Nature of Geography Textbook
Questions and their Role in Assessment

Rishabh Kumar Mishra
University of Delhi, India

Abstract

The aim of the present paper is to analyze the nature of textbook-questions and provide its implications for assessment. In India, new geography textbooks were introduced after National Curriculum Framework, 2005. These textbooks comprised in-text as well as end-text exercises and questions. These exercises and questions were analyzed on the basis of content, cognitive level and tools of representation. It was also probed how textbook questions positions learner. Through the rigorous content analysis, both quantitative and qualitative, this paper tries to unfold the epistemological meaning and pedagogical implications of textbook questions.

Keywords *Textbook Questions, Epistemology, Pedagogy, Assessment*

"Knowing the facts and doing well on tests of knowledge do not mean that we understand."

Grant Wiggins and Jay McTighe (1998)

INTRODUCTION

One major component of the textbook is questions and exercises. Textbook questions improve learner's comprehension of content, assist them in identifying critical information in the textbook, help in building strategies for processing given information and stimulate their problem solving skills (Jo & Bednarz, 2009). Textbook questions reinforce learning and encourage creative thinking through problems and activities (Ornstein, 1994)**.** These questions not only help teachers to design their assessment strategy but also signal what learning is about. Teachers use textbook questions and exercises for evaluation purposes (DiGisi. & Willett, 1995). Textbook questions and exercises also help and guide teachers to form other relevant questions necessary for teaching and assessment. It has been seen that teachers are concerned about the textbook questions but they do not assess whether the questions are sensible or useful (Wong, 1991). Questions dispersed in text are equally significant pedagogical aids for the teaching-learning process (Leonard, 1987). Wixson (1983) asserted that in-text questions have potential value for learning experiences. She found that learners who were exposed to in-text questions performed well on the post-test. The kinds of questions that are given in textbooks also influence the type of cognitive processes that students engage in as they grapple with the process of knowledge construction. Textbook

questions reflect epistemological underpinnings of the content as well as pedagogical implications for the classroom. Thus, the nature of textbook questions and their role in the teaching and learning process should be explored. Shifting from the traditional belief to see the textbook questions as a tool for evaluation and assessment in the present paper, it is conceptualized as means to actively engage the learner in the process of knowledge construction. Against this backdrop, the present paper analyzed questions in geography textbooks with the aim to explore the following research questions:

1. What kind of geographical knowledge is reflected in the content of textbook questions?
2. What are the cognitive processes which the learners are likely to engage in while solving/seeking solutions to textbook questions?
3. How do geography textbooks' questions enable learners to use tools of representation specific to geographical knowledge?
4. How do geography textbooks' questions position learners with regard to knowledge and learning?

The present paper tries to address these research questions. The study reported in this paper is delimited to only geography textbook questions. The geography textbook of class 9th and class 10th have been analyzed for this purpose.

THE CONTEXT OF THE STUDY

In India, new geography textbooks have been introduced in schools following the recommendations of the National Curriculum Framework - 2005. The National Curriculum Framework (NCF - 2005) proposed an epistemological shift. In NCF 2005, the textbook is not seen as the only source of information but it is seen as a suggestive framework of a particular way of understanding issues. Further shifting from traditional approaches which consider the textbook as a closed box, NCF 2005 sees the textbook as a dynamic document. It envisioned textbooks as not only a source of knowledge but also as an interactive space for learners. This 'interactive space of learners', provided by textbooks also provides significant sites for assessment. With the same spirit, NCERT textbooks comprise both in-text as well as end-text questions for gauging learners' understanding and enabling them to make linkages within different concepts and contexts .While advocating changes in the approaches to teaching, it was suggested that the shift from mere imparting of information to involvement in debate and discussion would keep both learners and teachers alive to social realities. NCF 2005 envisions that pedagogy of social sciences should propagate:

1. active and constructivist teaching and learning;
2. meaningful and conceptual understanding of concepts;
3. developing critical understanding to the societal issues;
4. The connection of subject knowledge with everyday life experiences.

The goal of Geography teaching in schools should be to develop perspectives towards the people-environment relationship, resources, and their development. It will enable

students to understand the relationship between people and their environment and make them aware about the issues related to the environment. Keeping in view the broad objectives of teaching geography as a part of general education, all NCERT Geography textbooks will follow the functional approach. Emphasis has, therefore, been laid on the understanding of basic concepts and development of skills. In order to promote "learning by doing", activities have been selected carefully which would help the students to develop necessary geographical skills such as 'reading and interpreting maps and diagrams', visual representation and analysis of data, transformation of visual to verbal information and vice-versa, and drawing inferences and conclusions. Parallel to the NCF-2005 recommendations, it is envisioned that the facts and information given in the geography textbook should be used as means rather than ends in them. Instead of confining the teaching to the classroom, children should be exposed to real situations in the environment. Maps are one of the most important tools for geography teachers which provide useful ways of storing and communicating information about people and places. The present research work was undertaken to analyze the new geography textbooks questions.

REVIEW OF RELATED LITERATURE

It was seen that researchers considered 'questions' as one of the significant pedagogic tools for teaching, learning and assessment. It was found that most of the researches focused on classroom questioning, teacher's questions and the questions asked by students. But the nature of textbook questions was under-researched. Very few researches in this field have been found. In this paper, researches based on textbook questions are briefly presented. Tobin (1987) reviewed five classroom based studies conducted in mathematics and science classrooms. He found that classroom activities are strongly influenced by activities in the textbook. Teachers often ask the students to solve the end-of-chapter problems. These questions usually involved students in a brief search through the text for relevant information and transcription of that information in notebooks. Shepardson and Pizzini (1991) analyzed the cognitive level of textbook questions. They categorized questions into three categories based on cognitive level- input, processing and output. They found that there is no significant difference in the cognitive level of questions among textbooks. However, there was significant difference in cognitive level of the questions within textbooks. Textbook questions were mostly based on input level. Davila and Talenquer (2010) investigated the nature of end-of-chapter questions given in a college level general chemistry textbook. Using Bloom's taxonomy, they found that at the quantitative level this textbook included a majority of questions and problems at the level of application and analysis. However, these questions were algorithmic questions which engaged learners to draw inferences and make predictions. Very few questions demanded students to compare, contrast and correlate the data. Jo and Bednarz (2009) identified three components of spatial thinking- concepts of space, tools of representation and tools of reasoning. Against these three components, they developed their own taxonomy for classifying questions. They evaluated geography textbook questions. They found that key spatial concepts such as pattern, diffusion, hierarchy and network are rarely featured in textbook questions. Three components of spatial thinking were rarely integrated.

Higher order thinking skills such as analyzing, explaining and evaluating have not found much space in textbook questions. Vishwanathan and Murthi (2011) reviewed and categorized existing worksheets and questions of computer textbook of class 1 to 8. For the purpose of classification, the revised Bloom's Taxonomy was used. They found that textbook questions followed a pattern. In textbooks of lower classes, most of the questions belonged to remembering and understanding categories whereas the questions and exercises in books of higher classes shifted towards higher categories such as applying, analyzing, evaluating and creating. It showed a very clear pattern that higher order thinking skills develop with age. At the next level, they designed higher order thinking based questions related to learners' everyday life situations for learners in lower classes. They found that these learners were also able to solve such type of questions. Dunn (2011) explored the utility of map-based geographical questions assessing students' location knowledge. He found that an outline map is a poor tool to gauge students understanding about location of a place. It is possible to memorize the location of a place on the outline map yet know very little about the location. Overman et. al. (2013) analyzed chemistry textbook questions from the content and learning activities perspective. They had chosen four textbooks. Among these, two were based on traditional curricula, another two were based on context-based curricula. From the content perspective, the questions in traditional curriculum-based textbooks were based on fundamental chemistry knowledge whereas questions in context-based curriculum textbooks emphasized the relationship of chemistry with societal and technological issues and scientific development in chemistry. From the learning perspective, the questions of old textbooks included only reproduction type activities where the learner is supposed to reproduce the information gathered from textbooks. Questions of new textbooks were based on authentic practices and emphasized on the practical application and use of knowledge in everyday situations. Kahveci (2009) explored the frequencies of the questions in Turkish middle school science and high school chemistry textbooks, by cognitive level and chapter location. He identified the dominance of input and processing level questions. He also found that in-text questions were mostly input level questions. It can be seen that for understanding the nature of textbook questions, most of the researchers analyzed it according to the cognitive demands posed by questions. Either they used Bloom's taxonomy or other taxonomy based on cognitive processes. These researches also highlighted that most of the textbook questions were representative of lower order thinking skills. In the present paper, the epistemic nature of textbook questions is a matter of interest along with the questions' cognitive level and tools of representation.

METHODOLOGY

The geography textbook of class 9th and 10th published by NCERT were selected for the analysis. The 9th class geography book entitled Contemporary India-1 has six chapters- India - Size and Location, Physical features of India, Drainage, Climate, Natural Vegetation and Wildlife, and Population. The class 10th geography textbook entitled Contemporary India-2 has seven chapters - Resources and Development, Forest and Wildlife Resources, Water Resources, Agriculture, Minerals and Energy Resources, Manufacturing Industries, Life Lines of National Economy. Questions pertaining to all

the chapters were analyzed. There were two locations of the questions in each chapter. The first one was the in-text questions which were dispersed throughout the chapter and the second was the end-text question located at the end of the chapter. There were a total of 293 questions. All of the questions were content analyzed. The taxonomy developed by Jo and Bednarz (2009) was chosen for classifying the questions.

The Taxonomy for Classifying Geography Textbook questions: (Figure 1)

Most of the question-classification systems are composed almost entirely of categories based on the type of cognitive process required to answer the question. Existing taxonomies classify questions on the basis of cognitive processes in which the learner will engage while solving a problem. Yet while analyzing questions, the nature of subject and tools of representation are also significant. In the present research, it is insisted to take into account the content dimension along with cognitive processes for analyzing questions. The Taxonomy of Jo and Bednarz (2009) is suited to this need. In the present paper, the taxonomy of spatial thinking developed by Jo and Bednarz (2009) had been used for analyzing the nature of geography textbook questions. This taxonomy takes account of the three dimensions of geographical thinking: spatial concepts, tools of representation and the processes of reasoning. Any question will be based on some concept; will require some kind of mental operation and that operation will need to be done with some tool. This taxonomy comprises all these three dimensions, that is why it is informed decision of the researcher to use this taxonomy for the classification of textbook questions. The three primary categories were divided in two several sub-categories and finally this taxonomy consists of twenty four categories (4 x 3 x 2). An overview of this taxonomy is as follows:
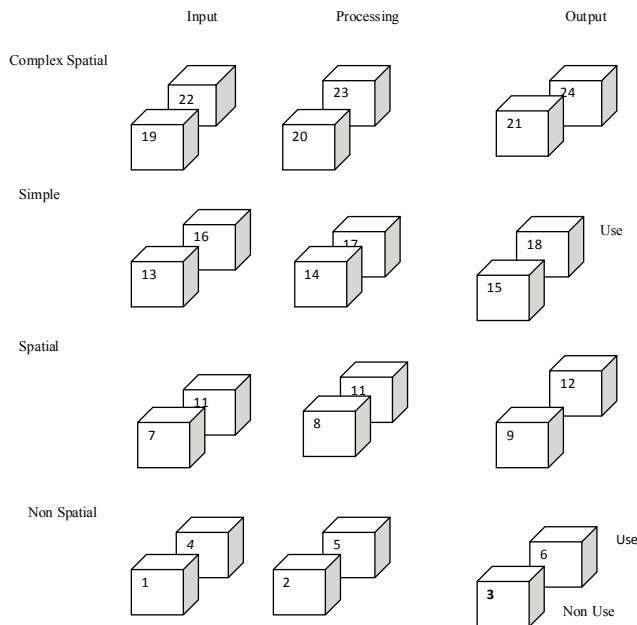
Figure 1 Taxonomy for Questions Classification
(*Souce*: Jo & Bednarz, 2009)

Concepts of Space

Adopting Golledge's (2000) scheme of spatial concepts and classification, Jo and Bednarz (2009) categorized spatial concepts in the four categories - Non-Spatial, Simple Spatial, Spatial Primitive and Complex Spatial. The first category comprises of concepts not related to space. Spatial primitives represent basic and fundamental characteristics of an existence in space, such as place-specific identity, location, or magnitude. Simple Spatial concepts are concepts established by sets of spatial primitives (e.g., distance is the interval between locations). Complex Spatial concepts are derived by assemblies of sets of simple spatial concepts (e.g., the concept of hierarchy can be derived by combining location and magnitude with connectivity).

Tools of Representation

Maps, Diagrams, Tables, Graphs and Models etc. are considered tools of representation in this taxonomy. In the taxonomy of Jo and Bednarz (2009) two sub-categories have been mentioned - non-use of tool and use of tool.

Processes of Reasoning

Three levels of thinking as proposed by Costa (2001) have been taken by Jo and Bednarz (2009) as three sub-categories for classifying processes of reasoning: the input level of thinking, the process level of thinking and the output level of thinking. The input level represents cognitive processes engaged to gather information from the senses or to recall information from memories, such as recognizing, defining, identifying, recalling and listing. At the second level, the processing level, involves mental processes such as analyze, classify, explain or compare information acquired at the input level. This type of cognition is associated with reasoning because it requires making sense of collected information, and therefore, going beyond the information. The third level of thinking, the output level, refers to generating new knowledge or products from the information obtained from the first two levels through the processes of evaluation, generalization and creation.

> The example of question coding is given here -
> In which of the following states is black soil found?
> Concept: Spatial Primitive Tool: Use Cognitive Process: Input

To ensure reliability, questions were classified twice. There was fifteen days' time gap between these two classifications. Both the classifications were found highly positively correlated. Along with this, another researcher from the same field was asked to classify some of the questions and her classification was matched with the researcher's classification again. There were similarities between both the classifications.

RESULTS AND DISCUSSION

It emerged from the analysis of data that 80% of the questions focused on non-spatial concepts. Only 4% of the total number of questions dealt with simple spatial and

complex spatial concepts (Figure 2). The very nature of Geographical knowledge inherits to use tools of representation. In the present study, it was found that only 22% of the questions provided scope to use tools such as map, diagram and graphs (Figure 3). Among these 22% of the questions, most of them were based on input level of reasoning. If we see the distribution of questions among reasoning classes, it emerged that 45.73% questions were based on input level of reasoning, 32.08% questions were based on process level of reasoning and only 22.1 % of total questions were based on output level of reasoning (Figure 4).
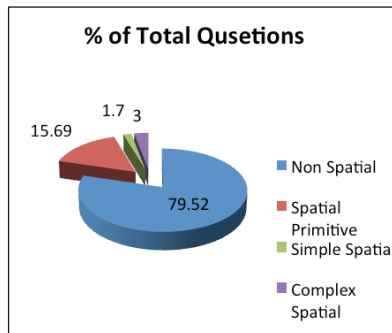
**Figure 2** Classification of questions on the basis of concepts
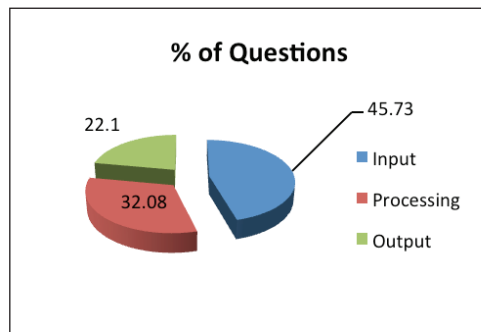
Figure 3 Classification of questions on the basis of reasoning process
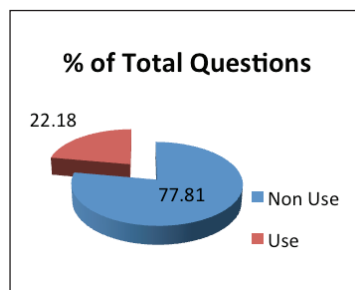
Figure 4 Classification of the questions on the basis of tools of representation

In comparison to the other two categories, it encompasses all the forms of reasoning appropriately. Spatial thinking is a complex form of thinking in which a person should integrate knowledge about spatial concepts, abilities to use spatial representations in appropriate and effective ways, and reasoning skills (Jo & Bednarz, 2009). The Geography textbook questions are supposed to be facilitators of spatial thinking. The cells 10, 11, 12, 16, 17, 18, 22, 23, 24 integrate all the three dimensions of spatial thinking (Figure 1). It is found that only 17.06% questions are in these cells. Among these questions 72% questions are based on simple spatial and input form of spatial thinking (Figure 2 and Figure 3). One can easily infer that the spatiality of textbook questions is very poor.

There are five categories of end text questions-Multiple choice questions, Short answer type questions, Long answer type questions, Map work and activity/project (Figure 5). Most of the questions (76%) belonged to the categories of multiple choice questions, short answer type questions and map work. These questions are fixed answer type questions and their answer can be given in a few words or locating an exact point on the map.
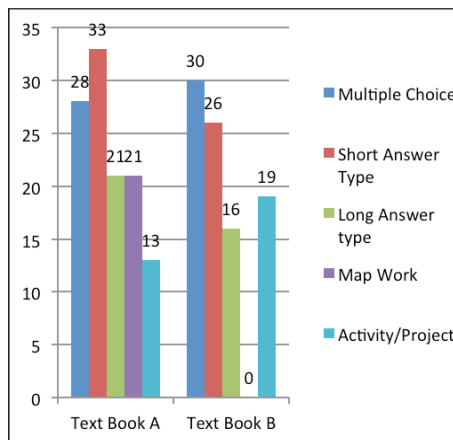
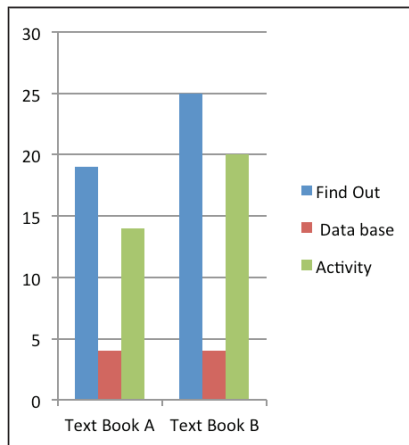**Figure 5** Types and distribution of end text questions

These questions demand only input level of reasoning process and reflect that geographical knowledge is objective and given. Questions which are given under the category of long answer type questions use phrases/expressions such as Explain… Discuss… Describe… Although these questions show that the learner might be engaged in processing or output form of cognitive processes, in-depth analysis shows that they also demand a certain pattern of information inferred by the book in certain defined ways. They are based on given information in the textbook and do not provide any scope for 'multiple explanations'. There would be uniformity in the answer of every learner which will be influenced by the information given in the textbook. The answers of these questions demand the argument as given in books and do not allow the learner to go beyond it. Although every answer should be informed by facts or information, it should provide scope to learners to make linkages between their experience and understanding.

Example:
'Why is the rate of growth population in India declining since 1981?'
'Where and why is rail transport the most convenient means of the transportation?'

Figure 6 Types and distribution of in-text questions

75% of the questions given in the category activity/project are the word games where learners have to find some key words and complete the puzzle box with those words. These forms of questions are only 'encyclopedic' questions which facilitate recall and retrieval of information. As social constructivists argue, activities should be 'authentic' and related to real world problems. The analysis of the activities revealed that essential critical geographical issues have been incorporated but they are loosely designed. The causal relationship has been reinforced and the government has been highlighted as a problem solver.

The land under cultivation has got reduced day by day. Can you imagine its consequences?
Do you know why food grains production has remained stagnant or fallen for six consecutive years?
Find out from the above newspaper cuttings, the main concern highlighted in the given news items.
(ii) Collect more information about various endangered species from newspapers and magazines.
(iii) Find out various steps taken by the Indian government to protect them.

The content covered by these questions shows that the importance of any spatial entity lies in its size, quantity and rank etc. Where does this kind of learning lead the learners to?
Which is the largest river basin in India?
Which one of the following places receives the highest rainfall in the world?

Likewise it also highlights the 'economic importance' as a dimension which is valued-

State some economic benefits of rivers and lakes.
Why are rivers important for the country's economy?
Why are the means of transportation and communication called the lifelines of a nation and its economy?

Here we can see that the economic importance and locational importance are validated and they cannot be questioned. It is objectification of knowledge as well as knower which impedes critical thinking. It promotes linear pattern of knowledge construction which does not allow multiple interpretation.

Most of the in-text questions fall in the category 'find out'. Mostly they focus on finding information regarding specific place, data, landforms etc (Figure 6). Many a times, the needed information is not given in the textbook. In a way, it follows the NCF's assumption to promote the learner to move beyond the textbook, but at the same time it asks them to locate required information in certain other sources. What source would it be? Does everybody have access to such sources? How does this information contribute in classroom discussions? Information is seen as authentic knowledge. Information can be stored in books; it means books are sources of knowledge.

All the questions related to map work ask learners to locate places, rivers, mountains and other geographical features in the map which basically reinforce map reading skills. Questions related to map construction and map interpretations are rarely found. The content of class 10th can provide ample scope for map construction and map interpretation skills but I could not find any of such exercises. Even in map reading exercises, only 'locating' any physical feature is seen as geographical knowledge. It is also significant to note that there is hardly any scope of using map related skills in long answer type questions. It should be taken care of that maps and other tools of representation are very essential for geographical thinking.

If we see the questions from the reasoning point of view, it shows an appropriate picture among three forms of reasoning (Figure 3). It follows the assumption that higher level of questions should be followed by lower level of questions. Lower level of questions, basically input questions, provide the base for processing and constructing newer knowledge.

The different kinds of questions are different in nature but, nevertheless, provide a picture of the approach to learning. It tries to embed the learning process within the constructivist approach to learning but subject specific knowledge is not given so much focus. There is a mismatch between the content approach and the pedagogic approach. Most questions are short-answer questions that require the students to recall factual information, while only a small percentage of questions demand higher cognitive skills. In the present study, lower-order questions were most frequently presented in in-text as well as in end text.

A closer look at the results shows that very less number of questions was concerned with eliciting preconceptions or alternative conceptions of students and the application of the learned material in novel or concrete situations. This means that there is no scope to challenge students to review and resolve inconsistent ideas, or use in-text questions to guide learners to construct new ideas from existing knowledge. On the other hand, while a significant number of application questions were asked, they were

not used as a part of the process of effecting conceptual change. They were often used to illustrate how the learned materials can be related to everyday life experiences, rather than to show how the newly constructed conceptions can be fruitfully employed to explain novel and realistic situations. Although it is attempted to give enough space to integrate the learner's personal experience in these questions, they have to match their experience with predefined categories.

NCF 2005 recommends that geography as a school subject will enable learners to critically think about people-environment relationship. Analysis of the questions showed a different picture. In class 10th, there is one chapter on 'Mineral and Ores'. There is not even a single question which is based on people-environment relationship. For question makers, it is significant to know where the bauxite could be mined and why solar energy does have a bright future in India but the consequences of mining and other influences of such activities on human beings are not as significant knowledge. Likewise, the questions of the chapter 'Manufacturing Industry' focused only on heavy industries such as the iron and steel industry and its importance and contribution in development. Agro based industry related questions are as follows-

'Why did Mahatma Gandhi lay emphasis on spinning yarn and weaving khadi?'

This question signifies that yarn and khadi production is important for us because Mahatma Gandhi emphasized it. On the other hand, one can find questions such as:

'*Where would it be economically viable to set up the cement manufacturing units?*
Find out where the plants are located in other States of India. Find their names.'
Find ten occupations getting raw material from forests and wild life.

It is the knowledge which is demanded to know where to setup industry and what the viable conditions are for the same without considering its influence on people. It also shows that people's perception or wishes are not significant for setting up an industry. Industry establishment is totally a profit driven process.

Further it is analyzed how textbook questions position learners with regard to geographical knowledge and learning. For this analysis the words and phrases used in questions were analyzed by adopting the framework of Elisenman & Wagner (2007). It was found that most of the questions were posed in three forms:

1. Verb +you (e.g.,)
2. An inanimate object + an animate object + you (e.g., Make a list of all such goods made of steel that you can think off.)
3. Without specifying any subject (e.g., Find out the current Railway zones and their head quarters)

The first form includes such phrases as 'Do you know', 'Do you think' or you find, you know etc. these forms of questions are based on the assumption that there is something to be known which is 'common knowledge' (Edwards and Mercer, 1987) and with the help of these questions learners will acquire that knowledge. The

second and third forms of the questions obscure human subjectivity. It shows that knowledge is something that is constructed on its own without interference of humans while in reality, it is the learner (person) who constructs the knowledge. It is seen that the auxiliary verb, verbs, adverbs and adjectives used in the questions have 'strong' connotation. Hedges were less used. It shows that questions have a voice of 'certainty' rather than any scope of possibility. Rotman (1988) identified two forms of imperatives generally used in text. Inclusive imperatives such as describe, explain, discuss etc.; demands the reader to be a thinker, and exclusive imperatives such as write, copy, enlist etc; potrays the role the learner as that of a scribbler. Most of the analyzed in-text questions used inclusive imperatives. Most of the end-text questions used exclusive imperatives. Inclusive imperatives used in in-text questions allow the learner's actions to be included in a community of learners whereas excusive imperatives used in end-text questions exclude learners from the learning community.

Textbook questions do not situate the content of the questions in any context. They present knowledge as 'truth' independent of context. It is hypothesized that the intention of the questions will match the perception of the learner.

Example:
Study the figure 6.3 and compare it with figure 2.4 and figure 4.7. Do you find any correlation between these maps?
What could be the reason of uneven distribution of population in India?
Table 6.1 reveals that despite the decline in growth rates, the number of people being added every decade is steadily increasing. Why?

Scott (1998) talked about authoritative and dialogic functions of classroom discourse. In authoritative function, questions demand information; responses to the questions typically consist of single, detached word and factual information whereas, in dialogic function, questions provide the scope to learners to put forward their ideas, explore and debate points of view. An alternation between these two types of discourses is important for developing conceptual thinking (Mortimer, 1998). The present analysis revealed that in-text questions work in favor of authoritative function as their answers are a predetermined piece of information that should be matched with the teacher's expectation. Similarly most of the project/activities given as end-text questions also contribute in authoritative function. One of the roles of the in-text question is to help in classroom discussion by providing the scope for interaction and participation. Recall of the information should not be the end product or goal. It should be the means to the end of achieving critical thinking. The input level questions which are usually recall type questions should be followed by processing and output based questions so that they all can be used comprehensively for generating classroom discussion. However, it has been found that in-text input level questions were given in isolation. Mostly they were followed by input level questions. Thus, they can be used as 'measuring tool' of learners' knowledge and understanding but cannot open the discussion. Further, end-text questions were given as categorized in three sections. All input level questions were given in the beginning of the exercises in the form of multiple choice questions and short answer questions. In the next section, processing and output based questions were asked. It is significant to note that processing and output based end text questions

were preceded by input based questions:
Make a list of items where substitutes are being used instead of minerals. Where are these substitutes obtained from?
What is meant by trade? What is the difference between international and locale trade?
Define Mansoon? What do you understand by break in Monsoon?

It is found there are only five activities which are based on group work. The group work is necessary for learning processes as it provides scope for dialogue, experiences sharing and motivates, the learner to come out of their comfort zone. Analysis also revealed that there is a lack of interdisciplinary questions. Geography is taught in schools as a subject under the social sciences. It is expected that all the sub disciplines under social sciences will promote an interdisciplinary nature of their subjects.

USING TEXTBOOK QUESTIONS AS A PEDAGOGICAL AID IN THE PROCESS OF LEARNING AND ASSESSMENT

It was found in the present study that the geography textbook questions covered mostly non spatial concepts. They are also not incorporating and promoting usage of tools of representation related to geographical understanding and learning. These two dimensions are crucial to spatial thinking. Questions to support spatial thinking must cover complex spatial concepts. The tool of representation should not be used for graphic displaying but they should include processing and output dimensions also. Keeping these points in mind, geography teachers should use the textbook questions

1. For facilitating classroom discussion.
2. To select and make such questions which include spatial concepts and representations.
3. To focus on enabling the learner to put the information in context and take a position.

Textbook questions, especially in-text questions, should generate open discussion or instructional conversations (Tharp & Gallimore, 1988) as it can be used to elicit and to gauge the resources brought by the learners from different backgrounds. Kamen (1996) suggested that student's alternative assessment has two distinctive features: (a) it includes assessment tasks, which provide an alternative to the traditional multiple choice test; and (b) the tasks that are geared towards assessing student's performance of real-life situations. His suggestions can be deployed for designing and using textbook questions as one of the assessment tools. Textbook questions can be used more effectively as a tool for gauging learner's assessment and posing problems to make linkages with real life experiences. McCarthy (2005) noted that students required a great deal of assistance with the questions at the end of the chapter. Many required the questions to be read aloud to them and sought assistance as to where the answer could be found in the reading passage. It is suggested that in-text questions should include hands-on activities and thought provoking questions. It will contribute in creating such a learning environment where the learners will attend the learning task

more efficiently, learning will be constructive and it will also provide significant site for assessing learners. Besides seeing the learner as a passive responder they should be seen as 'question-poser'. On the one hand, it will make classroom processes more dialogic, on the other it will also throw light on their understanding which can be further used as evidence of assessment. While using textbook questions or designing any kind of assessment tools, the teacher should think about these questions-

1. How should the content of the question be matched with the learner's context?
2. Who are we assessing?
3. Who will be benefited from this assessment?
4. Whose knowledge is getting reflected in assessment?
5. How do we provide scope for learners to integrate their experiences with subject specific conceptual knowledge and how do they make this integration as an integral part of their thinking and acting?

I would like to sum up this paper with one insight and with one question. Good teaching constantly asks about old understanding in new ways, calls for new applications and draws new connections (Shepard, 1997) and good assessment should do the same. The question to think is whether assessment should become so much a part of normal classroom discourse patterns that it disguised or whether assessment steps should be marked and made visible to students as an essential step in learning.

REFERENCES

Costa, A. L. (2001). Teachers behaviors that enable student thinking. In A. L. Costa (ed.). *Developing Minds: A Resource Book for Teaching Thinking*, 359-369. Alexandria, Virginia: Association for Supervision and Curriculum Development

Davila, K. & Talanquet, V. (2010) Classifying End-of-Chapter Questions and Problems for Selected General Chemistry Textbooks Used in the United States, *Journal of Chemical Education*, 87(1), pp. 97-102

Digisi, L.L and Willett, J. B. (1995). What High School Biology Teachers Say about Their Textbook Use: A Descriptive Study, *Journal of Research in Science Teaching,* 32(2) :123-142

Dunn, J. M. (2011). Location knowledge: Assessment, spatial thinking and new national geography standards. *Journal of Geography*, 110(2), 81-89.

Elisenman, H. B. & Wagner, D. (2007). A Framework for uncovering the way a textbook may position the mathematics learner. *For the Learning of Mathematics*, 27(2), 8-14.

Golledge, R. G. (2002). The nature of geographic knowledge. *Annals of the Association of American Geographers* 92(1), 1-14.

Jo, I. & Bednarz, B. S. (2009). Evaluating geography textbook questions from a spatial perspective : Using concepts of space, tools of representation, and cognitive processes to evaluate spatiality. *Journal of Geography*, 108(1), 4-13.

Kahveci, A. (2010). Quantitative analysis of science and chemistry textbooks for indicators of reform: A complementary perspective. *International Journal of Science Education,* 32(11), 1495-1519.

Kamen, M. (1996). A teacher's implementation of authentic assessment in an elementary science classroom. *Journal of Research in Science Teaching*, 33, 859–877.

Kang, W. & Kilpatrick, J. (1992). Didactic transposition in mathematics textbooks. *For the Learning of Mathematics,* 12(1), 2-7.

Leonard, W.H. (1987). Does the presentation style of questions inserted into the text influence understanding and retention of science concepts? *Journal of Research in Science Teaching*, 24(1), 27-37.

McCarthy, C. B. (2005). Effects of thematic-based, hands-on science teaching versus a textbook approach for students with disabilities. *Journal of Science Research in Teaching* 42(3), 245-263.

Morgan, C. (2000). Better assessment in mathematics education? A social perspective. In J. Boaler (ed.), *Multiple perspectives on mathematics teaching and learning* (pp. 225-242). Westport, CT: Ablex Publishing.

Mortimer, E. F. & Scott, P. H. (2003). *Meaning making in secondary science classrooms*. Maidenhead, UK: Open University Press.

N.C.E.R.T.2005. *Contemporary India -1*. New Delhi: N.C.E.R.T.

N.C.E.R.T.2005. *National Curriculum Framework*. New Delhi: N.C.E.R.T.

N.C.E.R.T.2006. *Contemporary India-2s*.New Delhi: N.C.E.R.T.

N.C.E.R.T.2006. *Position Paper: Teaching of Social Sciences*. New Delhi: N.C.E.R.T.

Ornstein, C. A. (1994). The textbook-driven curriculum. *Peabody Journal of Education*, 69(3), 70-85.

Overman, M., Vermunt, J. D., Meijer, P. C., Bulte, A. M. W. & Brekelmans, M. (2013). Textbook questions in context based and traditional chemistry curricula: Analyzed from a content perspective and a learning activities perspective. *International Journal of Science Education*, 35(17), 2954-2978.

Resnick, L.B. (1987). Learning in school and out. *Educational Researcher*, 16, 13–20.

Rotman, B. (1988). Towards semiotics of mathematics. *Semiotica*, 7(2), 1-35.

Scott, P. (1998). Teacher talk and meaning making in science classrooms: A Vygotskian analysis and review. *Studies in Science Education*, 32, 45-80.

Shepardson, D. P. & Pizzini, E. L. (1991). Questioning levels of junior high school science textbooks and their implications for learning textual information. *Science Education*, 75, 673–682.

Shodell, M. (1995). The question-driven classroom: Student questions as course curriculum on biology. *The American Biology Teacher*, 57, 278–281.

Tobin, K. (1987). Process which shape the implemented curriculum in high school science and mathematics. *Teaching and Teacher Education,* 3(4), 287-298.

Vishwanathan, U. & murthy, S. (2102). Raising students cognitive skills, extending level of textbook questions: Can we do both? *Proceedings of episteme* 4.

Wagner, D. (2007). Students' critical awareness of voice and agency in mathematics classroom discourse. *Mathematical Thinking and Learning,* 9(1), 31-50.

Wixson, K. K. (1983). Post reading question-answer interactions and children's learning from the text. *Journal of Educational Psychology,* 30(3), 413-423.

Wong, S. L. (1991). Evaluating the content of textbooks: Public interests and professional authority. *Sociology of Education,* 64(1), 11-18.