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The Cultural Construction of Intelligence

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Why do psychologists assess intelligence? Since you are reading this chapter, you have probably been described by someone as an intelligent person. Whatever your immediate reasons for picking up this book and for turning to this chapter, it is likely that you are involved in a course or a program of higher education. A series of decisions led to your participation in those studies, some of which depended on estimates by other people of how well you were likely to understand such topics as psychology and culture. Those estimates almost certainly involved some elements of what is called the assessment of intelligence.

Some estimates may have been based in part on scores assigned to your performance on a standardized test. For instance, a college admissions committee may have selected you because your S.A.T. scores fell above a certain criterion. In other cases, the estimate may have involved a more impressionistic synthesis from observations across a number of different settings, in which your behavior was compared to that of other people engaged in the same activities as you. For instance, a letter of recommendation to the college by one of your high-school teachers might include such statements as “This is one of the brightest students in my class” . . . in Chemistry, in Literature, or in World History.

Each of these forms of assessment—by a committee looking at your test scores, or by a teacher reminiscing about your behavior in class—is derived indirectly from judgments of the quality of your responses to particular tasks. Consider a task of special interest to many school teachers: the student is asked to propose an explanation to the rest of the class for a surprising event you have all recently witnessed. In chemistry, the event might be a sudden change in color of the contents of a test-tube during an experiment, in literature it might be a betrayal of trust by the hero of a novel you are studying, in history it might be a news item announced last night on television or radio. Depending on the context and on her philosophy of education, the teacher might assess the quality of your response to such a challenge on only one or more of the following dimensions: How appropriate was the evidence you cited? How logically coherent was your reasoning? How much insight did you show into the nature of the problem? How precisely did you make your case? How subtle was your interpretation? How eloquently did you phrase your idea? And so on.

The tasks used for professional psychological assessment are usually more strictly controlled than this, and the best performance is defined as choosing the correct one among four or five alternatives. Critics of such tests often complain that the way in
which their tasks are posed is unnatural, and their definition of a correct response is narrow and arbitrary. Both of these prevalent features of psychological tests arise from the attempt to control and standardize the task presented to the respondent. The construction of a multiple-choice test begins with an intuitive phase involving similar criteria to those used by the teacher in her classroom assessment, but is then followed by a systematic, empirical process known in the field of mental measurement as standardization. The idea is to reduce the chances that the personal opinions of the tester could bias his or her assessment of the subject’s intelligence. Rather than following her intuitive judgment, the psychologist is trained to follow with great precision a standard set of procedures that have been tried out with many people before, and to interpret the subject’s responses in accordance with a set of guidelines derived from the experience gained when the procedures were being standardized on other people with comparable experience. The quality of the subject’s performance is thus compared with the performance of other subjects under very similar conditions.

This particular format of psychological assessment, grounded in systematic research and protected by professional regulations, has acquired a privileged status in the culture of the modern world, especially in the fields of education and mental health. Yet the evaluation of how intelligently a person has behaved is also regarded as transparent, in the sense that everyone is expected to agree at least about the most extreme cases. Professional psychology depends on this assumption to guarantee its cultural validity.

However, when the performance of people from different cultural backgrounds is compared on a single, isolated intelligence test, considerable differences are often observed. One interpretation of such findings has been that some cultures have greater potential than others for the cultivation of intelligence. An alternative view has been that the test is less appropriate for the assessment of intelligence in one culture than in another. Psychologists have debated these and other alternatives intensively, seeking to establish how psychological assessment can best contribute to educational practice.

In this paper, I will describe three different ways in which culture may be said to construct intelligence. We may think of culture: (1) as a nurturant environment from which the developing mind derives its nourishment; (2) as a system of meanings in terms of which the nature of intelligence is formulated; or (3) as a forum in which alternative approaches to the definition and measurement of intelligence are debated. I do not intend to argue that one of these versions is radically superior to the others. But their emergence in my own thinking has been sequential, with each newer version arising in reaction to a limitation of its predecessor.

**CULTURE AS A NURUTRANT ENVIRONMENT**

At the beginning of my research program at the University of Zambia, I thought of culture as achieving its constructive influence on the course of cognitive development in much the same way that evolutionary pressures over a much longer period of time have shaped the behavioral repertoire of different biological species to fit the ecological niche they inhabit. Examples of such ecological adaptation in biology include the capacity of mammals that live in trees to climb, and of those that live in water to swim. Human cultures add a further dimension of structure to the habitat, with technological artifacts and recurrent practices. Children are enculturated in the course of their development into a facility with the machines, the language, and the rituals of their society.

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To a cross-cultural voyager to Zambia from Britain in the 1960s, certain differences in the types of games children played were immediately apparent. During the course of my visits to the homes of schoolchildren in the capital city of Lusaka, I very rarely saw any commercially manufactured toys, children's books, or crayons. Yet, in almost every neighborhood, I would meet a group of boys “driving” along the gravel road in front of them skeletal model cars built from scraps of wire (see Figure 1). These wire cars are popular all over central and southern Africa. They are constructed by boys between the ages of about six and fourteen, without any instruction manuals or any guidance from adults. The models vary in many points of detail, and most of the young craftsmen will gladly explain to a curious researcher how the axles are connected to the chassis, how the steering works, how the doors are hinged, etc., as well as telling what make of car the model represents.

The conspicuous skill and ingenuity displayed in this context impressed me as evidence of a high degree of competence in a cognitive domain very similar to that sampled by several Western psychological tests, such as the Block Design assembly test, the Bender-Gestalt test, and the Draw-a-Person test. Yet, I soon discovered in my research laboratory at the university, that these were among the most difficult tests for Lusaka schoolchildren, and were even more difficult for children living in rural areas of the country. After reviewing and adding to an inconclusive literature on the nature of those difficulties, I designed a study to bridge the gap between Zambian children’s skillful toy-making and their poor performance on Western tests.

The guiding hypothesis of the study (Serpell, 1979) was that the abstract psychological function of pattern reproduction can manifest itself in different ways according to the demands of the eco-cultural niche to which the subject's behavior is adapted. In an environment abundant with paper and pencils, children would be likely to acquire greater pattern reproduction skills in the medium of drawing than in an environment where the relevant materials were scarce. Conversely, in an environment where modeling in wire was a recurrent play activity, children would be likely to acquire greater pattern reproduction skills in the medium.
of wire-modelling than in an environment where the activity was unknown.

We sampled two contrasting, low-income neighborhoods to test the hypothesis, one in Lusaka, the other in Manchester, England. Eight-year-old boys and girls were asked to reproduce a standard pattern, such as a square with diagonals, a human figure, or a flower. In the drawing version of the task the child was given a blank sheet of paper and a pencil and asked to copy a printed standard. In the wire-modelling task, the child was handed a strip of wire and asked to make a model just like a standard wire model. We also administered a clay-modelling version of the same task, which we predicted would be of equal difficulty for both samples, since many Zambian children make models from natural clay during the rainy season, and many English children play with industrially produced modelling clay. As we had predicted, the English children performed significantly better on the drawing task, while the Zambian children performed much better on the wire-modelling task, and there was no group difference on the clay-modelling task.

A similar pattern of results was obtained by Irwin, Schafer, and Feiden (1974) in a study that compared the performance of two groups of adult men with different cultural experience on two versions of another cognitive task often regarded in Western psychology as an index of intelligence. Mano rice-farmers in Liberia were able to sort bowls of rice according to three alternative dimensions significantly more often than psychology undergraduates in the United States, whereas the same Americans were able to perform significantly more sorts than the Liberians when the materials were cards displaying colored geometrical shapes. Thus cognitive flexibility in classification was found to depend on the cultural familiarity of the medium in which it was assessed.

In both of these studies, the focus is on culture as a source of structure in the external, material environment which the developing child explores and incorporates. The significance of culture for development is likened to that of a womb, enclosing and feeding the growing mind. However, the constructive cultural context of human development is not only material but also social: adults and older children provide guidance and feedback to the child's activity and interpret these interactions in terms of a shared system of meanings, which the developing child gradually appropriates as his or her own.

CULTURE AS A SYSTEM OF MEANINGS

While we admire the ingenuity of expert toymakers, farmers, and scholars, these are not the only qualities of mind that are valued by humans. Fairness and the capacity to appreciate another person's point of view often carry great weight in our choice of advisors in moments of crisis. These are qualities of mental depth rather than speed, and they feature prominently among the goals of child-rearing and education cited in studies of indigenous African cultures (Serpell, in press). The ideal endpoint of personal development in these societies is construed as someone who can preside effectively over the settlement of a dispute, whose judgment can be trusted in questions of character, who can and will take on social responsibility.

This broader range of applications for human intelligence came to my attention in the 1970s while reflecting on a professional problem raised by many clinicians in African mental health services. How should one approach the assessment of intelligence in the case of an adult patient referred for treatment because of socially deviant behavior in a rural community? Modern psychiatry takes account of a patient's intelligence in determining the diagnosis of psychological problems and in planning a course of treatment. But none of the tests standardized for the schoolgoing population seem at all appropriate for the assessment of intelligence in an adult who has never been to school, has not learned to read and write, and has lived all her or his life within a subsistence agricultural community.

The problem here is more fundamental than how to measure a particular cognitive process such as pattern reproduction. We need to know what qualities of mind are adaptive within such a sociocultural setting. I therefore sought an introduction through students enrolled at the University of Zambia to a remote rural community where we could invite some of the village elders to share their views with us. We decided to retain a focus on children, since adults in every society tend to hold definite views about how they wish their children to grow up. Our goal was to learn from elders about the qualities of child behavior they valued most, in contexts where it matters within the framework of the community's way of life (Serpell, 1982). A group of friends and colleagues who had grown up and lived in Zambian villages helped me to brainstorm a set of vignettes, including the following:
"If a house caught fire and there were just these children there, whom would you send to call others for help?"

"Suppose you go to a house early in the morning... and you find all the adults are away at work. Then these children come to you shouting 'thief,' 'knife,' 'he's run away.' The things the children are saying are not clear at all. Which child would you ask to explain clearly what had happened?"

"Suppose you are washing your clothes and you see that the place where you usually spread them out to dry is muddy, which of these girls would you send to search for another good place to spread your clothes?"

Before posing these questions, we identified for the respondent a set of between four and seven children of the same gender and similar age, all resident within the same village, and all well-known to him or her in the course of everyday life. After she had chosen one child for each hypothetical task, we asked the elder to explain her choice.

We sampled six small villages (with 60–170 inhabitants) within a small radius in Zambia's Katete District. The reasons cited by our informants for their choices provided a rich collection of words and phrases in common usage in this rural Chewa community for evaluating the behavior of children. We were also able to count the frequency with which a given child was cited as the best choice, within the village, for each task. We also administered several cognitive tests including a clay or wire modelling adaptation of the Draw-a-Person test and other tests based on recurrent local children's activities. Adults who were reinterviewed after an interval of several months were quite consistent, but the level of consensus among different informants was quite low. We therefore computed for each child an aggregated index of her ratings by four or five adults.

This index showed little or no correlation with our independent assessments of individual differences on the behavioral tests. Although some doubts can be raised about the reliability and validity of each of these two sets of estimates of intelligence, I regard their lack of convergence as a valid and significant finding. The indigenous Chewa point of view for conceptualizing children's intellectual development was articulated by our informants in terms of an overarching, superordinate concept, nzelu, which encompasses the notions of wisdom and intelligence, as well as two subordinate dimensions, cognitive alacrity (ku-chenjela), and cooperative social responsibility (ku-tumikila). These elders, and indeed the young people themselves when we interviewed them many years later as young adults, indicated that ku-chenjela in the absence of ku-tumikila is a negative social force that runs contrary to the objectives of the indigenous educational philosophy (Serpell, in press). Despite the rarity with which its dimensions are explicitly articulated or affirmed in public discourse, and despite its low prestige in the arena of national and international debate about education, this system of constructs and the associated practices encoded in Chewa culture constitutes a coherent alternative to those represented by the system of formal schooling. Moreover the point of view represented by this indigenous system derives great strength from the facts of its familiarity and its continuity with many other aspects of contemporary life in the community.

Even in the United States, where the practice of intelligence testing, and the theoretical rationale for the tests have been widely promoted through the schools and the media for many decades, members of the general public have retained some skepticism about the psychological establishment's approach to the definition of intelligence. Sternberg, Conway, Ketron, and Bernstein (1981) asked two large samples of Americans, a group of specialists engaged in research on intelligence and a group of "laypeople" resident in a middle-class suburb on the East Coast, to rate each of a set of behaviors in terms of how characteristic they were of "an ideally intelligent person." Factor analysis of the responses revealed two main factors among the ratings by the specialists, centering on verbal ability and problem-solving ability. Ratings by members of the general public yielded these same two factors, but in addition a third factor that centered on social sensitivity and responsibility.

Now the specifics of how social competence is manifested will likely differ considerably from one culture to another. For instance, the item "is on time for appointments" (see Table 1) would have little meaning in the life of a Chewa village. Nevertheless, the research evidence points to a comparable challenge for educational psychology in both North America and Africa. Technical definitions and tests of intelligence cannot afford to become too far alienated from the wider culture's concerns about children's development, if they are to contribute to the task of optimizing the match between educational...
vision of separate, protective services, parents of children with intellectual disability (or mental handicap) in many of the affluent industrialized nations have pressed for their children's right to participate in mainstream schooling and to receive special educational support within that setting (Mittler and Serpell, 1985).

In the rural Zambian community described above, the dissatisfaction of families with their local primary school was expressed in a variety of ways (Serpell, in press). Unlike the city schools, which every year experience long queues of eager parents clamoring to enroll their child in the first grade, at this school, the teachers felt the need to mount a door-to-door recruitment drive each year to fill the vacancies. Moreover, many pupils dropped out of school after two or three years, and only a small minority completed the full seven-year primary curriculum.

When we interviewed young men and women in this community about their reasons for dropping out, a few justified their decision with reference to immediate social or economic opportunities, such as getting married or herding cattle. But most of them stated that the curriculum had been too difficult, and described themselves as school failures. Many used the expression ndinalile nzelu, meaning I lacked the necessary nzelu—the quality of mind that we had found so highly valued by their elders in the context of village life. Yet these voting people were coping resourcefully with the demands of a challenging environment. Some were growing cash crops and commuting with rides on long-haul trucks to sell their produce in the city; others had migrated to the city where they were scraping a living from marginal, poorly paid jobs. Many were raising young children with meager resources, and all of them planned to enroll their own children in school when they grew up.

A salient feature of the school system that most of these young people had abandoned is its rigid hierarchy of grade levels, segmented by competitive selection examinations. Less than 20 percent of more than 100,000 candidates who take the grade 7 exam each year are offered places in grade 8, and of the 20,000 or so who take the Grade 9 exam less than half are offered places in Grade 10. Locally constructed tests of verbal and nonverbal reasoning, modeled on Western intelligence tests play an important part in the national competition for places in Grade 8. The cut-off points on the scales of performance are arbitrary, simply reflecting the number of vacancies in the next grade. The strin-

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**TABLE 1: Behaviors rated characteristic of an ideally intelligent person by members of the general public in Connecticut**

<table>
<thead>
<tr>
<th>The social competence factor</th>
<th>Factor loading</th>
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<tbody>
<tr>
<td>Accepts others for what they are.</td>
<td>.88</td>
</tr>
<tr>
<td>Admits mistakes.</td>
<td>.74</td>
</tr>
<tr>
<td>Displays interest in the world at large.</td>
<td>.72</td>
</tr>
<tr>
<td>Is on time for appointments.</td>
<td>.71</td>
</tr>
<tr>
<td>Has a social conscience.</td>
<td>.70</td>
</tr>
<tr>
<td>Thinks before speaking and doing.</td>
<td>.70</td>
</tr>
<tr>
<td>Displays curiosity.</td>
<td>.68</td>
</tr>
<tr>
<td>Makes fair judgments.</td>
<td>.68</td>
</tr>
<tr>
<td>Does not make snap judgments.</td>
<td>.66</td>
</tr>
<tr>
<td>Assesses well the relevance of information to the problem at hand</td>
<td>.66</td>
</tr>
<tr>
<td>Is sensitive to other people's needs and desires</td>
<td>.65</td>
</tr>
<tr>
<td>Is frank and honest with self and others.</td>
<td>.64</td>
</tr>
<tr>
<td>Displays interest in the immediate environment.</td>
<td>.64</td>
</tr>
</tbody>
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Excerpted from Sternberg et al., 1981, Table 4, p. 43.
gency of this selection process is well-known to rural communities. They also know that formal schooling only conveys a reliable advantage in the national labor market if the student completes Grade 12. Yet, rather than challenging the validity of a school system that denies real opportunities for educational success to all but a small minority, most of our cohort of young people blamed themselves as insufficiently intelligent.

Searching for ways to communicate the implications of our research to this community, we eventually found a fertile medium in popular participatory theater. A drama was composed with the active participation of young men and women from the community, portraying a variety of life journeys. At one extreme, explicit opposition to the culture of the school was represented by a young man enrolled in an indigenous secret society, while at the other was a young man whose success up to the level of Grade 9 had led him to seek his fortune in the city. Other characters in the play had left school either before or after completing the primary curriculum. Teachers and students as well as adult school-leavers role-played characters on stage very different from their actual lives, and the audience reacted with enthusiasm to the dilemmas portrayed. At the end of the drama, attention was drawn to the positive contributions made to the local community by those who had "failed" to qualify for further schooling, but had made a success of their life in other ways. Different constituencies within the community interpreted the significance of the drama in different ways (Serpell, in press). The drama thus became a forum for the articulation and debate of different perspectives on the significance of schooling as a resource for enhancement or frustration in the lives of local people.

Popular theater is one of several cultural modes of collaborative construction of shared meanings. Others are differently constituted. For example, when a psychologist seeks to share with the family of an intellectually disabled child some of the principles of task analysis and behavior modification, she or he may improve the demonstration of a specialized technique by inviting a parent or sibling to model a planned intervention with the child. In the course of such interaction, the caregiver is more likely to appropriate the new technology if her preexisting, indigenous ideas about disability and learning are acknowledged. Moreover, in any culture, the child's prospects of benefiting from planned intervention will be enhanced if the relationship between caregiver and professional is based on mutual respect for each other's complementary domains of expertise (Mittler & Serpell, 1985).

CONCLUSION

I have suggested three different metaphors for the function of culture in the construction of intelligence: the nurturant environment of a womb, the vocabulary of a language, and the exchange of ideas in a forum. Each of these metaphors of cultural construction is complementary to the others. Culture structures the effective opportunities for intellectual development, defines the goals of socialization, and constitutes the context within which the definition of goals and opportunities for attaining them is debated among the people who collectively own, belong to, and construct that culture.

The social problem of alienation between technical psychology and the mainstream of cultural understanding cannot be resolved by merely selling the ideas of science to the general public. Because intelligence is itself a culturally constructed aspect of the human mind, scientific theories of intelligence need to incorporate the common-sense intuitions of the society at large. Professional psychologists need to adapt their definitions, their assessment methods, and their interventions in the light of open and constructive discourse with other participants of the culture.

REFERENCES


