

Can Deficiency Produce Specific Superiority— The Challenge of the Idiot Savant

Abstract: Specific superior skills have been found in behaviorally retarded persons (idiots savants). Kiyoshi Yamashita's graphic genius is given as an outstanding example. The suggestion is made that we design prosthetic environments not only to restore average behavioral function to handicapped individuals, but also to develop special skills to the point of superiority. Supporting examples and an interpretation of specific superiority are given.

Behavioral skill is commonly assumed to be unitary—people are generally skillful or generally deficient. The goal of early intelligence testing was to measure this general factor. In special education our goals are often merely to restore to behaviorally deficient children some semblance of general behavioral adequacy in average environments. Must we stop here? Are we still laboring under the erroneous assumption of general deficiency—old fashioned amentia? The history of intelligence measurement strongly suggests that general skill was an illusion, that large numbers of specific skills exist in different proportions in different individuals. Laboratory measurement and close field observation of behavior have demonstrated that specific deficits and specific skills are the rule, not the exception. Careful workers in educational diagnosis have recently developed tests designed to pinpoint specific behavioral deficits in retarded behavior (Meyers and Dingman, 1960; Kirk and Bateman, 1962).

If marked behavioral deficits coexist with superior skills in some persons, our educational goal should be superior productivity in the area of special skill—not merely average production.

It may even be that their behavioral deficits will free their skill for supernormal action. I support my suggestion that specific behavioral superiority should be the educational goal for some retarded individuals with the following example of superior graphic skill coexisting with "general retardation."

Kiyoshi Yamashita

As early as 1937 in Japan there was wide recognition of the superior artistic skill of some retarded children. Kiyoshi Yamashita is an outstanding example. Born in 1922, the product of a broken home, an alcoholic father, a second marriage, and a disastrous earthquake, it became obvious that he was a backward child around his third year in school. His stepfather was also alcoholic, and his mother abandoned the stepfather's home and contemplated suicide and filicide. The children were rescued, and Kiyoshi was placed in a home for retarded children. Here his artistic talent was noticed and he produced paper collages of the quality shown in Figure 1. His IQ was then 68.

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Reprinted from
EXCEPTIONAL CHILDREN

Volume 31

Number 5

January 1965

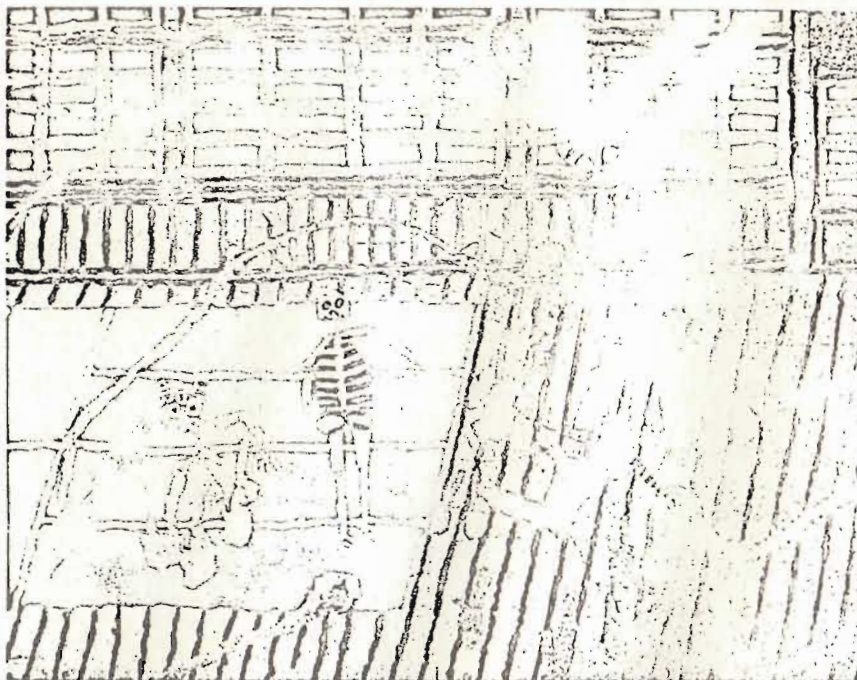


FIGURE 1. "Ghosts," paper collage, Kiyoshi Yamashita, 1937, CA 15, IQ 68.

Watanabe of Bokke, Yamashita's graphic skill developed to the point where he was producing oil paintings of the quality shown in Figure 2. When Yamashita was 35 years old, a booklet describing his work and including photographs of outstanding compositions was published by Dr. Ryuzaburo Shikiba (1957). Such noteworthy painting is no small accomplishment for any artist, much less one with an IQ of 68!

Yamashita's artistic skill has been developed far beyond average. His artistic productions are considered exceptional by the high standards of critics. The press has called him the "van Gogh of Japan" and a "wandering genius." However, Yamashita's other behavior remains at a primitive level. He wanders about Japan, begging for food and sleeping in railway stations. His face remains expressionless. His written compositions have a direct experiential style which, although more childish, is somewhat reminiscent of Joyce or Proust. These writings have the naïveté characteristic of his pictures. One

wonders if he has other potentially superior creative subskills that might be specially educated.

What would a few years of specific training and ten years of experience do for the artistic skill of children like Yosida Katuaki whose "Caged Bird," a woodcut, is shown in Figure 3? Katuaki, at the time of this woodcut, had about the same chronological and mental ages as did Yamashita at the time he pasted up "Ghosts" (Figure 1). In many ways there is more artistic merit in Katuaki's woodcut of the bird than Yamashita's early collage of the ghosts. Will we and Katuaki profit from his skill?

The Mystery

Many may say that Yamashita is just another idiot savant and thus explain him away. This practice does not explain his behavior; it merely gives it a misleading name. Yamashita is neither an idiot nor a savant. Others may go a bit further and dismiss idiots savants in the pat-

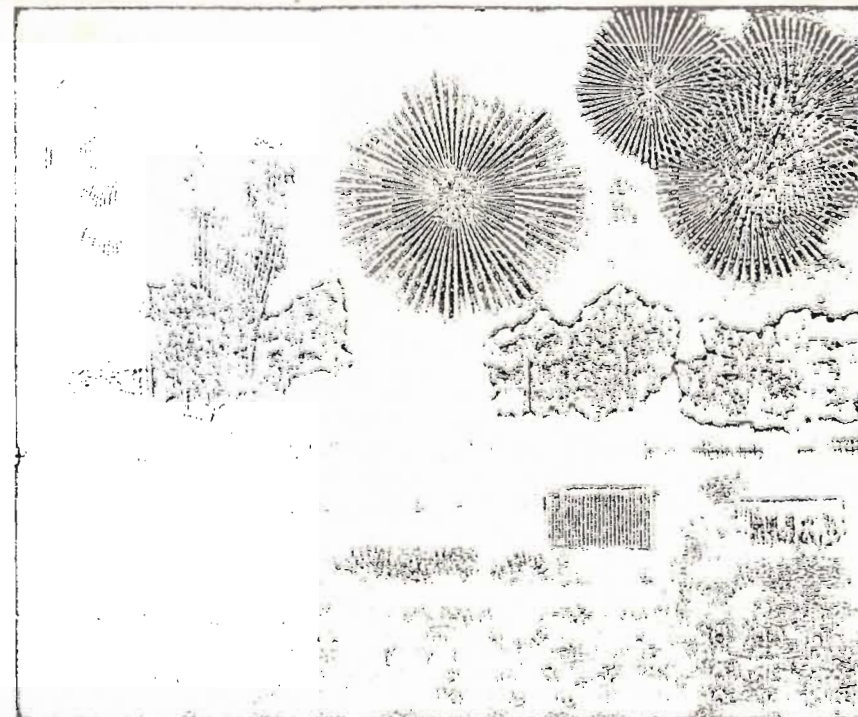


FIGURE 2. "Fireworks at Ryogoku," oil, Kiyoshi Yamashita, 1955, CA 33. (After instruction and 15 years experience in graphics)

fashion of the psychological textbooks of the forties (Landis and Bolles, 1946, p. 140; Page, 1947, p. 374; O'Kelly, 1949, p. 362). They may say that these rare individuals are either (a) schizophrenics whose history is not sufficiently known or (b) mentally retarded persons whose one talent may be impressive in a retarded population, but which, upon close investigation, is unimpressive among normal individuals. This dismissal is standard in the psychiatric literature (Rabinovitch, 1959, p. 863). Still others may evade the issue of specific superiority by saying (c) the cases are too rare to be of any practical concern (seldom more than one per institution), (d) the skills have no practical value, or (e) this is just another "mystery" of life. I believe that such dismissals of specific behavioral superiority represent an unnecessary concession to the doctrine of unitary behavioral ability. Happily, retarded geniuses still exist; unitary behavioral skill does not.

The only advantage in calling these excep-

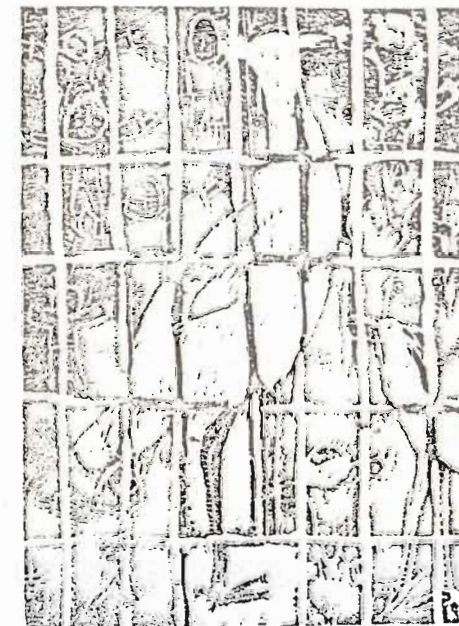


FIGURE 3. "Caged Bird," woodcut, Yosida Katuaki, CA 13, IQ 61.

tional people schizophrenic is to maintain the fallacious unitary theory of retardation. Because schizophrenia is certainly not an exact or easily understood term, it has become a useful catchall. Individuals who embarrass our theories when categorized elsewhere are easily deposited there. The contention that idiots savants really do not have superior skills is untrue. Yamashita's oils are objectively superior. The notion that their skills are only relative may have been supported by the failure of aptitude and intelligence tests to pick them up. Rothstein (1942) showed, however, that this test failure is due to the high specificity rather than absence of superior skills. Their rarity is also a poor reason for dismissing idiots savants from serious inquiry. Psychopathology has not learned to profit from its unique cases. When the cavalry physician Beaumont discovered the soldier, Alexis St. Martin, with a bullet hole that had healed without closing, he found a window not only in St. Martin's stomach, but into nature's hidden secrets of gastric motility and function (Beaumont, 1847). Scientific study of only one of the rarest of men gave us knowledge about the physiology of all men (Osler, 1902). We have not yet scientifically studied our behavioral St. Martins.

Furthermore, we must remember that these highly specific skills have in most cases developed accidentally in extremely deficient environments. Careful search for and nurturance of specific behavioral superiority, masked by behavioral deficiencies, should greatly improve on its natural accidental frequency. Indeed, the current scarcity of such persons may be due to our ignorance and disbelief of them. Dismissing these rare skills on the grounds that they have no practical value is also unacceptable. Yamashita's skill found a market. Perhaps if we tried, we could find markets for the products of other specifically skilled individuals. To call specific behavioral superiority a "mystery" is merely to sugarcoat scientific neglect.

A count of the references in *Psychological Abstracts* proved that this interesting and challenging group of individuals is still ignored. There are 1,246 listings under mental deficiency and mental retardation from 1947 through 1963—and only two for idiot savant: Goldstein (1959) and Anastasi and Levee (1960). Of the

16,096 listings in the *Bibliography of World Literature on Mental Retardation* from 1940 through 1963 (Heber, Simpson, Gibson, and Milligan, 1963), there are only five for idiot savant: Roberts (1945), Scheerer, Rothmann, and Goldstein (1945), Anonymous (1946), Williams (1947), and Volpe (1950). This ratio is more representative of the population density of idiots savants than of their scientific and social potential. As Beaumont proved, nature does not always yield her secrets to democratic research designs.

Deficiency-Produced Specific Superiority

Experimental evidence suggests that behavioral deficits may be an advantage in specific environments. Children who have discrimination and differentiation ability, but limited symbolic behavior, often learn novel and simple laboratory discriminations more rapidly than do normal children and normal adults. Their limited symbolic repertoire apparently prevents them from entertaining many irrelevant and time wasting hypotheses as they go about solving a learning problem (Lindsley, 1958; Barrett and Lindsley, 1962).

In their intensive study of a youth with marked numerical, melodic, and rhythmic skill coexisting with general behavioral deficiency, Scheerer, Rothmann, and Goldstein (1945) concluded that he could not abstract. Presumably his abstraction deficit contributed to his general behavioral deficiency. However, if the young man's primary deficit was in abstraction, that deficit may have freed his rote memory and musical skills for superior development, just as occurred in our laboratory study.

Behavioral Interpretations

The popular interpretation of the cause of superior skills in both behaviorally and physiologically handicapped persons is motivational compensation—they work harder because they have farther to go. A related but more sophisticated interpretation is that the handicapped person is given a great deal of ego strength from his early success in overcoming some of his handicaps. This early reinforcement for building skills and overcoming handicaps supposedly carries him through life and eventually produces superior accomplishments. There are at

least five simpler and equally probable interpretations of deficiency-produced specific superiority. These are: (a) less reflex competition, (b) increased reinforcing power, (c) lowered thresholds, (d) easier career choice, and (e) less behavior to extinguish.

Less reflex competition from other behaviors and distractive stimuli facilitates acquiring and performing many behaviors. There is freer emission of the specialized nondebilitated behaviors and more time for developing or super-developing these non-handicapped areas. A field example is the blind musician. "Blind Lemon" was an early jazz and street musician, well known among jazz and folk music experts as one of the fathers of American jazz music. He often attributed his musical skill to his blindness. "Moon Dog," a street musician well known in New York City, blinded himself so that he would not be distracted by sights as he listened to sounds and/or produced music. Another example is the "radar" orientation technique which many blind people use to locate obstructions in their path. This technique of listening to echoes of sounds (cane taps and footsteps), bounced off close objects, suggests supernormal auditory perception. These anecdotal examples imply that sounds are more reinforcing to and perhaps more easily discriminated by the blind than they are by those who can both see and hear.

Increased reinforcing power of stimuli not involved in the deficient behavioral areas may well occur. This increased reinforcement would heighten interest and motivation in the non-handicapped behaviors and would contribute to the development of specific superiority.

In our laboratory we recorded the behavior of a deaf psychotic child who responded at a high rate for over thirty hour-long sessions to view the same set of projected still transparencies. Eighteen nondeaf psychotic children stopped responding for these pictures within three hours. This experimental evidence strongly suggests that visual stimuli are significantly more reinforcing to a person who can only see than they are to persons who can both see and hear.

Lowered thresholds (hypersensitivity to discriminative stimuli) often occur when an individual's sensory capacity is limited to only a few

senses. The information lost through the disability of one or more senses causes the person to rely more heavily on the remaining senses. This often results in a sensitivity of the remaining senses to stimulus changes far too subtle for a normal person to discriminate. An adult possessing superior musical talent and auditory hypersensitivity with general behavioral retardation was recently reported by Anastasi and Levee (1960). This phenomenon, well known in the blind, probably develops through learning under decreased distraction and increased motivation. Similar behavioral compensation might be acquired with higher order behaviors—for example, heightened discrimination ability in those with response differentiation deficits.

An interesting point emerges in comparing the behavioral compensation of the deaf with the blind. Most experimental evidence suggests that although blindness results in superior auditory perception, deafness does not result in superior visual perception (Myklebust and Bruten, 1953). Increased visual perception may not occur in the deaf because it is already at a maximum in those who can hear. Vision is perhaps man's dominant and most developed sense. If this is so, there would be little room for further development of vision in the deaf. We also should be careful to separate lowered thresholds from increased reinforcing power of stimuli in analyzing deficiency-produced specific superiority. Our experiment showing that a deaf child was more reinforced by pictures than children who could both see and hear does not conflict with Myklebust and Bruten's experiment showing no increase in visual perception in deaf children, because the reinforcing function of stimuli is clearly separate from their discriminative function.

The *easier career choice* of the handicapped person forces him to specialize early and prevents him from becoming a jack-of-all-trades. There is little chance that he will become the "too-many-aptitudes-person" described by job placement services as debilitated by too many behavioral skills and too wide a choice of careers. Having *less behavior to extinguish* would greatly facilitate creativity in individuals. A behaviorally handicapped person who had never acquired a large repertoire of behavior would have almost no behavior to extinguish

in order to create. He would not have many routine noncreative responses to compete with his creative attempts. The difficulty in inhibiting or extinguishing standard responses is well known to the creative person. Extinction is a painful process. The absence of standard behavior may be a real advantage for retarded persons in certain specific creative areas. It may be what gave Yamashita an advantage over normal people. Perhaps nature produced an artist without conflict. These behavioral interpretations of deficiency-produced specific superiority are not meant to be inclusive. They are only presented as examples of how behavioral deficits can not only coexist with superior subskills, but may even produce them. Accurate laboratory inventories of behavioral deficits and skills would tell us much about their coexistence and interaction. To predict too closely the results of such inventories is to write fiction. I am merely calling attention to the need for such research and how it might change our interpretation of the idiot savant.

The Challenge

I suggest that the superior specific skills of individuals like Yamashita are produced by the individuals' particular patterns of behavioral deficits. These skills are potentially more numerous than accidental development now permits them to be. They should not be explained away, but should be sought and studied, developed, and adapted to socially useful tasks. Of course we should continue to focus on behavioral deficits and build them up to normal function (Kirk and Bateman, 1962). This has been necessary to break the iron grip of the myth of unitary behavioral deficit, and it is necessary to restore function to our behaviorally retarded students. But it is not enough. We should also look for special skills and see if we can push them on to superiority, thus giving many students a dignified means of livelihood.

Artistic skills have been successfully developed in children with retarded behavior (Schaefer-Simmern and Sarason, 1944; Schaefer-Simmern, 1948). However, not all educators have set such high goals for their students, and Schaefer-Simmern's work has not received the attention it deserves (Sarason, 1959). When the student's progress is limited by the educational goals set

by the teacher, the student's full behavioral potential cannot be realized. Education is complete only when the student's behavior is no longer improving. Any other termination criterion is at best arbitrary and may do the student a disservice. Superior specific skills coexisting with marked behavioral deficits should not be thought of as bizarre, rare events shrouded with mystique. Such skills should be considered the natural, understandable events that they are, located on continua of both quality and number.

Since reasonably accurate behavioral descriptions of the subdeficits and subskills of retarded children can now be made, it is possible to select paths and design environments in which the children are not penalized by their deficits (Lindsley, 1964). In prosthetic environments, their skills might produce behavioral products superior to those of average individuals. We probably cannot produce a great many Yamashitas by specific skill training. But we can produce more than are accidentally developed in the impoverished environments in which they now behave. We can produce an even greater number with artistic skill of routine commercial value who could design and paint Christmas cards, posters, and other useful materials. Perhaps we have seen only superior artistic, musical, and mathematical skills in retarded behavior because these are dramatic and easily recognized in the classroom or dormitory. I am sure we can also locate other types of skills—skills that could be put to use, skills that would give their bearers not only occupation and self-respect, but an irreplaceable function in our society. Close inspection of behavior in the laboratory should reveal many more subskills, possibly more pedestrian, but perhaps with greater potential social application. A narrow attention span, for example, would produce superior skill for some assembly line work. We may be boring and endangering the average individuals assigned to such work and denying employment to those whose deficits and skills ideally fit them for simple routine tasks.

Rehabilitated individuals who fail in subsequent job assignments are usually fired for the same reasons as are nonhandicapped individuals—tardiness and inappropriate social behavior, rather than productive inefficiency (Dunn,

1963, p. 105). This suggests that their rehabilitation is incomplete. The behaviorally handicapped must be trained to perform a productive task not just efficiently, but super-efficiently; and they also must be trained to get to work on time and to socialize and cooperate with their nonhandicapped colleagues before their behavioral prosthesis is complete (Erdman, 1961).

By searching for and developing special skills, we may not only manage our retarded individuals with full efficiency and dignity, but in some special cases reap profits not attainable from generally skilled persons. A retarded child with a specific skill far superior to that found in others is, of course, greatly helped when special education and prosthetic environments compensate for his deficiencies. Restoring him to average behavioral function is more desirable than leaving him uneducated on the back wards of an institution. But our job is not done, nor has the child been returned to full behavioral freedom, until we have uncovered his specific

skill and permitted it to function freely in a non-penalizing prosthetic environment. Yamashita's specific superior graphic skill exists. Shall we ignore it or accept his message and challenge?

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