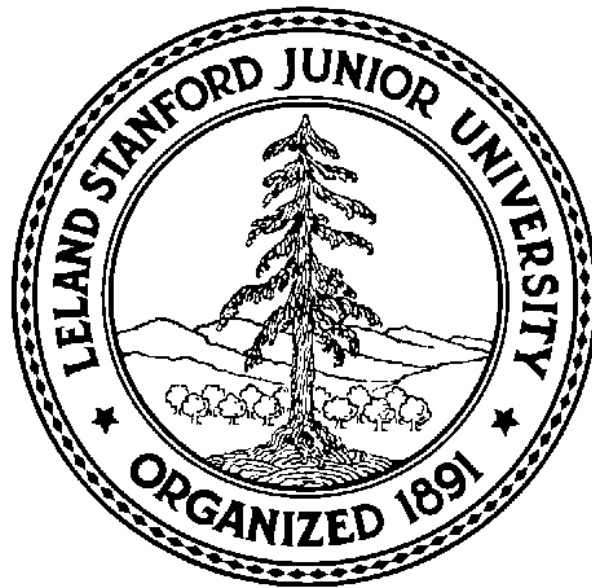


**‘Seeing the Bigger Picture’: Higher Order Cognition in
the Indian Certificate of Secondary Education (ICSE)
English Literature Examination**

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Ashni Devendra Mohnot

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**INTERNATIONAL EDUCATIONAL
ADMINISTRATION AND POLICY ANALYSIS**

**‘Seeing the Bigger Picture’: Higher Order Cognition in
the Indian Certificate of Secondary Education (ICSE)
English Literature Examination**

Ashni Devendra Mohnot

August 2006

**A Monograph in partial fulfillment
of the requirements for the degree of *Master of Arts***

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Abstract

India's transition to a knowledge economy influenced international donor agencies and the Central Advisory Board on Education in India to promote higher order cognition to prepare Indians for success in the new economy. India's National Policy on Education in 1986 de-emphasized memorisation, a lower order cognitive skill, in teaching and assessment. This monograph studies higher order cognition in the Indian Certificate of Secondary Education (ICSE), a high stake public examination that claims to follow NPE recommendations. Using Bloom's Taxonomy of Educational Objectives (Cognitive Domain), this study categorized the thinking skills required to solve ICSE English Literature exam questions at four points (phases) during the lifetime of the exam. This study discovered an increase in knowledge-based (lower order cognitive) questions and no substantial rise in higher order cognitive questions over the four phases. Nearly 90% of the questions in all phases fell into Bloom's two lowest categories, knowledge and comprehension. By illustrating the lack of influence of NPE 1986 on ICSE, this study reveals the disconnect between Indian rhetoric on higher order cognition and actual policy implementation. Finally, this study discusses implications of this disconnect for the widespread washback or 'teaching to the test' phenomenon facing the ICSE (and other) exam systems in India

Keywords: higher order cognition; Indian Certificate of Secondary Education; ICSE; National Policy on Education; Bloom's Taxonomy; India; knowledge economy

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Acronyms and Abbreviations

ICSE: Indian Certificate of Secondary Education
CISCE: Council of Indian School Certificate Examinations
IDF: India Development Foundation
CABE: Central Advisory Board of Education
MHRD: Ministry of Human Resource Development
DSHE: Department of Secondary and Higher Education
GoI: Government of India
UT: Union Territory
USE: Universal Secondary Education
NPE: National Policy on Education
NCF: National Curriculum Framework
HOC: Higher Order Cognition
LOC: Lower Order Cognition
Eng. Lit.: English Literature

Introduction

The 1999 English Literature paper of the Indian Certificate of Secondary Education (ICSE) examination asked the following question referring to the Shakespeare play *The Merchant of Venice*: “What are the inscriptions that Morocco has just read on ‘the several caskets’?” I remember being pleased that the question was easy as I wrote the exam; I had simply to recall the exact words on the caskets. When I traced the thought process I used to generate the answer, I realized that the question had tested my ability to recall exact words from ‘The Merchant of Venice’. If I had not used memorization-based cognitive skills while studying for the exam, I would have been unable to answer the question.

My self-analysis of the mental processes I had used while answering this and other similar questions deepened into a substantial academic interest in Indian assessment systems and the cognitive skills they test. Analyses of education often situate students within the context of a labour market and economy (Meyer, Ramirez, Frank & Schofer 2005). As India propels herself into the twenty-first century, there is much anticipatory discussion both within and outside the country about the implications of her burgeoning, dynamic economy for education. One implication is the promotion of higher order cognition in teaching and assessment to meet the new Indian economy’s demands for graduates schooled in higher order thinking.

This study uses Bloom’s taxonomy to examine the types of cognitive skills tested by the ICSE¹ English Literature exam over its lifetime. In addition, it investigates whether the rhetoric of higher order cognition² in India’s National Policy on Education (1986) that ICSE claims to follow, has led to increasing proportions of higher order cognitive questions in the exam. I present conceptions of higher order cognition and a justification for using Bloom’s taxonomy in the critical literature review. Given the demands of India’s changing economy, this monograph holds significance for both the Government of India’s (GoI’s) educational planning and for test construction and curriculum development by The Council of Indian School Certificate Examinations (CISCE), the board that administers the ICSE. No

¹ A national Indian assessment system

² Defined as application, analysis, synthesis and evaluation based on Bloom’s taxonomy

independent research studies have been conducted on the ICSE exam, making this exploratory study the first of its kind.

In the early 1990s, India gradually opened up its markets through economic reforms that reduced government controls on foreign trade and investment. This liberalization of the economy opened up the public sector to private and foreign players, generating tremendous economic growth in India, primarily in the Information Technology (IT) sector and in Research and Development (R&D)³. India is moving towards a knowledge-based and service-based economy through investments in IT, R&D, energy and health sectors. Liberalization of the Indian economy in response to globalization created many new jobs.

In December 2005, the India Development Foundation (IDF), a privately funded, non-profit, non-partisan research institute, organized a workshop in New Delhi on 'Development and Youth in South Asia', to generate research findings for The World Development Report, the World Bank's annual publication. A report on this workshop noted that though 20% of the South Asian population is between ages 15 and 24, young adults in South Asia constitute half the unemployed people. Amir Ullah Khan of IDF noted about India: "matching today's youth with employment is like trying to put a square peg into a round hole – there are too many and they lack the right skills" (Khan, Powerpoint Presentation). Khan notes that while the current labour force is trained through "rote learning" for "civil service-like jobs", the future labour force for the globalizing Indian economy will require "critical thinking" and "teamwork" skills (Ibid). By emphasizing the disconnect between skills provided by current education and skills required for the knowledge economy, Khan creates a compelling case for higher order cognition (of which critical thinking is a component) in Indian education. His concerns were earlier raised in a workshop organized by the Knowledge for Development (K4D) Program of the World Bank Institute. I present a key statement from a report on the workshop:

"In the area of education and training, major reform and improvement of formal and informal education is critical for India's future. The education system needs to be more responsive to market needs, and expanded access to education that fosters critical thinking and learning skills are essential for all, not just the elite."

³ An example of India's R&D sector is the formation of Reliance Life Sciences, a "millennium initiative" of the Reliance Group, a large private sector company. Reliance Life Sciences Private Limited, incorporated in 2001, is "developing business opportunities in the domains of medical biotechnology, plant biotechnology, industrial biotechnology, contract research and clinical trials" ("The Economic Times", Nov 23, 2004).

(Report on Workshop for “India and the Knowledge Economy: Leveraging Strengths and Opportunities”, November 9, 2005, New Delhi, World Bank Website).

This report also highlights the importance of training students to function successfully in India’s new globalized economy through the development of critical thinking, a higher order cognitive process. Donor agencies such as the World Bank and similar supporting institutions constitute one channel of pressure for Indian education to instill higher order cognitive skills in graduates.

Besides pressure from donor agency agendas, India is embedded in a worldwide cultural context of empowered individualism that emerged in the post World War II knowledge society (Frank & Meyer 2006). As knowledgeable individuals began to play important roles in world society, the desire for degree certifications rose, followed by an expansion in universities, course offerings, faculty and students enrolled in tertiary educational institutions (Meyer et al. 2005; Frank & Meyer 2006). These universities are defined in global terms appraised according to world educational standards (Meyer et al. 2005). Contemporary society views learners as individualized, empowered actors who are thought to have “the right, capability, and obligation to acquire and develop universal knowledge and understandings” (Frank & Meyer 2006, p. 23). Changes in the perception of learners’ abilities led to concurrent changes in pedagogies from discipline based (emphasizing “imitation, rote learning, behavioural correctness, and exact mimicry” (p. 31)) to empowerment-based (incorporating “learning by doing” (p. 33), “the authority and active participation of students” (p. 34) and “individual-based experiential knowledge” (p. 36)), constituting another channel of pressure on Indian teaching and assessment to align with new pedagogies.

Influenced by World Bank rhetoric and a global school of thought touting empowered individualism, the Central Advisory Board of Education (CABE), the highest advisory body in education for the GoI, criticizes contemporary Indian secondary education for focusing on “lower order cognition” and encouraging “‘mugging up’⁴ a few content items for writing examination”. (USE Advisory Report, p. 19) CABE’s joint discouragement of both these aspects of contemporary secondary education in India equates rote learning with lower order cognition. Though influenced by donor agency rhetoric, CABE consciously avoids treating

⁴ ‘Mugging up’ is an Indian colloquialism that means ‘rote learning’ or ‘learning by heart’.

secondary education solely as an economic production function and encourages a complete paradigm shift in conceptualizing secondary education. It recommends pedagogies that shift “from lower to higher order cognition” (Ibid) and advocates an “interdisciplinary approach to knowledge, concept formation (not just piling up information) and its application in daily life and attributes such as critical thought and creativity” (p. 16). With many different turns of phrase that it is redundant to reproduce in detail, the USE report continues to elaborate on a pedagogical vision identical to Frank & Meyer’s descriptions of the new pedagogies founded on the concept of empowered individualism.

My monograph examines whether the ICSE Eng. Lit. exam tests higher order cognitive skills in examinees at four points in time during the life of the exam. I start with background information on the education sector in India and on the ICSE exam. In the Background section, I justify my focus on secondary education, on the ICSE system and on the English Literature paper⁵ within it. After laying out my research questions, I delve into a discussion of the literature on the importance of higher order cognition, conceptions of higher order cognition, ways to test for higher order cognition and ways to incorporate higher order learning in teaching, curriculum and assessment. I then describe the conceptual framework within which I conduct my study and explain the methods I use to work with my data followed by a presentation and discussion of my findings. I conclude by mentioning avenues for future research.

⁵ Paper, Question Paper, Exam and Examination are used interchangeably throughout this monograph.

Background

India's Education Sector

Before 1976, education in India was solely the prerogative of the states. The Constitutional Amendment of 1976 transferred some responsibility for education from the states to the Union Government. (DSHE Website). The Ministry of Human Resource Development (MHRD) now oversees the education sector in India and presides over the Department of Elementary Education and Literacy (DEEL) and the Department of Secondary and Higher Education (DSHE). Secondary schooling consists of classes⁶ 9-10 in nineteen states/Union Territories⁷ (UTs) and of Classes 8-10 in thirteen states. After all states adopted the 10+2+3 system of education, classes 11-12, representing the '2' years of the 10+2+3 system, comprised the Higher Secondary or Senior Secondary stage of schooling. In some states, classes 11-12 are conducted through universities or colleges (DSHE website). For a detailed description of the different stages of Indian education, please refer to the table in Appendix 1.

Secondary education in all states of India culminates in public examinations at the end of Class 10 (Secondary) and Class 12 (Higher Secondary). Three national Boards and various state-affiliated boards are recognized by DSHE as Secondary and Higher Secondary examination boards (Ibid). Central Board of Secondary Education (CBSE), an autonomous body affiliated with GoI, is one of the national boards. National Institute of Open Schooling (NIOS), formerly known as National Open School (NOS) is the second national exam board and the third is the Council for Indian School Certificate Examinations (CISCE), established in 1958 (DSHE Website) and the primary focus of this study. The CISCE is a registered society not affiliated with the GoI. Both the CISCE and CBSE do not take financial assistance from GoI (Ibid). As of 31st August, 2001, a total of 1119 schools were affiliated with the CISCE. (Chapter 2.3, Section 19, "Provisions for Secondary Education in the 10th Five Year Plan", DSHE Website)

⁶ 'Class(es)' used interchangeably with 'Standard(s)' throughout this monograph. The equivalent American term is 'Grade(s)'

⁷ Hereafter, states/UTs is referred to simply as states for simplicity.

Focus on Secondary Education

Caught up in the rhetoric of globalization, CABE's USE advisory report enthusiastically claims that "the 21st century belongs to India" (USE Report, p. 5). It touts a heavy investment in education as the path to establishing a globally competitive order and promoting sustainable development. By defining a conventional expectation of secondary education as "enhancing the nation's capacity to face the challenge of global competitiveness" (18), it insists that this new investment in education be a focus on universalisation of secondary education. Section 2.3.25 of the Chapter on 'Secondary Education' in the Tenth Five Year Plan (2002-2007) declares that the increasing success of universalisation of elementary education initiatives has created increased demand for secondary education. Section 2.3.14 designates the crux of the Tenth Five Year Plan as "meet[ing] the increased demand for secondary education".

GoI's desire for *secondary* education to prepare Indians to compete in a globalized world order also seems to stem from low higher education enrollment rates (about 6%). The USE policy document of 2004, produced mid-way through the duration of the Tenth Five Year Plan, cites alarming failure rates for the public exams marking the end of secondary education (Class 10)⁸. Given that the transition rates through Class 9 are now over 90%, and the dropout rate between Classes 9 and 10 is less than 10%, the failure of over half the students taking the Class 10 public exam creates a collective success rate of less than 40% of those who transition into Class 9 (49). CABE charges this mass failure at the board exams to pedagogies that emphasize lower order cognition and memorization (p. 26).

High rates of failure at the end of secondary education cause students to transition out of education into the workforce. Secondary education is "the minimum common denominator" because "it is the single largest provider of working people in all spheres of national productivity" in India. (p. 31) GoI realizes that secondary education must teach students skills to help them transition into the new globalized workforce. The USE policy document defines these required skills to be ability to "think critically, solve problems individually and collectively, [and] be creative" (26) and classifies them under "higher order thinking and cognition" (Ibid). Given all these reasons, CABE has advised the GoI to focus on

⁸ I have given an explanation of the stages of education in India in the Background section. I have also included a tabular version in Appendix 1.

universalizing secondary education and disseminating higher order cognitive skills through secondary education. For the same reasons, this monograph sports a similar emphasis on the secondary level of education.

DSHE also identifies a major challenge facing the Indian education sector to be retention in secondary education. Gross enrollment at the secondary level was established as 39% for 2003-2004 (DSHE Website). However, gross enrollment at the tertiary level for 2003-2004 was a paltry 9% (Ibid). Given the plunge in numbers between enrollment at the secondary and tertiary levels of education, and given that at least four years separate these levels of education, one can assume a gradual decline in enrollment over the secondary and higher secondary years. I have chosen to focus my monograph on a Class 10 public exam because this gradual decline in enrollment indicates that more students probably appeared for the Class 10 (secondary) exams than the Class 12 (higher secondary) exams. I present my justification for studying the ICSE exam in the next section.

*The ICSE exam*⁹

The public exam administered by the CISCE board at the end of Class 10 is called the Indian Certificate of Secondary Education (ICSE) and is the focus of my monograph. It marks the culmination of secondary education for CISCE-affiliated schools, forming a natural stop-point for students who want to discontinue their education or switch to different higher secondary public exam boards. For both these categories of students, the ICSE is a high stakes exam; marks obtained in the ICSE influence their chances of employment and their admission into other exam systems.

Since higher secondary (Class 11-12) classes are conducted by universities or colleges in some states (DSHE Website), CISCE-affiliated schools in these states may not even offer Classes 11-12, culminating in the ISC Higher Secondary public exam. If students from such schools want to continue their education after Class 10, they are expected to enroll in university/college classes. College marks the beginning of academic specialization in India; these students are compelled to choose between the Science, Arts and Commerce streams when they enroll in college after Class 10. For CISCE-affiliated students, the outcome of the

⁹ Some information in this section and the next stems from my personal affiliation with the system as a student for 12 years, culminating in the ICSE exam at the end of Class X.

ICSE exam is the decisive factor in higher secondary college enrollment. Moreover, it greatly influences their chances of admission into the academic stream of their choice, especially into the competitive Science stream, that is the beginning of the road to engineering and medical degrees, both considered highly prestigious in India. The ICSE exam is a high-stakes exam because ICSE exam results are given great weight in the competitive higher secondary college admissions process. I also chose to study the ICSE because of personal affiliation with the system and consequently, easier access to ICSE schools, administrators, teachers and students for possible future field work.

The ICSE Focus on English Education

The stated objective of CISCE is “educational, and includes the promotion of science, literature, the fine arts and the diffusion of useful knowledge by conducting school examinations through the medium of English” (CISCE Website). The ICSE exam is conducted in English and all ICSE schools are English medium for all subjects.

The proposal for setup of CISCE¹⁰ was brought up at the 1956 meeting of the Inter-State Board for Anglo-Indian Education. The Council was set up to administer the University of Cambridge Local Examinations Syndicate’s examinations in India and advise the Syndicate on how to best adapt their exams to Indian needs (CISCE Website). After its establishment, the Council administered the Cambridge exams in India, sending the exam papers to England to be graded. Eventually, the Council created the Indian Secondary Certificate (ISC) exam which was graded in India. After all states adopted the 10+2+3 system, the Council altered their examination system to include two exams – the ICSE (end of Class 10) and the ISC (end of Class 12) (Personal correspondence¹¹). Given its origins in Cambridge, the ICSE’s tie to English language (vs. Indian language) education is apparent.

Having been the language of India’s British colonizers, English was designated as an official language of the GoI, along with Hindi, after gaining independence from England in 1947. Since then, English has been increasingly spoken all over India. Besides becoming the language of government and commerce, it is often used as the lingua franca in multi-lingual parts of India. With the advent of a globalized Indian economy and foreign trade connections,

¹⁰ The CISCE is also referred to as The Council throughout this monograph.

¹¹ Mrs. Jessie Vaz, Principal of Jamnabai Narsee High School (ICSE), Mumbai.

English will become even more important as a means of communication with individuals from different countries, in the name of commerce. For this reason, it is important to analyze the skills that Indian graduates, stepping into new knowledge and service-related industries, obtain through English education. The Programme of Action (PoA) devised in 1992 as a revision of the National Policy on Education of 1986 declared that the “study of English deserves to be specially strengthened” (PoA, p. 40).

The Council has emphasized its preference for education in the English language by designating the English language and literature ICSE exams as “first language” papers. The first subject listed under Compulsory Subjects (Group 1)¹² is English, followed by a second language subject with a choice of Indian language or modern foreign language. Studying an Indian language is not compulsory while studying English language and literature is. Though students are given a fairly wide range of ICSE subjects to choose from, they are constrained in their choice by the nature of the school they attend. Schools often do not offer all the listed subjects due to lack of resources or availability of certain subject teachers over others; students are therefore compelled to take the ICSE subjects their school offers. However, because English language and literature is a compulsory subject, all schools offer this subject regardless of resources, location or school quality (for which number and types of subjects offered can be a proxy).

The evidence I have presented above creates a case for the study of the English subject exam of the ICSE system. For these reasons and with the intention of making my study relevant to and beneficial for all ICSE schools, I have focused my monograph on the ICSE English exam and the thinking skills it develops in students.

¹² For a full listing of subjects offered and subject choices allowed, please refer to Appendix C. Alternatively this list can be found in the ‘ICSE 2006 Regulations, Syllabus and List of Prescribed Texts’ document on the CISCE website at the following url: <<http://www.cisce.org/fileadmin/syllabus/ICSE-2006/Contents%20ICSE.pdf>>

Research Questions and Argument

Given GoI's recent interest in reconceptualising the future of secondary education to instill higher order thinking skills in students¹³, it is important to investigate what types of thinking skills have historically been assessed by public examinations that cap secondary education in India. My monograph seeks to explore what types of cognitive skills were historically assessed by the high-stakes ICSE examination, one of three types of such public examinations. My monograph first asks the question:

- I. What types of thinking/cognitive skills have the Indian Certificate of Secondary Education (ICSE) English literature exam papers assessed in students during the time the exam has been in existence?

When concern for improvement in access and quality of Indian education heightened, GoI devised a National Policy on Education (NPE) in 1986. This move towards monitoring education policy was the first attempt at leadership in education by the Central Government since the Constitutional Amendment of 1976 that divided responsibility for education between the Centre and the states. Regarding cognitive skills tested by examinations, the NPE (1986) suggested in its section titled "Reorienting the Content and Process of Education" that examinations should sport a "de-emphasis of memorisation" (Section 8.24). Memorisation leads to fulfillment of a 'Knowledge' learning objective that is considered the first level of cognition or lower order cognition in literature on cognition and learning objectives¹⁴. By condemning extensive memorisation of material for examinations, NPE denounced the testing of lower order cognitive skills in examinations.

The CISCE described the ICSE exam as "an examination in a course of general education, in accordance with the recommendations of the National Policy on Education 1986, through the medium of English" (CISCE Website). Given that NPE (1986) recommended a de-emphasis on memorisation," the CISCE board indirectly claimed to have de-emphasized memorisation or the testing of lower order cognition in the ICSE examination, in the spirit of following the rhetoric of NPE (1986) recommendations. By studying types of cognition

¹³ Discussed in detail in Introduction and Background

¹⁴ This concept is further discussed in the literature review.

assessed by the ICSE English Literature exams over a range of years, I also seek to answer the following question:

- II. Did the rhetoric of higher order cognition in India's National Policy on Education (NPE (1986)) express itself in practical changes in the Indian Certificate of Secondary Education (ICSE) English Literature exams?

A de-emphasis on lower order cognitive skills like memorisation, as advocated by NPE (1986), implies an increase in questions assessing higher order cognitive skills. In investigating the answer to the question presented above, my monograph also asks the following two sub questions:

- A) Has there been an increase in ICSE English Literature exam questions that test for higher order cognition during the time the exam has been in existence?
- B) Was there a "de-emphasis on memorisation" or a decrease in the number of questions assessing lower order cognition (by implication, an increase in the number of questions assessing higher order cognition) *after* the NPE (1986) recommendations that the CISCE claims to follow in the conduct of the ICSE?

Addressing the consequent need to shift pedagogies to assess altered examination structures, NPE (1986) also called for "changes in instructional materials and methodology" (Section 8.24). While it would be interesting to examine whether ICSE schools have altered instructional materials and methodology in response to the dictates of the NPE 1986 that CISCE advocates, assessing changes in pedagogies that accompany possible changes in cognitive skills tested in the ICSE examination is beyond the scope of this monograph.

Critical Literature Review

Three strands of literature inform my research: 1) detailing the importance and prevalent conceptions of higher order cognition; 2) examining frameworks designed to measure higher order cognitive skills and reviewing examples of these frameworks in use; and finally, 3) literature on ways to incorporate higher order cognitive skills in teaching and testing.

Supporting and Defining Higher Order Cognition in Learning

Before examining whether higher order cognitive skills are tested for in the ICSE English Literature exam, it was essential to first review definitions and conceptions of higher order cognition¹⁵ found in the literature.

Lauren Resnick posited, in her 1987 AERA Presidential Address, that though it is difficult to pin an exact definition to higher order thinking, such thinking is easily recognizable when it occurs. She envisioned civic education as “a culture of reason, analysis and reflection, based on certain shared knowledge” (Resnick (1987¹⁶), p. 19). Not only did she establish the importance of higher order learning in a democracy (Ibid), but also sketched a definition of higher order learning as encompassing “reason, analysis and reflection”. Resnick’s concern that a functioning democracy’s citizens be schooled in higher order thinking was reflected in the thoughts of Kissock & Iyortsum (1984) who lamented the paucity of institutions of learning that develop citizens capable of making reflective decisions on their own about things of concern. They went on to criticize teachers for ignoring:

“higher levels of thinking that direct students to find relationships between ideas, draw inferences, explain facts, make judgements for generalizations, interpret, apply skills and understanding to new situations, analyze, and create new ideas, all of which are necessary for the development of critical thinking.” (p.3)

They also denounced “recall learning which requires pupils simply to repeat information and facts memorized earlier” (Ibid). By equating the lack of higher order learning in educational

¹⁵ Higher order: cognition, cognitive skills, thinking skills and learning (since it is related to thinking skills) are used interchangeably throughout this monograph. Since ‘critical thinking’ is widely defined in the literature to be part of higher order learning, ‘critical thinking’ is sometimes used as a stand-in for higher order learning in this monograph.

¹⁶ *Learning in School and Out*: Modified version (1987) of AERA Presidential Address of 1987.

institutions with their failure in preparing students to actively function in a democracy, Kissock & Iyortsum illustrated the importance of higher order thinking for civic education.

Other researchers also advocated higher order learning in different contexts and for different reasons. Yet, they shared a common belief in its importance in education today and defined its characteristics similarly. Lewis & Smith (1993) perceived problem-solving as necessary for the scientific and mathematic realm and evaluative critical thinking to belong to the purview of the humanities. In order to transcend this split between the humanities and the sciences, they proposed the term higher order thinking and offered the following definition:

“Higher order thinking occurs when a person takes new information and information stored in memory and interrelates and/or rearranges and extends this information to achieve a purpose or find possible answers in perplexing situations.”

They posited that higher order thinking encompassed problem solving, critical thinking, creative thinking and decision making; critical thinking, often used as an alternative term for higher order cognition, actually fell under the aegis of the term higher order thinking.

Kaasboll (1998) stressed the importance of critical thinking in research skills; students embarking on a thesis in any discipline should be able to think critically about defining their own problem, finding methods and questioning the literature. He also insisted that engineers of the future needed to develop communicative skills and that creativity was an important student trait. Having established the importance of critical thinking in training students to be engineers and researchers, Kaasboll cited Pascarella and Terenzini’s (1991) definition of critical thinking as:

“the individual’s ability to do one or all of the following: Identify central issues and assumptions in an argument, recognize important relationships, make correct inferences from data, deduce conclusions from information or data provided, interpret whether conclusions are warranted on the basis of the data given, and evaluate evidence or authority.” (Pascarella & Terenzini (1991), p. 118)

According to the above definition, a student that possessed critical thinking or higher order learning abilities must possess skills of reasoning, inference, analysis, deduction, interpretation and evaluation. This definition closely paralleled Kissock & Iyortsum’s (1984) conception of higher order thinking cited above.

Takona (1999) claimed that one who was “indubitably educated” possessed the skills of “problem-solving, inferential thinking, and various higher order mental processes” (Takona (1999), p.1). He cited Jones and Idol (1990) who voiced support for higher order thinking and defined it as:

“students’ capacities to acquire, analyze, and apply complex information, to locate, communicate, and produce information effectively, to solve problems quickly and efficiently, to be committed to life long learning” (p.3).

According to this definition, higher order thinking encompassed comprehension, application, analysis, information production or synthesis and problem-solving. Maier (1933, 1937) and Newman (1990) also offered similar definitions. Fogarty & McTighe (1993) organized thinking skills into First-Story Intellect (Skill Acquisition), Second-Story Intellect (Making Meaning) and Third-Story Intellect (Transfer and Application). Smith (1987) posited four thinking skill categories of increasing importance: problem solving, decision making, critical thinking and creative thinking. Sociologists Rau & Heyl (1990), Smith & Malec (1995), Smith (1996) and Thompson (1996) also showed interest in higher order cognitive processes such as problem-solving and critical thinking.

Malekzadeh (1998) defined critical thinking and familiarity with the concepts of globalization and diversity as crucial skills for his business students’ success in the corporate world. He restructured the undergraduate business curriculum at the School of Management at Arizona State University to include writing, an exercise that he proposed employed critical thinking. He posited that writing for critical thinking “must not be “tell all you know”” and that it “should require interpretation”. Implicit in this description of the writing component of his curriculum was an underlying emphasis on students’ higher order ability to sort through their knowledge and distinguish between more and less important themes. In his implicit conception of higher order learning, he echoed Pascarella and Terenzini’s (1991) notion that critical thinking required students to “identify central issues and assumptions” (vs. possess knowledge of peripheral issues) and “recognize important relationships” (vs. pay heed to less important relationships between concepts). If identifying central issues and recognizing important relationships (among other skills) are considered examples of higher order learning in the literature, then acquiring knowledge of peripheral or unimportant issues (perhaps as

part of a crusade to acquire as much knowledge about a subject as possible) can be considered an example of lower order learning.

McLoughlin (1996) conceptualized critical thinking as “inherent in all academic tasks which involve reading, writing, arithmetic and problem-solving” (p. 95). She proposed that higher order cognition begins where lower order cognition can no longer supply the answer to a problem, for instance, “when problems are exposed which cannot be solved through recall and application of previously learnt knowledge” (Ibid). She cited Bruner’s (1971) proposal that creative thinking was a means of extending cognition beyond the information supplied by the problem and was essential for problem-solving. Cognition that rests merely on making use of recall, previous knowledge and the information given by the problem can be classified as lower order learning by default. She emphasized the importance of extending learning beyond subject knowledge in a world of dynamic technological changes.

McLoughlin also posited that high level of learner initiation indicates that higher order learning processes are being used by learners. Learner initiation occurs when learners take responsibility for their own education and become active agents of their own learning. Rowe (1993) and Mayer (1992) also regarded greater self-actualization as linked to higher order learning. Student-centred learning occurs when learners “pose questions and self-evaluate their own learning” and “monitor [their] own performance” (McLoughlin, p. 95), when “self-directed learning” and “authentic interactions” (Ibid) are considered key pedagogical strategies and when students become “independent and productive learners and thinkers” (Ibid). Donald (1999) posited such self-directed learning as essential to achieve the goal of student motivation. Astin (1993) demonstrated that motivated students have improved problem solving and critical thinking ability. Even in the reader response-centred method of teaching literature, teachers attempted to develop students’ higher order cognitive skills through external stimuli in the form of questions that required reader response. While this pedagogical strategy spurred students towards “involvement and inquiry” (Dilworth (1980), p. 50), it was simply a catalyst for an intellectual journey that was the student’s very own. Such agency in learning was indicative of learners’ use of higher order cognition; they were no longer passive recipients of a vast body of knowledge meant for instant recall.

Furst (1950) demonstrated the low relationship between measures of intelligence and measures of complex or higher order cognitive skills, generating the view that since

intelligence was constant and unchangeable, higher order cognition could not be developed through learning experiences. However, Bloom (1956) illustrated how different curricular plans either produced a high correlation among measures of different objectives or a correlation that merely reflected chance. Bloom's (n.d.) work revealed that:

“students perform best on the lower mental processes involving knowledge and perform less well on items involving some interpretation and comprehension, and perform least well on test problems requiring application, higher order, mental processes and complex inferences” (p. 45)

If students tend to perform best on tasks requiring lower order cognition, then performing well on tasks requiring higher order mental processes is a test of true achievement.

Subsequently, research has linked higher order cognition with higher achievement (Rowe 1993; Mayer 1992). McLoughlin (1996) proposed that “thinking skills are teachable and learnable” (p. 95). Collectively, these studies indicated that all students could reach greater levels of achievement if taught to use higher order cognition effectively. Warner (2004) equated students' poor achievement in the sciences with their use of lower order learning techniques such as memorization and comprehension. Resnick (1987) proposed that failure to cultivate higher order thinking skills might be a source of learning difficulties even in elementary school. A review of relevant literature by Takona (1999) revealed that several researchers (Brophy & Evertson 1976; Redfield & Rousseau 1981; Berliner 1984) found an increase in student achievement when students were asked to move beyond recall of facts and use higher order cognitive skills such as application, analysis, synthesis and evaluation. Andre (1979) actually found that higher order questioning facilitated learning over lower order questioning. A notable exception to the literature linking higher order cognition with increased learning was Gall et al.'s (1978) study that revealed recitation teaching or recall-based teaching to be more effective in facilitating student learning¹⁷ than other instructional strategies such as probing, redirection or higher level cognitive questions, suggesting that emphasis on fact instead of higher cognitive questions might be pedagogically desirable. While these findings were thought-provoking, they stood alone in a sea of literature that credited instruction utilizing higher order cognition with promoting student learning and achievement.

¹⁷ Student learning was defined as acquisition and retention of information about curriculum content and ability to respond orally and in writing to higher cognitive questions about curricular content.

The sampling of literature reviewed so far has posited that developing higher order cognitive skills is important for effective civic education, for researchers and engineers, for university students (Takona 1999), for graduate study (Browne et al. 1995) for business students, for students who learn through telematics (McLoughlin 1996), for learner agency and self-actualization and for promoting student learning and achievement. Higher order mental processes were deemed important for many aspects of life, for many professions and at all levels of education. Besides secondary and tertiary levels of education, higher order thinking were posited as beneficial for middle schoolers (Roberts 1976), elementary school students (Noble 2004) and even preschoolers (Bogan & Porter 2005; Bailey & Leonard 1977). An exploration of definitions and conceptions of higher order learning in the literature revealed that most researchers agreed that higher order mental processes extended learning beyond memorization and recall (considered lower order cognition) and encompassed the following skills: reasoning, analysis, reflection, explanation, inference, interpretation, application, problem-solving, creation or synthesis and evaluation.

The importance accorded to higher order learning in contemporary society further justified my study on higher order cognition in the ICSE English Literature exams. My discussion on conceptions of higher order thinking in this section informs the next section detailing frameworks used to measure higher order cognition in teaching and testing. I will describe the framework I used in the *Data and Methods* section.

Measuring Higher Order Cognition in Teaching and Testing

Smith (1977) showed that use of cognitive categorization systems to organize classroom questions with an attention to higher order cognition produced greater higher order learning outcomes than posing questions that merely measured lower order thinking like factual recall. I applied one such cognitive classification system called Bloom's Taxonomy of Educational Objectives to the exams I analyzed in my study. While I will present a comprehensive exploration of my use of Bloom's concepts in the *Data & Methods* section, I offer here a general discussion of cognitive classification frameworks, including Bloom's.

As early as 1943, Durrell wrote of the importance of familiarity with the knowledge and vocabulary of a field in order to advance to comprehension and application of knowledge within the field. His work reads like a pre-cursor to Benjamin Bloom's seminal 1956 text

discussed below. By calling for systematic means to measure thinking skills, Durrell paved the way for Bloom's taxonomy to appear twelve years later. The first major classification system devised for the cognitive domain was Bloom's taxonomy published in 1956 in *Taxonomy of Educational Objectives, Handbook I: Cognitive Domain*. This Handbook has been translated into over twenty languages and is still used as a gold standard for test design and curriculum globally (Anderson & Krathwohl 2001). A number of alternative frameworks have since appeared, drawing upon and attempting to improve the original design (Ibid). The most recent attempt is *A Taxonomy for Learning, Teaching and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*, published in 2001 and edited by Anderson, & Krathwohl. I will first briefly describe Bloom's taxonomy and then Anderson et al.'s revision of the original, based on careful consideration of major alternative frameworks that emerged since the original to the time of their revision. Since I have examined and classified English Literature exam questions in this study, I will then present cognitive classification systems that apply particularly well to literature questions, as reviewed by Dilworth (1980).

Bloom's taxonomy is organized into six major cognitive skill categories: Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation. The objectives in each ascending class are meant to build on the behaviours of the preceding classes; each of Bloom's higher stages depends on mastering the previous stages (Hamblen (1984), p.42). This hierarchical, sequential classification rests on the notion that simple behaviours aggregate to form a more complex behaviour (Bloom (1956), p. 18). Students need basic knowledge before using the higher cognitive domains in their learning (p. 62). However, the Knowledge level involves the cognitive process of recall that "involves little more than bringing to mind the appropriate material"¹⁸ (p. 201) and affords a simplicity in teaching and learning that pleases educators (p. 34). The higher cognitive categories involve basic knowledge but employ recall only as part of more complex mental processes (p. 62). I have assembled definitions of each of the categories, as provided by Bloom, in Appendix 4.

Anderson et al.'s revised taxonomy built upon the work of alternative frameworks and represents the most comprehensive current evolution of Bloom's taxonomy. A summary comparison of the revised (2001) and the original (1956) framework can be found in

¹⁸ Interestingly, Durrell (1943) proposes aided recall (ex. multiple-choice, matching or true-false questions) to be of lower order than unaided recall that requires facts or anecdotes to come to mind spontaneously.

Anderson et al. on p. 310. The main differences are that comprehension was changed to 'understand' and synthesis to 'create' while the fifth and sixth categories (synthesis and evaluation) were switched. Though the revised taxonomy is a thoughtful and purposeful reorganization of the original, it is a relatively new and untested classification system. Since there is no disagreement between the new taxonomy (whose creators carefully considered all the major alternative frameworks in between 1956 and 2001 when constructing their revision) and the original regarding the basic classification of cognitive categories, I have used the original (1956) taxonomy for my study. For a comprehensive comparison of major alternative uni-dimensional and multi-dimensional frameworks with the original taxonomy, I ask the reader to refer to Anderson et al., p. 262-63 (uni-dimensional) and p. 276-77 (multi-dimensional) and find it redundant to reproduce these comparisons here. Other scholars have also compared Bloom to major cognitive theorists. Phipps (1981) found Bloom's view of learning and cognitive development to be similar to those of Piaget, Krathwohl and Harrow. Sorenson & Addison (1977) found similarities among Bloom, Guilford, Taylor and Williams.

I now briefly examine major cognitive frameworks used to categorize questions used in the teaching of literature, as drawn from Dilworth's (1980) study, aptly titled "Asking Questions about Literature". Critical heuristic inquiry, a pedagogical strategy for teaching about literature, begins with a literal level of questioning, devoid of inference or interpretation. Studies (Finder 1974; Barrett (discussed in Clymer (1968)) posited that questions must address the literal-comprehension level before ascending to higher critical levels which call for Part-Whole Comparison of items in the text. Ruland (1967) addressed clarification of the theme of a work of art through seven views that progressed from first impressions to analysis, then graduated to application and finally concluded with evaluation of the theme. These frameworks closely resemble Bloom's taxonomy in structure and organization. Guilford's (1956) cognitive categorization model (also discussed by Anderson et al. 2001) covers a cognitive range similar to Bloom's but with far more subcategories (Dilworth 47). Guilford's subcategories relevant to the study of literature are: cognitive memory (equivalent to Bloom's Knowledge and Comprehension levels), convergent cognition (Bloom's Application and Analysis), divergent cognition (Bloom's Synthesis) and evaluative cognition (Bloom's Evaluation). Unlike the models that proposed a graduation

from the literal comprehension to the higher cognitive levels, Guilford's model allowed for questions to begin at any level and graduate to another.

Taba (1966) and Herber's (1970) models were further simplified; Taba's categories are Concept Formation, Interpretation of Data and Application and Herber's levels are literal, interpretive and applied. Gordon's (1955) cognitive categorization levels are: remembering facts (equivalent to Bloom's Knowledge), testing generalizations, deriving generalizations (Bloom's Analysis), deriving theme (Bloom's Application) and establishing personal relevance (Bloom's Evaluation). Lastly, Dilworth describes a reader-response centred literature classroom that centres on student responses (instead of pulling questions from cognitive categories) and gradually builds to questions that test students' higher order mental processes. Bleich (1975) actually organizes reader-centred discussions of literature around emotion-(vs. cognition) based categories: thoughts and feelings, feelings about literature, deciding on literary importance and interpretation as a communal act.

I reviewed the numerous cognitive classification frameworks I have presented as I designed my study. However, the formidable record of Bloom's *Taxonomy of Educational Objectives, Handbook I: Cognitive Domain* and the longevity of his taxonomy presented in its pages make this cognitive classification system the best choice for my study. After a review of eleven major classification systems, Gall (1970) found Bloom's taxonomy to be the best representative of commonalities among different classification systems. Hamblen (1984) found Bloom's taxonomy to be "the most definitive and encompassing" (p. 43). Additionally, Bloom's educational philosophy has influenced Indian education in the past. In 1957, under the guidance of Dr. Bloom, about three hundred Indian educators participated in a series of workshops sponsored by the All-India Council for Secondary Education and devised models of test questions based on higher order cognitive processes. Bloom's prior impact on Indian education also influenced my decision to use his taxonomy for my study. The next section gives examples of Bloom's taxonomy in action; such studies provided a model for my own.

Examples of Bloom's Taxonomy in Use

Farley & Clegg (1969) noted educators' widespread acceptance of Bloom's taxonomy in designing and evaluating curricula. Research that uses Bloom's taxonomy roughly falls into

two types – studies that use the taxonomy to cognitively evaluate existing curricula and tests and studies that use the taxonomy to design curricula and tests that align with higher order cognitive objectives.

An example of an evaluative study is Takona's (1999) measurement of cognitive levels utilized in answering undergraduate examination questions at Moi University in Kenya. On categorizing exam questions from different classes across different departments according to Bloom's taxonomy, coders found that most of the exam questions utilized lower order mental processes except for some applied field classes which used (and were expected to use) higher order mental processes such as application. Only exam questions for the application oriented classes at Moi University assessed higher order mental processes. Manthey (2005) analyzed all of California's content standards using Anderson et al.'s revision of Bloom. He found that though the content standards reflect the notion that higher order thinking makes for effective teaching, the most common pedagogical strategies seemed to involve lower order thinking. Jackson (1995) also notes disconnect between educational objectives and classroom experience.

Studies have used Bloom's taxonomy to evaluate levels of cognition in numerous contexts. Parks (1966) used the taxonomy to analyze publishers' tests accompanying high school texts in various social studies subjects and found the majority of test items to be knowledge or comprehension based. Davis & Hunkins (1966) made a similar discovery on using Bloom to analyze questions in fifth grade social studies texts. Trachtenberg (1974) had coders familiar with the texts¹⁹ use Bloom's taxonomy to examine all study questions, exercises, suggested activities and test items in nine sets of world history texts. Coders found that about 63% and 36% of questions fell into the knowledge and comprehension categories respectively. Roberts (1979) tested a fifth and sixth grade 'dynamics thinking' curriculum that aligned with the fourth and fifth levels of Bloom's taxonomy.

Karns et al. (1983) used the taxonomy to evaluate course objectives of best-selling economics texts and accompanying instructor manuals. This study then compared the educational levels of course objectives with those of exam questions in the manuals. Domin (1999) categorized verbs in undergraduate general chemistry lab manuals into Bloom's

¹⁹ My unfamiliarity with ICSE English literature texts was a limitation of this study and is discussed further in *Data & Methods*.

cognitive levels; most manuals did not promote higher order thinking skills. Dickie (2003) used a scheme derived from Bloom's taxonomy to examine what first year physics college quizzes and tests intellectually assessed in student and found that most questions only tested routine problem-solving. Christopher et al. (2004) used Bloom's taxonomy to evaluate students' thinking levels in online discussion forums in a graduate class in gifted education. Interestingly, this study revealed that questions from higher order cognitive categories did not necessarily produce answers reflecting higher order thinking. Schrire (2004) used Bloom to evaluate cognition in the learning process in three asynchronous computer conferences.

Similarly, a plethora of studies have designed curricula and tests aligned with Bloom's cognitive objectives for numerous contexts. Bogan & Porter (2005) proposed preschool as the opportune time to begin to use Bloom's taxonomy in the classroom; they developed a curriculum using a ball to encourage higher order thinking in preschoolers. Bailey & Leonard (1977) advocated using Bloom's taxonomy to create preschool curricula for gifted and talented students. By using Howard Gardner's multiple intelligence theories and Bloom's taxonomy as planning tools for curriculum differentiation in two elementary schools, Noble (2004) succeeded in intellectually challenging students and catering to learners' different strengths. Ross (1975) and Pungente & Badger (2003) recommended the use of Bloom's taxonomy to improve students' reading comprehension and grasp of organic chemistry, respectively. Miller (1990), Johnson (1977) and Hamblen (1984) make a case for using Bloom's taxonomy to push students towards higher order cognition in vocational, teacher and art education respectively.

Leech & Holcomb (2004) used Bloom's taxonomy to select distance education techniques while designing an online Masters' degree program in Rehabilitation Counseling. Granello & Underfer-Babalis (2004) illustrated how group counselors can use Bloom's taxonomy to instill higher order thinking and cognitive complexity in supervisees through group work. Athanassiou et al. (2003) found that students' journals and assignments reflected higher levels of thinking after Bloom's concepts were emphasized in the management classroom. Browne (1976) showed how business administration professors implemented an explicit-classroom-objectives system derived from Bloom. McDaniel (1979) detailed how college teachers in various academic disciplines can use Bloom's taxonomy to organize essay-writing instruction. Keagan (1977) reported that using a tool based on Bloom's taxonomy

helped structure the diverse aspects of nontraditional education while addressing the concern for educational objectives and accountability. Finally, several studies (Sanders (1966); Clegg et al. (1968); Sadker & Sadker (1977)) showed how designing questions according to Bloom's six cognitive levels help students thoroughly explore a lesson.

Promoting Higher Order Cognition in Teaching and Assessment

Goffe & Deane (1974) pinpointed the necessity of using all levels of Bloom's taxonomy with properly framed questions. Multiple studies cited above encouraged the use of the taxonomy in framing questions for effective teaching of different subjects. Lucking's (1974) response to Goffe & Deane proposed that questions can be posed both in an ascending movement from lower to higher order cognition and in a descending direction from the abstract and evaluative to the concrete. Various contemporary American education programs such as the Georgia Critical Thinking Skills Program²⁰ and Dr. Stanley Pogrow's Higher Order Thinking Skills (HOTS) program²¹ provide resources for effective framing of higher order cognition questions. The interested reader can find a description of their approaches to promoting higher order cognition at the websites provided in the footnotes.

Lewis & Smith (1993) exhorted teachers wishing to evaluate students' higher order thinking skills to veer away from questions that tested mere recall of information or lower order cognition. They posited that students who are asked to decide what to believe, what to do, create a new idea, a new object or an artistic expression, make a prediction or solve a non-routine problem are exercising higher order cognitive skills. Several studies described tried and tested activities designed to incorporate such higher thinking skills. Rule & Lord (2003) compiled curricular units with activities addressing each of Gardner's multiple intelligence at each of Bloom's cognitive levels. For instance, in a 12th grade unit titled 'Starting a Home Business', an activity that addressed mathematical-logical intelligence at the application level of Bloom's taxonomy involved students using educational software to simulate the profit/loss aspects of a business. A mathematical activity at Bloom's higher cognitive level of analysis involved comparing the positives and negatives of two home

²⁰ <http://www.glc.k12.ga.us/pandp/critthink/homepg.htm>

²¹ <http://www.hots.org>

businesses. Unit designers provided synthesis and evaluation activities in a similar fashion. This curricular compilation provides practical examples of higher order cognition in action.

Johnson (1977) described a Brooklyn College history class designed in alignment with Bloom's taxonomy. Students were first quizzed on historical facts. To test their comprehension, they were asked to relate a survey to historical documents. Students then applied concepts learned in class to recent political problems. By writing critiques of interpretations of their topic found in scholarly articles, they exercised powers of analysis. They then re-wrote sections of a history text as a synthesis activity. Johnson claimed that students mastered material more thoroughly by tackling assignments that progressively ascended through Bloom's taxonomy. Students wrote sample questions they might ask in a high school exam before and after the class. Johnson found that students wrote more questions pertaining to higher order thinking after the experience of the class. He concluded that using Bloom's taxonomy as a pedagogical strategy helped "sharpen the critical, analytical, and creative skills of the students" (p. 431).

A host of studies discussed the role of technology in promoting students' higher order thinking. Clariana & Koul (2005) discovered that multiple-try feedback produced higher order learning outcomes over other forms of feedback. Hackett et al. (2005) described educational software that created a higher order learning experience by challenging students to solve cross-curricular puzzles while on virtual balloon journeys. Beaver & Moore (2004) provided examples of technology-reliant activities promoting higher order cognition for a unit on the solar system. The examples included using a page layout application to create a brochure for a trip to another planet or using a spreadsheet to show travel times from Earth to different planets using different vehicles.

McLoughlin (1996) provided a framework for both teachers and students to incorporate higher order learning in the classroom. Teachers must be able to pinpoint instructional outcomes and students must be able to articulate the purpose of a lesson. According to these guidelines, both students and teachers should be involved in building on previous knowledge, supporting student responses, questioning, feedback and evaluation. McLoughlin cited several behaviours described by previous studies as indicators of higher order learning; a sampling includes asking questions and making counter-assertions, providing explanations to peers and guided co-operative questioning. Some higher order learning outcomes endorsed

by McLoughlin were independent learning, presentation of arguments, effective communication and participation in group work.

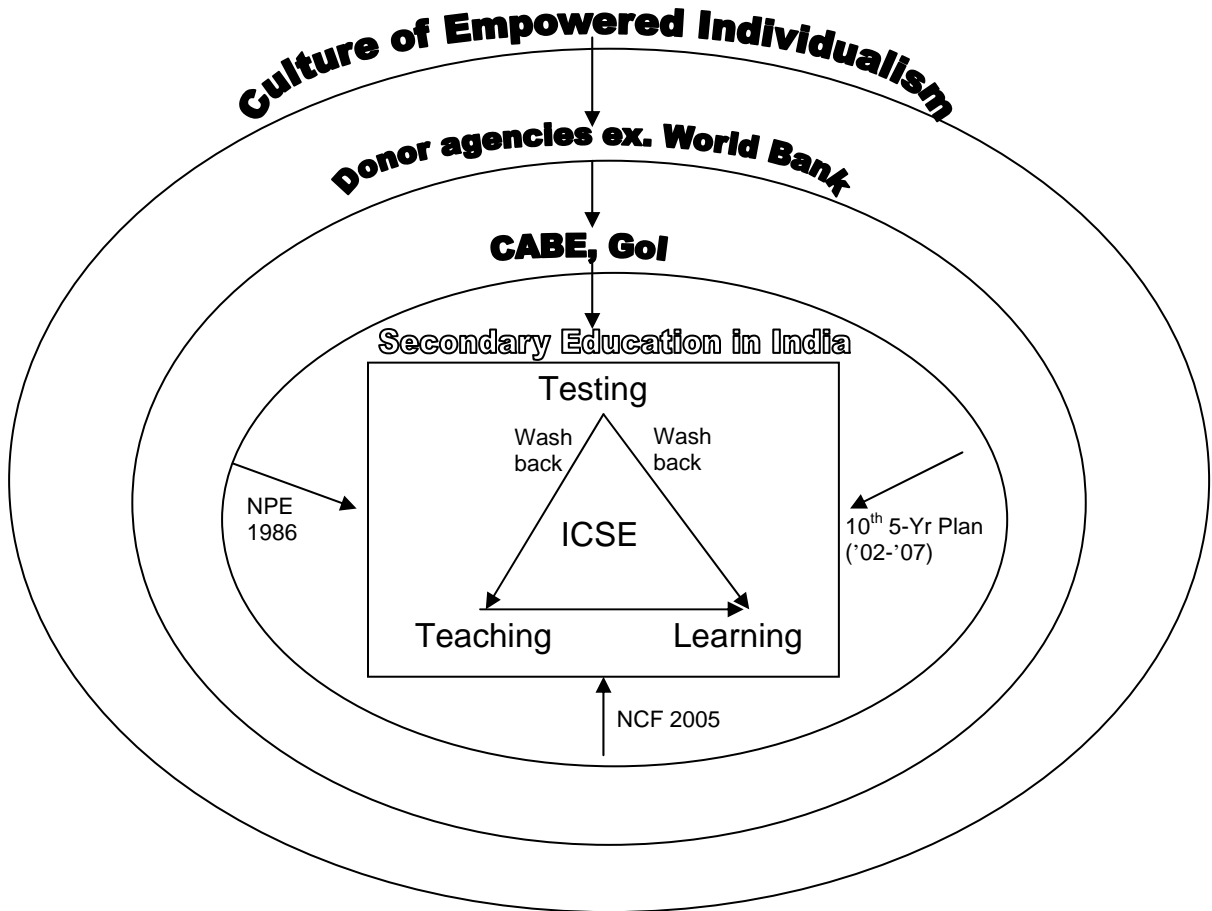
Versions of these strategies for higher order learning were proposed by Durrell as early as 1943. He suggested the development of workbooks to teach classification, the organization and subordination of ideas, outlining, summarizing, supplementing and using ideas, finding examples and applications, raising questions, discriminating fact from opinion, criticizing method of presentation or suitability for a purpose and discovering overgeneralizations. In addition to advocating the study of classical and Romance languages, math, logic and philosophy, physical and biological sciences and the top hundred best books, he emphasized teaching strategies such as case method, problem method, project method, activity curriculum, integration of subjects and core curriculum. While some of his ideas have been superseded by fresh research, others are still valid in the contemporary age.

Other strategies suggested to promote higher order thinking were student involvement, student-teacher interaction, integration of disciplines²² and inductive teaching (Kaasboll 1998). Co-operative learning (encouraging students to work together on structured learning tasks after being provided information) also improved higher order thinking skills (Kealy & Witmer 1991). Fogarty & McTighe (1993) proposed both co-operative learning and graphic organizers as aids to higher order thinking. Reboy & Semb (1991) demonstrated that PSI (Personalized System of Instruction), characterized by self-pacing, unit perfection or mastery, proctors and reliance on the written word, improved higher order cognitive skills. Borchardt (1989) used humorous cartoons and commercials to sharpen students' higher order thinking. Since humor is usually employed to downplay an underlying problem, students can develop higher order thinking skills in the act of identifying the problem. Borchardt's students analyzed visual examples, got critical feedback from imaginative portrayals and exaggerations, participated in active learning and achieved self-actualization through inventive suggestions. Finally, analytical writing assignments were found to sharpen students' higher order reasoning (Malekzadeh 1998).

²² An echo of Durrell 1943

Conceptual Framework

Figure 1



The figure above represents the *ideal* process of transference of rhetoric on higher order cognition through policy recommendations to final implementation of higher order cognitive activities and questions in curriculum and assessment.

The global culture of empowered individualism²³ that views humans as active agents responsible for their own education has engendered a shift in pedagogies from discipline-based to empowerment-based (Frank & Meyer 2006). This global cultural shift, represented by the outermost ring in Figure 1, advocates novel pedagogies that incorporate higher order cognition and also pressures international NGOs and donor agencies (the second ring of influence in Figure 1) such as the World Bank to press for higher order cognition, considered

²³ Discussed in detail in the Introduction

essential for success in the new knowledge economy. These nested rings of influence then impress the Central Advisory Board of Education (CABE) of the Government of India (GoI; the third ring of influence) to construct policies recommending the adoption of higher order cognition in curriculum and testing. Three direct policies – the National Policy on Education (NPE 1986), the Tenth Five Year Plan (section on secondary education) and the National Curriculum Framework²⁴ (2005) are indicated along the arrows illustrating the influence of CABE on the rectangle representing secondary education in India. This monograph is concerned with the influence of the National Policy on Education (1986). The implications of the other policy recommendations are discussed alongside the results of this study.

The triangle called ‘ICSE’ within the rectangle of secondary education indicates that the ICSE is one of several culminating public exams for Indian students completing secondary education (end of Class 10). The ICSE triangle represents a complete curricular system whose sole assessment is the ICSE exam. *Testing* is only one part of the ICSE system (and hence one point in the triangle). The other two points of the triangular representation of the ICSE curricular system are *teaching* and *learning* of material to be tested in the ICSE exam. Numerous studies show that high-stakes testing induces teaching to the test in the classroom (Lazear 2005; Anagnostopoulos 2005; Alderson & Wall 1993 are a sampling) – a phenomenon called ‘backwash’ or ‘washback’²⁵ in educational literature. Washback is a persistent problem in countries that administer high stakes assessments. Lee et al. (2000) describe how Singapore elementary school teachers failed to include a problem-solving approach in classrooms in their quest to cover content tested on the primary 6 School Leaving Examination. Grmek (2004) describes how questions of low taxonomic level on the Matura, Slovenia’s school leaving examination simply tested students’ lower order memorization abilities. Khaniya (1990b) describes how the washback generated by the School Leaving Certificate (SLC) exam in Nepal takes the form of memorization of material and the existence of cramming courses.

Washback or teaching to the test is also a widespread phenomenon in India, a country that administers multiple high stakes public exams. Since the high stakes ICSE exam plays such

²⁴ The implications of this policy are discussed in more detail in *Findings & Discussion*.

²⁵ Anderson & Wall (1993) acknowledge the use of both terms when describing this phenomenon. Since they use the term ‘washback’ and since I will be referring to their work in the *Discussion* section, I use the term ‘washback’ in my monograph.

an important role in determining students' futures, what is tested in the exam influences teaching in the classroom and hence students' learning (indicated by single-headed arrows in the figure). Students' perceptions of what is tested in the ICSE also directly influence students' personal learning and individual preparation for the exam (indicated by the single-headed arrow extending from 'testing' to 'learning' in the diagram).

Based on this model of transference, it seems natural that the rhetoric of higher order cognition eventually filters through policy recommendations to the ICSE curricular system, promoting incorporation of higher order cognition in the exam and consequently in the classroom through washback. My study investigates whether the rhetoric of policy is *actually* expressed in practical changes in the ICSE exam, which would consequently enact real change in the direction of higher order cognition in the classroom through washback. Conceptually, my study tries to determine whether the arrow indicating NPE 1986 (molded by the global push for higher order cognition) actually influences testing at the apex of the triangle. Investigating whether testing consequently influences both teaching and learning in the case of the ICSE system is beyond the scope of this monograph.

Data and Methods

My data consists of the ICSE English Literature examination papers from the earliest administered exam (1972) to the most recently administered exam (2006), amounting to a total of thirty-five annual exams. The ICSE question papers for various subjects are now published yearly in booklet form by Janta Book Depot²⁶, New Delhi under arrangement with CISCE. They are also reproduced by many other independent publishers, often with suggested answer keys. Several educational publishers flaunt collections of '10 Years' ICSE solved papers. I obtained papers from 2006 to 1995 from a combination of widely used publications that reproduced them, including the official versions printed by Janta Book Depot. However, obtaining papers administered earlier than a decade ago is harder. No published forms of these exist in the market due to lack of demand from students who prefer to prepare for the exam by studying more recent question papers. I obtained most papers older than 1995 through the personal collections of friends, family and teachers who had been or are currently affiliated with the ICSE system and through the collection of my high school library.

Students are allowed two hours to answer the English Literature exam. The instructions at the head of the exam paper are reproduced in Appendix 5; a sample exam (1974) detailing the format and types of questions asked is reproduced in Appendix 6. I used Bloom's taxonomy to code the exam questions into Bloom's six categories: Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation. For a description and discussion of Bloom's taxonomical system, please refer to the Literature Review. Based on conceptions of higher order thinking in the literature cited, I considered Application, Analysis, Synthesis and Evaluation as higher order cognitive categories and Knowledge and Comprehension as lower order cognitive tiers. For Bloom's definitions of his categories, please refer to Appendix 4.

I chose four historical time periods during the life of the exam and analyzed three papers of consecutive years for each period. Since the first time period I chose was the beginning of the exam, I coded the 1972, 1973, and 1974 exams. I chose the years right before NPE

²⁶ Janta Book Depot (P), Ltd., 23 Shaheed Bhagat Singh Marg, New Delhi – 110 001; Ph: (91 11) 23362985; Fax: (91 11) 23363685.

(1986) as my second time period; these were the 1983, 1984 and 1985 exams. For my third time period, I chose the years right after NPE (1986), i.e. the 1987, 1988 and 1989 exams. Finally, I chose the most recent three years of the exam – 2004, 2005 and 2006 for my contemporary (fourth) time period.

I chose the earliest and most recent time periods to draw out the trajectory of development of higher order cognition over the lifetime of the exam. I chose the time periods right before and after NPE (1986) to minimize the possibility of an event or policy other than NPE (1986) affecting the incidence of higher order cognitive questions in the exam. By choosing to look at three (vs. one) consecutive exams for each point in time, I minimized the chance that the framing of questions in any particular year's exam might be odd or unusual in any way.

I counted sub-questions as separate questions when calculating total number of questions in each exam. For instance, Q. 1. (v) of the 1974 paper asks: "What revenge on Malvolio was now planned, and why?" This question was treated as two questions that roughly translated into: "What revenge on Malvolio was now planned?" and "Why was this revenge on Malvolio planned?" Once I totaled the overall number of questions for each exam and the number of questions that fell into each of Bloom's categories, I averaged my findings for each category for the three years of each time period. This generated a new average number of total questions and new average numbers of questions that fell into each category for that particular time period or phase. These results are captured in Table 1. Since average total number of questions differed across different phases, I decided to calculate percentages of questions that fell into each category for each time period. These results are presented in Table 2. Because I rounded off to one digit while calculating my averages, the total percentages do not add up to an exact 100 per cent but come very close. I then graphed my results (see Figure 2), showing changes over time in the types of cognitive skills, as defined by Bloom, tested by the ICSE exam.

Some test questions were difficult to code definitively without referring to the textbook(s) on which the questions were based. Studies also demonstrated how independent judges using Bloom's taxonomy agreed on the identification of knowledge, synthesis and evaluation questions but had trouble distinguishing between comprehension, application and analysis questions (Arnold et al. 1973). In cases of coding difficulty, I dually categorized questions that I could not definitively place in one of Bloom's categories. The dual categorizations

were predominantly between the Knowledge and Comprehension categories. In some cases, though I was almost certain that a test question fell into a particular category, I erred in the direction of dual categorization in the event of even the tiniest reasonable doubt. In four cases, I had to triply categorize a question (one each for years 1973, 1974, and two for 2006). To avoid complicating my results, I left these four test questions out of the analysis.

To illustrate the difficulty in categorizing a question as Knowledge or Comprehension, I present an example from the 1972 paper. Q. 11 (i) of the 1972 paper was as follows: “Describe briefly the cause of this argument”, referring to an extract from William Golding’s *Lord of the Flies* printed in the question paper. The author could have simply stated the cause of the argument in question in some portion of his text, compelling students to simply utilize their knowledge of the text to answer the question. In this case, it could be coded as a Knowledge question. However, if the cause of the argument had never been explicitly stated by the author in the text, students would have to tease out the cause of the argument based on their understanding of events and characters in the text, to answer the question. In this case, it could be coded as a Comprehension question. Definitively categorizing the question as either Knowledge or Comprehension depended entirely on my knowledge of the text. Smith (1970) noted the difficulty in categorizing test questions according to Bloom’s taxonomy without knowledge of the subjects’ learning experiences. To illustrate the importance of referring to the text while using Bloom to categorize questions, Hamblen (1984) presented the sample question: “What compositional principles did Picasso use in *Guernica*?” (p.44). While this question seemed to encourage students’ analytical skills, a student who had read a text or attended a lecture addressing Picasso’s compositional principles in *Guernica* need only rely on memory-recall for the answer.

Ideally, I would have liked to study all the texts on which exam questions for these twelve years had been based and accordingly decide on a definitive categorization for the dually coded questions. Unfortunately, obtaining the list of textbooks (called ‘syllabus’ by CISCE) and the actual texts for any year besides the current year (2006) and future years (2007 and 2008) proved to be impossible. These old syllabi are neither uploaded onto the CISCE website or other websites nor do they exist in published form in bookstores or publication houses. I also could not locate these old syllabi in school libraries or in the collections of teachers. Old ICSE textbooks are out of use and therefore out of print and unavailable in the

market. Since they are not referred to any longer, they are not easy to locate, even in libraries. Besides, reading all the textbooks assigned for the twelve years' exams I analyzed is beyond the scope of this monograph and remains an area for future research. To avoid complicating analysis and discussion, I decided to divide dually coded items equally between the two categories they straddled.

I was familiar with some texts assigned for these years either because I had read them for personal pleasure or because I had studied them in preparation for the ICSE. Based on what I remembered of these texts, I managed to fit most test items dealing with these texts into definitive categories, avoiding (for the most part) dual categorization. Interestingly, I found that I assigned most items that I would have categorized as Knowledge *or* Comprehension with no knowledge of the text, to the Knowledge category. I hypothesize that most of the Knowledge-Comprehension dually coded test questions will probably fall under the Knowledge category if I were to study the texts they were based on. I explore this finding in greater detail in the discussion of my results.

Limitations of my study

Naturally, my inability to access the syllabi and textbooks and definitively code the dually coded test items is a major limitation of my study. Obtaining CISCE's official answer keys for the exams would have eliminated this handicap; however, answer keys are only for graders' eyes and are not officially published by CISCE. Several private tutoring classes and independent publishers do publish sample answer keys that are widely available. However, there is no way of discovering how closely these rubrics align with the official answer key used by ICSE graders; such rubrics cannot be taken as representative without further investigation beyond the scope of this study. I was also the only coder; replicating this study with multiple coders to avoid possible subjectivity would have generated more reliable results. The limitations of this study provide avenues for further research which are discussed in the *Conclusion* section of this paper.

Another major limitation of my study is my restricted knowledge on the construction of the ICSE exam papers. Based on personal communication with teachers in the ICSE system, I present here an overview of ICSE exam construction. Teachers who are designated as paper setters (often based on years of experience with the ICSE system) construct sample exam

papers and send them to CISCE from ICSE schools all over India. The Council then chooses the best five or six question papers and constructs an entirely new question paper based on these test questions. I could not find any documentation on this process or any literature discussing the ICSE exam. While I am aware of the process of paper-setting, I am ignorant of how each of these individual test makers approaches the process of creating the original versions of the exam. Do they refer to widely accepted higher and lower order cognition (HOCLOC) classification systems such as Bloom's taxonomy or any subsequent models based on Bloom? Do they use words and phrases designated as triggers for HOC or LOC answers as they construct the test? The only means of answering these questions was extensive fieldwork in India that was beyond the scope of this monograph.

Paper setters come from different educational and teaching backgrounds; there is no standardized or centralized teacher education program in India. Moreover, no one except members of CISCE knows which of these different exam versions are selected as the ICSE exam for any given year. Teachers who are paper setters may or may not be aware of HOCLOC classification systems or HOCLOC phraseology used to frame test questions. Because the identities of the paper setters whose work is chosen for the final version is such a closely guarded secret, I had no way of discovering whether the 'finalist' exams chosen to construct the mix of final questions for the twelve exams I analyzed actually used HOCLOC phraseology in question construction; having this information would have helped me ascertain the definitive categories for some dually coded items. To generate percentages of questions falling into each category for the purpose of this monograph, I equally divided these dually coded items between their two categories.

Findings and Discussion

In order to assess what kinds of thinking skills have been tested by the ICSE English Literature exam over the duration of its existence, it will be useful to first examine the tables and figures on the following pages²⁷.

²⁷ Analysis of findings follows after Tables 1-3 and Figure 2.

Table 1

Numbers of Questions Coded for Each of Bloom's Taxonomical Categories (Including Dually Coded Questions) for Twelve Years' ICSE Eng. Lit. Exams

		1972	1973	1974	1983	1984	1985	1987	1988	1989	2004	2005	2006
	Total Number of Questions (Including sub questions)	63	63	66	108	113	116	120	114	107	95	83	88
K	Knowledge	29	30	25	55	54	62	63	66	58	59	52	47
C	Comprehension	5	6	3	11	13	11	16	8	12	4	11	8
AP	Application	0	0	0	0	0	0	0	0	0	0	0	0
AN	Analysis	3	4	0	1	0	4	0	2	3	1	2	1
S	Synthesis	1	0	0	0	0	0	0	0	0	1	1	0
EV	Evaluation	5	1	2	7	14	13	11	12	4	4	4	9
	DEPENDING ON TEXT												
K/C	Knowledge or Comprehension	18	18	33	33	32	25	29	24	26	23	12	21
AN/EV	Analysis or Evaluation										1	1	
K/AN	Knowledge or Analysis		1		1				1	1	1		
K/EV	Knowledge or Evaluation		1										
C/AN	Comprehension or Analysis	1		1			1	1	1	3			
C/EV	Comprehension or Evaluation	1		1							1		
APP/EV	Application or Evaluation		1										
K/C/AN	Knowledge or Comprehension or Analysis		1	1									1
K/C/EV	Knowledge or Comprehension or Evaluation												1

Table 2

Numbers of Questions Coded for Each of Bloom's Taxonomical Categories (Less Dually Coded Questions) for Twelve Years' ICSE Eng. Lit. Exams; Includes Phase Averages

	1972	1973	1974	Phase I Average	1983	1984	1985	Phase II Average	1987	1988	1989	Phase III Average	2004	2005	2006	Phase IV Average
Total Number of Questions (Including sub questions)	63	63	66	64	108	113	116	112.3	120	114	107	113.7	95	83	88	88.7
K Knowledge	38	40	41.5	39.8	72	70	74.5	72.2	77.5	78.5	71.5	75.8	71	58	57.5	62.2
C Comprehension	15	15	20.5	16.8	27.5	29	24	26.8	31	20.5	26.5	26	16	17	18.5	17.2
AP Application	0	0.5	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0
AN Analysis	3.5	4.5	0.5	2.8	1.5	0	4.5	2	0.5	3	5	2.8	2	2.5	1	1.8
S Synthesis	1	0	0	0.3	0	0	0	0	0	0	0	0	1	1	0	0.7
EV Evaluation	5.5	2	2.5	3.3	7	14	13	11.3	11	12	4	9	5	4.5	9	6.2

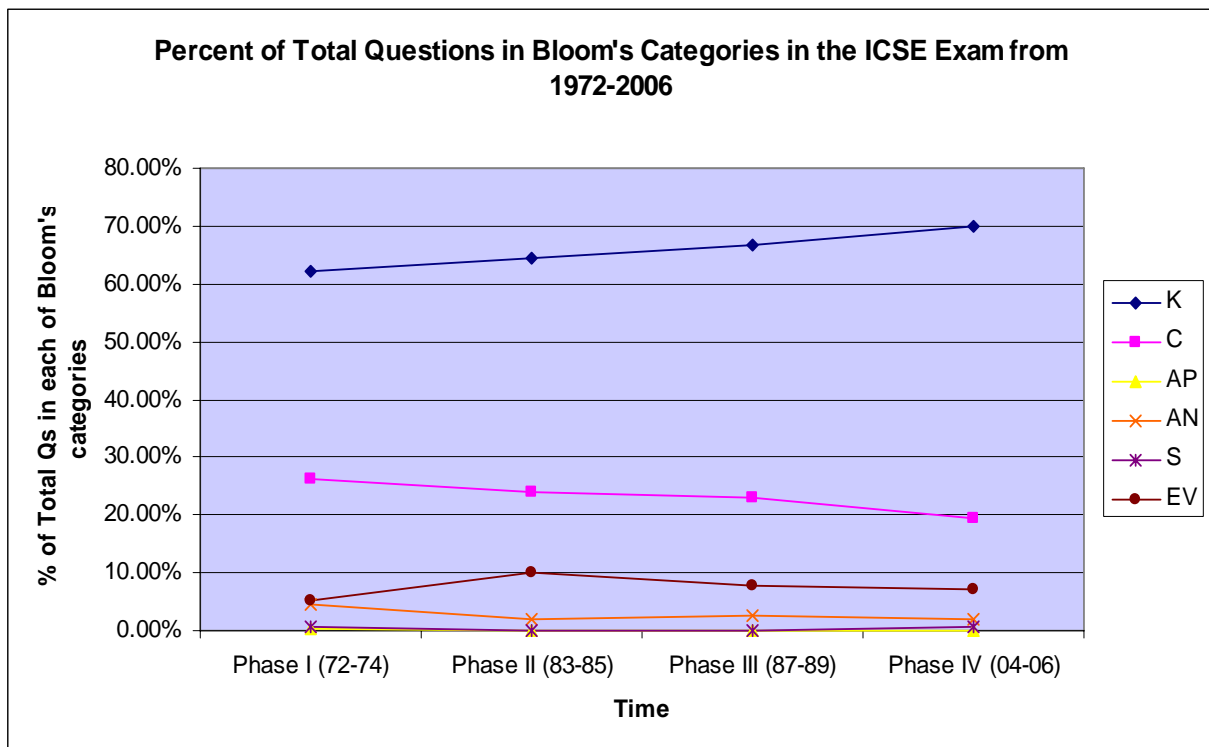
Table 3

Percent of Questions Coded for Each of Bloom's Taxonomical Categories for Four Phases in the Existence of the ICSE Eng. Lit. Exam.

		Percent of Total Questions that fall into X thinking skill category for each year			
		Phase I (72-74)	Phase II (83-85)	Phase III (87-89)	Phase IV (04-06)
Knowledge	K	62.20%	64.30%	66.70%	70.10%
Comprehension	C	26.30%	23.90%	22.90%	19.40%
Application	AP	0.30%	0	0	0
Analysis	AN	4.40%	1.80%	2.50%	2.00%
Synthesis	S	0.50%	0	0	0.80%
Evaluation	EV	5.20%	10.10%	7.90%	7.00%

Figure 2

Percent of Questions Coded for Each of Bloom's Taxonomical Categories for Four Phases in the Existence of the ICSE Eng. Lit. Exam. (Represented Graphically)



- I. What types of thinking/cognitive skills have the Indian Certificate of Secondary Education (ICSE) English literature exam papers assessed in students during the time the exam has been in existence?

In answer to my first research question, I found that the types of thinking skills (based on Bloom's categories) predominantly promoted by the ICSE English Literature questions over the life of the exam were: knowledge, comprehension, evaluation and analysis, from highest to lowest frequency of occurrence. Bloom's application and synthesis cognitive categories were almost wholly untested (see Figure 2) by the exams. Studies showed that application is a skill required in problem-solving (Bruner 1971; McLoughlin 1996). Lewis & Smith (1993) distinguished between the sciences and the humanities by stating that the sciences utilize the problem-solving (hence, application) component of higher order thinking while the humanities focus on the evaluative aspects of the same. Since I am studying exams in the humanities, it is not surprising, based on claims in the literature, that these questions did not test for application skills but rather, tested for evaluative skills. However, evaluation was the *only* one of Bloom's higher order cognitive categories that was tested for in these exams; students' analysis skills were also sporadically tested, but at a very low frequency (see Figure 2).

A discussion of my results for my second research question will be better substantiated by first addressing the two corollary questions, the first of which is presented below:

- A) Has there been an increase in ICSE English Literature exam questions that test for higher order cognition during the time the exam has been in existence?

There was a slight increase in the percentage of knowledge questions over the four phases in the life of the exam. Percentage of knowledge questions increased from about 62% (Phase I: 1972-74) to about 64% (Phase II: 1983-85, right before NPE (1986)). Post-NPE (1986), percentage of knowledge questions first jumped to about 67% (Phase III: 1987-89) and then to about 70% in the current time period (2004-06). Percentage of Comprehension questions decreased slightly over the same four time periods, starting from about 26% in Phase I, dipping to about 24% (Phase II) then slightly lower, to about 23% in Phase III and finally dipping to about 19% during Phase IV.

Less than 1% of questions were classified as testing application²⁸ skills in Phase I; this tapered off to nothingness in the later phases, where no questions were classified under application. Similarly, less than 1% of questions in Phase I and Phase IV tested synthesis (fifth tier); this category, too, grazed nothingness in the two middle phases. Questions in the analysis (fourth) category represented less than 5% of the total in Phase I, dipped to less than 2% of the total in Phase II, rose slightly to 2.5% in Phase III after NPE (1986) and then dropped negligibly to 2% in the contemporary period. The gradual oscillation of analysis questions within a few percent of each other over the four phases seemed to follow no conscious pattern. Evaluation was the only higher order Bloom category to encompass slightly over 5% of the total questions in Phase I. This category gained importance in Phase II by doubling to about 10% in the years right before the NPE. Percent of evaluative questions then dropped slightly to about 8% in Phase III after NPE and then to 7% in Phase IV.

Overall, there was an approximately 8% increase in knowledge questions over the duration of the exam, paralleling an approximate 7% decrease in comprehension type questions over the life of the exam. Due to the dismal frequency of representation of Bloom's higher cognitive categories, the lion's share of the exam questions fell into the knowledge and comprehension (lower order) cognitive categories. These two lowest tiers of Bloom's taxonomy together covered 88.5% of the exam questions in Phase I to about 88.2% in Phase II, followed by 89.6% in Phase III and finally 89.5% in the contemporary Phase IV. Finder (1974) and Barrett (quoted in Clymer 1968) proposed that questions must address the literal-comprehension level (comparable to Bloom's lowest tiers of knowledge (literal) and comprehension) before graduating to higher critical levels. However, nearly 90% of total ICSE questions consistently fell into the literal comprehension categories over the life of the exam, allowing only about 10% of total questions to graduate to higher critical levels during any phase.

The ICSE English Literature exam witnessed a rise in knowledge (the lowest order of cognition) questions across its lifetime, in addition to sporting an enormous proportion (oscillating around 90%) of questions that together fall into Bloom's two lowest cognitive

²⁸ Since Bloom's taxonomy is hierarchical and application, the third tier, is considered higher order thinking in the literature cited, application can be called the start of higher order thinking in Bloom's taxonomy.

categories – knowledge and comprehension. There was a slight decrease in questions purely falling into the comprehension category. Synthesis and application categories covered such a miniscule proportion of total questions that they can be left out of the analysis entirely. Percent of evaluative questions dropped over the lifetime of the ICSE and the rises and dips in the percentage of analysis questions seemed to follow no particular pattern. The answer to my first corollary question is that there was no substantial rise in higher order cognition questions during the existence of the ICSE English Literature exam. There was a slight rise in higher order questions (Bloom’s top four tiers) from an overall 10.4% (Phase I) to nearly 12% (Phase II), owing to a doubling of the proportion of evaluative questions asked. The overall percent of higher order questions then dropped back to 10.4% in Phase III and then even lower, to slightly less than 10% in the contemporary period. Regardless of the minor rises and dips, the percent of higher order cognitive questions remained abysmally low (vacillating between 9 and 12%) over the entire life of the ICSE English Literature exam.

My second corollary research question is as follows:

- B) Was there a “de-emphasis on memorisation” or a decrease in the number of questions assessing lower order cognition (by implication, an increase in the number of questions assessing higher order cognition) *after* the NPE (1986) recommendations that the CISCE claims to follow in the conduct of the ICSE?

The percentage of knowledge-based questions actually rose about 3% between Phase II (the years right before NPE (1986)) and Phase III (the years right after NPE (1986)). This rise is part of a steady increase in knowledge-based questions since the inception of the exam. Studies (McLoughlin 1996; Bloom (n.d., p. 45); Brophy & Evertson 1976; Redfield & Rousseau 1981; Berliner 1984) equated knowledge based learning with memorisation and recall of facts and label such learning as lower order cognition. Though CISCE claimed to follow NPE’s (1986) call for a “de-emphasis on memorisation”, the proportion of knowledge based questions requiring memorisation *rose* in the years immediately following NPE (1986). The overall percentage of higher order cognitive questions, from the upper four tiers of Bloom’s taxonomy, *dropped* from 11.9% in the years before NPE (1986) to 10.4% (the same as at the outset of the exam) in the years after. There was a slight (less than 1%) rise in analysis (fourth tier) questions after NPE (1986) that was countered by a 2.2% drop in evaluation (highest tier) questions.

The low percentages imply that chance probably played a role in these fluctuations. Determining the significance of these increases and decreases is beyond the scope of my qualitative methodology and remains an area for further research. Yet, it is to be noted that the incidence of lower order cognitive questions *rose* after the 1986 policy while the overall incidence of higher order cognitive questions concurrently fell, indicating a continued emphasis on memorisation in explicit disobedience of NPE's recommendations that CISCE claimed to follow. It seems unlikely that this instance of disobedience was purposeful; more likely, the slight rise and dip in lower and higher order cognitive questions respectively were due to chance. However, the crux of my argument (and the answer to corollary question (B)) is that there was no substantial increase in higher order cognition questions that could, beyond a reasonable doubt, be attributed to NPE's recommended "de-emphasis on memorisation."

The answers presented for the corollary questions can be used to answer umbrella question II reproduced below:

- II. Did the rhetoric of higher order cognition in India's National Policy on Education (NPE (1986)) express itself in practical changes in the Indian Certificate of Secondary Education (ICSE) English Literature exams?

The most logical practical change in favour of testing higher order cognition would have been a post NPE (1986) increase in questions requiring ICSE English Literature students to use higher order cognitive skills like application, analysis, synthesis and evaluation, or at the very least, a post NPE (1986) decrease in questions requiring lower order cognitive skills like memory-based recall and text-based comprehension. No such changes were visible; in fact, the opposite occurred. The rhetoric of higher order cognition expressed in India's NPE (1986) did not express itself in practical changes in the ICSE English Literature exam though the administrators of the exam purported to follow this policy in conducting the ICSE.

NPE (1986) definitely did not have an immediate impact on the exclusion of "memorisation" questions in the exams in its wake. However, policies can take effect years after they are publicly announced. Perhaps exams in the 1990s did curtail memorisation based questions. Since the gap between Phase III and Phase IV in my study was over a decade, my analysis was insufficient to trace the fate of the exam in the 90s.

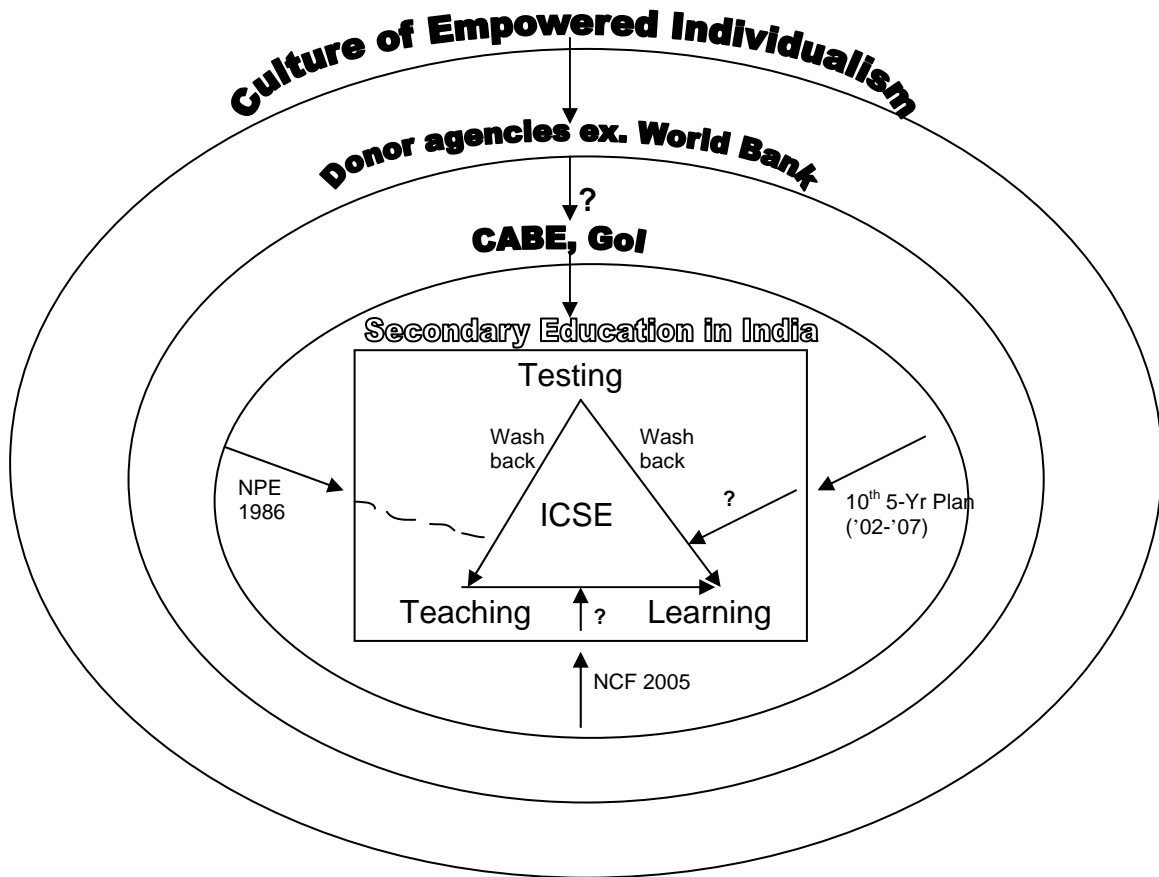
Had a decrease in memorisation questions occurred in the 90s, it seems logical for the exams in Phase IV (2004-06) to sport a lower proportion of memorisation questions than Phase III (1987-89). Rather, there was an approximately 3% increase in knowledge category questions between Phase III and IV and a mere 0.01% decrease in the overall proportion of knowledge plus comprehension questions by Phase IV. Even if further data analysis revealed fewer memorisation questions in the 90s, it still remains that this lower proportion was not retained in Phase IV.

Twenty years have passed since the NPE (1986) was written, affording CISCE ample time to implement the policy. Yet, my findings indicate that CISCE's affiliation with NPE's recommendation seems to be mere lip-service. The de-coupling of policy rhetoric and policy implementation seems to imply that NPE (1986) had no practical effect on the construction of the ICSE English Literature exam either immediately or even years after the policy came into effect. It is to be noted that my calculations are based on equally dividing the ambiguously categorized questions between their dual categories; my results might be different on definitively categorizing these questions. Yet, as I mentioned in the *Data & Methods* section, in cases where I was familiar with the text, I noticed that questions I would normally have dually coded as knowledge and comprehension often fell into the knowledge category. In initial calculations involving only questions unambiguously coded as knowledge (before adding in half the dually coded questions), I noticed an approximately 15% rise in knowledge based questions between Phase I and Phase IV²⁹. If I could use the texts to definitively categorize all ambiguous questions, it seems likely that a greater proportion of the knowledge-comprehension dually coded questions would be knowledge questions, resulting in an overall increase in knowledge questions greater than the current 8% generated from the computation adopted by this study.

The split between policy and practice revealed by my study is visually represented in the following reconceptualisation of Figure 1.

²⁹ These results did not include data from the 1974 exam which was missing at the time.

Figure 3



The squiggly lines leading from the NPE arrow to the triangle representing the ICSE exam illustrate NPE's ineffectiveness in producing practical changes in the exam. The straight arrows that emanate from the other policies and navigate the rectangle towards the ICSE triangle represent the intended effects of these current policies on higher order cognition. The question marks along these arrows indicate that effective implementation of these current policies is yet to be determined. These policies are discussed in detail in an upcoming section titled *Implications for Indian Education*.

Examples of Questions in Each Cognitive Category

In my analysis, I noticed differences in the nature of questions asked within each of Bloom's categories, across time. Since numbers cannot capture these differences, I

present here a table with sample questions (one from each phase) for each cognitive category.

Table 4

Examples of ICSE English Literature Questions by Phase and by Category

Bloom's Cognitive Categories	Example ICSE English Literature Questions by Phase and by Category
1.0 Knowledge	
Phase I (1972-74)	Where did Pip meet the convict previous to this, and what did the convict order Pip to bring him next morning? (1973)
Phase II (1983-85)	Give an account of Rusty's leaving Dehra for Hardwar in search of Kishen, his meeting with him, and what they decided to do. (1984)
Phase III (1987-89)	Quote any three statements of his [Aurangzeb's] which bring out his mental condition at this time. (1989)
Phase IV (2004-06)	Describe the dream that Calphurnia had because of which she did not want Caesar to stir out of the house. (2004)
2.0 Comprehension	
Phase I	What does this passage tell us about the person addressed? (1974)
Phase II	What does 'press me sharply' and 'harry me through the day' mean? (1985)
Phase III	Express the two statements made in this passage about this 'Sea' in simpler language. (1987)
Phase IV	Later Cassius says, 'You know that I held Epicurus strong, and his opinion; now I change my mind, and partly credit things that do presage.' What does Cassius mean by this? (2005)
3.0 Application	
Phase I	What tendencies of the world we live in today do you think the authors are wanting to draw attention to in (i) 'The Machine Stops' and (ii) 'The Destructors'? (1973) (<i>dually coded as APP/EV</i>)
Phase II	--
Phase III	--
Phase IV	--
4.0 Analysis	
Phase I	Contrast the characters of Mr. Gradgrind and Mr. Bounderby, showing why, though they start as friends, they are enemies at the end of the story. (1972)
Phase II	Name two other poems you have studied in this selection that deal with the same topic, but in a different way. What is the difference? (1985)
Phase III	Show how the title of this story is brought out in the way the story

	ends. (1988)
Phase IV	How is his [Ronnie's] character different from that of Dickie, his brother? (2006)
5.0 Synthesis	
Phase I	Give in <i>dialogue form</i> what you think the daughters of the late Colonel wished to say to each other. (1972)
Phase II	--
Phase III	--
Phase IV	[With close reference to the story "The Night the Bed Fell", write a vivid and detailed account of the chaos that follows when the narrator rolls out of his bed – K] Bring out the humour in the story. (2004)
6.0 Evaluation	
Phase I	Pick out any <i>one</i> true quality of freedom expressed by the poet and say whether our country, India, has achieved this or not. (1973)
Phase II	Would you call the way the story ends 'satisfactory' or 'far-fetched'? Why? (1983)
Phase III	Do you feel that Cassius was a better judge of military matters than Brutus? (1989)
Phase IV	How far do you agree with the author's choice of the title of the story? (2004)

While this sampling might give the reader a taste of the kinds of questions asked, it is not representative of the range of questions in each phase under each category. Based on this sampling and my knowledge of other questions in each phase, I discuss some notable differences within each category over time. Since this is an aside to my main research questions, this discussion can, at best, be cursory.

The knowledge questions in Phase I tended to ask students to describe a particular incident, present the remainder of the printed extract or give an account of a conversation (among other types of questions) 'in [their] own words'. Exams in Phase III, administered in the wake of NPE's call for a "de-emphasis in memorisation", ironically asked several knowledge based questions that required students to directly quote from the text. These exams comprised no multiple-choice questions. ICSE students are being asked to exercise powers of unaided recall³⁰; even the small sampling of knowledge questions above demonstrates that intimate knowledge of the texts is essential for success in these exams.

³⁰ Interestingly, Durrell (1943) places unaided recall at a higher cognitive level than aided recall, an example of which is multiple choice questions.

The second of only three instances of synthesis questions over four phases was notably different from the first, but closely resembled the third (in the 2005 exam; not cited above). The first synthesis question that appeared in 1972 (in Table 4) truly demanded creative expression by asking students to write a fictional dialogue based on their knowledge of two characters in the text. This question unequivocally belonged to the synthesis category. The remaining two instances of synthesis were more ambiguous. However, I considered the second synthesis question (in the 2004 exam; cited above) to be deserving of such categorization based on Bloom's labeling of "skill in writing, using an excellent organization of ideas and statements" and "ability to tell a personal experience effectively" as examples of synthesis (see Appendix 4 for Bloom's definitions and examples). The second question asked students to narrate part of a story and bring out the humour of the events in their narration. A successful answer to this question demanded both writing skill and the ability to narrate effectively. The same reasoning can be applied to the third instance of synthesis not reproduced here.

Of the four top tiers of Bloom's taxonomy, only evaluation was consistently assessed by ICSE exam questions across all phases. Though analysis was the second major higher order category tested, the gap between the total number of evaluation and analysis questions was large (see Figure 2). Bloom's definition and examples of evaluation (see Appendix 4) left room for students' judgements and personal opinions. The consistent inclusion of evaluative questions in the ICSE English Literature exams raised the troubling possibility of grader subjectivity. However, eliminating the hypothesis of grader subjectivity is even more problematic; if graders grade objectively, they must use a rubric of expected or pre-conceived answers to grade evaluative questions. In this scenario, the washback phenomenon would devalue students' personal opinions about texts; teachers would mould students' evaluation of literature to align with the graders' rubric, making inclusion of evaluative questions purely a symbolic move towards higher order cognition.

Though an elaborate evaluation of how Bloom's categories apply to the case study of the ICSE was beyond the scope of this monograph, I hope that such a study constitutes future research.

Implications for Indian Education

“Tests are held to be powerful determiners of what happens in the classroom,” noted Alderson & Wall (1993), referring to the phenomenon of washback or ‘teaching to the test’. Teaching and learning in the ICSE classroom is geared towards ensuring success in the ICSE exam. Based on my twelve years in the ICSE system, I can personally attest that the shadow of this looming capstone exam hovers in every classroom and influences teaching and learning. My study illustrated that lower order cognitive skills are predominantly tested in the ICSE English Literature exam. It follows then, that lower order cognitive skills are promoted in the ICSE English classroom through washback. Moxey (2005) discussed how standardized testing eliminates creativity and individualized instruction and fails to measure critical thinking, a higher order mental process. Though the ICSE is not a standardized test, it is similar to standardized tests because it is high stakes, it generates washback and its results form a selection criterion for higher education. It comes as no surprise then that the ICSE English Literature exam has failed to educe higher order cognition in students.

Just as the NPE implied a preference for higher order cognition in 1986, the CABE’s advisory report on USE in 2004 recommended pedagogies that shift “from lower to higher order cognition” (p. 19). NPE (1986) (and its revision, the PoA (1992)) also called into existence an overhaul of national curriculum. The Tenth Five Year Plan, written for 2002-2007, also recommended revision of curriculum. After several reviews and iterations, the National Curriculum Framework (NCF (2005)), spearheaded by the National Council for Educational Research and Training (NCERT), a research arm of GoI, is the current resource document on curricular change. Earlier exhortations for higher order cognition in testing, teaching and learning were echoed and elaborated upon by NCF (2005), making this issue even more relevant today than in 1986. Though a thorough and exhaustive evaluation of NCF 2005 was beyond the scope of this monograph, I provide below a brief overview of NCF recommendations that relate to higher order cognition.

Four of the guiding principles of NCF, introduced in the Preliminary Pages (p. viii), relate to higher order cognition. They are: “(i) connecting knowledge to life outside the

school; (ii) ensuring that learning shifts away from rote methods; (iii) enriching the curriculum so that it goes beyond textbooks; (iv) making examinations more flexible and integrating them with classroom life.” Respectively, these guiding principles call for the following changes: (i) and (iii) encourage *application* of knowledge gained within the classroom and through textbooks to real life beyond school environs; (ii) supports a pedagogical shift *away* from knowledge-based recall learning, or lower order cognition and (iv) promotes the connection between an altered exam system and enriched classroom activity. The emphasis on ‘application’ and de-emphasis on knowledge based rote learning evoke Bloom’s conception of higher order thinking. NCF (2005) continues to champion higher order cognition³¹ in multiple places and in a multitude of phrases: “learning to learn” (p. 11), “creativity in arts, literature” (p. 11), “active participation” and “child-centred pedagogy” (p. 13), “problem solving and application in the real world” (p. 74), teaching learners “where to find information, how to use new information, and to analyse and evaluate the same” (p. 74). NCF also charges high stakes exams with having a detrimental impact on learning (p. 68), presses for school-based assessment or overall broader means of assessment (p. 115), promotes categorization of questions according to competency being evaluated (p. 114) and entreats exam paper setters to test for arguments and application rather than facts from the text (p. 74).

How can these recommendations for higher order learning be effectively incorporated into Indian education? Perhaps, as NCF suggests, Indian education must cater to different styles of learning and widen the scope of assessment beyond narrow pencil and paper examinations (p. 115) to make time for higher order learning in a classroom that would otherwise have been focused on the exam. However, Lazear (2005) suggested that while de-emphasizing testing might be the right strategy for efficient learners, it is important to designate content to be tested for high cost learners. Besides, if examinations are de-emphasized in the curriculum, their overwhelming importance as selection tools for higher education must also be devalued. Because exams are of paramount importance in Indian education, the move to de-emphasize the role of examinations or even eliminate

³¹ Please review the literature review section titled *Defining Higher Order Cognition* to understand how these phrases stem from conceptions of higher order cognition.

the ICSE and other board exams altogether might encounter psychological resistance by teachers, students and parents.

Another policy option might be to revise and reconstruct the types of exam questions asked by the ICSE and other exam boards. An overhaul of public examinations to test higher order cognition could trigger curricular and pedagogical changes in favour of higher order learning through washback. Scott (2005) noted that high stakes assessment that generate washback are unifying agents for curricula. Studies (Alderson & Wall 1993; Lazear 2005) discussed other positive effects of washback; students might take school more seriously, study harder, do their homework and actually learn something if held accountable through exams rather than nothing when given responsibility for their own learning. The presence of the ICSE and other board exams standardizes curricular and classroom experiences for secondary education students from diverse backgrounds; presumably, students, regardless of context or circumstance, have equivalent access to a certain body of knowledge through centralized exam systems, though this claim is contentious.

The proposed policy option advocating reconstruction of public exams to test for higher order cognition must be considered with a major caveat in mind. Luxia (2005) studied the effect of using a high stakes exam – the National Matriculation English Test (NMET) administered in China – as an agent of change to promote English Language Teaching (ELT) in the classroom. This study chronicled how the intended washback didn't occur due to a conflict between the two functions of the exam – its role in selection and its role as an agent of curricular change. Luxia's study illustrated that the role the ICSE and other exam boards play in higher education must be carefully examined and re-conceptualized if they are to promote higher order cognition in Indian classrooms.

While I am unfamiliar with the grading system for the ICSE, I can make a qualified judgment based on the types of exam questions asked and anecdotal evidence from teachers familiar with ICSE grading. The questions predominantly require answers based on recall of previously memorized knowledge. Answers must cover a fixed number of facts or points, each of which merits a mark or two (out of a 100 mark exam) based on a pre-constructed rubric. When students are asked to use higher order cognitive skills such as application, analysis, synthesis and evaluation, their subjective responses based on

personal engagement with the material must be rewarded through personalized or subjective grading, arguably harder than the current system of objective evaluation. The NCF acknowledges the problem of inadequate remuneration for graders who are then unmotivated to grade fairly and consistently (p. 114). Poorly paid graders are unlikely to make a fair and thorough effort to grade higher order questions subjectively. Even if remuneration was raised as motivation for more effortful grading, students and parents suspicious of an unfamiliar subjective grading system and plagued by a habitual lack of faith in graders might resist these changes. If the ICSE continued to play a selective role in admission to colleges and academic streams, such parents and students might hesitate to associate with the ICSE system.

Being a private body unaffiliated with GoI, the CISCE is removed from government bureaucracy. It is optimally situated to enact rapid and positive change in Indian education through promotion of higher order cognition in the exams it administers. However, though the CISCE is an outsider to government bureaucracy, my results raise the possibility that it has fallen prey to its own. There exists need for a formal mechanism obligating all public exam boards in India, whether government or private, to implement policy recommendations. Such a mechanism would contribute to successful implementation of NCF's (2005) recommendations that support higher order learning in assessment and classroom experience. Such a formal mechanism must both provide support in the pedagogical transition from lower to higher order learning and devise measures of accountability for every exam board and its school affiliates. If construction of a formal structure of accountability and support proves arduous or if a system, once devised, fails or is inadequate, the hairy debate of centralization vs. privatization must be rehashed in the Indian context.

Conclusion and Future Research Directions

CISCE's mere lip service towards NPE (1986) is indicative of possible organizational inertia that might even hinder implementation of NCF's current push towards higher order learning. Difficulty in devising a fair rubric for grading possibly subjective answers, the current lack of incentives for graders to spend time and effort grading and the probable lack of resources to train graders to evaluate a reconstructed exam constitute other obstacles to promoting higher order cognition in assessment. Even if these obstacles are systematically eliminated and Indian education reaches a stage where teachers actually encourage higher order learning in the classroom, studies (Newman 1990; Lewis & Smith 1993) have posited that higher order thinking is relative and dependent on both students' intellectual history and the nature of the task, making higher order cognition difficult to universally define and implement in assessment. Different students find different problems challenging and a task that requires higher order cognition by one learner might require lower order cognition by another (Ibid). These challenges must be addressed in the effective incorporation of higher order cognition in the Indian classroom.

This study established the need for restructuring the ICSE English Literature exam to effectively assess higher order cognition in students and hence, is of greatest significance for CISCE, the board that administers the exam. Additionally, it raises more pressing questions: Are high stakes national examination systems the best conduits for higher order learning to reach every Indian classroom? Will India's current public examination boards adequately prepare students to partake in her new globalized, knowledge economy? What are the alternatives to the current capstone exam assessments for Class 10 and Class 12 students? Will students engage in higher order learning if responsibility for assessment rests solely with schools? What are the problems inherent in school based assessment? If the popular hypothesis that particular pedagogies supporting higher order cognition provide adequate training for the knowledge economy proves solid, and if the ICSE promotes these pedagogies, what implications does its status as a private board exam (and hence the socioeconomic composition of its student affiliates) have for who is best trained to succeed in the knowledge economy?

Suggestions for restructuring the ICSE English Literature exam include essay questions that encourage students to apply textual material to the world outside the classroom, and encourage careful analysis and evaluation of the greater implications of textual material for their lives. For instance, for *The Merchant of Venice*, stimulating questions that assess higher order cognition might be:

Discuss to what extent Shylock's religion played into his enmity with Antonio. Where did religion leave off and personal grievances begin?

Or

Was the test of the caskets an accurate measure of how appropriate a suitor was for Portia? Do you think Bassanio deserved Portia's hand? Why or why not?

Such questions compel a student to engage with subtle themes in literature and provide textual evidence for arguments made. These are just preliminary thoughts on restructuring the ICSE English Literature exam. An actual curricular push towards higher order learning will require careful consideration of the caveats and obstacles I have discussed so far.

My study paves the way for further research to be conducted along the avenues outlined below.

- It will be useful to replicate this study with access to the texts on which ICSE questions are based, to definitively categorize the dually coded questions and produce a more accurate assessment of proportions of questions in each cognitive category. Replicating this study with multiple coders to verify my use of Bloom's taxonomy will improve the reliability of my research.
- This study could be conducted for ICSE subjects other than English Literature and for boards other than ICSE. Investigating whether government boards are more effective implementers of government policies will help resolve whether privatization of secondary education is appropriate for the Indian context.
- Models of high stakes testing in different countries and reform movements to restructure curricula in favour of higher order cognition can be studied.
- Future research studies could perform content analyses of ICSE curricula (prescribed textbooks) to determine the actual material being learnt.
- Finally, future studies could examine the washback of high stakes Indian exams by interviewing teachers, principals, students and parents and performing

classroom observations in a representative sample of schools. Such studies could investigate how the goal of succeeding in these exams influences the nature of students' classroom experiences.

Final Thoughts

The virtues of higher order learning have long been extolled and verified in research literature and in actual curricular and assessment practice. This exploratory monograph is a first step on the road to positive curricular change in the direction of higher order learning in India. Further research on higher order learning in the Indian context is required as is a stronger link between policy towards higher order cognition and its effective implementation. The path to incorporating higher order learning in the Indian classroom will be an uphill, yet necessary and ultimately rewarding one.

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Appendix 1

Stages of Education in India

Stages of Education in India, and an indication regarding corresponding age group of students for each stage, are shown in the table below:

S. No	Stage	Classes / Duration (with exceptions, if any)	Corresponding Age Group of Students (Indicative)
1.	School Stages	I-XII	6 – 18 Years
	1.1 Elementary	I-VIII (I-VII a few States)	6 – 14 Years
	1.1.1 Primary	I - V (I - IV in a few States)	6 – 11 Years
	1.1.2 Upper Primary	VI - VIII (V - VII in a few States)	11 - 14 Years
	1.2 Secondary	IX - XII (VIII - XII in a few States)	14 - 18 Years
	1.2.1 High School	IX - X (VIII - X in a few States) (I - IV in a few States)	14 - 16 Years
	1.2.2 Higher / Senior Sec. School	XI – XII	16 - 18 Years
2.	Higher / University Education		18 - 24 Years *
	2.1 Non-Professional (e.g. Humanities / Pure Sciences / Commerce) Degree Courses		
	2.1.1 Undergraduate	3 Years	
	2.1.2 Post-graduate	2 Years	
	2.2 Professional Degree / Diploma Courses	Depends on the nature of the course	
*18 - 24 years is usually taken as the age group of students corresponding to university / tertiary education			

Source: DSHE website: <<http://education.nic.in>>

Appendix 2

ICSE Subject Choices

Group I (Compulsory)

1. English (01)
2. Second Languages (02-44) → Indicating 43 choices
 - (a) Indian LanguagesOr
 - (b) Modern Foreign Languages
3. History, Civics & Geography (50)

Group II (Any **two** of the following subjects)

4. Mathematics (51)
5. Science (Physics, Chemistry & Biology) (52)
6. Economics (64)
7. Commercial Studies (63)
8. Technical Drawing (67)
9. Modern Foreign Language (77-81, 85)
10. Classical Language (76)
11. Computer Science (71)
12. Environmental Science (82)
13. Agricultural Science (83)

Group III (Any **one** of the following subjects)

14. Computer Applications (86)
15. Economic Applications (87)
16. Commercial Applications (88)
17. Art (60)
18. Performing Arts (91-95)
19. Home Science (68)
20. Cookery (69)
21. Fashion Designing (70)
22. Physical Education (72)
23. Yoga (84)
24. Technical Drawing Applications (65)
25. Environmental Applications (89)
26. Modern Foreign Languages (53-55)

Socially Useful Productive Work and Community Service

Source: CISCE Website:

< <http://www.cisce.org/fileadmin/syllabus/ICSE-2006/Contents%20ICSE.pdf>>

Appendix 3

Council for the Indian School Certificate Examinations (CISCE)

The Council's Mission

The council for the Indian school certificates examinations is committed to serving the nation's children, through high quality educational endeavours, empowering them to contribute towards a humane, just and pluralistic society, promoting introspective living, by creating exciting learning opportunities, with a commitment to excellence.

The Ethos of the council

- Trust and fair play
- Minimum monitoring
- Allow schools to evolve own niche – progressive institutions
- Needs of the children – renew their objectives
- Freedom to experiment with new ideas and practices – The Schools must continuously evolve – ‘You won't skid if you stay in a rut’
- Diversity and plurality – the basic strength for evolution of idea.
- Schools to motivate pupil towards the cultivation of:
 - * Excellence – The Indian experience
 - * Values – Spiritual and cultural – to be the bed rock of the educational experience
- Schools to have ‘Indian Ethos’ and strong roots in the national psyche. Be sensitive to national aspiration.

Source: CISCE Website: <<http://cisce.org>>

Appendix 4

Bloom's Definitions for Each Category in his Taxonomy of Educational Objectives: Cognitive Domain

(Only the definitions relevant for classifying literature questions are included. Bloom's examples (pertaining to literature) for each category are noted under each category definition. Sub-categories and their specific definitions are omitted because sub-categories were not used to categorize ICSE exam questions)

1.0 Knowledge

Knowledge, as defined here, involves the recall of specifics and universals, the recall of methods and processes, or the recall of a pattern, structure, or setting. For measurement purposes, the recall situation involves little more than bringing to mind the appropriate material. Although some alterations of the material may be required, this is a relatively minor part of the task.

Sub-categories: Knowledge of – specifics (terminology, specific facts); ways and means of dealing with specifics (conventions, trends and sequences, classifications and categories, criteria, methodology); the universals and abstractions in a field (principles and generalizations, theories and structures)

Examples

- Familiarity with a large number of words in their common range of meanings.
- The recall of major facts about particular cultures.
- Familiarity with the forms and conventions of the major types of works, e.g. verse, plays, scientific papers, etc.
- To make pupils conscious of correct forms and usage in speech and writing.
- Understanding of the continuity and development of American culture as exemplified in American life.
- Becoming familiar with a range of types of literature.
- Familiarity with criteria for judgment appropriate to the type of work and the purpose for which it is read.
- Knowledge of criteria for the evaluation of recreational activities.
- The recall of major generalizations about particular cultures.

2.0 Comprehension

This represents the lowest level of understanding. It refers to a type of understanding or apprehension such that the individual knows what is being communicated and can make use of the material or idea being communicated without necessarily relating it to other material or seeing its fullest implications.

Sub-categories: Translation; Interpretation; Extrapolation

Examples

- The ability to understand non-literal statements (metaphor, symbolism, irony, exaggeration).
- The ability to grasp the thought of the work as a whole at any desired level of generality
- The ability to deal with the conclusions of a work in terms of the immediate inference made from the explicit statements.
- Skill in predicting continuation of trends.

3.0 Application

The use of abstractions in particular and concrete situations. The abstractions may be in the form of general ideas, rules of procedures, or generalized methods. The abstractions may also be technical principles, ideas, and theories which must be remembered and applied.

Example

- Application to the phenomena discussed in one paper of the scientific terms or concepts used in other papers.

4.0 Analysis

The breakdown of a communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and/or the relations between the ideas expressed are made explicit. Such analyses are intended to clarify the communication, to indicate how the communication is organized, and the way in which it manages to convey its effects, as well as its basis and arrangement.

Sub-categories: Analysis of – Elements; Relationships, Organizational Principles

Examples

- The ability to recognize unstated assumptions
- Skill in distinguishing facts from hypotheses
- Ability to check the consistency of hypotheses with given information and assumptions.
- Skill in comprehending the interrelationships among the ideas in a passage.
- The ability to recognize form and pattern in literary or artistic works as a means of understanding their meaning.
- Ability to recognize the general techniques used in persuasive materials, such as advertising, propaganda, etc.

5.0 Synthesis

The putting together of elements and parts so as to form a whole. This involves the process of working with pieces, parts, elements, etc., and arranging and combining them in such a way as to constitute a pattern or structure not clearly there before.

Sub-categories: Production of a Unique Communication; Production of a Plan, or Proposed Set of Operations; Derivation of a Set of Abstract Relations.

Examples

- Skill in writing, using an excellent organization of ideas and statements.
- Ability to tell a personal experience effectively.
- Ability to propose ways of testing hypotheses
- Ability to plan a unit of instruction for a particular teaching situation.
- Ability to formulate appropriate hypotheses based upon an analysis of factors involved, and to modify such hypotheses in the light of new factors and considerations.

6.0 Evaluation

Judgments about the value of material and methods for given purposes. Quantitative and qualitative judgments about the extent to which material and methods satisfy criteria. Use of a standard of appraisal. The criteria may be those determined by the student or those which are given to him.

Sub-categories: Judgments in Terms of Internal Evidence; Judgments in Terms of External Criteria.

Examples

- Judging by internal standards, the ability to assess general probability of accuracy in reporting facts from the care given to exactness of statement, documentation, proof, etc.
- The ability to indicate logical fallacies in arguments.
- The comparison of major theories, generalizations and facts about particular cultures.
- Judging by external standards, the ability to compare a work with the highest known standards in its field – especially with other works of recognized excellence.

(*Source:* Adapted from ‘Appendix: Condensed Version of the Taxonomy of Educational Objectives’ (Bloom, Benjamin S. et al. (1956). *Taxonomy of Educational Objectives, Handbook I: Cognitive Domain*. New York: McKay, p. 201-207))

Appendix 5

Format, Time Allotted, Basic Instructions for ICSE

ENGLISH

Literature in English

(Two Hours)

Answers to this paper must be written on the paper provided separately.

You will NOT be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this paper is the time allowed for writing the answers.

Attempt five questions in all.

You must attempt one question from each of the sections A, B and C and any two other questions.

Source: Indian Certificate of Secondary Education Examination Question Papers booklet for March 2005. Published by Janta Book Depot, 23, Shaheed Bhagat Singh Marg, New Delhi – 110 001, under arrangement with The Council for the Indian School Certificate Examinations, New Delhi.

Appendix 6

Sample ICSE English Literature Question Paper (1974)

Section A – DRAMA

Shakespeare – *Twelfth Night*

Question 1.

Read the extract given below and answer the questions (i) to (v) that follow:

Malvolio: My masters, are you mad? Or what are you? Have you no wit, manners, nor honesty, but to gabble like tinkers at this time of night?

- (i) Whom is Malvolio addressing? Where are they and what were they doing, and why?
- (ii) Explain 'gabble like tinkers'.
- (iii) State what else Malvolio had to say at this time.
- (iv) What are we told in this Scene about the kind of person Malvolio was?
- (v) What revenge on Malvolio was now planned, and why?

Question 2.

Read the extract given below and answer the questions (i) to (v) that follow:

Olivia: Will it ever be thus ? Ungracious wretch,
Fit for the mountains and the barbarous caves,
Where manners ne'er were preached. Out of my sight!
Be not offended, dear Cesario,
Rudesby, be gone !

- (i) Who are the 'ungracious wretch' and 'Cesario'?
- (ii) Who else were present? What were they doing to make Olivia speak in this manner?
- (iii) What does this passage tell us about the person addressed?
- (iv) What had happened to bring these people together?
- (v) What did Olivia do as a result of this incident?

Section B – POETRY

On Freedom's Way – (Ed. A.P. O'Brien – Orient Longmans)

Question 3.

Read the extract given below and answer the questions (i) to (vi) that follow:

O happy living things! no tongue
Their beauty might declare:
A spring of love gushed from my heart,
And I blessed them unaware:
Sure my kind saint took pity on me,
And I blessed them unaware.

- (i) Who is speaking, and where is he?
- (ii) What are the 'living things'? Why are they called happy and beautiful?
- (iii) What crime had this person committed and what burden was he here bearing?
- (iv) State briefly in what ways this person had suffered so far.
- (v) What happened immediately after his blessing them, and why?
- (vi) State briefly how he was saved/

Question 4.

Read the extract given below and answer the question (i) to (v) that follow:

Beneath those rugged elms, that yew-tree's shade,
Where heaves the turf in many a mould' ring heap,
Each in his narrow cell for ever laid,
The rude forefathers of the hamlet sleep.

- (i) Where is the writer at this time? How does he describe the time of the day and the silence around him?
- (ii) State *three* things that he says these dead people cannot experience any more.
- (iii) State briefly how the writer appeals for a sympathetic attitude towards simple villagers.
- (iv) What mood would you say the writer was in at this time?
- (v) On what note does the poem end?

Section C- PROSE

Ten Short Stories-(Ed. V. V. John)

Question 5.

Read the extract given below and answer the questions (i) to (v) that follow:

He went to the planter. 'My mother is dead', said he weeping. 'She died on the last plantation two months ago; and she died once before that when you were working for me last year', said the planter.

- (i) Continue this conversation in your own words up to the point where the planter grants Deesa his request.
- (ii) What was the nature of the work Deesa was doing for the planter?
- (iii) What was the relationship between Deesa and Moti Guj?
- (iv) What instructions did Deesa give Moti Guj before leaving?
- (v) How did Moti Guj carry out the instruction?

Question 6.

Each of the following stories deals with the good and the bad in human nature:

The Babus of Nayanjore: The Conjuror's Revenge; Mrs. Adis.

Choose *two* of these stories and show briefly, but clearly, how, in each case, goodness is shown as triumphing over evil.

Dickens-Great Expectations

Question 7.

Read the extract given below and answered the questions (i) to (v) that follow:

'You say nothing of her,' remarked Miss Havisham to me, as she looked on. 'She says many hard things of you, yet you say nothing of her. What do you think of her?'

'I don't like to say,' I stammered.

'Tell me in my ear,' said Miss Havisham, bending down.

- (i) Who is being spoken to and of whom? What were they doing?
- (ii) What *three* 'hard things' had been said by 'her'?
- (iii) What *three* things about 'her' were whispered to Miss Havisham?
- (iv) Where were these words spoken and what had brought these three people together?
- (v) Clearly describe what the person spoken to saw when he came there.

Question 8.

Pip says of Joe 'O God bless him! O God bless this gentle Christian man'. From your study of the book show how far you agree with this estimate of Joe's character.

Norah Burke-*Jungle Picture*

Question 9.

Read the extract given below and then answer the questions (i) to (v) that follow:

Had Kala Sanp been stripping off sal bark, Budhoo might have taken it that the tusker was simply helping himself to a dose of medicine. No. The elephant was smashing the jungle for want of some-thing better on which to vent his seasonal warth.

- (i) Describe what Budhoo saw on this occasion.
- (ii) Why was the elephant being destructive?
- (iii) How did Kala Sanp realise that Budhoo was there? Relate clearly what happened next.
- (iv) Describe briefly how these two first met and what happened then.
- (v) How did Budhoo's attitude towards Kala Sanp change in their last meeting?

Question 10.

- (i) What aspects of forest life does the author bring out in the following stories:
Day of the Red Death ; Flood water ; The Baby Sitter.
- (ii) Choose *one* of these stories and relate it so as to bring out its special aspect.

Ruskin Bond-*The Room on the Roof*

Question 11.

Read the extract given below and answer the question (i) to (v) that follow:

Mr. Harrison broke into a torrent of words. 'How can you call yourself an Englishman, how can you come back to the house in such a condition? In what gutter, in what brothel have you been? Have you seen yourself?'

'No,' said Rusty. 'I don't care what I look like.'

- (i) What had made Mr. Harrison so angry?
- (ii) Describe Rusty's condition.
- (iii) What had happened to make Rusty different?
- (iv) Describe what happened immediately after.
- (v) What was the result of this quarrel?

Question 12.

He could not run away. He could not escape the life he had made, the ocean into which he had floundered. He had to return to the room; *his* room; he had to go back.

- (i) Give a clear but brief account of Rusty's life in the room on the roof.
- (ii) Why had he wanted to escape from it?
- (iii) Why does he think of the room as his? What drew him back?