly correlated to self-regulated learning ability. High self-regulated learning ability lead to high GPA. Kwon (2010) investigated Korean distance learners at a cyber university and found that self-regulated learning strategy of e-learners significantly affected learning satisfaction, self-academic achievement, and students' records of the semester.

It has been argued that distance learners do not have enough self-regulated learning experiences in the web-based courses (Hartley & Bendixen, 2001). Xiaochun (2004) surveyed on the self-regulated learning ability of distance learners in Shandong province in China and found that the self-regulated learning ability of distance learners could not meet the requirement of the distance learning. Most distance learners in Tangshan region were also found unqualified for self-regulated learning (Dayong & Wenjing, 2007). Hong et al. (2014) surveyed Chinese adult learners on the self-regulated learning ability in the four dimensions of planning, control, regulating and evaluating capabilities. Results showed that the self-regulated learning ability of Chinese adult learners were at the medium levels in each of the four dimensions.

Self-regulation across cultures

Most cross-cultural studies on SRL were carried out among different nations to find the culture effect on SRL. And most scholars focused on the differences on SRL between Eastern and Western learners (Purdie and Hattie, 1996). The Eastern learners were observed to be dependent on external drive from teachers, parents and so on. On the other hand, the western learners were inclined to be motivated by themselves.

Lixin and Xiaoxiang (2004) underwent a comparative study of self-regulated learning ability of college students from England and China, and found that there were no significant differences between two countries. The Chinese college students had a stronger learning motive; and the English students were better at supervising learning process and selecting learning material by themselves. Al-Harthi (2010) surveyed the SRL between Arab learners and American learners and found the American learners' perceived self-regulation was better than Arab learners. Chang et al. (2013) compared self-efficacy beliefs and self-regulation strategies between Chinese and German college students. The result showed that Chinese college students' self-efficacy belief was lower than German students, but the use of self-regulation strategies was not significantly different between two countries.

Self-regulation is established well in Western contexts. Significant differences between Eastern and Western are foreseeable. But comparative studies among Eastern cultures are relatively scarce. Differences in culture among Eastern countries may also lead to learning diversity. The need for cross-cultural understanding of self-regulation in different Eastern Asian countries is becoming urgent for researchers to understand the role of culture on difference in self-regulation. Turingan and Yang (2009) investigated SRL between Korean and Filipino college students and found Filipino students' SRL skill was better than Korean students.

Culturally diverse learners seem to approach learning tasks differently and

employ a variety of learning strategies and behavior patterns that they have developed over time (Baldwin & Sabry, 2003). The study on authentic e-learning in a multicultural context of five countries raised teachers' awareness of cultural background as a factor affecting views on authentic e-learning, and highlighted the need for differences in the cultural codes of e-learning to be considered when developing multicultural learning environment (Leppisaari, Herrington, Vainio & Im, 2012).

Recently, it is not difficult to find our classes filled with students from various culture (Joy & Kolb, 2009), and this global learning environment in distance education demands appropriate teaching strategies. In this respect, a careful instructional design for distance learners from various cultural backgrounds is required.

Characteristics differences on distance learning

Distance education usually has a great number of students at the same time and their backgrounds are quite various. Especially in higher educational level, there is a huge body of heterogeneous students studying together online. For example, the students at cyber universities tend to be heterogeneous in the demographic aspect, which may cause lower effectiveness of the uniformed online education. Atman, Inceoglu and Aslan (2009) claimed that online learning courses that overlook students' differences would have difficulty in satisfying learners' needs effectively since learners have diverse backgrounds, abilities, and preferences. So it is very meaningful to provide tailored learning environment such as individualized or personalized education (Reigeluth, 2009).

In distance education, there have been researches focusing on learner characteristics and e-learning effectiveness. Hitz (1990) investigated students' characteristics along with media types to evaluate e-learning effects. Ong and Lai (2004) investigated the gender difference in e-learning, and presented that male

students showed better scores in self-efficacy and usability than female students. They claimed gender difference is a very important factor in distance education. Passing and Levin (1999) also studied on the gender difference in computer-based instruction. In their study, males showed more flexible behavior in computer-based instruction than females, which means males were more accustomed to computer interfaces through computer games. Instructional designers may consider the research result to provide more detailed and intuitive interfaces to female students. Male's perception of user convenience was more significantly direct and more salient than female's in determining the level of interactions between the contents and learners (Um & Kim, 2006).

E-learning motivation is also highly correlated with the learners' age and prior education level (Yoo, 2012). In Yoo's study, as the students were older, their academic motivation was higher and especially those over 50 years old had higher motivation than those in their 30s. Also, as their prior education level was higher, the e-learning motivation was higher. Choi and Rho's research (2016) revealed that school years and major didn't affect the e-learning achievement or satisfaction, but learning style and gender affected mobile learning motivation. Wang (2007) considered 7 variables of gender, age, occupation, education, originality, income, and residence area to investigate the individual differences in self-regulated online learning literacy. Among them, education factor noticeably brought about big difference in learners' self-regulated learning.

Research questions

Previous researches show that the individual differences, especially such demographic factors as gender, age or prior education level are important in distance learning environment. In this paper, we take one step further to compare samples from two countries, Korea and China, regarding how learner characteristics affect self-regulated learning ability that is important in distance learning environment. This study also goes beyond previous literature on cultural

differences in self-regulated learning by focusing on the interaction between cultural heterogeneity and other individual learner characteristics (and their effects on the self-regulated learning ability). To our knowledge, this paper is the first such attempt.

Verifying heterogeneity or homogeneity between the patterns in terms of the effects of learner characteristics on self-regulated learning ability in the two countries bears important implications to online learning designs. For example, if we observe an age effect in Korea such that older distance learners have higher SRL ability than younger learners, we would incorporate a feature in the distance learning program to complement younger distance learners' SRL ability. Can we implement the same program in China? Depending on what we find in this paper, the answer may be 'no'. That is, we may not find the same age effect in China.

Not much research is available on SRL in the context of distance education, especially comparative studies. How well do distance learners fare in terms of self-regulated learning ability? Are there any differences between countries? If any, what are the differences? The purpose of the present research was to explore SRL between Korean and Chinese distance learners with a special focus on the patterns of the effects of learner characteristics on SRL ability. These research questions were formulated at the backdrop of an open university in China and a cyber university in Korea, both in the context of online learning at higher education.

Methodology

Research design

A comparative descriptive research design was used in the study. A survey was used to collect data from a self-reported scale administered to the participants to recognize the difference between Chinese and Korean distance learners.

Population and sample

The study concentrated on distance learners in Korea and China. 2038 Korean distance learners were selected randomly from a cyber university in Korea and 2740 Chinese distance learners were selected randomly from the National Center for Open & Distance Education. 1999 questionnaires were found as valid (valid rate of 73%) out of 2740 responses in China. In Korea, 1941 questionnaires were valid out of total 2,038 (valid rate of 95%). The characteristics of the sample are given in Table 1.

Table 1. Survey sample in China and Korea

Variable	Categories	Sample size	
		China	Korea
Gender	Male	1282	710
	Female	717	1231
Age	Under 25	563	246
	26-35	953	711
	36-45	412	646
	above 46	71	338
Semesters in distance education	1	1174	953
	2-3	736	542
	4-5	79	268
	6+	10	178
Location	Metropolitan	802	1551
	Other regions	1197	390
Major	Humanities and social sciences	1197	1236
	Natural sciences & engineering	796	297
	Other	6	408
Prior education level	High school	1159	1180
	College	840	761
Total		1999	1941

Research instrument

The study used the survey method to compare the self-regulated learning characteristics using the Self-regulated Learning Ability Scale for Distance Learners (SRAS) developed by the Research Center of Distance Education of Beijing Normal University in China.

The SRAS is found to be a reliable instrument for studying the self-regulated learning abilities of distance learners, which was developed by standardized procedure including theoretical construction, factor analysis, reliability and validity analysis.[1] The SRAS contained 54 items covering four 1st level dimensions (planning, control, regulating, evaluating) and each comprising of three 2nd level dimensions (learning content, learning resources, learning result) as shown in Table 2. The SRAS included 11items for planning capability, 13 items for control capability, 14 items for regulating capability, and 16 items for evaluating capability, and used the 5-point Likert-type scale of "strongly agree" (5 points), "agree" (4 points), "neutral" (3 points), "disagree" (2 points) and "strongly disagree" (1 point).

Table 2. SRAS

1st-level dimensions	2nd-level dimensions	Sample of 2nd-level dimension
Planning capability	Learning content Learning resources Learning results	I try to locate the materials of a lesson before learning it.
Control capability	Learning content Learning resources Learning results	I always think about the effectiveness of my learning methods during my distance learning.
Regulating capability	Learning content Learning resources Learning results	After a period of study, I adjust the original reward and punishment approaches according to the actual learning.
Evaluating capability	Learning content Learning resources Learning results	I often reflect on whether my daily or weekly learning plans are reasonable.

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[1] For details of SRAS, see Hong et al. (2014).

Content validity

The current study involved a three-phase approach to validate the questionnaires content in different cultures.

Firstly, back-translation was used in the process of questionnaire development to ensure the construct equivalence in different countries. The scale was translated into Korean by two Korean researchers who were proficient in both Chinese and Korean and had years of experiences in distance education field. The item would be deleted if it was different from the original meaning through back-translation.

Secondly, Korean researchers who worked in the field of distance education and master students majored in distance education were invited to ensure all of the items through back-translation were expressed in an accurate way. Ambiguous and poor culture relevant items were revised.

Thirdly, a pilot study was conducted on 10 Korean distance students to ensure the content consistency in different cultures. The items would be modified or deleted if they were not understood by students. Thus, the content validity of the questionnaires was guaranteed.

Reliability

The Cronbach Alpha coefficient for the scale was calculated for each of the 1st level dimensions to establish reliability of the scale in both Korean and Chinese questionnaires (Table 3).

Table 3. Cronbach Alpha Coefficient in Korea and China

1st level	Cronbach α	
	China	Korea
Planning	0.878	0.840
Control	0.853	0.873
Regulating	0.881	0.793
Evaluation	0.944	0.924
Total	0.972	0.963

Data analysis

The collected data from the sample were analyzed with the SPSS statistical program. T-test was used to analyze the scores acquired from the 54 items to identify the significant differences of SRL ability between Chinese and Korean learners. ANOVA was used to analyze the interactions between learner characteristics and country, which bears significance regarding this cross-cultural study. The level of significance was set at .05.

Results

The general comparative analysis of distance learners' self-regulated ability in Korea and China

We first examined the average scores of distance learners in each country. The average score was 3.919 with the standard deviation of 0.527 in China and 3.687 with the standard deviation of 0.508 in Korea. In both countries, distance learners had above medium SRL abilities.

Table 4. General comparative analysis

Country	N	Mean	Std	t	p
China	1,999	3.919	.527	32.897	0.019*
Korea	1,941	3.687	.508		

***p< 0.001, **p< 0.005, *p< 0.05

T-test was used to analyze the general differences of SRL abilities between the two countries. There was a statistically significant difference between Chinese adult learners and Korean learners in the overall average of perceived self-regulated ability (t=32.897, p<0.019).

The comparative analysis in the1st-level dimension between China and Korea

The average scores of the four 1st-level dimensions were calculated individually (Table 5). The average scores of self-regulated learning ability of all the samples were above the mid-point on the 5-point scale.

Statistically significant differences were shown between Chinese and Korean adult learners in each of the four1st-level dimensions. Chinese adult learners scored better than Korean learners in self-regulated learning abilities.

For Chinese adult learners, the highest-score dimension was planning capability, and for Korean learners it was control capability.

Table 5. T-test of 1st-level dimension

1st level	Country	Mean	Std	t	p
Planning	China	4.010	0.545	23.157	0.027*
	Korea	3.678	0.557		
Control	China	3.931	0.512	114.618	0.006**
	Korea	3.863	0.543		
Regulating	China	3.875	0.540	29.273	0.022*
	Korea	3.619	0.466		
Evaluation	China	3.910	0.613	27.963	0.023*
	Korea	3.640	0.601		

***$p<0.001$, **$p<0.005$, *$p<0.05$

The comparative analysis in the 2nd-level dimension between China and Korea

Table 6 shows (i) There are statistically significant differences between Chinese and Korean in learning resources and learning content dimensions of planning capability($t=33.893$, $p<0.001$). (ii) Statistically significant differences were found between Chinese and Korean in learning resources and learning content dimensions of control capability with the help of t-test ($t=29.793$, $p<0.001$; $t=4.692$, $p=0.030$).

(iii) As for the regulating capability, the t-test shows that there is a statistically significant difference between Chinese and Korean only in the learning resources dimension (t=10.339, p=0.001). (iv) There are statistically significant differences between Chinese and Korean in learning resources, learning content and learning results dimensions of evaluation capability (t=16.00, p<0.001; t=14.398, p<0.001; t=18.129, p<0.001).

Table 6. T-test of 2nd-level dimension

1st level	2nd level	Country	Mean	Std	t	p
Planning	resources	China	4.069	0.546	49.460	<0.001***
		Korea	3. 787	0.628		
	content	China	4.124	0.571	33.893	<0.001***
		Korea	3.615	0.683		
	result	China	3.838	0.759	0.531	0.466
		Korea	3.616	0. 663		
Control	resources	China	4.027	0.586	29.793	<0.001***
		Korea	3. 988	0.662		
	content	China	4.124	0.571	4.692	0.030**
		Korea	3.615	0.683		
	result	China	3.838	0.759	2.933	0.087
		Korea	3.616	0. 663		
Regulating	resources	China	4.050	0.693	10.339	0.001***
		Korea	3. 872	0.609		
	content	China	3.652	0.491	2.927	0.087
		Korea	3.481	0.452		
	result	China	3.924	0.599	0.036	0.849
		Korea	3.504	0. 578		
Evaluation	resources	China	3.925	0.706	16.000	<0.001***
		Korea	3.670	0.652		
	content	China	3.912	0.569	14.398	<0.001***
		Korea	3.599	0.611		
	result	China	3.896	0.759	18.129	<0.001***
		Korea	3.653	0. 663		

***p<0.001, **p<0.005, *p<0.05

Differences in learner characteristics between China and Korea

Gender differences

Male distance learners are significantly better in self-regulated learning ability than female learners in China, whereas it was just the opposite in Korea. The ANOVA was performed to examine if the effect of gender on SRL abilities was significantly different between the two countries. We also observe a statistically significant difference in the effect of gender on SRL between Chinese and Korean learners. Table 7 shows that, in each dimension of SRL abilities, the interaction between gender and country appears significant as evidenced by the F and p values in the last two columns.

Table 7. Gender differences between China and Korea

1st level	Gender	Country	Mean	Std	F	p
planning	male	China	4.026	0.531	4.311	0.038*
		Korea	3.654	0.559		
	female	China	3.983	0.568		
		Korea	3.691	0.556		
control	male	China	3.953	0.501	17.070	<0.001***
		Korea	3.815	0.553		
	female	China	3.892	0.531		
		Korea	3.890	0.534		
regulating	male	China	3.890	0.513	11.908	0.001**
		Korea	3.573	0.484		
	female	China	3.849	0.583		
		Korea	3.646	0.454		
evaluating	male	China	3.933	0.590	11.091	0.001**
		Korea	3.591	0.606		
	female	China	3.871	0.650		
		Korea	3.668	0.596		

***$p<0.001$, **$p<0.005$, *$p<0.05$

Age differences

No age differences were found in China, but there were differences in all four dimensions across age groups in Korea. The highest score in planning capability among Korean learners was for the group older than 46, followed by the groups between 35 to 45 years old, between 26 to 35 years old and younger than 25. The same pattern arises in all dimensions (Figure 1).

ANOVA was used to study the age differences of self-regulated learning ability in Chinese and Korean learners. There were significant interactions between age and country in the planning capability ($F=6.495$, $p<0.001$), in the control capability ($F=4.698$, $p=0.003$), in the regulating capability ($F=4.157$, $p=0.006$), and in the evaluation capability ($F=4.933$, $p=0.002$).
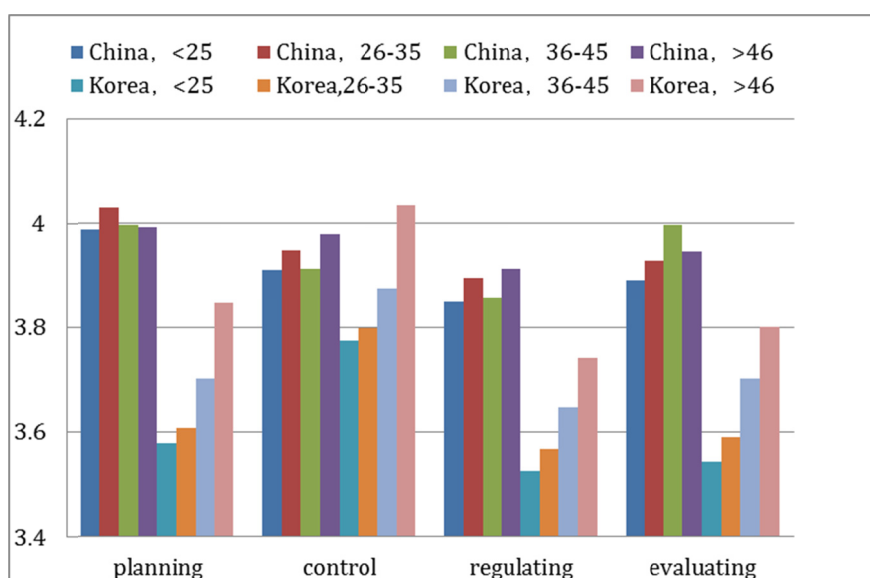

Figure 1. Age differences

Semester differences

Significant differences of self-regulated learning ability for Chinese and Korean distance learners were only found in first and 2-3 semester, which showed the

Chinese learners in first and 2-3 semesters had better self-regulated learning ability than Korean learners (Figure 2).

Among Korean learners, one visible pattern is that the SRL score is the highest in the first semester and then drops to the lowest in the 2-3 semester followed by a partial recovery later. No such pattern arises among Chinese learners.

ANOVA revealed that there was a significant interaction between semester and country in the planning capability (F=4.482, p=0.004), in the control capability (F=7.661, p<0.001), in the regulating capability (F=7.557, p<0.001), and in the evaluation capability (F=7.015, p<0.001).
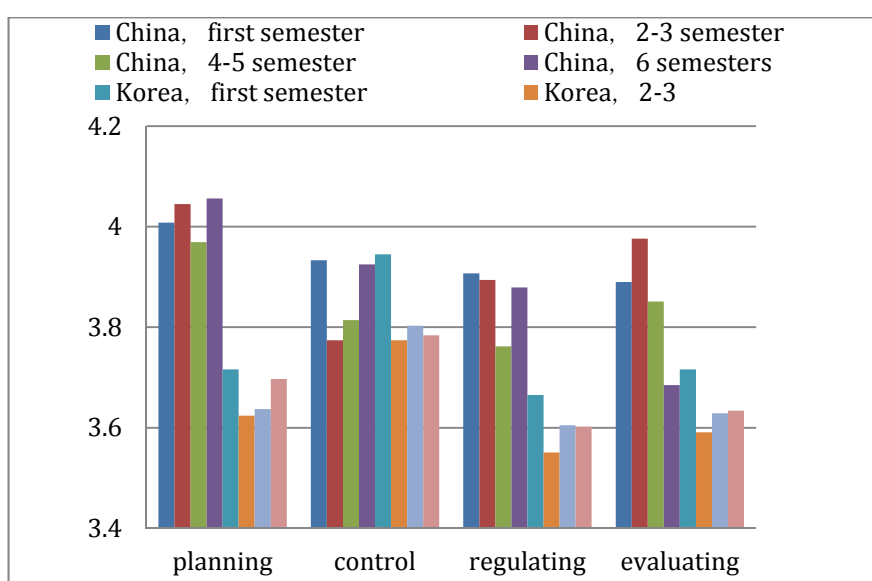

Figure 2. Semester differences

Location differences

There is some degree of location difference in both Korea and China, as shown in Table 8, although the difference is not significant. In China, SRAS of distance learners in metropolitan areas was slightly higher than those in other regions. In Korea, however, SRAS of distance learners in metropolitan areas was slightly lower than those in other regions.

Table 8. Location differences between China and Korea

1st level	location	country	mean	Std	F	P
planning	Metropolitan	China	3.992	0.522	2.396	0.122
		Korea	3.684	0.565		
	Other regions	China	4.023	0.560		
		Korea	3.653	0.524		
control	Metropolitan	China	3.918	0.499	0.836	0.361
		Korea	3.865	0.548		
	Other regions	China	3.940	0.521		
		Korea	3.854	0.521		
regulating	Metropolitan	China	3.862	0.510	1.240	0.266
		Korea	3.624	0.469		
	Other regions	China	3.884	0.559		
		Korea	3.601	0.455		
evaluating	Metropolitan	China	3.895	0.583	2.261	0.133
		Korea	3.648	0.606		
	Other regions	China	3.922	0.632		
		Korea	3.612	0.579		

***p<0.001, **p<0.005, *p<0.05

Prior education level differences

We examined to find out if there are any significant differences between Chinese and Korean learners according to their prior education level (Table 9). The distance learners from junior colleges had better planning, regulating and evaluating abilities than those who came from senior high schools both in China and Korea. The gap between high school graduates and college graduates was larger in Korea than in China.

ANOVA revealed that there was a significant interaction between prior education and country in the planning capability (F=6.180, p=0.013), in the control capability (F=6.010, p=0.014), in the regulating capability (F=4.386, p=0.036), and in the evaluation capability (F=4.427, p=0.035).

Table 9. Prior education level difference

1st level	location	country	mean	Std	F	p
planning	Senior high school	China	3.985	0.550	6.180	0.013*
		Korea	3.620	0.559		
	Junior college	China	4.046	0.537		
		Korea	3.743	0.538		
control	Senior high school	China	3.917	0.523	6.010	0.014*
		Korea	3.817	0.544		
	Junior college	China	3.951	0.512		
		Korea	3.906	0.534		
regulating	Senior high school	China	3.853	0.548	4.386	0.036*
		Korea	3.573	0.469		
	Junior college	China	3.906	0.528		
		Korea	3.672	0.639		
evaluating	Senior high school	China	3.889	0.618	4.427	0.035*
		Korea	3.588	0.596		
	Junior college	China	3.942	0.604		
		Korea	3.691	0.589		

*** $p<0.001$, ** $p<0.005$, * $p<0.05$

Major differences

There was no significant difference in planning, control, regulating, and evaluating dimensions between engineering and science majors. There was no significant interaction between major and country either.

Discussion

This study measured the self-regulated learning abilities of distance learners in Korea and China by using a standardized scale – SRAS. The SRAS was found to be a reliable instrument for studying the self-regulated learning abilities of distance learners. We carefully examine its reliability for use in Korea.

We analyzed two samples: one from Korea (1941 observations) and the other from China (1999 observations). The data included learner characteristic variables

such as country, gender, age, location, prior education level, semester, and major along with learners' scores in the four dimensions of SRL ability. The statistical analysis was performed to compare the two samples in terms of mean scores in the SRL ability dimensions, effects of learner characteristics on SRL ability dimensions, and their interaction with the country variable.

The results suggested that:

i) The self-regulated learning ability of distance learners both in Korea and China were between 3 and 4 in the 5-point scale. This means an appropriate training and well-designed instructional strategies are necessary to develop the self-regulated learning ability of distance learners in the two countries. It also will help them foster self-confidence and independent studying habits in the distance education setting. As Kwon's study (2010) claimed, fair strategies on SRL would be useful for better academic outcome.

ii) There were significant differences on self-regulated learning ability between Chinese and Korean distance learners. Chinese distance learners felt more comfortable in SRL than Korean distance learners. The results of the paper regarding Chinese learners are consistent with the previous studies. Recent findings revealed that Chinese students were good at self-regulated learning, rather than the original stereotype of out-dependent on teachers' instruction (Lau, 2006; Zhang & Wu, 2009). The lower SRAS index suggests that Korean learners demand more care than Chinese learners in the distance learning environment.

iii) Male learners were better in SRL than female learners in China while the overall SRAS in Korea was higher for female learners than for male learners. The research results were closely related to the culture of learning in Korea and China. Confucian-derived culture in China explains the most of the cultural differences. The Chinese culture has different demands for man and women. The demands for women are to be obedient and disciplined, and these restricts are not there for men. Men have more opportunities to control their lives, and develop self-regulated learning abilities. On the contrary, Korean females showed higher score than males,

which may represent women felt more comfortable with cyber space. Similarly, Lee and Im also found that Korean females were better in online discussion than Korean males (2003). Traditionally the role difference between males and females in Korean culture used to be similar to that in Chinese culture. But it is rapidly changing in Korea nowadays.

iv) No age differences were found in China. However, there were age differences in Korea. The highest score was for Korean learners older than 46, followed by the age groups between 35 to 45 years old, between 26 to 35 years old and younger than 25. Age difference was noticeable in Korean learners. On average, as they are older, they have better SRL ability. This result is consistent with Yoo (2012).

v) There were apparent location differences in that Korean distance students from metropolitan scored higher in SRL than those from other regions, but it was on the contrary in China. This pattern, however, was not statistically significant. There still may be reasons why learners in metropolitan areas feel more comfortable in distance learning environment. For example, since H Cyber University is located in Seoul, students from Seoul and metropolitan area feel advantageous when they have offline study groups or offline gatherings. These activities may give better motives for SRL as well as active participation. Further studies may confirm this location effect.

vi) A prominent difference was revealed in the prior education level, representing that the distance learners from junior colleges had better planning, regulating and evaluating abilities than those who came from senior high schools in both China and Korea. Parental monitoring of children's academic performance predominated in Asia (Wollam, 1992). Both in China and in Korea, the university entrance system is so competitive. High school students mostly rely on external control from parents and teachers. But the college students are given more room to control their learning, plan their schedule and select what they like. They have more autonomy in their study and are more experienced in making decisions regarding their study. During the course of accomplishing learning tasks, students are entitled to greater

freedom of what to learn, how to learn and what to achieve in learning. So the students from junior colleges must have more experience to regulate their learning process than those from senior high schools. This result supports the prior study of Yoo (2012).

The results bring out significant implications for instructional design and research in Korean and Chinese distance education institutions: It argues that excellent instructional strategies for cultivating SRL, and individualized and personalized education according to leaners' characteristics are needed. For example, the results have implications for the gender differences. The females in China seem to experience more difficulties in distant self-regulated learning. Women in China bear more housework which resulted in insufficient studying time. And most female learners were the first timers in distance learning. They may have suffered from lack of confidence and anxiety. Therefore, the tutors should pay more attention to difficulties or problems of female learners, and provide more individualized learning support. In Korea, men may need more care in online learning. Also they need more stable and sufficient time for their studying out of their busy work. In addition, instructional designers and tutors have to consider individualized education according to students' age, prior education level and location in both Korea and China. For example, the teachers should give more guidance to learners from senior high school to help them initiate and regulate their own learning.

From a practical point of view, one implication of the paper's findings is, as noted above, the instructional design of distance learning program should reflect not only individual learner heterogeneity but also cultural differences. This bears significance especially in a global distance learning environment. One program cannot suit all the needs of learners from different countries and cultural backgrounds. Whether this implication will apply to the instructional design in a national distance learning program begs for further research. It is possible that there is heterogeneity in the patterns of the relationship between learner

characteristics and SRL ability among distance learners from various backgrounds in the same country. We invite researchers to investigate this important issue in various data.

The paper supported the fact that cultural factors have relations with the students' SRL. However, the paper has some limitations to be noted. Firstly, this study only adopted quantitative approach to assess the degree of SRL ability which lacks the in-depth investigation of the perception and experience of SRL. In recent SRL research, qualitative approach was highlighted to identify the contextual influences. So it is necessary to combine the quantitative and qualitative methods in the future research to deepen the findings of this study. Secondly, this study only selected the demographic variables of gender, age, semester, location, entry level, and major as individual characteristics. But there must be other factors to be considered to measure the difference of self-regulated learning such as learning style. Learning styles as fixed characteristics are not easily changed (Xu, 2011). Thus, identifying the SRL difference on different learning style will be useful for providing individualized instruction, which can be one solution for current online learning system (Brown, Cristea, Stewart, & Brailsford, 2005). Finally, such distance education as MOOC (Massive Open Online Course) with mega-sized students from various countries is recently getting very popular, comparative studies with more schools or countries will be recommendable for better implications.

Based on this limitation further studies with compensated research design will be meaningful.

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