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Ancient Chinese Secret: Washington Assessment of Student Learning (WASL) Tests and High Stakes Tests in China



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ABSTRACT

A comparison of the testing movements in China and Washington State reveals a strange irony. While education in Washington, under State and National imperatives, is becoming test driven, China is trying to move away from 14 centuries of test driven education to promote the development of the student as an entire person. This article compares and contrasts the Washington Assessment of Student Learning Tests and fourth and seventh grade examinations used in Baoding, China in terms of content, administration, evolution, and curriculum standards guiding the test content. Curriculum Guides and Assessment Manuals are compared. The historical practice of high stakes testing in China is analyzed and examined to elucidate the growing high stakes testing and accountability movement in America.

Education in the United States is encountering the challenges posted by the high stakes testing and accountability movement. Teachers and teacher educators in the State of Washington are not excluded from the challenge. They need to increase the passing rate of the Washington Assessment of Student Learning (WASL) tests among their students and to reach the goal specified in the No Child Left Behind law. According to the Washington State legislature, passing the tests will become part of the high school graduation requirements in 2008 (Office of the Superintendent of Public Instruction, 1997). The pressures of testing in Washington came long before the No Child Left Behind Act was passed in 2001. The Washington Assessment of Student Learning tests in reading, writing, mathematics,

and listening were in full statewide operation for fourth graders by the spring of 1997. In the following year, the seventh grade tests were added and by 1999, students in fourth, seventh, and tenth grades were all tested. The evolution of the tests has continued since that time. In 2004, the listening was dropped and science tests were added for students in grades five, eight, and ten (OSPI, 2004).

The results of the WASL tests have been categorized according to school and school district and published annually in local newspapers and on the website of the Office of the Superintendent of Public Instruction. In addition to the WASL, the State has also made use of the Iowa Test of Basic Skills (ITBS) and the Iowa Test of Educational Development (ITED) to assess the

learning of students in grades other than four, seven, and ten.

In contrast to this relatively recent phenomenon of Washington State, standardized testing in China has a much longer legacy, beginning in the year 606 A. D. with the administration of the Imperial Examination to select and promote officials for each imperial dynasty. This practice has endured for the past 1,400 years with little interruption despite many changes in governing regimes (Zhen, 1988). In contemporary China, Chinese students are required to pass tests in the core subjects before they are allowed to progress from one grade to the next. Even more intense city or province-wide tests are given before a student is allowed to pass from sixth to seventh grade and again before promotion from ninth to tenth grade. A Chinese student must also pass a final exit examination in the twelfth grade in order to earn a high school diploma.

This article will compare the fourth and seventh-grade WASL sample tests with the fourth and seventh grade tests given to students in Baoding, China. The comparison will include the development of the tests, the standards with which each test is aligned, the content of each sample test and its administration. The impact of the tests upon students and teaching in each system will also be addressed.

Pressure from high stakes testing has urged educators in both China and America to be cautious about the usage of testing and its implications, its inertia and long-term impact upon the teaching and learning in a classroom, upon the teaching profession, and upon a student's development as a whole person. The authors expect to use this comparative study to facilitate a better understanding of the culture of testing and help avoid, or at least reduce, the potential negative impact upon the democratic educational practices that American educators have developed to help all students succeed.

DEVELOPMENT OF EACH TEST

Using rigorous testing results to rank, track or even label a student is not new in either China or the U.S.. The definition of "not new" how-

ever, is very different in the two countries. In the 19th and 20th centuries, U.S. students in country schoolhouses were admitted to high school only after passing a hand-written formal eighth grade examination. These tests varied from state-to-state and sometimes varied even between counties. However, standardized testing in the U.S. began only after the country entered World War I in 1917, when it was used to determine which soldiers would be trained to become officers.

In response to the current educational accountability movement, Washington, like many other states, mobilized and created the Washington Commission on Student Learning in 1993. As a result of the Commission's efforts, the Essential Academic Learning Requirements (EALRs) were formulated as curriculum standards. The Washington Assessment of Student Learning (WASL) tests were designed to report students' proficiency in academic learning related to EALRs in listening, reading, writing, and mathematics. The results can also be used to assist schools in identifying issues and improving student learning (OSPI, 2002). The tests are given in April of each year and the results are published the following fall.

This study used the WASL sample tests as a unit for analysis since the original tests are not available for viewing. These samples are available to the public as well as to classroom teachers. These sample tests reflect the knowledge and skills required of students in the state of Washington. Each test item was designed to assess students' grasp of the benchmarks of the state's Essential Academic Learning Requirements. (Partnership for Learning, 2005).

Since the test was first administered in 1997, issues have arisen, such as the lack of correlation between the tests and textbooks used in instruction, and between the WASL tests and the Iowa Test of Basic Skills (ITBS), which many schools use in the grades where the WASL is not given. The reliability and validity of WASL testing results have been called into question because Caucasian and Asian students constantly outperform their counterparts from other ethnic backgrounds, and students from families with

lower socioeconomic status performed behind those from families of higher socioeconomic status (The Multi-ethnic Think Tank, 2001).

The pressure of pursuing a higher passing rate in the WASL tests, however, drains the efforts of educators. Teaching to the test, instead of to standards, can easily be observed in classroom practice. Much to the dismay of policy makers who favor standardized tests, a number of students have refused to take the test (The Associated Press, 2001). Despite educators' resistance to using standardized test results as the sole indicator of a student's academic performance and/or a school's quality of instruction, public opinion has been influenced by the publishing of test results in local newspapers.

In contemporary China, testing begins in the first grade and continues through every grade until the senior year of high school. The goal of this annual testing is to prepare the student to earn high scores in the national College Entrance Examination. At the end of each school year, each student takes a school-wide or even city/district-wide examination in the core subjects, which are Chinese and mathematics from first to sixth grade, with the addition of social science, natural science and one foreign language from the seventh to the twelfth grades. Promotion from one grade to the next and one level to the next, that is from elementary (1st-6th grades) to junior high school (7 to 9th grades), then to senior high school (10-12th grades) simply relies on test scores. The rank of a student's test score is the primary and determinant criterion for tracking that student to an average school or a key school in the next level. Students in a key school are more likely to gain college admission.

The target city, Baoding, in this study has a population of 400,000 inhabitants and is located 150 miles south of Beijing, the capital of the People's Republic of China. It is safe to assume that Baoding's curriculum and tests are representative of the typical test in China owing to the centralized curriculum decisions made by the Ministry of Education that allow little variation in teaching. In addition, the national unified College Entrance Examination governs cur-

riculum and its evaluation. School-wide mid-term examinations and citywide final examinations of the core subjects are conducted each semester in Baoding. Normally mid-term examinations take up two full days to complete and final examinations last three days. No regular classes or extra-curricular activities are offered during those days in order to "protect" students' full energy for preparing for and taking the tests. The citywide final examinations are developed and conducted to equalize students' academic performance and the quality of teaching in different schools.

The culture of testing in China has been pervasively instilled in Chinese education. Teaching to the test means teaching to the curriculum (Levinson, 2002). Interestingly, the centralized educational system reduces the issue of content validity between teaching materials and test items, owing to the use of identical texts in almost all schools. The educational policy toward the nation-wide or city-wide tests states that test items should be consistent within the scope and level of difficulty of the texts (Institute of Curriculum and Instruction, 2001). Testing is a routine of Chinese schooling. Similar to American students, many Chinese students are annoyed with test-driven education and demonstrate an attitude of apathy toward schooling. As a result, while testing is a means of motivation to some students, it does not motivate many others even though Chinese parents provide enormous support for their children's education and maintain high expectations for their children's academic achievements.

COMPARISON OF THE TESTS

Differences in the political systems and culture of the two countries distinguish the test design approaches from one system to the other. The WASL tests are developed by the Riverside Testing Company, an organization with no direct connection to either classroom professionals or policy makers. As standards-based tests, the WASL tests are developed with EALRs as guidelines (Washington State Commission on Student Learning, 1997). Textbook selection is

a school district decision based on their own interpretation and understanding of the EALRs. While each organization enjoys its autonomy, internal validity between test items and curriculum adoption has been an issue.

The city of Baoding forms its own committee to develop tests year-by-year. The committee is made up of education officers, classroom teachers and teacher education professionals. Very few textbook options and close compliance with centralized curriculum guides make challenges to validity less likely by aligning test items with textbooks and the centralized curriculum guide.

According to the Assessment Coordinator's Manual (OSPI, 2002), Washington students are allowed to use calculators in some sessions of mathematics tests although they "are never required for any questions" (p. 20). In the writing test, students are allowed to use "a published thesaurus or dictionary in print or electronic form (without spell checking)" (p.21). An interesting accommodation is that "students may have as much time as they need to complete the task" (p. 23) as long as the student is engaged in the test and gets the test finished the same day that it was begun. In the Baoding system, there is no policy on accommodation. Calculators or dictionaries are not permitted no matter what subject a student takes.

The WASL tests encompass four types of questions: 1) multiple-choice questions, 2) enhanced multiple-choice questions, that is, choosing and then explaining the choice, 3) short-answer questions, and 4) extended-response questions, which require students to write an answer with examples and supporting details. The WASL test results are reported to students as criterion-referenced as well as norm-referenced scores. A student receives a report, which shows whether or not s/he passed each area, and gives the standing of the student's performance compared with the norm group in a chart. It also includes a list of the major content tested.

On the fourth grade mathematics sample test, the stem of a multiple-choice question is: "A refreshment stand buys hot dogs in packages of 10. Hot dog buns come in package of 12. What

is the least number of hot dogs and buns that must be bought to have an equal number of each?" The alternate responses are: a) 120 hot dogs and 120 buns, b) 60 hot dogs and 60 buns, and c) 30 hot dogs and 30 buns." This item assesses the students' learning of mathematical connections. A short-answer mathematical reasoning item is: "A store has a special sale on cassette tapes. These tapes usually cost \$1.99 each." The store ad with graphics is shown. The ad says: "Six cassette tapes: Only 13.98. Includes a storage box to hold the tapes." The question is: "Are you really getting the storage box for free?" Students need to explain their thinking using words, numbers, or pictures. A three-level rubric (2, 1, & 0) is included in the sample test for self-evaluation. A 2-point response is expected to give a valid conclusion and show effective reasoning through a complete analysis of the problem; a 1-point response shows partially flawed reasoning either through incomplete analysis or inadequate/incomplete verification; and a 0-point response shows very little or no evidence of mathematical reasoning (Washington State Commission on Student Learning, 1997).

Chinese mathematics tests, on the other hand, are mainly composed of the items of calculation and problem solving. The fourth grade math test includes items of counting, multiple-digit multiplication, division, comprehension of reading and problem solving. The example questions are as simple as mental arithmetic: " $72+28=?$ $630/45=?$ " A sample problem-solving item is: "A plane flies 2,250,000 meters in 3 hours and a train runs 450,000 meters in 6 hours. How many more meters each hour does the plane travel than the train?" Students are required to write the step-by-step mathematical solution to each problem.

The seventh grade WASL math tests are developed with the same principles as the fourth grade's, but at a higher level. Each test attempts to include all 30 learning targets of mathematical concepts and procedures specified in the EALRs' benchmarks for the seventh grade mathematics. The emphasis is more on validating thinking mathematically than on calculation.

One sample question reads: "Apply the concepts of probability and statistics to calculate what is the greatest possible number of steps that could be taken before stepping on more than one puddle square." The question is accompanied by a grid with several shadowed mud puddles included. To test students' ability to organize and interpret information, a sample problem is: "Explain whether it is money saving if a box containing 12 individual items is bought instead of each item bought individually." Along with the question, a chart is shown with the box price of the items and price of individual item. Another sample question asks the student to figure out the relationship between the number of sides in a polygon and the number of triangles to be formed by drawing diagonals from a common vertex. Students are expected to clearly describe a strategy to search for the relationship and to describe the relationship using words, numbers, and/or pictures.

The seventh grade Chinese mathematics test covers algebra and geometry. Students are not required to describe how the problems are solved verbally, but to list the step-by-step mathematical procedure. The sample abstract algebra and geometry problems are: 1) shown in a graphic, $AB \parallel CD$, $B=460$, $D=380$, so $E = ?$ 0. Calculation of $(-1/2)-2 + (-3)0 - (-2)3 - (-1)$ 2001, 2). A problem-solving question reads: "Ming Li's house is a thousand meters away from school. One day, Ming passed the school and went to another place for fun." The relationship between the distance he walked and the time he used is shown in a table. The question is: "What is the distance from home 2 hours after he passed the school?"

The fourth grade WASL reading test aims at examining students' ability to read in order to perform a task, and to read for literary experience. The test includes fiction, a non-fiction article and/or a poem. After reading each piece, students are expected to answer multiple-choice questions and short-answer questions as well. Emphasis of the test is on comprehension of the material and reasoning with supporting details.

The WASL writing assessment is designed to test students on communicating in written

format clearly and effectively for different audiences and purposes. The test highlights the process of thinking and writing by formatting the test into the steps of prewriting, first draft and final draft. Students are given two days to finalize their writing with prewriting and first draft on the first day and the final draft on the second day. Self-assessment is encouraged with a provision of "Checklist for My Writing" following the writing assignment on the first day. Students are limited to a theme, but have the flexibility to choose a topic they feel competent to write about. A sample writing assignment for fourth grade is "to describe your favorite place," using paragraphs, not a poem.

The Baoding tests of the Chinese language are composed in four formats: 1) multiple-choice items, 2) fill-in the blanks, 3) short answer, and 4) writing. In the two-hour block of the Chinese test, fourth graders need to perform: a dictation (listening) of 8 Chinese characters, spelling for pronunciations of 22 Chinese characters, four sets of matching items, definition of 4 terms, 8 fill-in blanks items, some punctuation, an interpretation of an ancient poem with four lines, and answering four questions after reading a short story and a composition. The topic for writing in the year 2002 was "A moving story." The essay should be between 250 and 500 words (Hebei Elementary School, 2002).

In summary, the two sets of tests differed in several ways. The listening session was included in all three levels of the WASL in 2002, but was part of only the fourth grade test in Baoding. The fourth and seventh grade WASL reading and writing tests are in general at a rather high level of complexity with a strong emphasis on comprehension and reasoning supported with details. The amount of reading in the test manifests the highlight of reading in American students' learning in recent years.

The difficulty level of the mathematics tests differs between the Washington State and Chinese tests due to the differing emphasis in mathematics instruction. Practical application, problem solving and reasoning of mathematical knowledge and concepts are obvious in the WASL. The practical application of mathemati-

cal concepts in American mathematics education emphasizes American students' competence in real life problem solving instead of mathematical calculation. The level of difficulty in the WASLs' mathematics concepts, however, is lower than that in Baoding. The three-year difference between fourth and seventh graders does not require much increment in Washington students' acquisition of mathematics knowledge and calculation skills. As not all students will become mathematicians, the WASL math test may be more relevant to students' lives and less dreary for students. The other side of the debate contends that the real-life problem driven mathematics education does not help promote students' mental abilities or the training of future elite scientists who can contribute to the forefront of scientific and technological development (Watras, 2004).

The validity of the two tests also varies. The validity of the WASL tests depends upon its correlation with the EALRs while the Baoding tests are valid because the test items are internally consistent with texts and the Curriculum Guides formulated by the State Ministry of Education (Institute of Curriculum and Instruction, 2001).

CURRICULAR IDEOLOGY UNDERLYING THE TESTS

A comparison of the standards guiding the educational systems of Washington State and China will throw light upon the characteristics of each testing system. The four learning goals for all Washington students as stated in the EALRs are: students will be able to: 1) read and write and communicate effectively, 2) know and apply the core concepts and principles of the main subject matters, 3) think analytically, logically and creatively, and 4) understand the importance of work and how performance, effort, and decisions affect career and educational opportunities (Washington State Commission on Student Learning, 1998).

China's Ministry of Education specifies the goals of education as follows: 1) to foster a love for the socialist country and the Chinese Communist Party, and inculcate a national pride and

appropriate world outlook, 2) to master core subjects and to promote independent thinking and problem solving skills to become a life long learner, 3) to develop healthy life habits and keep fit, 4) to foster meaningful appreciation of nature, society, science and the arts, and 5) to enhance healthy work ethics (Wu, 2001).

The goals in EALRs mathematics are stated as: development of the student's ability to understand and apply math concepts and procedure, to define, reason, and solve problems mathematically, to communicate an understanding of both everyday and mathematical language, and to understand the connections between mathematical ideas and other subject areas, and between mathematical ideas and real-life situations (Washington State Commission on Student Learning, 1998). The Ministry of Education in China outlined the purpose of mathematics education as to 1) master basic mathematics knowledge and skills for everyday life, work and further study, 2) promote skills of logical thinking and problem solving, and 3) foster the dialectical material outlook (Ministry of Education, 1995).

After scrutinizing the almost identical educational goals formulated in both systems, we conclude that perennialist beliefs in education and the belief of the power of education to improve the level of civilization of the entire population transcend the geographical as well as social boundaries of the two countries. The distinction, however, lies in the requirements on mastery of subject knowledge, skill and attitudes. In Washington, students who do not show mastery are allowed to move to the next level of education whereas in China, students are not promoted until they demonstrate that mastery.

IMPACT OF HIGH-STAKES TESTING UPON LEARNING AND TEACHING

In retrospect, contemporary American education is the result of a debate between conservatism and progressivism on what should be taught in school and what methods should be used to deliver instruction and evaluate student learning (Watras, 2004). On one hand, teachers

are expected to train students to become first-class citizens in order to maintain American's superior standing in the worldwide economic competition. On the other hand, approaches used to reach this goal have always been controversial. The current high-stakes testing movement is a continuation of the debate in response to the "crisis" that American students' performance in mathematics and science are behind that of their counterparts in other countries (Cai, 2001; Bracey, 1996). Unified standards, if followed, enable educators to teach to a certain level. Conformity in teaching materials and testing may equalize instruction while it is also likely to sacrifice individuality and creativity.

Under the current pressure of a high-stakes testing movement, Washington educators are working towards reaching the goal specified in No Child Left Behind. Ironically, the No Child Left Behind law attempts to use students' testing scores as a ruler to evaluate a school's performance, but the law provides no fiscal support or an action plan of how to do it. At the state level, classroom teachers do not have access to the entire test. Only sample items are available. Teaching to a test without an understanding of that test minimizes students' learning to a small range of knowledge and skills, which diminishes the application of classroom learning. If the test is valid and reliable, however, it can be used as an instrument to promote teaching and learning by being aware of quality and quantity of the test. Secondly, the report on a student's WASL performance does not reveal the specifics of a student's strengths and weaknesses in the test performance. Even this minimal report does not reach a teacher in time to allow reteaching. The test is given in April and the results are released in September. In the current organizational structure of many schools, the test results cannot be utilized to promote student learning or instructional practice because most teachers will not teach the same group of students continuously the following year. Inconsistency between the WASL tests and textbook selection, and no looping system to build the longitudinal relationship between teachers and students does not help with the desired outcome — more students passing the test.

In China, rigor in academic standards and learning has prevailed and test-driven instruction has escalated the level of difficulty of the tests, and also encouraged students to pursue a high score on the tests. Historically the glory of being a scholar has inspired a large number of the Chinese to pursue it and it has become deeply embedded in the Chinese culture (He, 2000). Rigorous training through all 12 years of education promotes diligence and organizational skills among many Chinese students. At the same time, striving for high test scores at the expense of other aspects of a student's development has caused many tragedies, such as truancy, apathy, labeling, or even suicides (He, 2000). A student with an extremely high test score may possess a low ability to use the knowledge in real life situations. Many students who can't acquire high scores in paper-pencil tests are discouraged from learning at a very young age. Lack of statistical analysis of test results sacrifices the equity perspective of education. No consideration of economic diversity is taken into account. Decisions about further schooling are based solely on raw score data. Students from remote and poor areas are compared with more prosperous parts of the country, leading to few of them being admitted to secondary schools. Thus, China is at the beginning stage of educational reform to decentralize her educational decision-making and change her test-driven education into an education that will promote equal opportunities for all students.

China's test-driven practice should be used as a mirror to help American educators and politicians reflect upon and speculate about the damage to education caused by using test scores as the sole indicator of a student's and a school's success. The very question now is not whether a teacher should teach to the test, but whether teaching to the test prepares students for their careers and lives (Posner, 2004). Quantitative testing scores can partially represent students' achievements in certain subjects. Life skills and ability to solve real-life problems, however, are not included in this kind of evaluation. Teaching to the test may discourage students with diverse needs from engaging in the learning process. The more standardized curriculum and tests

become, the more disengaged students will become (Nieto, 2002; Plitt, 2004; & Winter, 2002). Such results only counteract the expectation of no child left behind in schooling.

A comparison of the testing movements in China and Washington State reveals a strange irony. While education in the United States, under state and national imperatives, is becoming test driven, China is trying to move away from 14 centuries of test driven education. Teaching to standards and evaluating students by standards can encourage high performance among students and teachers and leave little room for mediocrity. Application of the EALRs with consideration of students' diverse needs should promote and include every student in the process of learning and assessment, using the WASL as one of many multi-modal assessment devices.

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