



**A Validity Study of the
*Kaufman Assessment Battery for Children,
Second Edition (KABC-II)*
and the Taos Pueblo Indian Children
of New Mexico**



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Abstract

Forty-six Taos Pueblo Indian children from New Mexico took part in a prepublication study of the cultural validity of the Kaufman Assessment Battery for Children, Second Edition (KABC-II). Notwithstanding significant cultural and linguistic differences, the performance of the Taos Pueblo children was found to be commensurate with the national standardization sample.

Introduction

This paper is a summary of a validity study conducted with the Taos Pueblo Indian children and the *Kaufman Assessment Battery for Children, Second Edition (KABC-II)*. The purpose of the study was to gain further understanding of the cognitive functioning of Taos children and to assist in an extensive prepublication investigation of the cultural fairness of the KABC-II.

For the past 20 years, the K-ABC has gained a reputation for reflecting and respecting the unique cultural cognitive attributes of students in different ethnic and socioeconomic groups. The investigation at hand was primarily driven by the desire to test and preserve the cross-cultural integrity of the K-ABC and to directly assist the Taos Pueblo people in making informed decisions regarding the education of their children.

Site choice

The Taos Day School was established many years ago under the Bureau of Indian Affairs (BIA) guidelines. Today, the BIA, along with the Taos Day School Board of Education, administers the Taos Day School. The mission statement of the school is: "To provide an equal opportunity for all students, which will adequately prepare them to function in a multicultural and increasingly technological society, while maintaining their unique cultural heritage and identity." It was partly because of this mission statement that the Taos site was chosen for the validity study. The Taos Pueblo children live on lands that have been sacred to the Taos tribe for over 1,000 years, and the culture is obviously one that has retained a long and rich tradition on many levels. In addition, traditional practices are maintained in this community, while the mainstream culture rapidly changes around the Taos Pueblo lands. Therefore, a philosophy of adhering to the old while embracing the new has been an important, common, and ongoing test for the Taos tribe and many other indigenous peoples. The KABC-II study was, therefore, set against the backdrop of assessing students in ways that respect cultural traditions and yet provide new and exciting ways of understanding cognitive functioning.

Background of the Taos Pueblo

The Taos Pueblo tribe is unique. Very few groups of people in the United States can document an extended heritage in such a current context.

Located in northern New Mexico, the Taos Pueblo (Spanish for "village") is comprised of dwellings and ceremonial structures largely derived from the pre-historic Anasazi Indian tribes who moved south after inhabiting the intersecting four corners of Arizona, Utah, New Mexico and Colorado. The Pueblo site is the only occupied Native American village designated as a National Historic Landmark and as a World Heritage Site by UNESCO. It is thought to be the oldest continuously inhabited community in the United States.

Today, the Pueblo is the central feature on the Taos Indian tribal lands that span approximately 99,000 acres stretching from the base of Taos mountain and up in to the Sangre De Cristo Mountains. Blue Lake, the sacred and spiritual source of the Taos Indians, can be found in these mountains 26 miles from the Pueblo site. The Pueblo site is three miles north of the city of Taos, which today is a bustling artist's community.

Entirely made of adobe (earth mixed with water and straw) most of the current-day buildings of the Pueblo site appear as they did to the Spanish conquistadors in 1540, when Taos was mistakenly expected to be the mythical city of gold (Cibola). The Pueblo site is made up of individual homes that are built with common walls but no connecting doorways. In earlier days the houses had no windows or doors and entrance was gained by climbing ladders to rooftop entrances. Over the years, as the need for defensive

structures relaxed, different architectural traits were adapted, such as windows, doors, and fireplaces.

Farming and livestock have been constants up to present times with crops such as corn, beans, alfalfa, and squash. Wildlife and stock include bison, elk, bighorn sheep, deer, rabbits, and other small game.

Today, the Taos Pueblo site and tribal lands are a federally protected area inhabited by approximately 1,900 Taos Indians. The tribal Governor is concerned with the civil business of the tribe with the outside, non-Indian, world; and the War Chief's office is concerned with the protection of tribal lands. The Taos tribe allows visitors to the Pueblo for most of the year except when special and private tribal business, celebrations, and religious festivities are being conducted.

Overview of the study site and procedures

The principle research site of the Taos Day School was ideal for the study because it had an extensive history representative of traditional education for Indian children. The Taos Pueblo children in kindergarten through eighth grade have attended the Taos Day School on the tribal lands for over 70 years. The school's main building is a traditionally built, old adobe structure with wood beams and thick walls painted in light colors. The walls allow the building to stay cool in the hot weather and warm in the colder months.

The halls of the school are filled with the sounds of children laughing and playing as in any school, but there is also student artwork on the walls depicting traditional Native American life and identity in many different forms. For example, the emblem for the Taos Day School Eagles team is a shield with feathers hanging down from the base. On each feather is a different word such as Respect, Humility, Honesty, Courage, Fortitude, Patience, and Generosity depicting the Eagle vision statement. The school identity has a long history, beginning with the common U.S. government policies of forced student cultural assimilation in the early years to the present-day quest for harmony with traditional and modern-day life practices.

The majority of the Day School staff is of Native American/American Indian origin. The school serves 170 Native American children the majority of whom are a mixture of Native American/American Indian tribes, Hispanic, or Anglo heritage: 24 percent are full-blooded Taos, and 14 percent are from other tribes. Fifty-two percent of the students at Taos Day School live in households below the poverty level.

KABC-II administration

The KABC-II study was undertaken during the standardization phase of development in the 2001–2002 and 2002–2003 school years. The sample was comprised of 46 children

ranging from kindergarten through grade 12. Subjects in grades 9 through 12 were tested at the public high school in the city of Taos. The sample was randomly selected from the class rosters at each grade and matched approximately for age and gender.

The administrations of the KABC-II standardization battery took approximately two and one-half hours per child. The testing team of five examiners all remarked on how polite and respectful the children were during their assessments. The children appeared to enjoy the testing materials and showed interest in the new activities. They were reimbursed for their participation in the study and when asked how they were going to spend their money, most had answers about buying toys and clothes. One third-grader said that he was going to "go home and take my mother out to dinner," a remark that the examiners found particularly engaging!

Cultural observations and investigation

It became quickly apparent, in preliminary classroom observations of the Taos children, that the cultural variables associated with the cognitive assessment of this sample of children, such as diet, health, religious practices, socioeconomic status (SES), and so on could be radically different than for most children in the national standardization sample. An investigation of the environmental and health variables that could affect learning and cognitive development was going to be necessary because it is commonly thought that socioeconomic status and ethnicity account for much of the error or variance in many test results (Wong, et al., 2000). Cultural variables could confound the results for this study, and there was a need to understand whether we were measuring cognitive mental processes or the effects of variables in the environment. The latter, of course, is very difficult at best. However, the guidelines for assessment and measurement in psychology and education dictate serious attempts to understand all of the variables that can potentially affect study results (Henning-Stout and Brown-Cheatham, 1999).

Health

An investigation of the frequency of sick pediatric visits to the Indian Health Service clinic suggested the most frequent medical conditions that affect Pueblo children are otitis media (ear infections), bronchial infections (non-specific), asthma, urinary tract infections, and pharyngitis. The Indian Health Service Department of Epidemiology in Albuquerque (Dr. R. Gollub, personal communication, April 2001) reported that the prevalence of asthma is high compared to Anglo and other ethnic groups and very different than that of Indian populations 20 years ago. In addition, the incidence of hyperinsulinemia (a prediabetic condition) is rising in young people in Native American communities in New Mexico due to diet and exercise practices. The incidence of

type 1 diabetes is the same as mainstream groups, but the incidence of hyperinsulinemia and type 2 diabetes is very high. In addition, the incidence of fetal alcohol effects is high in many Native American groups. Further study is taking place at the University of New Mexico to investigate local numbers.

In general, several potential health confounds to reliability and validity were indicated. Otitis media is a condition renowned for negatively affecting early language production, and in many cases, auditory processing. In addition, undetected fluctuations in blood glucose due to hyperinsulinemia can negatively affect concentration, memory, and energy level. Asthma can create learning issues in terms of acute episodes and chronic emotional and social sequelae (Berg and Linton, 1997). The condition of fetal alcohol exposure is also well documented but difficult to diagnose and remediate (King and Fletcher-Janzen, 2000). All conditions were considered to be unremarkable in incidence by school personnel. However, it would be interesting to conduct further studies regarding the relationship of the presence of any these conditions to individual test results.

Environment

A general investigation of the air and water quality on the reservation was conducted. A representative of the War Chief's office related that the air quality was assessed several times due to the proximity of the tribal lands to the Los Alamos nuclear facility 64 miles away. The direction of wind and airflow could have deposited radioactive materials into the soil on the tribal lands. During several assessments in past years no radioactive particulates were detected in soil or air samples.

An area of current concern is the dust from the dirt roads affecting air quality on the tribal lands. Recent remediative efforts have focused on paving certain well-traveled areas to minimize airborne dust (G. Suazo, personal communication, April, 2001).

The sacred Blue Lake is the source of water on the Pueblo and tribal lands; its water is untreated. Regular water studies have not found any parasites, toxic metals, or bacterial contaminants (Environmental Protection Agency survey results Spring, 2002).

Diet

All students at the school are eligible for free breakfast and lunch. The quality of the foods available in the cafeteria is exemplary. Children receive large portions and varied menus of sound nutritional foods. The children also have access to

several balanced snacks during the school day. Therefore, nutritional needs are very well met during school hours.

Traditional practices

It quickly became apparent that it was not appropriate for us to inquire or research the religious or spiritual practices of the Taos Pueblo tribe. It was related to us that these are deeply sacred practices and ceremonies that are contained within the tribal community and the privacy of these practices needed to be respected by researchers and noncommunity members. Therefore, any potential impact of traditional practices on the cognitive abilities of Pueblo children is unknown and will likely remain so.

School climate

The school climate reflected cultural nuances that were markedly different from the mainstream. In any small school, close relationships are found because of proximity and the availability of time for such development. However, there appeared to be a great deal of open affection and significant parent and community involvement in everyday activities at the Day School. The KABC-II examiners observed the participating children on the playground, in the cafeteria, and in classrooms, and found that student cooperative behaviors with peers were remarkable. Children as young as age five were observed naturally sharing responsibility for learning, clearing away materials in the classroom, and assisting the teacher in the natural rhythm of classroom activities. The school climate appeared relaxed, quiet, and pleasant, notwithstanding the obvious bustle of the regular school schedule.

Language

The subtests on the KABC-II address language functioning in terms of receptive and expressive language, and auditory comprehension/abstract reasoning. The Taos children's performance on the language subtests was of special interest, not only because they were historically exposed to more than one language, but also because of the nature of their main language.

The Taos Pueblo Indians believe that they have spoken Tiwa for eternity. Tiwa is an oral language. It does not have an alphabet, and therefore is not a form of written communication. The implications for a community having an oral language are difficult to imagine for anyone in the mainstream of American life, and the implication and practical sequelae are obviously not documented.

In communities that have only oral language, the recording of history takes on a story format with an adherence to close immediate and extended family relationships. The total cultural transference from generation to generation has to take place in the presence of the person who has the information. Tiwa is a relational experience and therefore the nature of the language is dynamic in character and is "spoken from the heart." An emphasis on the authenticity of the speaker is required if the communication comes from the heart, and a reverence and respect for elders who speak the oral history of the tribe is also necessary.

This deeply interrelated community process is also extended to how people behave and relate to the group. Concepts such as "responsibility," for example, translate differently in Taos life than in the mainstream culture. Among American Indians in general, individualization of responsibility is emphasized as a means for achieving community solidarity rather than a mechanism for personal achievement (LaFromboise, 1988). This sense of community is located in the deeper meanings of words that do not necessarily translate well into mainstream English.

The importance of the listening skills of the person who is receiving the oral history is another cultural influence from the system of oral language. Frequent questions and interruptions impede the person who is speaking, especially if there is no written text to record the communication for use at a later time. Hence, Pueblo children are expected to listen and receive information without interrupting the speaker or changing the discourse by questioning. This communication style is very different from the mainstream American conversation and teaching, where questions are encouraged and often expected.

The oral history and language of the Taos Pueblo community changes over time to reflect recent events. New words have to be invented for new technological devices. For example, the Tiwa name for an airplane is "wind-house," and at present there is no translation for the word or concept of "computer." Tiwa tends to reflect a concrete relationship between the speaker and the world. For example, colors are learned by observing naturally occurring objects found in the environment, such as the yellow of turning aspen leaves in the fall.

Other linguistic influences have been brought to the Pueblo over the years. The advent of the repeated Spanish invasions after the 1500s and the Mexican rule in the 1800s provided natural linguistic influences of Spanish culture. Later, traders and military personnel from an Anglo background came to the Taos area and brought English into the multicultural mix of Taos. In fact, the traditional Castilian Spanish was spoken in the Taos area until the Anglo settlers and traders entered the picture. Then, a "Spanglish" took over, which continues to evolve as

Spanish and English mix. Therefore, many Pueblo members are bi- or even trilingual. Many children are taught Tiwa from preschool up to eighth grade, while English is the predominant language for schoolwork.

A somewhat brief investigation of the linguistic influences with the Taos Pueblo children brought forth a great deal of questions. The predominant research question was: "What would the effects of an oral language (and consequent worldview) be on the Taos Pueblo children's performance on the KABC-II?" Some things were certain, that an investigation of the Tiwa language reflected a very different worldview; and that there was also a Spanish influence in the language and culture. It was difficult to predict if the language issues would affect the whole KABC-II battery, or just the language/verbal subtests.

Results of the KABC-II Taos sample

Previous studies with the K-ABC indicate that tribes that were more acculturated to mainstream American culture, such as the Sioux Indian tribe, where students received education off the reservation, were much more likely to obtain average scores or scores that were commensurate with mainstream populations. Whereas, Navajo tribal children who were educated on the reservation and less acculturated to the mainstream indicated elevations on the Simultaneous Scale of the K-ABC versus the Sequential Scale (Naglieri and Kamphaus, 1983). Therefore, from previous studies, it was not unreasonable to expect unusual scale score results, because the Taos Pueblo children were thought to be less acculturated to American mainstream culture and more identified with Taos Indian culture.

In fact, the results of the KABC-II study place the Taos children consistently with the national average scores. Notwithstanding the fact that Taos children are completely integrated into Pueblo life and culture, their scores indicate well-rounded and sound cognitive abilities commensurate with scores of children in the mainstream.

In the following table, the subtest scores are indicated by scaled scores with a mean of 10 and a standard deviation of 3. All subtest scores for the Taos students are in the average range. It should be noted that the lowest cluster of subtest scores is for the Riddles, Expressive Vocabulary, and Verbal Knowledge subtests. These subtests make up the Gc or Verbal Knowledge Index and represent test items that are heavily loaded with language. For the KABC-II, as with most tests, subtests that are verbally loaded are based on experiences and knowledge of everyday life. Therefore, the lower scores for this sample may well reflect the linguistic, cultural, and probable socioeconomic differences of the Taos children and the mainstream culture.

Table: Taos Pueblo Student Sample Mean and Standard Deviation Scores for All Subtests and Indexes

Subtest/scale	Mean	SD
Word Order	10	3.0
Number Recall	9	2.6
Hand Movements	9	3.0
Triangles	10	2.6
Rover	10	2.7
Block Counting	10	2.8
Gestalt Closure	10	2.7
Pattern Reasoning	9	2.8
Story Completion	11	2.6
Atlantis	9	3.0
Atlantis Delayed	10	2.9
Rebus Learning	10	2.5
Rebus Delayed	10	2.8
Riddles	8	2.3
Verbal Knowledge	9	1.7
Expressive Vocabulary	9	1.7
Sequential/Gsm	97	15.1
Simultaneous/Gv	101	13.1
Planning/Gf	100	12.7
Learning/Glr	99	14.9
Knowledge/Gc	95	9.7
Mental Processing Index	98	13.8
Fluid-Crystallized Index	97	12.7
Nonverbal Index	98	12.5

The KABC-II does not have an Achievement Scale, as was the case with the K-ABC. The KABC-II replaces the Achievement Scale with verbal/knowledge processing tests that can be incorporated into the Mental Processing Index (MPI), depending on certain characteristics of the examinee. Practitioners who believe that the Cattell-Horn-Carroll interpretation of cognitive functioning best serves the interests of the student in question can incorporate the verbal knowledge (Gc) processing subtests into the MPI. On the other hand, if the examiner believes that the verbal knowledge processing subtests are inappropriate for the examinee, they may omit these subtests altogether and maintain a more Lurian approach to the interpretation of the MPI.

From the beginning of the Taos study, the bi- and trilingual characteristics of the population, along with dramatic social and communication differences, heralded a need for a more Lurian approach to understanding the Taos children's cognitive functioning. It became obvious that the Taos children were influenced by a 1,000 year-old language of the heart and were not driven to be competitive in speech production during verbal tests. In fact, they were taught to value the extreme opposite.

Many American Indian children express their worldview by actions, relationships, and spirituality. In this instance, a Taos child's worldview and cognitive functioning may not be best expressed with (or assessed by) his or her words. This is not to say that the performance of the Taos children on the verbal subtests does not provide valuable information. It addresses the children's ability to express thoughts and mediate mainstream language. The verbal subtests also illustrate how much the children know about the mainstream culture, whether they experience it directly or not.

Conclusions

The general conclusion of this study is that Taos Pueblo children have many distinctly different linguistic and cultural experiences from the majority of the normative sample for the KABC-II. The Taos children's performance on the KABC-II compares favorably with same aged children in the standardization sample (which was matched to the U.S. Census) on the information-processing subtests and scales. However, the Taos children's performance on the Gc- Verbal Knowledge ability scale of the KABC-II is somewhat lower and probably reflects the linguistic, cultural, and socioeconomic differences between the Taos Pueblo and average American life. Hopefully, this information will help the Day School staff further understand the cognitive abilities of their students and assist in guiding educational decisions for individual students and the school.

As for gaining further information about the prepublication validity of the KABC-II, one of the purposes of this study was to assess the validity of the Lurian and CHC theoretical models with different cultural populations. The design of the KABC-II differs from other cognitive processing tests by allowing the examiner to reduce potentially culturally confounding variables from the Mental Processing Index score. This procedure more accurately reflects the child's individual information processing in context as opposed to reflecting how that child's verbal expression (broadly defined) measures up to other children in the mainstream. The CHC index scores are generally lower for this study than the Lurian index scores and, therefore, the validity of both models is supported.

The purpose of the KABC-II is to answer (in part) a referral question. The most common referral question that is asked at the Taos Pueblo Day School is "Why is this child not processing information as well as we know he/she can, and how can we help?" The KABC-II allows the examiner to remove the potentially culturally loaded Gc index from

the overall picture *before* the administration and what is left is not absolutely culture free information, which is simply not possible or desirable, but information that is not as *heavily* biased by culture. Removing as much cultural/verbal bias as possible from a test of cognitive ability allows the examiner to better answer the Taos Day School referral question and help the child, parents, and staff. Of course, the KABC-II is only part of a comprehensive psychoeducational assessment. Many other tests and information are needed to fully evaluate how to help a child who is having difficulty in school. The KABC-II has a duty to assist the examiner in providing a part of a comprehensive assessment that is aware and sensitive to the context of the child's world and worldview.

Future investigations

The information in this article represents over three years of work and does not complete a comprehensive understanding of how Taos Pueblo children relate to the world. Much more work still needs to be done. Future analyses will include: Comparing KABC-II with *Kaufman Test of Educational Achievement, Second Edition* (KTEA-II) scores to see how information processing scores relate to actual achievement; comparing KABC-II results with those from other tests such as the *Wechsler Intelligence Scale for Children®*, *Fourth Edition*; investigating creativity, neuropsychological aspects of learning, health issues; and, of course, further analyses of the deeper layers of meaning in the Taos Pueblo culture.

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"Wechsler Intelligence Scale for Children" is a registered trademark of Harcourt Assessment, Inc.

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The cultural and historic information for this paper was gained from the official Web site for the Taos Pueblo tribe, which can be accessed at <http://taospueblo.com/>, the official Web site of the Taos Day School at <http://www.laplaza.org/edu/tds/> and directly from many members of the Taos Pueblo community.

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