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A Comparison of Questions and Tasks in Geography Textbooks before and after Curriculum Reform in China

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Abstract

This study centres on the questions and tasks in geography textbooks written before and after the curriculum reform in China. The aim of the study is to reveal the recent changes in amount, learning outcomes and types of questions and tasks in geography textbooks as well as the extent to which the ideas and intentions advocated by the curriculum reform have been actualized in the questioning and tasking practices of geography textbooks. Five geography textbooks written before and after the curriculum reform have been quantitatively and qualitatively analyzed and compared in terms of amount, learning outcomes and type. The findings show that the questioning and tasking practices can be characterized as an increase in amount, more emphasis on the intermediate-order cognitive level of analysis, little concern for the affective and psychomotor abilities, and less diversity of types of questions and tasks. Current textbook writing does not fully and vigorously respond to the ideas and intentions articulated by the curriculum reform. The amount, learning outcomes and types of questions and tasks in the geography textbooks need to be adjusted so as to better meet the aims of the curriculum reform.

Keywords: Comparing, questions and tasks, geography textbook, curriculum reform, type, taxonomy of learning outcome

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Introduction

China's educational system is centralized in nature (Baskan & Erduran, 2009). This forces textbook writing to strictly follow the content outlined by the government (Yuan, 2001). Such rigid and centralized management has caused textbook writing to respond laggardly to new updates or progress in geography and geographical education. Before the geography curriculum reform, geography textbooks had experienced a few changes as part of efforts to improve geographical education. However, according to Zhao (2004), these changes were not substantial and didn't impact much on school geography. This was in part due to the fact that China's education is exam-oriented by nature. Thus, textbook writing was more or less aligned with the goal of providing and preparing students with the knowledge tested in high-stakes examination. Geographical learning was perceived as an accumulation and memorization of the factual knowledge in geography textbooks required for passing examinations (Yang, 2013). School geography was considered as less useful than other subjects, and thus was relegated to a marginalized status in senior high schools (Gao, 2003). To ameliorate the marginal status, reform was urgently needed to improve geographical education. Coincidentally, the overall education landscape was promotive to the reform of geographical education. In 1999, the Third National Education Working Conference and the State Council drafted and approved the "Education Revitalization Plan for the 21st Century", which proposed the reform of the basic education curriculum and the development of textbooks for the 21st Century. Later, in 2001 the Chinese government issued the "Outlines for Basic Education Curriculum Reform", which called for a transfer from a subject-centered to student-centered approach, a balance of student needs and academic development as well as a promotion of diverse teaching and learning in textbook writing (Ministry of Education, 2001; Yang, 2013). In this context, the reform of geographical curriculum was soon initiated.

As a result of the senior high school geography curriculum reform in 2003 (the curriculum reform, hereafter), a new geography curriculum was formulated and put forward many new ideas or goals for geographical education. For instance, in the past the overemphasis on the systematic and all-around learning of content knowledge in the former curriculum led to the over-sprawling of subject matter, whereas the new geography curriculum suggests that textbook writing should reduce content and calls for the learning of fundamental and essential geography knowledge. However, in this study we narrowly focus on three of many ideas arising from the curriculum reform, as follows. First, the former curriculum produced a heavy learning burden for students, due to its emphasis on the all-around acquisition of knowlegde; whereas the new curriculum stresses that student learning burden should be reduced as much as possible in the stage of senior high school education. It is suggested that the number of questions, tasks, exercises, drills, assessments and assignments could be reduced to relieve the learning burden on students. Second, in contrast to the former curriculum, the new curriculum underscores that the affective and psychomotor abilities should be considered of equal importance with the cognitive ones in the objectives of geographical education. In the cognitive domain, intermediate-order thinking such as analysis is stressed as one of the orientations of the new curriculum to enable students to employ fundamental

geographical principles to inquire into geographical processes, causes and laws on the basis of arranging and analyzing geographical facts (Ministry of Education, 2003). Third, different from the former curriculum, the new curriculum urges that students' learning and performance should be assessed with as multiple and diverse assessment types as possible. The types of questions, tasks, exercises, drills, assessments, assignments are expected to be diversified.

Literature Review

Textbooks not only play an important role in China's centralised educational system but also in the world (Finkelstein *et al.*, 1993; Bednarz, 2004; Lam, 2007). Textbooks are considered to be the most important component to embody the curriculum (Valverde *et al.*, 2002). A rich body of research on various sub-systems of geography textbooks has been well documented in the literature. A study on pictures in geography textbooks by Yasar and Seremet (2007) drew a conclusion that photograph types in the Turkish lower secondary geography textbooks lacked diversification. Janko and Knecht (2013) investigated the visuals in geography textbooks and found that realistic visuals were dominant in Czech geography textbooks. Jo and Bednarz (2011) applied the three components of concepts of space, tools of representation, and processes of reasoning to examine the location and spatiality of questions in American geography textbooks. Park (2005) compared the standards-based and traditional textbooks of Korea and the U.S. in terms of their general features, questioning style and level of laboratory activities, and found that the standards-based textbooks included more experiential questions and higher-order questions. Jitendra *et al.*'s (2001) analysis of four middle school geography textbooks revealed that their readability was poor for poor readers and primarily contained facts but few concepts or principles. Jennings (2006) investigated the alignment of six physical geography textbooks with the American National Geography Standards and revealed that the standards were well incorporated in these textbooks. Yasar (2009) made a comparison of the Turkish geography textbooks written before and after the 2005 new curriculum in terms of amount and Bloom's taxonomy, and found that the number of assessment and evaluation exercises was sufficient but the representation of affective and psychomotor abilities was not enough. With regard to the types of questions and tasks, the studies by Yasar (2009) and Armbruster and Ostertag (1989) classified the questions and tasks in the Turkish geography textbooks and the American social studies textbooks into eight types, that is, written exams, multiple-choice tests, short answer questions, true-false questions, matching type questions, fill-in, essay and graphic tasks.

Purpose of the study

Although there are numerous studies on the sub-systems of geography textbooks in the literature, studies on questions and tasks in Chinese geography textbooks are under-presented in international literature, especially on the recent changes in Chinese geography textbooks. In China, geography textbook writing should closely follow and reflect the ideas and intentions of the curriculum reform, and the call for the reduction of student learning burden, equal concern for the cognitive, affective and psychomotor abilities, and the diversification of assessment types is expected to dictate changes in the

amount, learning outcomes and types of questions and tasks in geography textbooks. Hence, it will be of significance to conduct a comparative analysis regarding these changes in questions and tasks in Chinese geography textbooks written before and after the curriculum reform, because textbooks are a good indicator of how well the intended curriculum is implemented. They are also the most important material offering the most learning opportunities and consequently an important factor in student performance (Garner, 1992; Remillard, 2000).

In this study, we follow Yasar's (2009) approach to investigate questions and tasks in Chinese geography textbooks. Specifically, this study will centre on the following three aspects: (1) number of questions and tasks (2) learning outcomes or cognitive, affective and psychomotor areas represented in questions and tasks, and (3) types of questions and tasks. An investigation of these three aspects is very helpful to reveal some of the recent changes in quantity, learning outcomes and types of questions and tasks in Chinese geography textbook writing, as well as the extent to which the ideas advocated by the curriculum reform have been actualized in the questioning and tasking practices of geography textbooks.

Method

Textbook selection

As a result of the curriculum reform initiated in the new millennium, the textbook publishing system has been altered in mainland China. Previously, textbook writing and publishing were mainly designated to the largest and semi-official textbook publishing press, the People's Education Publisher (Lai, 1991). The available versions of textbooks by other publishers were very limited. According to Yuan (2001), over 90 percent of schools in the Chinese mainland had adopted the geography textbooks by the People's Education Publisher (PEP) before 2001. However, after the curriculum reform, the government lifted the exclusive policy and allowed more publishers to enter the textbook market so as to improve textbook writing quality with intensified competition, and better meet different needs of local schools (Yang, 2013). As more geography textbooks by other competitive publishers appeared, the share of PEP's textbook market declined. However, the PEP still occupies a large sector of the geography textbook market in mainland China; as according to Zhang (2011), the adoption rate of the textbooks by the PEP ranges from 50 to 80 percent. Hence, the geography textbooks analyzed in this study were solely from the PEP, whose geography textbooks could be considered to be representative.

In this study, only those textbooks pertaining to the compulsory content were selected. The content of human and physical geography is compulsory in the senior high school education stage. The content relating to regional studies has changed from being elective to compulsory after the curriculum reform. Thus, an additional geography textbook concerning regional studies was also picked. These selected textbooks were designed for senior high school students aged around 16-18 years old. The selected textbooks are listed in Table 1.

Table 1.

The selected geography textbooks before and after the curriculum reform

Time	Textbook	Content domain	Publication Year
Before the curriculum reform	Geography (part one)	Physical geography	2003
	Geography (part two)	Human geography	2003
After the curriculum reform	Geography 1	Physical geography	2008
	Geography 2	Human geography	2009
	Geography 3	Regional Studies	2009

Procedures

In the first phase, each of the three authors independently counted the number of questions and tasks section by section, and then we compared our individual counts to solve the discrepancies arising from our inconsistent criteria on how to count a question and task that encompasses some sub-assessments. For instance, if a task encompasses three numbered sub-tasks, we then considered it as three tasks. With our discrepancies solved, we continued to count the questions and tasks in the next section. The total number of questions and tasks in each textbook was summed by adding the number of questions and tasks in each section.

In the next phase, we employed content analysis (Alkış, 2009; Erdogan, Marcinkowski & Ok, 2009; Kahveci, 2010; Krippendorff, 2004; Peterson, 1998; Webb, 2007) and adopted the analysis approach by Azar (2005), Yang (2013), and Yasar (2009) to investigate the questions and tasks in the geography textbooks. Content analysis involves an inductive or deductive approach which can be employed with either qualitative or quantitative data. Deductive content analysis is used when the structure of analysis is operationalized on the basis of previous knowledge (Elo & Kyngas, 2008, p.109). In this study, we adopted the deductive approach, in which the taxonomic frameworks were used as previous knowledge to classify the cognitive, affective and psychomotor domains represented in the questions and tasks. The available taxonomies (Anderson *et al.*, 2008; Barrett, 1976; Bloom, 1954; Davila & Talanquer, 2010; Harrow, 1972; Krathwohl, Bloom & Masia, 1964; Krathwohl, 2002; Poole, 1971) have been scrutinized and compared. In the end, the taxonomies by Bloom, Harrow and Krathwohl were adopted because the classification of the objectives of the Chinese geography curriculum is aligned with their taxonomies. Next, all the three authors independently conducted a pilot taxonomization of learning outcomes represented in the questions and tasks in a randomly selected chapter from a textbook. In this pilot taxonomization, it was found there were some discrepancies regarding which specific cognitive learning outcomes some questions and tasks could be placed in. For instance, a task asks:

Please choose an imported product you saw and heard of, and find which foreign brand the product belongs to, where the headquarter of the brand is and where it is produced, and further analyze what advantages the country of the brand producing the product possesses. (PEP's Geography and Social Studies Division, 2003, p.88)

This task primarily involves two cognitive levels, that is, knowledge and analysis. We felt it difficult to taxonomize because our protocol did not place a question or task into more than one category of learning outcomes. After discussion, we agreed that this task's main purpose is to foster students' analytical abilities, so this task is placed in the analysis category in the cognitive domain. With the discrepancies being settled through our discussion, we began independently to categorize all the questions and tasks in these textbooks section by section. Each researcher recorded the page number and the cognitive areas represented in questions and tasks section by section so that we could find our discrepancies easily. With regard to the affective and psychomotor domains, we did not further categorize the questions and tasks into sub-levels as the cognitive domain did because their different sub-levels could hardly be determined without actual observation of students' learning. For instance, it is impractical to judge a student's respect to his/her peers in a discussion by simply looking at the questions and tasks in the textbooks. Hence, the placement of a question and task in the affective or psychomotor domains was contingent on whether the questions and tasks would explicitly and expressly elicit the affective and psychomotor abilities or not. Examples of taxonomized questions and tasks are listed in Table 2.

Table 2.

Questions and tasks by taxonomy of learning outcomes

Taxonomy of learning outcomes		**Definition**	**Examples from the textbooks**
Cognitive domain	Knowledge	Recall or remember information or knowledge	State your local meteorological disasters.
	Comprehension	Understand and explain ideas or concepts.	Explain why the mixed ranch of cereals and livestock will alternate among farming, pastoral and fallow
	Application	Apply learned theories, principles, formulae or concepts to a problem or situation	Use a globe to figure out the time difference between Beijing and New York according to the knowledge of the world time zones.
	Analysis	Break down complex concepts or problems into parts in order to be	Choose a railway route, a road or a traffic station you are familiar with and

		understood clearly	analyze what factors influence its location, and which are the major ones
	Synthesis	Generate ideas or solutions by putting elements or parts together	Summarize why the German Ruhr industrial region waned
	Evaluation	Make judgments according to certain standards or criteria.	Evaluate the following viewpoints according to the sustainability perspective.
Affective domain		Promote awareness and developments in attitudes, values or feelings	Making a speech about "treasuring the Earth because we have only one Earth."
Psychomotor domain		Do or accomplish something physically	Make a model to show the three global atmospheric circulations.

In the last phase, we started to classify the types of questions and tasks. We noticed that the eight types of written exams, multiple-choice test, short answer questions, true-false questions, matching questions, fill-in, essay and graphic tasks were documented in Armbruster and Ostertag's (1989) and Yasar's (2009) studies of the questions in the Turkish and American geography textbooks. While we found that some questions and tasks in the Chinese geography textbooks could be fitted into the above types, some could not. Thus, we also took the approach of emergent schema (Krippendorff, 2004; Stemler, 2001) to classify the types of questions and tasks. In the first step, each of the three authors independently reviewed the questions and tasks and formulated an individual checklist containing the features that can be employed to classify them. For instance, if a question is mainly concerned with digital algorithm (computing), we took it as calculation type as indicated in Table 3. Here we consider digital algorithm (computing) as an adoptable feature to classify the types of the questions. Similarly, if a question contains a table which is a major part of the question, we, in most cases, took it as the table-based type. We consider table as an adoptable feature to distinguish the type of the question. Then, we compared and reconciled the differences between our individual checklists and formulated a final checklist agreed by all the authors. Using the final checklist as a reference, we started to classify the types of questions and tasks section by section. When completing the classification in each section, we compared our individual classifications and examined whether there were some discrepancies. The discrepancies would be solved through our discussion. After that, we then continued to classify the types of questions and tasks in the next section. Examples of the types of questions and tasks in the textbooks are presented in Table 3.

Table 3.
Questions and tasks by type

Type	Definition	Examples from the textbooks
Table-related questions	Find and explain changes, laws and trends according to information in tables.	Explain why the mountainous areas should give priority to road construction rather than railway according to the data in the table.
Graphic	Explain, analyze, compare, extract or generate information, changes, laws and trends from maps, drawings, charts, graphs, pictures, diagrams, images and sketches.	Read the graph and explain the differences in urbanization between the developed and developing countries.
Filling blank	Write the omitted word in a statement according to your knowledge or the context of a question or statement.	London is located in_____climate zone.
Demonstration	Understand an issue or topic through making exhibitions, giving speeches or making shows.	Making a speech on "treasuring the Earth because we have only one Earth"
Answer question	Find answers or solutions to problems or questions with a short oral expression or a written text.	Enumerate major environmental problems that the developed and developing countries are facing.
Multiple-Choice	Solve questions or problems by selecting one or more correct answers among several choices offered	Mr. Li is going to watch a football game starting at 19:00 on Christmas Eve in London. Which time is more suitable for him to take a Hong Kong-to-London 17-hour flight to watch the game? A) 15:00, 23rd/Dec B) 18:00, 23rd/Dec C) 7:00, 24th/Dec D) 10:00, 24th/Dec
Writing	Recall events, express views, thoughts and arguments or settle questions with a relatively long written answer, essay typical of several paragraphs or pages.	Write a tentative plan to prevent the major environmental problems in your school district.
Topic discussion	Discuss an issue or topic such as global warming in order to understand it clearly or to be more informed.	Discuss the relationships between climate and food.

Action-related task	Physical or hands-on actions or skills such as doing, coloring, playing, drawing or making plane figure, experiment, patterns or models.	Make a model to show the global atmospheric circulation.
Filling or marking on maps	Fill or write down names of objects or mark the omitted information or objects on a map	Use arrows to mark the wind directions on the map.
Calculation	Solve problems or questions by computation	Assuming there are 200 thousand people in a given area, what is the number of people at the end of the first year if the population growth rate is 2 percent?

The method of our study has a limitation. We adopted content analysis to taxonomize the cognitive, affective and psychomotor domains represented in the questions and tasks. However, content analysis has shortcomings. According to Gottschalk (1995), the errors in content analysis can only be minimized, and not eliminated. Rourke *et al.* (2003) also point out that content analysis is somewhat subjective. Hence, it is possible that inevitable subjective errors occurred in our content analysis of the questions and tasks. However, in spite of this limitation, the results should identify the general changes in the questions and tasks in the geography textbooks written before and after the curriculum reform.

Findings

Questions and Tasks by Number

As shown in Table 4, the total number of questions and tasks has increased considerably from Geography (part one and two) to Geography (1, 2 and 3). The intensity (average number of questions and tasks per page) for all the five textbooks is 0.73, 0.65, 1.46, 1.32 and 1.49 respectively. Combining the figures on the total number and intensity of the questions and tasks in the two sets of textbooks, it can be inferred that Geography (1, 2 and 3) has intensified their questions and tasks. In the past, the call from the public to reduce senior students' burden was never ceasing (Zhu, 2010). A study (Li, 2008) showed that overloaded academic burdens had caused serious health problems such as myopia, and hunchback due to long-time bending over a desk. Tang & Yang's (2013) study showed that homework and class work were the major sources of student learning. For Chinese geography courses, doing questions and tasks in geography textbooks is often the primary of homework or class work. Consequently, it is possible that the increase in the number and intensity of questions and tasks in the new textbooks has increased the demands on students. Moreover, the questions and tasks in Geography (1, 2 and 3) have become more challenging and demanding than those in Geography (part one and two), and are highly likely to impose more learning burdens. In this respect, the geography textbooks written after the curriculum reform do not echo the new

curriculum's advocacy that textbook writing should reduce students' learning burden. As the practice of consolidating students' acquisitions by multitudinous questions and tasks is still strong in secondary education, it is possible that Geography (1, 2 and 3) takes the approach of strengthening student geographical learning with more questions and tasks.

Table 4.

The total number of questions and tasks and the total pages by textbook

Textbook	Total number	Total pages	Intensity (number per page)
Geography (part one)	91	124	0.73
Geography (part two)	73	113	0.65
Geography 1	140	96	1.46
Geography 2	140	106	1.32
Geography 3	142	95	1.49

Questions and Tasks by Taxonomy of Learning Outcomes

As presented in Table 5, a large number of questions and tasks in Geography (part one and two) are at the knowledge, comprehension and analysis cognitive levels, occupying almost 14.6, 42.7, and 19.5 percent of the total questions and tasks respectively. The remainder of the questions and tasks at the application, synthesis, and evaluation cognitive levels, or relating to affective and psychomotor abilities, have a correspondingly small share of the total. For Geography (1, 2 and 3), while the questions and tasks constituting a relatively large share are those at the comprehension and analysis levels, taking up nearly 40 and 36.3 percent of the total questions and tasks respectively, the major change is that the number of questions and tasks at the analysis level has climbed from 19.5 percent in Geography (part one and two) to 36.3 percent in Geography (1, 2 and 3). On one hand, there was a decrease in the percentage of questions and tasks at the knowledge level from Geography (part one and two) to Geography (1, 2 and 3). Thus, the low-order cognitive level of knowledge of facts is reduced in Geography (1, 2 and 3). On the other hand, the questions and tasks relating to the affective and psychomotor levels also fell, signifying that Geography (1, 2 and 3) does not resonate with the call of the curriculum reform for more focus on these abilities. The higher-order level of synthesis and evaluation is somewhat deemphasized, with a lowered percentage from Geography (part one and two) to Geography (1, 2 and 3). In general, the questions and tasks pertaining to the cognitive domain account for a very large portion in Geography (part one and two), and this situation has not fundamentally changed in Geography (1, 2 and 3). Although the curriculum reform suggests that textbook writing should give equal importance to the affective and psychomotor areas as well as the cognitive, the former are still marginal.

Table 5.
The number and percentage of questions and tasks by textbook set and taxonomy of learning outcomes

Textbook	Taxonomy							
	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation	Affective	Psychomotor
Geography (part one)	11	39	9	15	8	4	2	3
Geography (part two)	13	31	4	17	4	2	1	1
Total	24	70	13	32	12	6	3	4
Percentage (%)	14.6	42.7	7.9	19.5	7.3	3.7	1.8	2.4
Geography 1	15	66	5	41	6	3	0	4
Geography 2	7	55	8	54	9	5	2	0
Geography 3	13	48	5	58	10	6	2	0
Total	35	169	18	153	25	14	4	4
Percentage (%)	8.3	40.0	4.3	36.3	5.9	3.3	0.9	0.9

Questions and Tasks by Type

According to Table 6, there are 11 types of questions and tasks in Geography (part one and two). Graphic, filling blank and answer questions occupy a very large share, accounting for 12.8, 12.8 and 57.9 percent of the total questions and tasks respectively. With the removal of multiple-choice questions, there are 10 types of questions and tasks in Geography (1, 2 and 3), and graphic and answer questions dominate. Thus, it can be seen that the concentration of the types of questions and tasks has been further intensified from the three major types of graphic, filling blank and answer question in Geography (part one and two) to the two dominant types of graphic and answer questions in Geography (1, 2 and 3), where they account for nearly 93 percent of the total questions and tasks. This may indicate that fewer questions and tasks are devoted to the other types of questions and tasks in Geography (1, 2 and 3) than in Geography (part one and two). As the other types of questions and tasks like the table-related, filling blank, demonstration, writing, action-related, calculation and topic discussion have all experienced a decline in Geography (1, 2 and 3), the overwhelming dominance of the graphic and answer question has been further strengthened. The reason is likely

that more questions and tasks in Geography (1, 2 and 3) have moved to the analysis level and become more complex. More visuals are needed to enable students to better understand and analyze these questions and tasks. The general picture of less diverse types of questions and tasks in the two sets of geography textbooks has not been fundamentally changed. This situation has become even acuter in Geography (1, 2 and 3), which does not resonate with the curriculum reform's suggestion that students' learning should be exposed to multiple and diverse assessment types (questions and tasks can sometimes function as assessments).

Table 6.
The number and percentage of questions and tasks by textbook and type

Textbook	Type of questions and tasks										
	Table-related question	Graphic	Filling blank	Demonstration	Multiple-Choice	Answer question	Writing	Action-related assessment	Filling or marking in maps	Calculation	Topic discussion
Geography (part one)	1	10	11	5	2	54	2	3	1	0	2
Geography (part two)	2	11	10	0	1	41	2	1	0	2	3
Total	3	21	21	5	3	95	4	4	1	2	5
Percentage (%)	1.8	12.8	12.8	3.0	1.8	57.9	2.4	2.4	0.6	1.2	3.0
Geography 1	3	68	1	1	0	53	1	5	5	1	2
Geography 2	1	46	0	1	0	89	1	0	0	2	1
Geography 3	0	21	0	0	0	117	0	0	0	0	4
Total	4	135	1	2	0	259	2	5	5	3	7
Percentage (%)	0.9	31.9	0.2	0.5	0	61.2	0.5	1.2	1.2	0.7	1.5

Discussion and Implications

In China, questions and tasks in geography textbooks are an integral sub-system intended to measure whether students have reached those expected objectives of knowledge, skills and attitudes and to transmit the ideas and intentions voiced by the curriculum reform. Through the comparison of the two sets of geography textbooks, the extent to which the questions and tasks respond to the curriculum reform can be revealed as follows.

First and foremost, the curriculum reform calls for the reduction of the student learning burden. The student learning burden involves multiple factors. For instance, it may be the over-sprawling content that causes the learning burden. Questions and tasks in textbooks are one of the important factors, although their number can not be equated with learning burden. However, to our knowledge, teachers of geography in secondary schools are less likely to create or assign extra class work or homework beyond those questions and tasks in geography textbooks, and it is often the case that students' homework or class work is simply to do questions and tasks in geography textbooks to foster and consolidate what they have learned in class. Although there is no government mandate that requires students to do all the questions and tasks in textbooks, many Chinese teachers in practice will usually like to ask students to finish all these questions and tasks as class work or homework. More questions and tasks do not necessarily translate into more burdens or extra demands on students' learning; for example, they may be very simple. However, considering the escalated cognitive level represented in the questions and tasks as revealed by our analysis, we are more prone to thinking that the increased number of questions and tasks in Geography (1, 2 and 3) is highly likely to impose more burdens on students' learning. In this sense, textbook writing did not respond to the call of the curriculum reform for the reduction of student learning burden.

Second, from Geography (part one and two) to Geography (1, 2 and 3), the dramatically increased percentage of questions and tasks at the analysis level is indicative of more concern being directed to the intermediate-order cognitive level, while questions and tasks at the lower-order level of remembering factual knowledge have been remarkably reduced. Perhaps this move is a response to the attitude of "quality matters" in textbook writing, which emphasizes "knowing how over knowing what". The questions and tasks aimed at the application, synthesis, and evaluation cognitive levels in Geography (1, 2 and 3), and at the affective and psychomotor abilities, have all fallen, even though dropping the questions and tasks at the knowledge level should have left more room for questions and tasks pointing to the fostering of students' higher-level cognitive skills. Consequently, although the intermediate-order cognitive skill of analysis has been strengthened in Geography (1, 2 and 3), other intermediate-level skills have not. Furthermore, despite the curriculum reform stating that equal importance should be attached to the affective and psychomotor areas which were often neglected in the past, Geography (1, 2 and 3) seem not to have responded to this call, and the cognitive abilities are still the pivot of the questions and tasks in Geography (1, 2 and 3). Some studies indicate that the neglect of affect and psychomotor abilities reduces the engagement of both students and teachers (Noddings, 1996; Zhang, 2004). In a word, the most obvious changes between the two sets of geography textbooks lie in the redistribution of the various levels of cognitive skill, particularly in favour of analysis. The changes represented in the questions and tasks in the Chinese geography textbooks share some similarity with those elsewhere. A case in point is Turkey, as the questions and tasks in the Turkish geography textbooks also experienced an increased percentage of analytical thinking after the 2005 curriculum reform (Yasar, 2009).

Lastly, when coming to the types of questions and tasks, it is observed that graphic and answer questions are dominant in both sets of textbooks. The other types of questions and tasks have become less represented in Geography (1, 2 and 3). Comparing the type of changes in the Chinese geography textbooks with those in Turkey, we found the types of questions and tasks in the Turkish textbooks have changed from less diverse before its 2005 curriculum reform to more varied and evenly distributed after the reform (Yasar, 2009). The types of questions and tasks in the Chinese geography textbooks may need greater diversification, the scarcity of which is likely to limit students' opportunities to develop various abilities and skills peculiar to certain type of questions and tasks. There are sometimes relationships between cognitive domains and question types, though these may not always be the case. For example, filling blanks is more likely to associate with the facts (or the knowledge level). Similarly, students' abilities such as wording, well-ordered presentation and logical organization of texts can hardly be fostered by types such as filling blanks and multiple-choice. Too many questions and tasks concentrating in limited types may bore and confine students to singular ability.

On the basis of the findings, we would like to draw some implications for geography educators, textbook authors and publishers:

1) Chinese students are often overloaded with learning burdens, so geography textbooks could reduce the amount of questions and tasks to fully respond to the ideas and intentions of the curriculum reform.
2) Although the curriculum reform suggests that textbook writing should give equal importance to the affective and psychomotor areas as well as the cognitive, the former are still marginal. The questions and tasks representing the affective and psychomotor areas could be increased
3) As there were certain relationships between the types of question and task and cognitive, affective, and psychomotor domains, it is thought that different types of questions and tasks are needed to test different abilities. Hence, the Chinese geography textbooks could diversify the types of questions and tasks to promote students' various abilities.

Conclusions

In summary, the changes in the questions and tasks from Geography (part one and two) to Geography (1, 2 and 3) can be characterized as an increased number of questions and tasks, more emphasis on analytical thinking, little concern for the affective and psychomotor abilities, and less diversification of the types of questions and tasks. The current textbooks written in accordance with the new geography curriculum do not fully and vigorously respond to the aforementioned ideas or intentions promoted by the curriculum reform. This may affect the full actualization of the curriculum reform because questions and tasks in textbooks are an important channel to mediate between the goals of geographical curriculum and student learning. Geography textbook writing in China may still need to adjust the amount, types and learning outcomes of their questions and tasks so that they are more aligned to the objectives and expectations of

the curriculum reform.

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