JYVÄSKYLÄ STUDIES IN EDUCATION, PSYCHOLOGY AND SOCIAL RESEARCH

73

Timo Saloviita

Adaptive Behaviour of Institutionalized Mentally Retarded Persons

UNIVERSITY OF JYVÄSKYLÄ

JYVÄSKYLÄ 1990

JYVÄSKYLÄ STUDIES IN EDUCATION, PSYCHOLOGY AND SOCIAL RESEARCH 73

Timo Saloviita

Adaptive Behaviour of Institutionalized Mentally Retarded Persons

Academic dissertation to be publicly discussed,
by permission of the Faculty of Social Sciences
of the University of Jyväskylä, in auditorium S212,
on May 18, 1990, at 12 o'clock noon

UNIVERSITY OF JYVÄSKYLÄ, JYVÄSKYLÄ 1990

Adaptive Behaviour of Institutionalized Mentally Retarded Persons

JYVÄSKYLÄ STUDIES IN EDUCATION, PSYCHOLOGY AND SOCIAL RESEARCH 73

Timo Saloviita

Adaptive Behaviour of Institutionalized Mentally Retarded Persons

UNIVERSITY OF JYVÄSKYLÄ, JYVÄSKYLÄ 1990

URN:ISBN:978-951-39-8061-0
ISBN 978-951-39-8061-0 (PDF)
ISSN 0075-4625

ISBN 951-680-248-6
ISSN 0075-4625

Jyväskylän yliopiston monistuskeskus
and Sisäsuomi Oy, Jyväskylä 1990

ABSTRACT

Saloviita, Timo
Adaptive Behaviour of Institutionalized Mentally Retarded Persons
Jyväskylä: University of Jyväskylä, 1990, 167 p.
(Jyväskylä Studies in Education, Psychology and Social Research,
ISSN 0075-4625; 73).
ISBN 951-680-248-6
Tiivistelmä. Laitoksessa asuvien kehitysvammaisten adaptiivinen käyttäytyminen.
Diss.

The main aims of this study were to examine the adaptive behaviour of institutionalized mentally retarded persons and analyze the psychometric properties of the AAMD Adaptive Behavior Scale (ABS). The evolution of the concepts of mental retardation and adaptive behaviour were outlined in relation to historical development of the treatment and care of mentally retarded persons.

The subjects of this study were the residents (n = 421) of an institution for mentally retarded persons. Examination of the validity and reliability of ABS confirmed the mostly good quality of the scale. Factor analysis of ABS produced three factors, named Personal independence, Social maladaptation, and Personal maladaptation.

Adaptive behaviour of the residents was analyzed against various background variables. The general level of Personal independence was very variable. Substantial deficits existed especially in profoundly retarded residents. Social maladaptation was most common among the moderately retarded, while Personal maladaptation was most frequent in the profoundly retarded. The study contains a separate, detailed analysis on self-injurious behaviour

Keywords: mental retardation, adaptive behaviour, institution, AAMD Adaptive Behavior Scale, assessment, self-injurious behaviour

PREFACE

The last ten years have witnessed a rapid change in Finland in the public orientation towards mentally retarded people. Persons, who still in the seventies were commonly institutionalized are now increasingly treated in terms of normalization and community integration. Since the enactment of the Mental Retardation Act (1977) the places in small community facilities for mentally retarded persons have been steadily increasing. At the same time, the places in institutions began to decrease beginning from the year 1984. This development, which follows the international paragons of other postindustrial countries e.g. Nordic countries and the United States, has made the gradual deinstitutionalization of mentally retarded persons a question of the day in Finland.

The development of integrating services for mentally retarded persons gives new importance to the concept of adaptive behaviour, which largely refers to the expectations of the social environment towards the behaviour of an individual. The measurement of adaptive behaviour serves most importantly the planning of individualized programmes for the mentally retarded. Abreast with the development of integrating programmes, there has arisen a growing need for instruments serving the measurement and evaluation of adaptive behaviour of mentally retarded persons.

The heart of the present study lies in the psychometric analysis of a single adaptive behaviour scale, the AAMD Adaptive Behavior Scale (ABS) in a sample of institutional population, and a subsequent analysis of the adaptive behaviour of the persons residing in an institution for the mentally retarded. The study serves the Finnish adaptation of an instrument (ABS) planned to measure adaptive behaviour of mentally retarded individuals. On the basis of this study the Finnish Manual of ABS has been written and

published (Saloviita, 1988a) along with the Finnish translation of the ABS itself (Nihira, Foster, Shellhaas & Leland,1974/ 1988). The second aim of this study is to describe and analyze the level of adaptive behaviour in institutionalized mentally retarded persons. Besides purely scientific objectives, this part of the study serves the planning of services for institutionalized mentally retarded persons by highlighting the challenges which the deficiencies of their adaptive behaviour places on their care and expected community integration.

The introductory chapter of this study describes the historical development of institutional care both internationally and in Finland. Connecting with the development of services for mentally retarded persons the development of the concept of mental retardation and adaptive behaviour are outlined in detail. The second chapter describes, in the standard way, the overall method used in this study. In the third chapter the results from the psychometric study of the ABS are reported. Results from the factor analyses, along with various reliability and validity studies are presented. The computed institutional decile norms for the ABS are not presented here. They can be found in the Finnish manual of the ABS (Saloviita, 1988a). The fourth chapter presents results from the analysis of personal independence and maladaptive behaviour of the sample population. Adaptive behaviour of persons with Down's syndrome and childhood psychosis are treated separately. The fifth chapter contains a detailed study on one single important area of maladaptive behaviour, the self-injurious behaviour (SIB). The final chapter discusses the overall results of the entire study in the perspective of community integration.

The present study began in 1983 when I was working as a psychologist in the Kuusaa central institution for mentally retarded in Kuusankoski. It continued in the Finnish Association on Mental Retardation in Helsinki, where I worked as a researcher during the years 1987 - 1989. The work was completed while in my next job as senior assistant at the Department of Special Education, University of Jyväskylä.

The study was carried out under the supervision of Professor *Isto Ruoppila*, Department of Psychology at the University of Jyväskylä. Administrative prerequisites for the study in the Kymi special care district

were originally laid down by special care director *Toivo Kettunen*. The research director of the Finnish Association on Mental Retardation, Dr. *Jarkko Hautamäki*, supported the project in many ways from its very start. The preliminary Finnish translation of the ABS was made by the university student of psychology, Ms. *Virpi Tuisku* in 1983. The data collection in 1984 was assisted by psychologist *Seppo Anttonen*. Hundreds of nurses and aides in the Kuusaa central institution helped to fulfill the ABS booklets. Special education teacher *Leena Huuhko* carried over the original data from ABS booklets into data base sheets in 1985. The data was computed during the years 1985-1986 with the HYLPS programme by researcher *Henry Honkanen* at the University of Helsinki and later with the SPSS programme by planning officers *Sakari Valkonen* and *Jukka Kesonen* at the University of Jyväskylä. Besides Prof. Isto Ruoppila, I received valuable advice and suggestions for revision of the manuscript from Prof. *Lea Pulkkinen* and from the previewers of the work, Prof. *Lars Kebbon* and Dr. Jarkko Hautamäki. The language of the manuscript was revised by university lecturer *Steven Saletta*. The study was financially supported by the Department of Psychology and by the Publication Committee at the University of Jyväskylä. Finally, my thanks are due to the Publication Committee at the University of Jyväskylä for accepting this work in its series *'Jyväskylä Studies in Education, Psychology and Social Research'*, and its editor, Dr. *Mikko Korkiakangas* for his editorial advice.

Jyväskylä, January 1990

Timo Saloviita

CONTENTS

1 INTRODUCTION

"Adaptive behaviour is defined as the effectiveness or degree with which individuals meet the standards of personal independence and social responsibility expected for age and cultural group." This is how the concept of adaptive behaviour was defined in the most recent classification manual of the American Association on Mental Retardation (Grossman, 1983, 1). As the definition reveals, adaptive behaviour is associated with the relationship between the individual and society. It expresses the expectations of the social environment towards the behaviour of an individual. Because diverse social environments set different demands on individuals, the concept is culturally relative. Every tourist has experienced the puzzle of changing habits and demands when she has travelled to a foreign country. The most prominent of her problems may be the inability to understand the language spoken. So, what is deemed adaptive in one setting may not necessarily be so in another. Secondly, the nature of environmental demands varies across different phases of the life cycle. We don't expect the same level of adaptive skills from children as we expect from adolescents or adults. For young children the concept of adaptive behaviour refers to such things as basic self-care, fine and gross-motor development and talking. By school-age more advanced skills are expected, such as attending school and the capacity to follow teaching. For adults the concept of adaptive behaviour includes the ability to hold a job, contribute to family life, and so forth. These examples show that the concept of adaptive behaviour is a relative and dynamic construct (Horn & Fuchs, 1987).

The importance of the concept of adaptive behaviour has varied throughout the history of treatment and care of mentally retarded individuals. Broadly speaking, the more the societies have been interested in developing programmes to integrate mentally handicapped people into the

in developing programmes to integrate mentally handicapped people into the mainstream of society, the more attention has been devoted to the assessment and treatment of adaptive behaviour. The concept has been helpful in identifying the content of the intervention programmes. In contrast, in times of social discrimination, the concept of adaptive behaviour has yielded to other concepts, for example the concept of the intelligence quotient, which has better served the function of labelling and segregating the mentally handicapped persons.

The concept of institution has acquired two chief meanings in the history of mental retardation: custodial and educative. The history of custodial institutions began when charitably or publicly supported retreats started to provide shelter for handicapped people. The function of these institutions varied from adequate care to control and actual extermination of deviant people. Typically the conditions in the custodial institutions were inhumane and brutal (Scheerenberger, 1983).

The history of educative institutions began in the nineteenth century. Their primary task was to reintegrate their students back into society. The movement withered during the last decades of the nineteenth century, and educative institutions were replaced by custodial ones.

As a background to the present situation, the development of institutional care and the concept of mental retardation will be surveyed in historical perspective. The concept of adaptive behaviour will also be discussed in more detail.

1.1 HISTORICAL FORMATION OF INSTITUTIONAL CARE AND THE CONCEPT OF MENTAL RETARDATION

For the purpose of short presentation, the history of mental retardation will be divided into four cycles: early history (prior to 1800), the School movement (1800 - 1880), era of institutionalization (1880 - 1945), and development of community care (1945 -). This division underlines the main

turning points in the care and treatment of mentally retarded people. Even if the division is based on international development, the same phases, with a delayed time-table, are observable also in Finland.

1.1.1 Early history (prior to 1800)

Prior to the nineteenth century very little written information exists about mentally retarded individuals. Mental retardation was typically conceptualized in magical or religious terms. In different times their treatment was characterized by dramatic variability. While the infanticide of the handicapped was a common practice in the prehistoric era, archeological evidence from graves has also shown that a number of tribes and groups maintained and protected crippled infants, children, and adults (Scheerenberger, 1983). The same variability continued in the historic era. At one end there were the continued practice of infanticide (e.g. Sparta), or exposure, mutilation, and incarceration in dark cells accompanied by harsh treatment. Martin Luther exemplifies the belief according to which severely handicapped people should be killed because the *"Devil sits in such changelings where their soul should have been"*. At the other end there were voices of humane treatment for all people. These humane attitudes were primarily spread through the big world religions. Especially the tenets of the Koran considered mentally handicapped and mentally ill people as the innocents of God (Scheerenberger, 1983; Meyers & Blacher, 1987).

If the mentally retarded persons survived, they were most often cared for in their own home, where they mostly received support and help from their parents. Residential treatment in the few existing charitable or publicly supported hospitals was typically harsh, and the death rates in these institutions were extremely high (Scheerenberger, 1983).

1.1.1.1 Definition and classification. It was not until the seventeenth century that a difference was made between mental retardation and mental illness (Clausen, 1967; Woolfson, 1984). Up to the end of this period a notion of the state of "ideocy" (sic) had developed. Milder forms of mental retardation still remained mainly unnoticed.

1.1.2 The School movement (1800 - 1880)

On the whole, conditions for mentally retarded persons during the nineteenth century in western Europe continued to be quite similar to those of the previous era. Most mentally retarded children were cared for in their own home, and most mental hospitals, charity and alms houses continued to be inadequate and brutal. Mentally retarded individuals were their frequent inmates: e.g. in 1850, 60 % of the residents of poor houses in the United States were mentally retarded (Sinclair & Forness, 1983). If the beginning process of industrialization had some effect on the social status of mentally handicapped, it did worsen it by increasingly separating handicapped children from their families and to the responsibility of centralized governments.

Beginning from the first decades of the nineteenth century, there nevertheless began a development, which justifies to speak of a new era in the history of mental retardation. This development was the emergence of the first treatment programmes for mentally retarded persons. For the first time systematic efforts were made to educate mentally handicapped children. It was due to the ideological effects of the Age of Enlightenment with its egalitarian philosophy, that this new interest emerged. It found its expression in the works of some notable individuals, who were dedicated to providing treatment for mentally retarded persons. The foremost leaders in this area were the frenchmen Itard and Seguin.

J.M.G. Itard (1774-1838) started the School movement by presenting, in 1801, a report on his effort to teach a wild boy, called Victor, who had been found wandering in the woods of the Province of Aveyron (Itard, 1801,1806-/1982). Even if Itard himself was disappointed with his results, the interest in the education of mentally retarded individuals was awakened and began to flare up spreading in subsequent decades from France and Switzerland to Germany, England and other parts of civilized Europe and to the United States.

Edouard Seguin (1812-1880) expanded and systematized many methods developed by Itard. In accordance with Itard, Seguin stressed the widening of sensory motor functions of his mentally retarded students (Seguin, 1864/-

1976). The second step involved the principle of "moral treatment", which included the training of numerous skills presently associated with the concept of adaptive functioning or social competence.

In his text entitled *Idiocy and Its Treatment by the Physiological Method* (1866) Seguin outlined an institution as an instrument for educating mentally retarded children too severely affected to profit from a normal classroom setting (Scheerenberger, 1983). Seguin conceived of an institution as an educational facility; it was therefore expected that most of the students would return to their homes. In the case that some pupils failed to make sufficient gains or had no home, Seguin proposed that asylums be established for their long-term care.

The primary task of the residential institutions was thought to be through adequate training to reintegrate the students back into the community as productive citizens. Therefore, Seguin stressed that the institution should be located within the community from which it receives its students, it should serve only a small amount of residents, and it should provide outreach services to young children, who should remain at home with their parents. Additionally, an institution should engage in research (Scheerenberger, 1983, 70).

Seguin started his private school in 1837. The first educative residential facility was opened in Abendberg, Switzerland in 1842 by J.J. Guggenbühl. Seguin emigrated in 1848 to the United States, where the first schools started in the same year (Scheerenberger, 1983).

Besides educative institutions, classes for mentally retarded children were established. The first special class (auxiliary school) for mentally retarded students was established in 1859 at Halle in Saxony. The movement spread gradually throughout Germany, and a number of other European countries followed Germany's lead. (Scheerenberger, 1983).

The results of the early training programmes in institutions were amazingly successful indeed. As stated by some contemporaries in the United States, *"in every community, youth may be found who were idiotic at birth, but who under proper care and training have become cleanly in person, quiet in deportment, industrious in habits"* (Potter et al., 1853/1976, p. 65). Illustrative case reports of the dramatic effects of proper training on

the abilities and skills of mentally retarded children are presented by another contemporary, L.P. Brockett (1856/1976).

1.1.2.1 Definition and classification. By the end of the nineteenth century mentally retarded people were classified according to at least two levels of intellectual functioning. Because there were no standardized tests of intelligence, the division was made primarily on the ground of the ability to speak. The concept of imbecility was largely introduced along side idiocy to denote milder forms of mental retardation. This concept of imbecility today equals perhaps to mild mental retardation and borderline intelligence (Scheerenberger, 1983).

1.1.3 Era of institutionalization (1880 - 1945)

By the 1880s the purpose, programmes and administration of the institutions for mentally retarded persons in the United States changed dramatically. Similar changes were observable elsewhere as well. The favorable development in the nineteenth century of education to reintegrate mentally retarded individuals into society was replaced by a harsh public policy of segregation, sterilization, and mass treatment of mentally retarded people. The small, homelike educational establishments were replaced by the large, overcrowded, and underfinanced facilities. This shameful and shocking period in the treatment of mentally retarded persons lasted a few decades. It started in the United States but at its peak it reached Nazi Germany, where between the years 1939 - 1945 perhaps 100 000 mentally retarded persons were exterminated legally through medical institutions (Wolfensberger, 1981). After the World War II it was gradually replaced by a more approving attitude towards mentally retarded men and women. While the negative influences of this period are still present, the new optimism and goodwill towards mentally handicapped people draws much from the reaction towards the inhumanity of the first half of this century.

The institutionalization of mentally retarded individuals coincides with the development of industrialization and urbanization in Western civilization. The institutionalization of an economically passive population,

mentally retarded people among them, could easily be seen as determined by the needs of the industrialization process. Regular labouring work in the factory or office was incompatible with the home care of mentally retarded children in the way that earlier farming work in the country was not. However, it was not in this manner that institutionalization was justified. Instead, the justification for institutionalization was found in social Darwinism, which at the end of the nineteenth century appeared as a popular ideology in the period of early industrialization with its sharpening social inequality. According to Darwin, whose *Origin of Species* was published in 1867, natural selection eliminated, in the struggle for existence, those individuals whose biological properties were most disadvantageous, the result being the survival of the fittest. With social Darwinism (e.g. Herbert Spencer, 1820-1903, William Graham Sumner, 1840-1910), the misunderstood theory of evolution was transferred to society and used to justify the existing social inequality on the plea that it manifested an insurmountable social law. Social Darwinism connected the bad social conditions with biological properties of those who were socially disadvantaged. This removed the social responsibility from the shoulders of those better off and justified the harsh policy towards the inferior.

In this ideological atmosphere mental retardation acquired an extremely negative connotation. The growing eugenics movement especially saw mentally retarded individuals as the forbearers of a harmful inheritance. As a class, they had become undesirable and a great evil of humanity: the social parasite, criminal, prostitute, and pauper. The leading authority in the field of mental retardation during the first decades of the twentieth century was Walter E. Fernald (1859-1924).

In 1912 Fernald wrote:

> *"The past few years have witnessed a striking awareness of professional and popular conscience of the widespread prevalence of feeble-mindedness and its influence as a source of wretchedness to the patient himself and to his family, and as a causative factor in the production of crime, prostitution, pauperism, illegitimacy, intemperance and other complex social diseases... The feeble-minded are a parasitic, predatory class, never capable of self-support or of managing their own affairs. The great majority ultimately become public charges in some form. They cause unutterable sorrow at home and are a menace and a danger to a community"*
>
> (quoted from Scheerenberger, 1983, 157).

The emergence of the first mental tests contributed to the eugenics alarm of the time. Using the biased mental tests, a vast majority of immigrants from Eastern Europe were reported to be feeble-minded, for example, 83 % of the Jews and 87 % of the Russians (Horn & Fuchs, 1987). The unwanted immigrants were attacked viciously in order to "shut down the torrent of impure blood".

At the heart of this eugenics alarm was the false concept of heredity. It was viewed very broadly so that both prenatal, natal and postnatal injuries as well as social learning were included in the sphere of heredity (Scheerenberger, 1983). On the basis of this concept scientific studies were misinterpreted. For example, Richard Dugdale's study of the "Jukes" (Dugdale, 1877/1976) stressed the important role of environmental influences in determining intellectual and moral traits; it was interpreted to prove the opposite. Methodologically unsound studies (e.g. Goddards study on the Kallikak-family) were used to demonstrate the effects of heredity (Scheerenberger, 1983).

Because of the prominent role of the misconceived concept of heredity, feeble-minded women were especially seen as the progenitors of social evil. They were seen as *"almost invariably immoral"* and *"twice as prolific as the normal woman"* (Scheerenberger, 1983). An eugenics panic was called forth because of the fashionable suspicions on the rapid increase of mental retardation.

The prevention of this social ill was viewed primarily in terms of prolonged institutionalization, the prohibition of marriage, and desexualization. One of the leading experts of the field, H.B. Wilbur (1820-1883) wrote (1888/1976, 300):

> *"The congregation of idiots into institutions has certainly resulted in preventing, to a considerable extent, the multiplication of the evil already; and the establishment of the asylum for females in New York State, at Newark, is one of the noblest efforts in this direction that has ever been organized".*

The building of institutions for mentally retarded persons is closely linked with the leading name in the field of mental retardation in the 1880's, Isaac N. Kerlin (1834-1893). It was Kerlin's dream and vision of the future, which was victorious during the coming decades:

"The future of this work contemplates far more than the gathering into training schools of a few hundred imperfect children... The correlation of idiocy, insanity, pauperism, and crime will be understood, as it is now. There will be fewer almshouses, but more workhouses. Jails, criminal courts, and grog-shops will correspondingly decrease; and here and there, scattered over the country, may be 'villages of the simple, made up of warped, twisted, and incorrigible, happily contributing to their own and the support of those more lowly, - 'cities of refuge' in truth; havens in which all shall live contendedly, because no longer misunderstood nor taxed with exactions beyond their mental or moral capacity. They 'shall go out no more' and 'they shall neither marry nor be given in marriage' in those havens dedicated to incompetence."

(Quoted in Scheerenberger, 1983, 128).

The development of institutions began with the transformation of educative institutions into custodial ones, when non-rehabilitated residents accumulated in the original training schools, and caused the gradual deterioration of their programmes and educative philosophies.

It was not that humanistic voices were absent at this time; they just were not listened because they were against the spirit of the time. The man who first proposed the idea of residential programs in the United States, Samuel Gridley Howe (1801-1876), without success urged constraint on the building of big institutions, because *"Even idiots have rights which should be carefully considered!"* (Scheerenberger, 1983).

Negative attitudes towards mentally retarded children and adults also expressed themselves in the bad conditions prevailing in the institutions. According to a contemporary visitor of an institution, *"The conditions were almost too shocking to describe... nakedness, filth, starvation, vice, and utter wretchedness, which a very slight exercise of common sense and of humanity might have entirely prevented"* (Quoted in Scheerenberger, 1983). Mortality rates in the institutions were high, the primary causes of death being infectious diseases and tuberculosis treated most commonly with cod liver oil (Scheerenberger, 1983).

Sterilization was considered as another means of preventing mental retardation. Indiana was the first state to pass enabling legislation in the area of sterilization in 1907. Between 1907 and 1958 in the United States, 31 000 mentally retarded persons were sterilized (Scheerenberger, 1983). The sterilization movement declined over time, when it became clear that

sterilization caused no reduction in the overall incidence of retardation (Meyers & Blacher, 1987).

Originally, it was thought that the control of "two or three generations" would suffice to eliminate mental retardation (Repp, 1983). Later the eugenics movement was faced with the calculations based on the Mendelian laws on recessive inheritance according to which a more realistic perspective would be over 8 000 years (Scheerenberger, 1983). Another confusing problem faced by the eugenics movement was the unexpectedly high prevalence of mental retardation (over 20 %) reported by studies using the first intelligence tests.

Actually, the rate of institutionalization of mentally retarded individuals never grew very high in the United States compared to the total amount of mentally retarded citizens, which was estimated as being about 0.6 - 0.8 % of the total population (McLaren & Bryson, 1987). In the twenties the institutionalized population was less than 50 0000 persons, (0.04 %). The top figure of 200 000 institutionalized persons (0.1 %) was not achieved until the sixties (Craig & McGarver, 1984; Lakin, Bruininks & Sigford, 1981). After that, the institutional population began to decrease. So, even during the highest years of institutionalization the majority of mentally retarded persons lived in their own homes, as they always did.

1.1.3.1 Definition and classification

By the turn of the century three essential components of a definition of mental retardation were recognized. They were 1) early onset, 2) reduced intellectual functioning, and 3) an inability to adapt to the full demands of society (Scheerenberger, 1983). Identification of mental retardation remained vague, however. On the other hand, forceful demands for control and elimination of mental retardation called for reliable methods to obtain from the total population the mentally retarded persons to be institutionalized. In this situation the introduction of the first intelligence tests fulfilled a stringent social need, which can be seen from their rapid expansion. The frenchmen Binet and Simon published the first intelligence test in 1906 and

ten years later intelligence tests were widely accepted as the most suitable way to identify mentally retarded individuals (Horn & Fuchs, 1987). The decade of the twenties in United States was the heyday of the testing movement, "the age of innocence when an IQ was an IQ" and when it "became a fetish to be worshipped and protected from all doubt and attack" (Scheerenberger, 1983, 181; Rosen, Clark & Kivitz, 1976, 328).

Binet started his work because he was discontended with the subjective way the "alienists" separated children for special education. The basic idea of Binet was to present to a child several tasks, which were thought to measure intelligence. Each child could then be described in terms of the level reached on tasks of ascending difficulty (Binet & Simon, 1905, 1976). In the 1908 revision of the test, instead of arranging the items solely on the basis of difficulty, Binet grouped them according to the age at which they were most commonly passed. The description of the present status came to be called the mental age (MA).

The Binet-Simon Scale was adopted in the United States by Henry H. Goddard. In 1910 he proposed a new classification of the feebleminded based on the mental levels obtained from the Binet-Simon intelligence scale (Goddard, 1910/1976). In this proposal he introduced the concept "moron" (Greek word for "fool") to describe the highest levels of mental retardation (today mild mental retardation). According to Goddard the morons were widely unnoticed until that time but through mental tests they now could be detected and put into institutions when possible.

In 1910 the Committee on Classification of the Feeble-minded of the American Association on Mental Deficiency introduced a new classification of mental retardation according to the lines presented by Goddard. The new classification was tripartite: the levels were *idiots* (mental development which does not exceed that of a normal child of about 2 years), *imbeciles* (2 - 7 years), and *morons* (7 - 12 years). This classification was to be in force with minor adjustments for the next fifty years: it was not replaced by a fourpartite classification until 1959 (Scheerenberger, 1983).

In 1916 L.M. Terman introduced a revision of Goddards translation of the Binet-Simon Scale, the Stanford-Binet Scale. It was essentially a new test with extensive standardization procedures and became the most popular

test of intelligence throughout the United States. The Stanford-Binet test was the first use of intelligence quotient, IQ, which was obtained by dividing the mental age by chronological age. The advantage of the IQ scores was that they elegantly expressed the rate of the child's development: if a child had an IQ of 125 he was said to be developing 25 percent faster than the average. The levels of intelligence could now be expressed in IQ scores. Terman presented a new classification system in 1916 with the following IQ limits for mental retardation: idiots below 20/25, imbeciles 20/25 - 50, and morons 50 - 70. With minor fluctuations (and later division of imbeciles into two groups) these limits have been applied to the present day.

The main problem with the definition of mental retardation was to make a distinction between mild forms of mental retardation and normality. Even if mental tests appeared to have given a final solution to this problem, the satisfaction soon turned out to be premature. The Binet intelligence scale, including revised versions, proved unable to provide the desired distinction. When group tests (Army Alpha Test) were used on draftees in 1917, the absurd outcome was that using a mental age of 11 resulted in 24.1 percent of the white participants being classifiable as feebleminded. Raising the cutoff point to 13 resulted in 47.3 percent (some 50 million people) of the population being considered mentally retarded (Scheerenberger, 1983; Rosen, Clark & Kivitz, 1976, p. 328). This surely was too big a group to be institutionalized!

The next development in mental testing was made by David Wechsler, who converted the IQ into standard scores. Ratio IQs in the Stanford-Binet had been more or less normally distributed with a mean of 100 and a standard deviation near 15. However, in different age groups the standard deviations could fluctuate significantly, which made the IQ scores incomparable across age levels. This difficulty was avoided by standardizing the standard deviation, too. For his Wechsler-Bellevue test (1939) Wechsler chose the scale 100 +- 15. After this revision IQ was no more a quotient (Cronbach, 1984, 203).

Another hardhearted diagnostic label which was to exercise a harmful effect on the social image of mentally retarded persons was the notion of

moral imbecility. It was presented by I.N. Kerlin in 1889 and defined as a condition, "in which the moral sentiments rather than the intellectual powers are confused, weakened, or perverted" (Kerlin, 1889/1976). Kerlin described this mental condition as an "inherent fault" associated with the defect in the nervous system and irreversible by environment or education. Four classes of moral imbeciles were, according to Kerlin, alcoholic inebriates, tramps, prostitutes, and habitual criminals (Kerlin, 1889/1976). This noxious concept remained unchallenged for about forty years (Rosen, Clark & Kivitz, 1976).

The introduction of the concept of IQ was detrimental to the idea of education of mentally retarded individuals because it converted the deficiencies of the behaviour of a mentally retarded person into the inner quality of the person itself. Scientific studies were made to show the "improvability of feeble-mindedness" on the ground that very little mental development was observed among mentally retarded individuals (Goddard, 1913/1976). It was characteristic of the spirit of the time that not only deficits of behaviour but even socially maladaptive behaviour was interpreted as being of inner origin and irreversible (moral imbecility).

In contrast, the concept of adaptive behaviour refers directly to the relationship between the individual and the demands of the social environment, and it does not as easily afford itself to the interpretations of inner, unalterable origin.

1.1.4 Development of community care (1945-)

It is perhaps too demanding to call the period beginning from the midtwentieth century as an era of normalization and integration. After World War II, however, new ideas and new policies emerged in many countries which stressed the rights of handicapped people and led to the development of community alternatives for institutionalization. Social Darwinism and the eugenics movement began to weaken already during the first half of the century. Economically the most advanced societies shifted from an industrial phase to the postindustrial phase characterized by a widening service sector

in industry and a relative reduction of the employed population in manufacturing. The new postindustrial society was more approving and tolerating towards socially deviant people like the mentally retarded. Among the positive events through which the betterment of the social status and social image of mentally retarded persons took place belonged the effects of the parent's movement and advancement of research and professional experience. In the Nordic countries the development of the welfare state also afforded new services for mentally retarded citizens.

The favorable development of social status of mentally retarded individuals expressed itself in the growth of new services, which aimed at integrating mentally retarded persons into the mainstream of society. These services included community-based group homes, foster care, day-care centers, sheltered workshops, clinics, integrated education, etc. Even if the development of community alternatives for institutions began after World War II, the institutions defended their position for a long time. In the United States the places in institutions increased steadily until the year 1967, after which they have began to diminish. At the same time the size of institutions has begun to decrease (Craig & McCarver, 1984). In Sweden the places in institutions began to decrease in 1972 (Grunewald,1976).

The principle of normalization became the explicit ideology of the mental retardation field. It was first presented by N.E. Bank-Mikkelsen of Denmark, who conceptualized it as "letting the mentally retarded obtain an existence as close to the normal as possible". This concept was written into the 1959 Danish law governing services to the mentally retarded (Wolfensberger, 1980). In 1969 B. Nirje from Sweden phrased the principle as follows: "making available to the mentally retarded patterns and conditions of everyday life which are as close as possible to the norms and patterns of the mainstream of society" (Nirje, 1969). Recently, the Canadian W. Wolfensberger (1983) argued that the most explicit and highest goal of normalization must be the creation, support, and defence of *valued social roles* for people who are at risk of social devaluation. According to Wolfensberger, all other elements and objectives of the theory of normalization are subservient to this end, because if a person's social role were a societally valued one, then other desirable things would be accorded to that person

almost automatically. Instead of using the unclear phrase "normalization", Wolfensberger proposed a new term "social role valorization" to denote the content of the policy of normalization (Wolfensberger, 1983).

1.1.4.1 Definition and classification

The definition and understanding of mental retardation continued to be a central problem after the middle of the century as well. The motivation for the definition and classification, in addition to scientific understanding of mental retardation, continued to be the practical purposes of service delivery and social control of deviant behaviour. With the advent of new services, like the increased access of mentally retarded persons to various levels of education, housing programmes and vocational training, the question of proper identification and classification of mental retardation became vastly more complicated than ever before. The most critical question remained, however, the same: the problem of the separation of mildly mentally retarded from the normal population.

Many facets of the current discussion on mental retardation were observable already in the first half of the century. In 1941 Edgar Doll published a paper in which he held six criteria essential to an adequate definition and concept of mental retardation. They were 1) social incompetence 2) due to mental subnormality, 3) which has been developmentally arrested, 4) which obtains at maturity, 5) is of constitutional origin, and 6) is essentially incurable (Doll, 1941). Doll thus presented a view, also shared by many contemporary writers, that adaptive behaviour (or social competence) should be set at a central position in the definition of mental retardation. The two additional dimensions proposed by Doll, "constitutional origin" and "incurability" did not gain general acceptance as defining characteristics of mental retardation. Doll separated two organic forms of mental retardation, one caused by hereditary transmission and the second by pathological alterations. The remaining "subcultural" or "familial" retardation Doll did not count as "true" mental retardation.

1.1.4.1.1 Organic and familial retardation. The discussion on organic and familial modes of mental retardation originally arose from the identification of a large number of persons, who were mildly mentally retarded by measured IQ, who emanated from poverty areas, and whose parents or other siblings were mentally retarded, too, but who had no signs of organic etiology.

The distinction between organic and familial retardation has survived in scientific discussion even if it has not had any consequences in public classifications. Some researchers have, during the last years, recommended the classification of mental retardation by this etiology (Zigler, Balla & Hodapp, 1984; Zigler & Hodapp, 1986). The state of familial retardation has been referred to as "endogenous", "cultural-familial", "functional", "subcultural", "educable", "mild" "pseudo" or "garden variety" retardation, and correspondingly organic retardation has been referred to as "exogenous", "true", "brain injured", "trainable" and "subtrainable" retardation (Zigler, Balla & Hodapp, 1984).

1.1.4.1.2 The AAMD 1959 definition. The question of the proper definition and classification of mental retardation became even more complicated through the added knowledge of the instability of the IQ as a measure of intelligence and the multidimensionality of the concept of intelligence. The consciousness of the insufficiency of IQ as a single criterion to separate mentally retarded persons from the normal population grow from the experience that IQ was obtained on the basis of a very restricted sample of behaviour. Furthermore, it was acknowledged as impossible to define mental retardation independent of the demands of the actual environment where the individual found itself (Robinson & Robinson, 1976, 27). In consequence, the American Association on Mental Deficiency established in 1952 a Committee on Nomenclature to formulate an up-to-date definition of mental retardation. In 1959 the committees proposal was accepted and published as a *Manual on Terminology and Classification in Mental Retardation* (Heber, 1959). The proposal was as follows (as corrected in Heber, 1961):

Mental retardation refers to subaverage general intellectual functioning which originates during the developmental period and is associated with impairment in adaptive behaviour.

The critical factor in this new definition of mental retardation was the explicit inclusion of adaptive behaviour into the definition. Mental retardation was now defined using the double criterion of subaverage intelligence and impairment of adaptive behaviour. Even if the inability to adapt to the full demands of society had always been an observed characteristic of mental retardation, the practice after the introduction of intelligence tests had stressed the identification of mental retardation by reference to statistic intelligence quotient ranges.

The AAMD definition can also be called tripartite, the third element being the traditional referral to the origin of impairment from the developmental period. This period was specified to be at approximately sixteen years.

Subaverage intellectual functioning was referred in the 1959 definition to performance which was greater than one standard deviation below the population mean of the age group involved on measures of general intellectual functioning. This definition had two new characteristics: first, the levels of mental retardation were now defined using the standard deviation units. The range of each successive level of mental retardation was defined to be one standard deviation of the particular test used. This was more accurate than a mere referral to absolute intelligence quotients because the standard deviations varied across tests and age groups. Second, and more importantly, the cutoff point of mental retardation was changed from the traditional one of "about 70 IQ" to one standard deviation below the mean of the test, which was approximately 85 IQ on the most commonly used tests. This change made it possible to include almost 15 percent of the total United States population in the group of mentally retarded (Grossman, 1983). It was not meant, however, that all people who were in the range of 70 - 85 IQ should actually be classified as retarded. To be classified as mentally retarded, the second criterion of adaptive behaviour had also to be fulfilled. There prevailed after all a wide dissatisfaction to the solution according to which such a large part of the population could be potentially labelled as mentally retarded. In a 1973

TABLE 1. *AAMD 1959 classification of mental retardation as corrected in 1961 (Heber, 1959, 1961).*

Word description of retardation:	Number code:	IQ scores (SD = 16)	Range in Standard Deviation Units
Borderline *)	Level I	68 - 83	-1 - -2
Mild	Level II	52 - 67	-2 - -3
Moderate	Level III	36 - 51	-3 - -4
Severe	Level IV	20 - 35	-4 - -5
Profound	Level V	< 20	< -5

*) classified as mentally retarded only with accompanying deficits in adaptive behaviour

revision of the *AAMD Manual on Terminology and Classification* (Grossman, 1973) the cutoff point was therefore returned back to the more traditional place, which was approximately two standard deviations below the mean for the test used. This corresponded the IQ level of about 70 points.

The tripartite division on mental retardation was replaced by the four-part classification by dividing the "imbecile" class into two levels. This distinction was esteemed necessary because it was frequently requested by workers in the field. The breadth of the former imbecileclass was noticed to be too wide for more advanced practical purposes: it contained the current stages of both moderate and severe mental retardation. The fifth part of the classification was borderline retardation. However, people belonging to this group were not classified as mentally retarded if they had no deficits in adaptive behaviour.

The old labels of idiocy, imbecility, and moronity were abandoned because of their negative emotional connotations. The new levels of retardation were referred to only by their number. Very soon, however, verbal terms were considered more practical. The new mental retardation levels with their new names, approximate IQ ranges (when M = 100 and SD = 16), and ranges in standard deviation units are seen in Table 1.

1.1.4.1.3 The present time. After the introduction of the AAMD 1959 definition of mental retardation only minor changes in the definition have been made. In the 1973 revision of the AAMD classification manual (Grossman, 1973) a new definition was presented, which reinforced the link between adaptive behaviour and mental retardation. This definition has remained unchanged also in the 1983 revision of the manual (Grossman, 1983):

> *"Mental retardation refers to significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period."*

In the 1973 revision of the AAMD classification manual the cutoff score of one standard deviation below the mean was replaced by the more traditional cutoff point of two standard deviations. The developmental period was widened from the 16th birthday to the 18th birthday. Minor changes (mainly round-offs) in the IQ ranges for level of retardation have also been made. Presently the International Classification of Diseases - 9 (ICD 9) of the World Health Organization and the American Psychiatric Association's Diagnostic and Statistical Manual-III (DSM-III) define the levels of mental retardation almost consistently with the 1983 AAMD classification manual (Grossman, 1983).

The idea of the AAMD 1959 manual of defining adaptive behaviour levels analogous to levels of mental retardation by IQ has later been abandoned.

1.2 DEVELOPMENT IN FINLAND

The development of the care of mentally retarded persons in Finland has followed the lines of the economic and social development of the country. Besides the inner factors, international impulses and models, especially the Nordic ones, have always had a great impact on the formation of the Finnish mental retardation field. The broad lines of the care of mentally

retarded persons in Finland have followed the general lines of the social policy towards the poor. In this respect the greatest changes have been in the creation of public circulation of paupers from house to house in the beginning of the eighteenth century and its gradual replacement by the institutional system of local authority alms houses in the beginning of the twentieth century. The emergence of the public circulation system reflects the growth of economic prosperity of the country beginning from the eighteenth century and expresses the fact that more and more handicapped individuals began to stay alive. The change from file circulation to institutional model reflects the gradual change of society from a natural to a monetary economy with wage labour as a typical form of employment.

If we consider the special care of mentally retarded persons, its development in Finland can be divided into three phases: the formative years (1877-1945), the era of institutionalization (1945-1970), and the beginning of community care (1970-).

1.2.1 The formative years (1877 - 1945)

The decades of the formation of the Finnish field of the treatment and care of mentally retarded persons were characterized by uneven and sporadic, mostly private undertakings. The period can be grossly divided into two parts: the Finnish equivalent to School movement (1877 - 1926), and change to an institutional model (1927 - 1945).

The first phase joins with the idea of educative institutions and is parallel to the European School movement. Inspired primarily by the models from Sweden and Norway, two small schools for mentally retarded persons started in Finland at the end of the nineteenth century. Both of them were private boarding-schools for mildly mentally retarded students, one in Pietarsaari (1877 - 1892) and the second one in Helsinki (Perttula reformatory for idiots 1890 -). The school in Pietarsaari ceased its activity after its founder retired. The Perttula reformatory developed later into an institution when custodial wards were incorporated into it. In addition to these educational institutions, auxiliary schools for feebleminded students

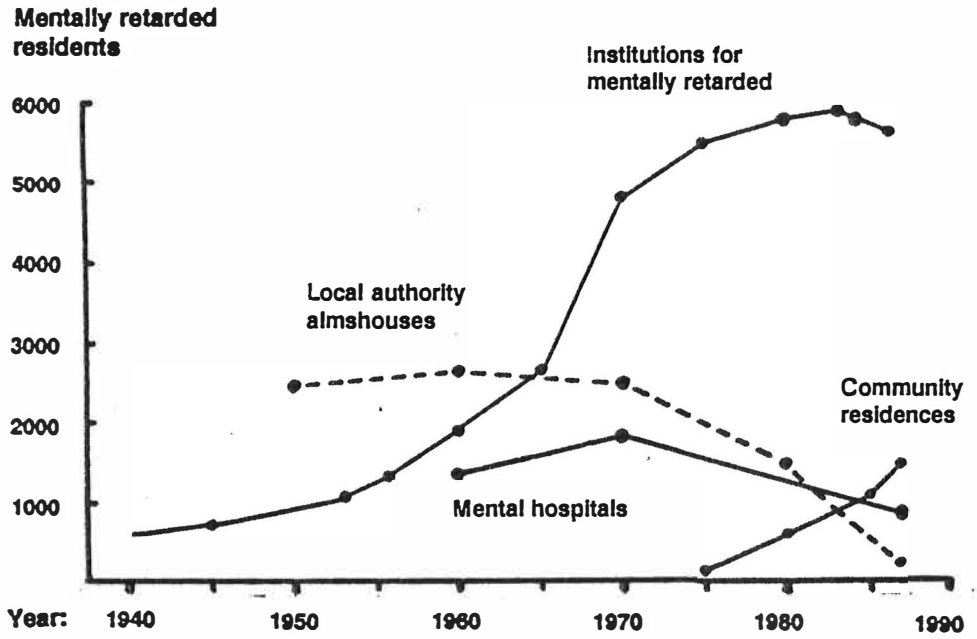

Figure 1. *Amount of mentally retarded persons in various forms of housing outside home. Collected from various sources.*

were established in many towns beginning from 1901 (von Bonsdorff, 1925).

The humanitarian ideas of the School movement were rapidly superseded in Finland, too, when the question of care of mentally retarded persons became current through the emergence of modern society. The change to an institutional model was confirmed when a law was enacted for the state support for institutions for the education and treatment of idiots (L 185/1927). The spirit of the field now turned to a custodial one. By World War II six little or medium size, mostly private, institutions for mentally retarded persons were operating in Finland. They were the Perttula reformatory (1890-), Vaalijala asylum (1907-), Toivola-home (1926-),

Kuhankoski-home (1927-), Seinäjoki wards for idiots in the hospital for the mentally ill (1929-), and the Rinnekoti asylum (1930-). The total number of beds in these institutions accounted to only 630 during the thirties (Kotilainen, 1955). The biggest institution was Vaalijala (252 beds). Models for the institution building were obtained primarily from Denmark (Miettinen, 1976), which in the twenties had institutionalized overwhelmingly the greatest rate of mentally retarded individuals among the Nordic countries (Kotilainen, 1955). Because of the slow development of institutions planned specifically for mentally retarded persons, most institutionalized mentally retarded individuals resided in local authority poor houses as expressed in Figure 1. Several also resided in mental hospitals.

It was the late industrialization and urbanization of Finland that accounts for the slow development of institutions for mentally retarded persons before World War II. Because economic life in Finland was predominated by agriculture (see Figure 2) there was no special urgency to build institutions. Agriculture as a form of occupation made it easier to rear the mentally retarded family members at home compared to industrial labor work. It is perhaps illustrating that the Toivola-home near Oulu got most of its first mentally retarded residents from urban Helsinki more than a distance of 600 kilometers (Pitkänen, 1986, 27)!

1.2.1.1 Definition and classification. During the first decades of this century there existed no officially accepted refined definitions or classifications on the state of mental retardation in Finland. The concept of idiocy ("tylsämielisyys") was used as a generic term for all mentally retarded individuals (cf. L 185/1927).

1.2.2 Era of institutionalization (1945 - 1970)

After World War II the need to organize the care of mentally retarded persons was enhanced by the accelerating industrialization and urbanization of the country. During the forties Finland shifted from a society predominated by agriculture into an industrial society (see Figure 2). The shift was characterized by the absolute diminishment of economically active

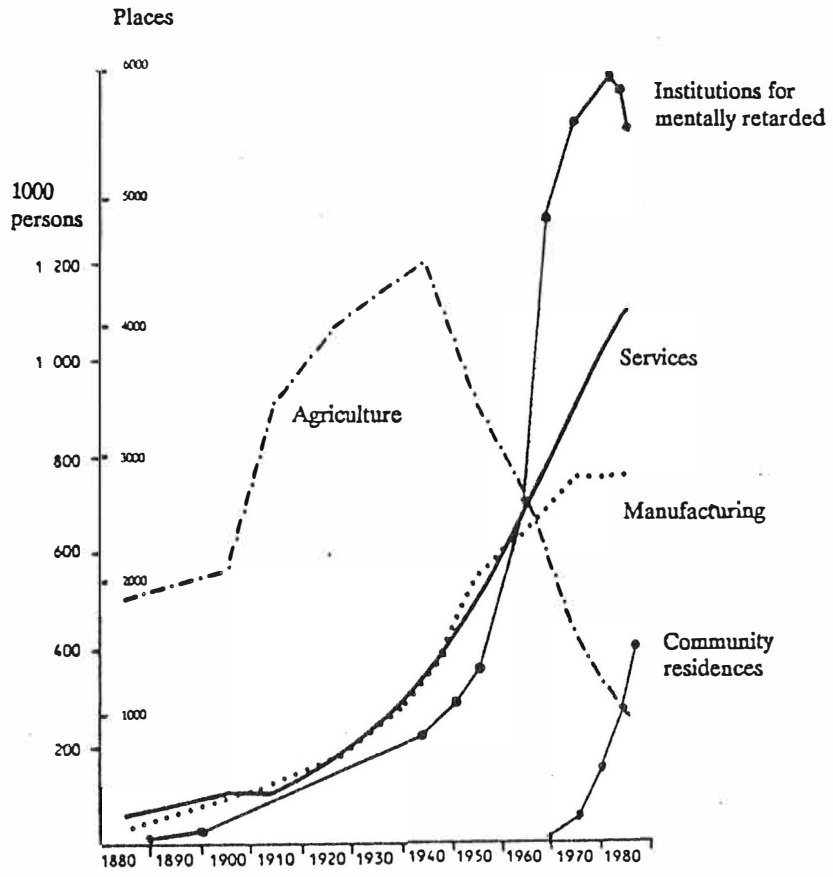

Figure 2. *The development of places in mental retardation institutions and small community facilities in Finland. Economically active population by industry.*

population in agriculture, while the sectors of manufacturing and services expanded. In 1930 the urban population in Finland amounted to 21 % of the total population, in 1950 already to 32 %. (STV 1982). This development made the need to organize the care of mentally retarded individuals a question of the day.

Because there existed only few services specifically planned for mentally retarded persons, those mentally retarded who could not be cared for at home were placed mostly in homes for the aged, or mental hospitals.

According to the statistical material collected in the early sixties before the building of central institutions began, only 24 % of the institutionalized mentally retarded individuals lived in institutions for the subnormal, while 47 % lived in the homes for the aged and 23 % resided in mental hospitals (Tarvainen, 1966, 68).

The basis for the future lines of the care of mentally retarded persons was laid in the Report of the Committee on the Welfare of Deficient Children (1947). This Committee had started its work in 1943. According to a model obtained from Denmark the Committee proposed a centralized system of five big institutions with a mean size of 500 beds in each. Mentally retarded individuals were planned to be nursed in big wards of even one hundred beds in each (Komiteamietintö, 1947, 22-24).

Compared to international developments, such as the beginning growth of community services for mentally retarded persons in the United States, and the rise of parents movement, the recommendations and even professional terminology (see later) of the 1947 Committee seemed backward and antiquated. However, near paragons for community care were nonexistent; in other Nordic countries the development of community-based services had not yet begun either (Marthinsen, 1955; Melin, 1955; Munch, 1955). Additionally, the development of the Finnish society only recently reached the stage of industrial level, while in the United States the postindustrial society with its new demands and new ideology was already emerging.

The motivation for institutional care differed from that which was presented in the United States during the time of institution building. In Finland there were only faint signs of eugenic arguments. Instead, the 1947 Committee recommended institutionalization primarily because it argued that big institutions would offer the best individualized care and the most adequate teaching for the mentally retarded. Only idiots and imbeciles (defined in the Finnish way) should be institutionalized. Besides, part of them could possibly be released after their school years back to community care. Institutions were thus presented to be, at least in part, educational centers aiming to reintegrate their inmates back into society. The justification of institutional care was thus, surprisingly, based on the old idea of educative institution presented originally by Seguin in 1866. However,

there existed a clear inconsistency between the ideology and reality: the equipment, staff, and programmes of the planned institutions did not fullfil the demands of educational institutions as listed by Seguin.

It was not true that the eugenics movement had not occured at all in Finland. During the heyday of the eugenics movement in the beginning of the century institutionalization was, however, seen in Finland as too expensive, ineffective, and inhumane a means to avert the danger of the supposed increasing mental retardation (Björkman, 1912). Sterilization was therefore recommended as an alternative means. The law on sterilization was enacted in 1935 (L 227/1935) and between the years 1935 - 1955 2286 persons were sterilized, most of whom (64 %) were mentally retarded (Borgström, 1958). In relation to the whole population the sterilization movement was even more popular in Finland than in the United States. Besides this law, however, the eugenics movement in Finland remained purely academic and confined mostly to medical circles. The 1935 act on sterilization and especially its renewal in a very strict form still in 1950 (L 83/1950) expressed more the professional backwardness of the Finnish conditions rather than a real and widely felt alarm about the spread of the vices connected to mental retardation (cf. Riepula, 1973, 224).

The proposals for the institution system presented by the 1947 Committee were put into effect only slowly. The Law on Mental Deficiency with its enlarged statutes on state support for institutions was not enacted until 1958 (L 107/1958). Before that, the realization of the proposals of the Committee was started by religious organizations (Deaconess institutions, Home Mission Society), which during the fifties founded two asylums (Pori and the rebuilt Vaalijala) and enlarged one already existing (Rinnekoti). When the Law on Mental Deficiency at long last was enacted in 1958 there were approximately 1800 beds in institutions for the mentally retarded, also three times more than before the War (Tarvainen, 1966). The biggest Finnish mental retardation institution was Vaalijala with its 560 beds.

After the Committee on Planning the Care for the Mentally Deficient published its report in 1961 (Komiteamietintö, 1961), the building of institutions really began. Along the models obtained primarily from Norway the Committee recommended the division of the country into 15 districts

with a central institution of 300 - 600 beds in each. The Committee estimated the urgent need for beds in institutions to be 0,15 percent of the total population (approximately 6600 beds). According to the recommendations of the Committee, federations of communes began to emerge, which began to build their central institutions. The number of beds in institutions increased rapidly: in 1960 there were 2000 beds, in 1970 already 4800 beds, and the top, 5900 beds, was reached in 1983. This corresponded to 0,12 percent of the total population so that the "minimum target of the near future" approximated by the 1961 Committee was almost fulfilled 22 years later. By then there existed 15 special care districts with a central institution in each.

1.2.2.1 Definition and classification.

The Finnish Psychiatric-Neurological Society divided, in 1931, the classification of mental retardation (in Finnish "vajaamielisyys") into three subcategories of idiotia ("tylsämielisyys"), imbecility ("vähämielisyys"), and debility ("heikkomielisyys") (Komiteamietintö, 1947). This classification resembled the AAMD 1910 classification. The Committee on the Welfare of Disabled Children (1947) adopted this classification system. It is presented in Table 2 (p. 27). It was the first and for the present last effort to bring about a purely native classification system for mentally retarded persons. For the sake of comparison, the 1910 AAMD definition and the IQ limits presented by Terman in 1916 are also presented. As Table 2 shows, the Finnish classification was not identical with the AAMD classification. The class of idiocy ("tylsämielisyys") was defined widely to also include with itself most of the class of imbecility in the AAMD definition. Respectively, the Finnish class of imbecility overlapped in part with the AAMD class of moronity.

From the perspective of service planning for mentally retarded persons the Finnish classification was more backward, because it mixed in the lowest category of idiocy persons with a very wide range of abilities (from mental age 0 to 6 years). Actually, the Finnish classification corresponded

Table 2. *Classification of mental retardation according to the Committee on the Welfare of Disabled Children (1947) compared with the 1910 AAMD classification and IQ limits presented by Terman in 1916.*

Word description of retardation:	Finnish classification (1931) mental age	IQ scores	1910 AAMD classification Goddard: mental age	Terman: IQ scores
Idiocy	0 - 6 yrs	< 35/40	0 - 2 yrs	< 20/25
Imbecility	6 - 9 yrs	35/40 - 55/60	3 - 6 yrs	20/25 - 50
Debility	9 - 12 yrs	55/60 - 70/75	7 - 12 yrs	50 - 70

with the older, nineteenth century understanding of the word "idiot". This relative backwardness of the terminology seemingly served the more undifferentiated needs of the Finnish society.

The Committee on the Welfare of Disabled Children stressed also the importance of social aspects in the classification of the mentally retarded. For practical purposes it therefore presented the following classification of idiots and imbeciles, which takes into account various aspects of adaptive behaviour of the subjects:

1. Multiply handicapped idiots
2. Restless, unimprovable, difficult-to-care idiots
3. Quiet, unimprovable, easy-to-care idiots
4. Improvable idiots and partially trainable imbeciles
5. Asocial imbeciles

This classification also carried an antiquated impression: it had its roots in the nineteenth century, in the well-known classification system of Fernald and Barr (see Scheerenberger, 1983, 140). They divided idiots into unimprovable excitable (above restless) and unimprovable apathetic (above quiet) groups. Additionally, they had a group of improvable or partially trainable idio-imbeciles, and a group of moral imbeciles (here asocial imbeciles).

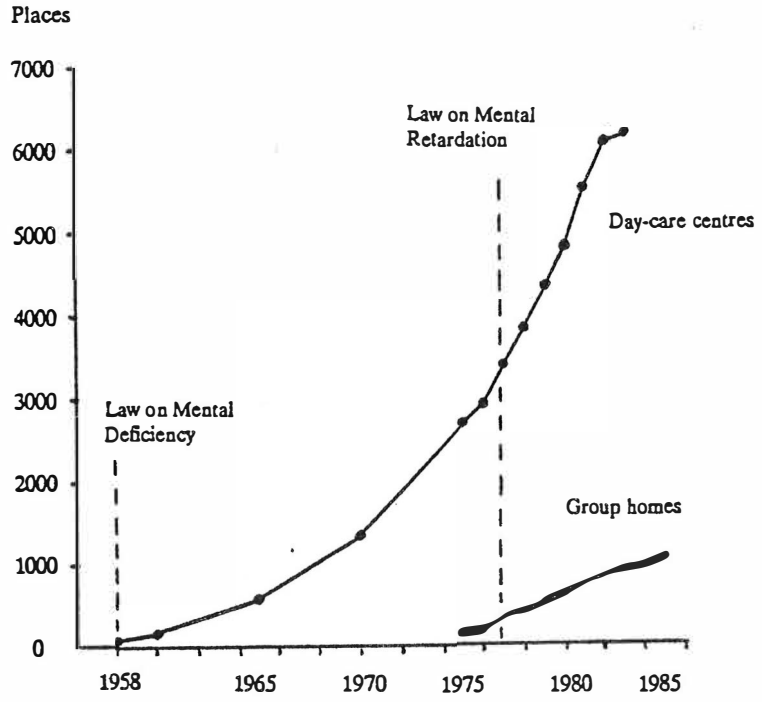

Figure 3. *The development of community services for mentally retarded persons in Finland: places in day-care centers (day centers and sheltered workshops) and community living facilities (small group homes) (Sosiaalihallitus, 1987) .*

In the 1958 Law on Mental Deficiency the mentally deficient was defined as a "person, who mainly because of his/her undeveloped intellectual functioning is or will be in need of continuous care, special education, management, or supervision". Even if the notion of intellectual functioning was mentioned as a primary mark, the definition stressed the helplessness or deficit in adaptive behaviour as an essential prerequisite for mental deficiency. The need for continuous treatment and care was defined as a necessary characteristic for the state of mental deficiency (Tarasti, 1959).

1.2.3 Development of community care (1970 -)

The phase of industrial society was not long-lasting in Finland. As can be seen from the Figure 2 (p. 23), the next big structural change already occurred in the sixties when the Finnish society moved to its postindustrial stage. The change was characterized by a rapid growth of the economically active population in services until it passed in number the population both in agriculture and manufacturing, whose growth slowed down and stopped at last. At the crossing of these three curves in the sixties there occurred also a clear change in the social atmosphere of the country. The former uniformity of social norms was replaced by a pluralism of values and manners. More approving attitudes were also emerging towards socially deviant people, like the mentally retarded.

The new atmosphere was soon reflected in the field of the care of the mentally retarded. The segregation of mentally retarded individuals into institutions became an obsolete task in a more tolerating society. The old-fashioned character of the 1958 Law on Mental Deficiency was rapidly noted, and in 1966 a Committee was nominated to make a proposition towars a revision of the legislation. The first report of the Mental Retardation Committee was published in 1969 and led to the enactment of the financial support for the home care of mentally handicapped children (L 444/1969). This statement was important, because it gave parents both monetary and moral support for the home-care of their mentally retarded children.

The final report of the Committee appeared in 1970. It proposed a new law on mental retardation, which stressed the community alternatives for institutional care. The Act on Mental Deficiency (1958) already contained statements on the state support (rather small) for day care centers for the mentally deficient. As can be seen from Figure 3, the development of day-care centers already began on the base of this law.

Unfortunately, the realization of the social political consequences of the new developmental stages of society seems to happen with a considerable time lag. This lag seems to depend on the rigidity of the political system. As can be seen from Figure 4, the changes in the structure of industry are

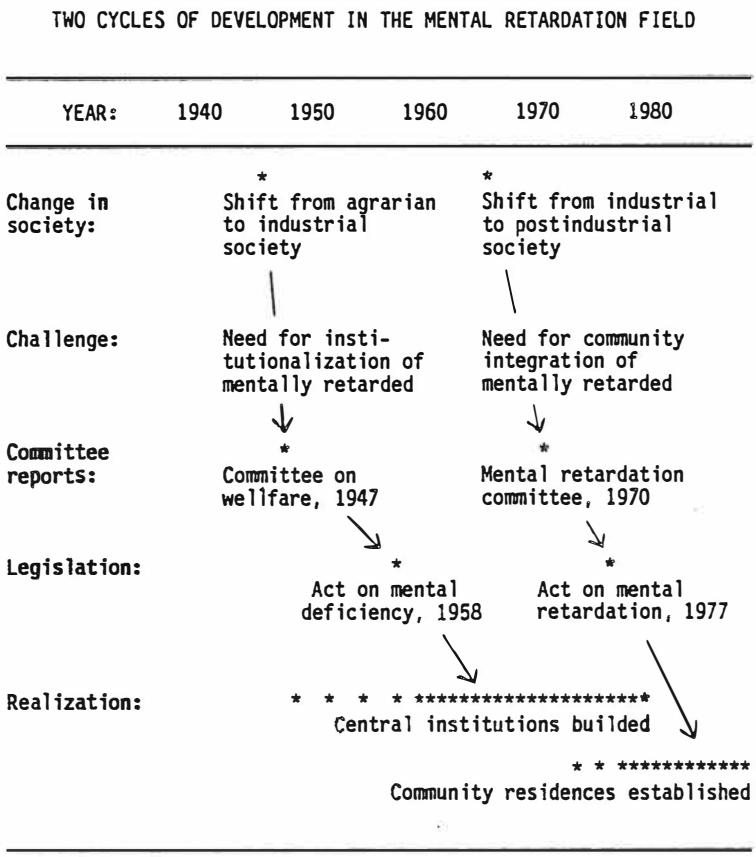

Figure 4. *Two successive waves of the development of services for mentally retarded persons.*

reflected in the legislation of the mental retardation field only 10 - 15 years later. The shift from an agrarian to an industrial society occurred in Finland during the forties. The Report of the first Committee planning the building of institutions appeared in 1947 and the law on mental retardation institutions was enacted in 1958. Lastly, the building of institutions occured during the sixties and seventies: the last central institution was not completed until 1979. Meanwhile, the economic life of the country had

already by the sixties shifted from an industrial to a postindustrial phase. The Report of the Committee considering the development of community care appeared in 1970. The law on community care was not enacted until 1977 and the development of community alternatives for institutions really began in the eighties. As can be seen, this lag resulted in the building of institutions side by side with their community alternatives: community care was built for the present needs of the developed society, and institutions were built to fulfill the needs of the already subsided industrial society. The same lag was also observable in the development of education of mentally retarded children. Comprehensive research did show already in the sixties the usefulness of school education for the community adaptation of mentally retarded children (Ruoppila, 1966). This evidence helped to promote their education. However, all mentally retarded children came under the sphere of compulsory education first in the eighties (L 476/1983)

One reason for the inability of the political system to flexibly change its social political goals was possibly the absence of strong pressure groups advocating the case of the mentally retarded. For example, the parent's movement in Finland has been quite weak and dispassionate compared to many other countries.

Despite the community oriented Act for the Developmentally Handicapped (1977), institutional care is still the overwhelmingly prevailing alternative to the housing of mentally retarded people not cared for by their parents (see Figure 5). If one tries to predict the future, it seems likely that community services will continue to grow while the central institutions decrease in size (Työryhmä, 1986). On the level of legislation the shift towards community alternatives for institutional care is enhanced by additional legislation after the mental retardation law (L 519/1977). Important laws which facilitate the community integration of the mentally retarded include the Act on social welfare (L 710/1982), the Act on planning and state support on social welfare and health care (L 677/1982), the Act on comprehensive school (L 476/1983), and the Act on the services for the disabled (L 380/1987). An increase of places in community residences for the places in institutions would mean the shift of the Finnish mental retardation care to its fourth phase, the phase of community integration of

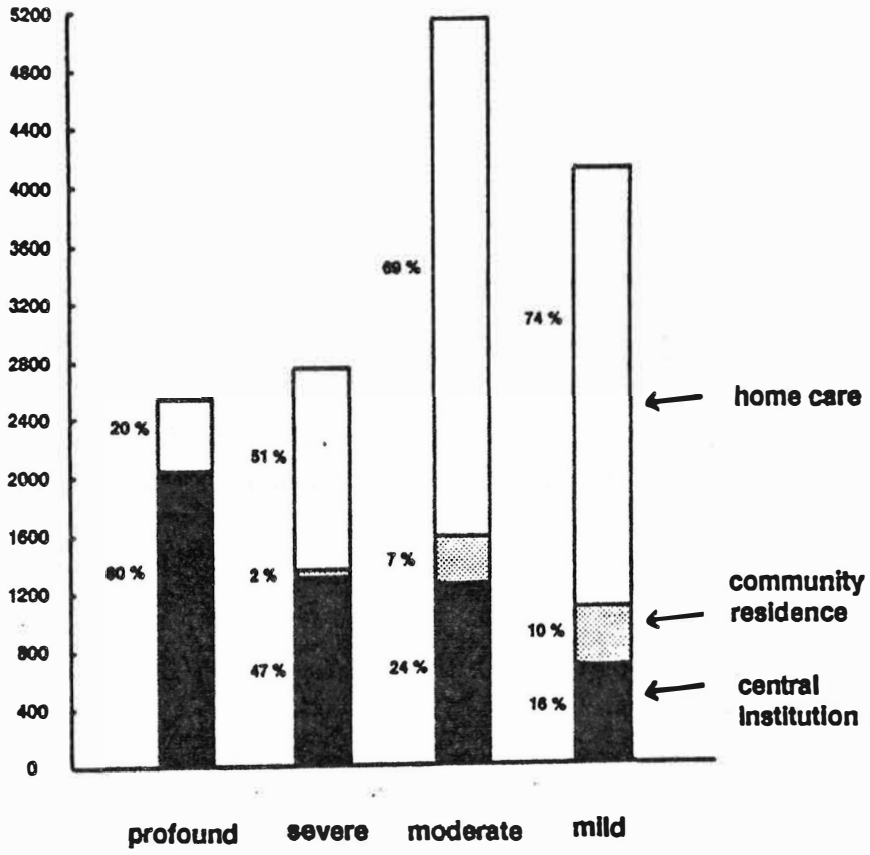

Figure 5. *Housing of mentally retarded persons having received special services according to level of retardation in 1984 (Sosiaalihallituksen tilastotiedotus 1987:3).*

mentally retarded persons. Judging by the present development this change seems to be happening at a smooth rate. Already the existing development seems to indicate that the Finnish central institutions were mostly built for the needs of only one generation.

1.2.3.1 Definition and classification

The tripartite classification of the 1943 Committee prevailed in Finland during the fifties (Tarvainen, 1959, 7) and sixties. It did not officially subside until 1969. In that year the National Board of Health published its first Classification Manual of Diseases (Lääkintöhallitus, 1969), which contained the classification of mental retardation according to lines presented in the eighth International Classification of Diseases (ICD-8) published by the World Health Organization in 1965. ICD-8 followed the lines of the AAMD 1959 fourpartite classification (see Table 1). In this way it was also adopted in Finland.

In 1987 the National Board of Health accepted a revised edition of the Classification of Diseases (Lääkintöhallitus, 1986), which corresponded with the 9th revision of the ICD published in 1977 (ICD-9). Only minor changes in the IQ limits were made in the definition of mental retardation.

The Committee on Mental Retardation (1970) adopted a new term "kehitysvammaisuus" (developmentally handicapped) for mental retardation. In order to minimize the negative social stigma associated with the use of special services for mentally retarded, the Committee wanted not to restrict the planned services only for the traditional group of mentally retarded. Instead the Committee took a position to specify a set of social services. Those who were in need of these services and could not get them through other laws would then be called the mentally retarded. According to the Committee, besides the traditional mentally deficient, among these people would belong especially sensory and physically handicapped children. The limit of the inborn or developmental origin of the handicap was, however, retained. Excluding this last etiological condition, the approach of the Committee to the classification was functional instead of the traditional categorical classification (see Seltzer, 1983). Similar functional classifications appear in other countries, too (e.g. Public Law 98-527 in the United States).

The new definition of the 1977 mental retardation law was accordingly as follows:

1 § This law directs the delivery of special care for a person, whose development or mental functioning has been hindered or disturbed because of a disease, defect or handicap of inborn character or obtained during the developmental period, and who cannot get by virtue of any other law the services he or she needs.

The intention of the Mental Retardation Committee to establish a service system, which would not separate mentally retarded children from other groups in need of special services was not realized. The plan failed mainly because the social status of mentally retarded persons still was considerably lower compared to other groups with a handicap, who therefore, and wisely enough, did not want to be identified with the mentally retarded. Maybe it can be said that the proposition of the Committee was too advanced compared to the undeveloped level of the social services. Accordingly, the new term "kehitysvammaisuus" in practice came to mean only those, who traditionally were conceived of as mentally retarded. The attempted widening of the concept led, however, to a slight uncertainty in the use of the term; therefore it was replaced by the term "psyykkinen kehitysvammaisuus" (psychic developmental handicap) in the most up-to-date Finnish Classification of Diseases (Lääkintöhallitus, 1987).

With the exception of the attempt by the Mental Retardation Committee to introduce a widened concept of a developmental handicap, the Finnish understanding of mental retardation has followed international lines as specified in the subsequent ICD manuals of the World Health Organization.

1.3 UNFOLDING OF THE CONCEPT OF ADAPTIVE BEHAVIOUR

It is reasonable to assume that during the early history it was the behavioural deviance that, besides physical deformity, was an important defining characteristic of mental retardation. Deficiencies in adaptive behaviour were a decisive factor in identifying those unable to function adequately in society.

The emergence of the first training programmes along the School movement gave new importance to the idea of adaptive functioning. Although not specifically identified as such, skills necessary for coping with social demands represented a large part of the content of the training programmes (Horn & Fuchs, 1987). For example, in the work of Itard the notion of adaptive behaviour occupied an important position: Itard's training of Victor emphasized the acquisition of skills such as eating with utensils, personal hygiene, and social communication, which are all associated with social demands of the civilized environment (Itard, 1801,1806/1982).

With the advent of industrialization the public policy towards mentally retarded persons turned from their education to their institutionalization and segregation from society. In this process the concept of adaptive behaviour lost its prior place in the definition and treatment of mental retardation. The institutionalization of mentally retarded individuals was "scientifically" justified by eugenic, preventive arguments, which presupposed that mental retardation was a hereditary characteristic. Both deficits in adaptive behaviour and the existence of maladaptive behaviour (moral imbecility) were seen as direct manifestations of the genetic, hereditary inferiority of mentally retarded persons.

Because the primary task of society towards mentally retarded persons was seen in terms of their segregation and elimination, it became necessary to develop diagnostic tools to detect those who were the conveyors of that harmful hereditary trait. "Intelligence" conceived of as an unitary and one-dimensional trait was seen as a basic explanatory construct of the condition. Therefore, with the introduction of intelligence testing the definition and classification of mental retardation increasingly began to be based on mental age or standardized IQ scores. As discussed earlier, the new diagnostic group, morons, was detected and classified solely on the basis of intelligence tests, with no reference to adaptive behaviour.

Because of the "improvability" of mental retardation the training programmes were seen as unnecessary or of secondary importance; therefore no need for the concept of adaptive behaviour existed on the intervention side either.

The gradual turn of public policy after World War II from segregation towards community integration of mentally retarded individuals led to the reevaluation of the significance of adaptive behaviour. The importance of adaptive behaviour grew dramatically, and by the eighties adaptive behaviour has emerged as an insurmountable construct in mental retardation. The two main areas of its application have been the definition and the treatment of mental retardation.

1.3.1 Using adaptive behaviour in definition

Although there prevails a general agreement that definition and classification of mentally retarded persons can have undesirable consequences by producing negative labels, it is accepted as necessary for rational development and delivery of services to those with special needs (Lowitzer, Utley & Baumeister, 1987).

As discussed earlier, the concept of adaptive behaviour was included in the AAMD definition on mental retardation in 1959. Even after that the application of adaptive behaviour in the definition and diagnosis of mental retardation has not been self-evident. Firstly, there still exists controversy on the proper place of adaptive behaviour in the definition of mental retardation. Some writers want to totally discard the definitional status of the concept of adaptive behaviour mainly because the concept is ill defined and lacks sufficient reliability (Clausen,1967; Hodapp & Zigler, 1986; Zigler, Balla & Hodapp, 1984), others want to give it only supplementary status (Kidd et al., 1979), while still others, such as E. A. Doll, want to see it as a primary criterion for mental retardation because of the close correlation of intelligence and adaptive behaviour and the better predictive validity of the latter (Futterman & Arndt, 1983).

Secondly, the equal definitional status of adaptive behaviour linked with subaverage intellectual functioning is not generally accepted in practice. For example many states within the United States still emphasize intelligence in the definition and diagnosis of mental retardation and deemphasize or exclude adaptive behaviour (Huberty, Koller & Brink, 1980; Lowitzer,Utley,

Baumeister, 1987; Utley, Lowitzer & Baumeister, 1987). Reliance on adaptive behaviour has been controversial mainly because it has proven fairly elusive to valid and broad-based measurement (Lowitzer, Utley, Baumeister, 1987). This is especially true with regard to mildly retarded individuals, because dimensions of behaviour assessed in this group often are relatively subtle (Horn & Fuchs, 1987). On the other hand, even if many state guidelines may underemphasize adaptive behaviour, it is reasonable to assume that actual adjustment difficulties experienced by individuals were never completely eliminated from practical considerations.

1.3.2 Using adaptive behaviour in intervention

The real breakthrough in the concept of adaptive behaviour occurred in the second main area of application, namely the education and training of mentally retarded persons. While the use of adaptive behaviour in definition and diagnosis has mostly concerned the mildly mentally retarded, the use of adaptive behaviour as an effective means of structuring the content of training and education programmes has primarily been applied to severely mentally retarded individuals (i.e. with profoundly, severely, and moderately mentally retarded). This development is manifested in the publication of growing numbers of different adaptive behaviour scales and the emergence of a wide variety of training programmes during the last twenty years (Horn & Fuchs, 1987). Some of these adaptive behaviour scales are reviewed by Meyers, Nihira and Zetlin (1979) or Harrison (1987).

1.3.3 Defining adaptive behaviour

The first thorough attempt to specify the content and subcategories of adaptive behaviour was included in the Vineland Social Maturity Scale published originally in 1936 by E.A. Doll. Doll purported to construct a scale to measure social adequacy in terms of social independence. He defined social incompetence as an *inability to manage oneself and one's*

affairs with ordinary prudence (Doll, 1935). In the Vineland Scale, the concept of social maturity was divided into six domains: 1) self-help, 2) self-direction, 3) locomotion, 4) occupation, 5) communication, and 6) socialization (Doll, 1935).

In the AAMD 1959 manual on terminology and classification and its correction in 1961 (Heber, 1959, 1961) the concept of adaptive behaviour was defined as referring primarily to *the effectiveness with which the individual copes with the natural and social demands of his environment.* Adaptive behaviour was divided into three subcategories of maturation, learning, and social adjustment. They represented successive age levels of development. This division was based on the scheme presented by Sloan and Birch (1955). They also outlined adaptive skill requirements for each level of mental retardation across these three subcategories of adaptive behaviour.

According to the AAMD 1959 manual, the rate of maturation referred to the rate of sequential development of self-help skills of infancy and early childhood, such as sitting, crawling, standing, walking, talking, and habit training. In the first few years of life the concept of adaptive behaviour consisted almost completely of these manifestations of sensory-motor behaviour.

Learning ability referred to the ability with which an individual gains knowledge from his experiences. As a qualifying condition of mental retardation it was particularly important during the school years.

Social adjustment was particularly important in adulthood and was assessed in terms of the degree to which the individual was able to maintain himself independently in the community and in gainful employment as well as by his ability to meet and conform to other personal and social responsibilities and standards set by the community (Heber, 1959, 3-4).

The next big endeavour to define the concept of adaptive behaviour was included in the revised classification manual of the AAMD in 1973 (Grossman, 1973). Adaptive behaviour was defined as the *effectiveness or degree with which the individual meets the standards of personal independence and social responsibility expected for age and cultural group.*

According to the manual these expectations may be reflected in the following areas:

During infancy and early childhood in:

1. sensory-motor skills development,
2. communication skills,
3. self-help skills,
4. socialization (interaction with others)

During childhood and early adolescence in:

5. Basic academic skills (reading, writing, etc.)
6. Reasoning and judgement
7. Social skills (interpersonal relations)

During late adolescence and adult life in:

8. Vocational and social responsibilities.

The same definition and analysis of the components of adaptive behaviour was retained in the most up-to-date AAMD classification manual (Grossman, 1983).

Two commonly mentioned components have emerged from the broad concept of adaptive behaviour. The first is a focus on personal skills, ranging from the early development of self-help skills to the appropriate application of skills in community environments. The second is a focus on motivational attributes and social behaviours ranging from early socialization to the mature social adjustment in the community. These two concepts of *personal independence* and *social responsibility* are frequently mentioned as the main components of adaptive behaviour (Grossman, 1983; Meyers, Nihira & Zetlin, 1979; Bruininks, Thurlow & Gilman, 1987).

The concrete contents given to the notion of adaptive behaviour are best expressed in the items and domains of various scales planned to assess adaptive behaviour. Holman and Bruininks (1985) made a content analysis of existing measures identifying 10 broad clusters of adaptive behaviour. They were: 1) self-help & personal appearance, 2) physical development, 3) communication, 4) personal & social skills, 5) cognitive functioning, 6) health care & personal welfare, 7) consumer skills, 8) domestic skills, 9) community orientation, and 10) vocational skills. This content analysis was

partial in one respect: it was limited to adaptive skills, and did not involve dimensions of problem behaviour.

From the perspective of social role expectations the contents of adaptive behaviour, as expressed in various measurement scales, bears clearly a character of a kind of "minimum demands" for social adaptation. For example, only seldom did the scales list such behaviours as creativity, inventiveness or originality as components of adaptive behaviour. This is understandable thinking of the major practical purposes of adaptive bahaviour assessment in diagnosis and program planning in mental retardation.

1.3.3.1 Adaptive and maladaptive behaviour. If the behaviour of an individual does not meet the expectations of the surrounding social environment, the reason for this can, grossly speaking, be of two different origins. Firstly, the individual may be lacking some skills which are considered important by his or her social environment. In this case the problem is the deficiency in the behavioural repertoire of the individual. This alternative corresponds with the traditional notion of adaptive skills. Secondly, the individual may have some behaviour, which is considered as socially undesirable by the environment. In this case the problem is not behavioural deficiency, but excess behaviour. It is this alternative that corresponds with the notion of maladaptive behaviour or negative adaptation.

The dimension of maladaptive behaviour was first included in the measurement of adaptive behaviour in the sixties when the Adaptive Behavior Checklist was developed (Leland, Shellhaas, Nihira & Foster, 1967). The importance of the evaluation of maladaptive behaviour emerges from numerous research data, which indicate that severe behavioural disorders among mentally retarded people limit the development of adaptive skills and integration into schools, family homes, residential placements, employment and social settings (Bruininks, Thurlow & Gilman, 1987).

1.3.3.2 The conceptual framework of adaptive behaviour. As stated earlier, adaptive behaviour is concerned with the individual's social role performance and the extent to which the individual meets the social expectations of others. In this sense the concept of adaptive behaviour has a distinct sociological nature even if the contents of adaptive behaviour refer mostly to psychological facts, i.e. the behaviour of an individual.

For the most part the research on adaptive behaviour has focused on measurement issues. Theory-driven research is still lacking (McGrew and Bruininks, 1989). An exception is the discussion around the factor structure of adaptive behaviour (see chapter 3.1). The situation reflects the use of the concept as a practical tool for service planning and education of mentally retarded persons. The concept has emerged from these practical needs of the mental retardation field. Currently the concept is mostly applied in the context of psychometric issues and applied behaviour analysis, which constitutes the main educational approach on mental retardation.

1.3.3.3 Adaptive behaviour and intelligence. The relationship between the concepts of adaptive behaviour and intelligence is of special interest. Their relative position in the context of the development of the care of the mentally retarded was highlighted in the initial chapters of this study.

As a concept, intelligence refers to such cognitive abilities as learning, remembering, or problem solving. It refers to the use of mental processes and as such is an inference made about people's behaviour: it can be measured only through observations of behaviour.

Adaptive behaviour refers to the quality of everyday performance in coping with environmental demands (Grossman, 1983). It refers directly to the overt behaviour of an individual. Because the quality of general adaptation is mediated by the level of intelligence, the two concepts overlap in meaning. However, there remains a difference between the abstract potential of mental processes and an individual's current ability to cope with environmental demands in daily living.

The relationship between intelligence and adaptive behaviour will be studied later correlatively (chapter 3.3.3).

1.4 ASSESSMENT OF ADAPTIVE BEHAVIOUR

Various scales constructed to measure adaptive behaviour presently amount to over 100 (Meyers, Nihira & Zetlin, 1979) or even 300 (Spreat, 1980). Therefore, only the most important scales from the Finnish perspective are discussed in the following.

1.4.1 The Vineland Social Maturity Scale

The first well-known scale planned to measure adaptive behaviour was the Vineland Social Maturity Scale developed by Edgar A. Doll, director of the Training School at Vineland, New Jersey. The scale was first published in 1936 but its final publication was delayed until 1953 (Doll, 1988). The Vineland Scale was designed to provide individual standardized assessment in terms of social competence. Organized in categories, it highlighted individual differences and pinpointed deficits, as well as yielding an overall Social Age and Social Quotient analogous to tests of intelligence. The scale was standardized with a nonhandicapped group. The items were scored not through observation but by interviewing those persons who knew the subject well.

In designing this instrument Doll applied the principles and methods employed by Binet and Simon in the construction of their scale for measuring levels of intelligence. The underlying presumption was that the individual is progressively adaptive through growth in social performance as one aspect of an innate or biological growth potential (Doll, 1935). The 117 items of the scale were organized in the order of growing difficulty, and they were selected on the basis of their ability to differentiate between successive stages of development. Because of these principles of the scale construction, the applicability of the Vineland scale for training purposes was not as good as for the purposes of measurement and classification. Because of the scaling needs there existed large gaps between the items, which made it difficult to plot progress with treatment.

Unlike the Binet Scale, the publication of the Vineland Scale was not followed by a rapid breakthrough in the assessment of social competence. For the most part it held the field alone until the massive federally funded research project of the AAMD Adaptive Behavior Checklist in the sixties (Doll, 1988).

The Vineland Social Maturity Scale was published in Finland in 1977 (Doll, 1965/1977) and also became here the most popular adaptive behaviour scale used in the mental retardation field despite its foreign and already outdated standardization. In a brief study Parjanen (1971) showed that the age norms of the scale did not correspond with the results she obtained with her Finnish subjects. One reason for the popularity of the Vineland Scale probably has been its age norms, which has made it similar to tests of intelligence: it has therefore been useful both as a tool for setting training objectives and as a method of classifying subjects. In 1984 a new set of Vineland scales was published in the United States (Sparrow, Balla & Cicchetti, 1984). These new scales had only the name in common with the old Vineland scale.

1.4.2 Other scales

Less favored than the Vineland scale has been the second adaptive behaviour scale published in Finland, namely the Progress Assessment Chart (PAC), developed by an Englishman H.C. Gunzburg (1977). The first versions of the three PAC-forms were published in 1963-1966 and their Finnish translation was published in 1974 (Härkönen, Jäppinen, Tukiainen & Ylänen, 1974). PAC-forms represent a shift from classification to educational assessment. PAC-forms do not have any norms. Instead, the scales are so wide and covering (370 items) that they are suitable for a means of criterion assessment: they constitute themselves as a kind of list of teaching objectives. The result from the PAC-assessment is thus not a sum score, which puts the performance of the person in relation to others, but a listing of the skills, which the person masters or does not master.

1.4.3 The AAMD Adaptive Behavior Scale (ABS)

Among the tens and even hundreds of adaptive behaviour scales developed during the last twenty years, the AAMD Adaptive Behavior Scale (ABS) has held a special position. It has been - at least until the last few years -the most widely used instrument, with the broadest norms, and representing the widest variety of behaviour domains among published instruments (Meyers, Nihira & Zetlin, 1979).

The history of ABS traces back to the inclusion of adaptive behaviour into the definition of mental retardation in the 1959 classification manual of the AAMD (Heber, 1959). Shortly after this, a project was started to construct a reliable instrument to measure adaptive behaviour (Leland, Shellhaas, Nihira & Foster, 1967). The first result of this project was the AB Check List (Nihira, Foster, Shellhaas & Leland, 1969). Its revised version, the AAMD Adaptive Behavior Scale, was published in 1974 (Nihira, Foster, Shellhaas & Leland, 1974) and its revised manual appeared in 1975 (Nihira, Foster, Shellhaas & Leland, 1975). ABS was originally constructed especially to measure the adaptive behaviour of institutionalized mentally retarded individuals. Its Public school version appeared soon (Lambert, Windmiller, Cole & Figueroa, 1975) and was revised in 1981 (Lambert, Windmiller, Thuringer & Cole, 1981).

The AAMD Adaptive Behavior Scale consists of two parts. Part One was the product of a comprehensive review of the existing behaviour rating scales in the United States and Great Britain (Leland et al., 1967). The preliminary AB Check List consisted of 325 items. With the help of item analysis and validity research the final AB Check List was formed (Nihira, Foster & Spencer, 1968). The ABS is the more developed form of the latter. Part One of the ABS is organized along developmental lines in ten domains (see Table 3).

Part Two of the Scale was the product of the extensive survey of the social expectations placed upon retarded persons, both in institutions and in the community (Nihira, Foster, Shellhaas & Leland, 1975). It was designed to measure maladaptive behaviour and the use of medications, and was organized into fourteen domains (see Table 4).

TABLE 3. *Domains and subdomains of Part One of the AAMD Adaptive Behavior Scale.*

1. INDEPENDENT FUNCTIONING
   - A. Eating
   - B. Toilet Use
   - C. Cleanliness
   - D. Appearance
   - E. Care of Clothing
   - F. Dressing and Undressing
   - G. Travel
   - H. General Independent Functioning

2. PHYSICAL DEVELOPMENT
   - A. Sensory Development
   - B. Motor Development

3. ECONOMIC ACTIVITY
   - A. Money Handling and Budgeting
   - B. Shopping Skills

4. LANGUAGE DEVELOPMENT
   - A. Expression
   - B. Comprehension
   - C. Social Language Development

5. NUMBERS AND TIME

6. DOMESTIC ACTIVITY
   - A. Cleaning
   - B. Kitchen Duties
   - C. Other Domestic Activities

7. VOCATIONAL ACTIVITY

8. SELF-DIRECTION
   - A. Initiative
   - B. Perseverance
   - C. Leisure Time

9. RESPONSIBILITY

10. SOCIALIZATION

TABLE 4. *Domains of Part Two of the AAMD Adaptive Behavior Scale.*

I	VIOLENT AND DESTRUCTIVE BEHAVIOUR
II	ANTISOCIAL BEHAVIOUR
III	REBELLIOUS BEHAVIOUR
IV	UNTRUSTWORTHY BEHAVIOUR
V	WITHDRAWAL
VI	STEREOTYPED BEHAVIOUR AND ODD MANNERISMS
VII	INAPPROPRIATE INTERPERSONAL MANNERS
VIII	UNACCEPTABLE VOCAL HABITS
IX	UNACCEPTABLE OR ECCENTRIC HABITS
X	SELF-ABUSIVE BEHAVIOUR
XI	HYPERACTIVE TENDENCIES
XII	SEXUALLY ABERRANT BEHAVIOUR
XIII	PSYCHOLOGICAL DISTURBANCES
XIV	USE OF MEDICATIONS

1.5 AIMS OF THE STUDY

The objectives of this study are twofold. First, the aim is to study the psychometric properties of the AAMD Adaptive Behavior Scale (ABS) in the Finnish institutional sample of mentally retarded persons. In this part of the study the reliability, validity, and factor structure of the ABS are studied and Finnish decile norms for the institutional population are computed. The practical benefits from the psychometric study can be found in the preparation of the Finnish user's manual (Saloviita, 1988a) for the Finnish translation of the AAMD Adaptive Behavior Scale (Nihira, Foster, Shellhaas & Leland, 1974/1988). It is hoped that an adequate psychometric study of the ABS will help its application on the mental retardation field in Finland both in research and in practice.

The second aim of this study is to analyze the adaptive behaviour of the residents in a central institution for mentally retarded persons. From the perspective of the current deinstitutionalization policy it is especially important to get information on the adaptive behaviour level of the institutionalized mentally retarded residents. Because of the considerable nationwide uniformity of the special welfare for mentally retarded persons, the possibility of making generalizations of the results from the Kuusaa central institution to other central institutions of the country are quite good. The study does not confine itself to mere description; various facets of adaptive behaviour are analyzed across a set of independent variables in order to acquire more detailed knowledge of the regularities of the adaptive functioning of mentally retarded persons. Special attention will be paid to self-injurious behaviour.

2 METHOD

2.1 SETTING

The study was conducted in the Kuusaa central institution, which is an institution for mentally retarded persons maintained by a federation of communes of the Kymi Special Welfare District. The institution started in 1966 and its establishment was based on the provisions of the 1958 Act on mental deficiency. The institution served the Province of Kymi, which amounted to about 300 000 inhabitants. The original size of the institution was planned to amount to over six hundred, but during the building period the size was frozen to the official number of 391 places. In practice, the institution was always overcrowded and populated by slightly over four hundred residents.

The institution consisted of 29 housing units which were situated in 12 cottages loosely scattered in the woody institutional area. The unit size was typically between 15 to 20 residents. The biggest unit housed 35 nonambulatory residents. Only two cottages were built to have small separate units for six person in each. The institution was situated apart from any other settlement two miles outside the nearby little town center, on the grounds of the former dumping-ground, and next to the town cemetery.

Besides the housing units, the institutional area contained a building with special education classes and physical education premises, and a sheltered workshop. In addition, houses for staff, an administrative center and various service buildings were situated on the area. The wards used the centralized services of a central kitchen, laundry, repair shop, central store, linen store, dispensary etc. Many of the ordinary household activities, like shopping, cleaning, the preparation of food or washing were looked after by these special organizations. The institution was a kind of self-sufficient

miniature town, where all the necessary services were at hand; it was a realized *"city of refuge"* dreamed of one hundred years earlier by I. N. Kerlin, an early proponent of institutions. Besides the regular residential units there was one cottage for short courses and one unit for short-term care.

Minor variations excluded, the ward consisted typically of two day-rooms, one little kitchen, two bathrooms, two toilets and a few dormitories with one to four beds in each. In addition there were the necessary storerooms, office, and social premises for the staff. A few wards had a strengthened isolation room to control maladaptive behaviour. The doubled number of some premises was due to the original intention of having small units for eight person in each with minimal common space shared with the neighbouring ward. In practice, however, two or even four adjacent units of the cottage were always united into one single unit with a common staff. The furnishings of the units varied from empty rooms to almost home-like furnishing.

The resident-to-staff ratio in the entire institution was 1.7 : 1. More staff was provided for the wards for the dependent profoundly handicapped, and less staff for the wards for more independent residents. The ratio was equal to the mean of all mental retardation institutions in the country (Kettunen, 1984). The units were headed by 15 unit leaders, who as a rule were nurses by training. The training level of the direct-care staff in the entire institution was as follows:

nurses (with 2.5 years training)	8 %
special care nurses (with 1.5 years training)	42 %
aides (with brief training)	35 %
occasional helpers (with no formal training)	15 %.

Sixteen sheltered work or leisure-time instructors were employed in the institution. The special classes with eight teachers mainly served students from outside the institution. The special care district also employed 2 physicians, 2 psychologists, 2 speech pathologists, and 2 physical therapists.

Of the residents of the institution 5 % visited sheltered workshop outside the institutional area and 10 % of the residents visited the special classes.

In 1984 the costs per day in the institution were 264 Finnish marks (treasurer P. Leppänen, personal communication, April 3, 1987).

2.2 SUBJECTS

Subjects included in the study were the entire 407 residents of the Kuusaa central institution. 14 new residents were added to the material one year later. They had moved to the institution after the original data collection. Thus the total amount of subjects was 421. The residents of the institution came from the Kymi Special Welfare District area, which was equal to the Province of Kymi. Of the subjects 55 % were men (231) and 45 % women (190). The level of mental retardation of the residents was as follows:

profoundly retarded	43 %
severely retarded	29 %
moderately retarded	20 %
mildly retarded	5 %
borderline or unspecified	3 %

The mean age of the subjects was 32 years (SD = 14 years). The mean time of stay in the institution was 16 years (SD = 10 years). The most common probable causes of mental retardation (according to Finnish official statistics based on the classification by Leisti (Leisti & Wilska, 1982) were chromosomal disorders (18.3 %), delivery complications (12.8 %), childhood psychosis (12.8 %), unknown aetiology (11.7 %), and multifactorial genetic disorder (11.2 %).

2.3 MEASURES AND PROCEDURE

All subjects were rated using the Finnish translation of the AAMD Adaptive Behavior Scale (Nihira, Foster, Shellhaas & Leland, 1974/1988). Each rating was made by one staff member (nurse or aide) who knew the resident for a period of at least a few months. Immediately after the booklets were returned, a new booklet was filled by another staff member for each fifth resident to measure the interrater reliability. To measure the stability coefficients, 40 residents were rated by the same staff members with an interval of one week. From the same residents the Vineland Social Maturity Scale (Doll, 1977) was filled by interviewing the staff members.

Some background knowledge on the subjects was collected from the records of the institution and the data-base sheets of the national register of the mentally retarded collected by the National Board of Social Welfare. All the ratings of the ABS were checked, the data was transferred with occasional checks from the booklets to record forms and from there to a data file. No errors were found when two thousand numbers from a listed data file was compared with the record form.

3 PSYCHOMETRIC PROPERTIES OF THE ABS

3.1 FACTORIAL STRUCTURE

With the assistance of factor analysis one can study the trait structure of the AAMD Adaptive Behavior Scale. The ABS contains 24 domains and 110 subdomains. Factor analysis can be used to search the smallest possible amount of new dimensions (factors), which account for as much of the variance of the original variables as possible. With the help of factor analysis one can seek an answer to a question, whether adaptive behaviour measured by the ABS is a one-dimensional trait, or whether more dimensions are needed to describe its whole area.

3.1.1 Previous studies

Several studies have been made on the factorial structure of the ABS. Only the most important are referred in the following.

Nihira (1969a, 1969b) studied the precursor of the current ABS, the "AB Checklist". Factor analyses performed using the domain scores delineated three orthogonal factors, Personal Independence, Social Maladaptation, and Personal Maladaptation (Table 5). Personal independence was defined by 10 behaviour domains in Part One which represented the individual's skills and abilities and the presence of autonomy or motivation in managing personal and interpersonal affairs. The factor was similar to the traditional notion of social competency as represented by the Vineland Social Maturity Scale. Social maladaptation was defined by behaviour domains in Part Two

which measured antisocial behaviour disorders (e.g. violent and destructive behaviour). Personal maladaptation was defined by behaviour domains in Part Two that measured intrapunitive, autistic-like behaviour (e.g. stereotyped behaviour).

Lambert and Nicoll (1976) studied the factor structure of the ABS-Public School version (Lambert, Windmiller, Cole & Figueroa, 1975). They employed a relatively homogenous population of public school children. The factor analysis produced four orthogonal factors: Functional Autonomy, Social Responsibility, Interpersonal Adjustment, and Intrapersonal Adjustment (see Table 5). The first two factors contained domains from Part One of the ABS. Social Responsibility was defined by the domains of self-direction, responsibility, and socialization. Functional Autonomy was defined by the remaining domains of Part One. The last two factors were almost identical to the maladaptation factors of the previous study.

Nihira (1976) conducted a factor analytic study of a large sample of the mentally retarded population in state institutions using 25 subdomains of Part One. The analysis yielded three oblique factors, Personal Self-Sufficiency, Community Self-Sufficiency, and Personal-Social Responsibility (see Table 5). Personal self-sufficiency was defined by the subdomains representing basic daily skills. Community self-sufficiency contained various skills needed in community living. Personal-social responsibility represented a broad range of motivational attributes (self-direction, responsibility, and socialization).

Tomiyasu (1977) used a large sample of mentally retarded individuals in Japan to study the factorial dimensions of Part One of the AB Checklist on an item level. The analysis produced seven oblique factors (see Table 5).

Spreat (1980) used a sample of institutional population of mentally retarded persons in his factor analytic study of ABS. Five factors emerged following oblique rotation. The first factor, Personal Skills, was composed of all Part One domain scores. Another four factors divided the domain scores of Part Two. These factors seemed to be distinguished primarily in terms of the severity of the behaviour.

Recently, a factor analytic study on ABS was conducted in New Zealand using a sample of mentally retarded and psychotic patients (Godfrey, Frost,

TABLE 5. Factor analytic studies on AB-scale.

Studies:	Nihira,1969a,b	Lambert & Nicoll,1976	Nihira, 1976	Tomiyasu,1977	Spreat,1980	Godfrey et al,1986
Instruments and variables:	AB Checklist Parts I and II 22 domains	AB Scale Public School version 21 domains	AB Scale Part I, 25 subdomains	AB Checklist Part I 272 items	AB Scale Parts I and II 23 domains	AB Scale Parts I and II 24 domains
Population sampled:	State Institutions n = 1237	Public Schools n = 2618	State Institutions n = 3354	Mentally retarded n = 10 213	Institution n = 370	Institution n = 210
Factors:			Personal self-sufficiency	Motor skills Personal self-sufficiency		
		Functional autonomy				
	Personal independence	Social responsibility	Community self-sufficiency Personal-social responsibility	Community self-sufficiency Academic skills Communication Self-regulation (personal) Self-regulation (group)	Personal skills	Personal Independence
PART I						
PART II	Social maladaptation Personal maladaptation	Interpersonal adjustment Intrapersonal adjustment			Socially Maladaptive Behaviour Social Withdrawal Major Maladaptive Behaviour Annoying Behaviour	Social Maladaptation Personal Maladaptation

Snelling, Knight, Shelton & Longmore, 1986). An identical factor structure of three orthogonal factors emerged in both diagnostic groups. The dimensions were Personal Independence defined by Part One, Social Maladaptation, and Personal Maladaptation (see Table 5). The last two dimensions were almost identical with the dimensions obtained in previous studies by Nihira (1969a, 1969b), and Lambert and Nicoll (1976).

3.1.2 Aim of the study

The aim of this study is to analyze the factorial dimensions of the AAMD Adaptive Behavior Scale using the sample of Finnish institutional population of mentally retarded individuals. Factor analysis provides information on the dimensionality of ABS in the Finnish population and answers the question of the factorial validity of the ABS. Because several studies have already been made concerning the factor structure of the ABS, it is possible to make international comparisons and strive for a cross validation of the previous results. Factors obtained in this study can be used in later research and practice to construct new sum variables. In this way it is possible to condense the information from the original 24 domains into a few factor variables.

3.1.3 Factor analysis for the entire ABS

A factor analysis of the entire scale was conducted on the level of domains (n = 24) rather than items (n = 110) because the goal was to arrive at an overall view of the dimensionality of the ABS on the domain level. This was thought practical in view of the projected construction of factor variables on the domain score level.

The data was factor analyzed using the Factor-subprogramme of the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner & Bent, 1975). Principal factoring with iteration was employed. Cattell's scree test was used to select the number of factors to be rotated (Rummel,

1970, 361). The factors were first rotated orthogonally to the Varimax criterion. Because it seemed reasonable to think that the various dimensions of adaptive behaviour would correlate with each other at least moderately, the rotation to an oblique criterion (Oblimin) was also employed. Both rotations were tested with different number of factors. The interpretation of the factors was based on the loadings higher than .300.

Table 46 in the Appendix presents the product moment correlation matrix of the intercorrelations between the ABS domain scores. Its factoring produced four factors with an eigenvalue greater than 1. Cattell's scree-break criterion suggested that the solution of two or three factors would be the most suitable. The factors accounted for successively 38.6 %, 18.5 %, 5.4 %, 4.3 %, 4.0 %, and 3.4 % of the total variance.

3.1.3.1 The two factor solution

The two factor solution accounted for 53.6 % of the total variance. The rotated factor matrix is presented in Table 6. The factors were:

Factor 1: Personal independence. In this factor all of Part One domains loaded high. These domains covered a wide range of different skills needed in independent life. Additionally, domains measuring motivation to manage personal and interpersonal affairs were included. Some domains from Part Two received moderate loadings in this factor. These were antisocial behaviour, rebellious behaviour, untrustworthy behaviour, and psychological disturbances. The result indicates that certain minimum level of adaptive skills are needed for the appearance of these forms of maladaptive behaviour. Other Part Two domains received low or negative loadings on this factor. The domains Withdrawal, Stereotyped behaviour, Unacceptable or eccentric habits, Self-abusive behaviour and the Use of medication received moderate negative loadings. Low frequency of these behaviours was thus characteristic of the first factor.

The factor corresponds with the Personal Independence factor obtained by Nihira (1969a, 1969b) and Godfrey at al. (1986) and Personal skills factor by Spreat (1980) (see Table 5, p. 54). Because of the bipolar character of

TABLE 6. *Orthogonal Varimax-rotation of the ABS domain variables - a two factor solution.*

	Domain:	Factor: 1	2	h^2
1.	Independent functioning	.910	.194	.865
2.	Physical development	.647	.381	.564
3.	Economic activity	.852	.124	.741
4.	Language development	.868	.169	.781
5.	Numbers and time	.808	.099	.662
6.	Domestic activity	.869	.071	.761
7.	Vocational activity	.813	.192	.698
8.	Self-direction	.885	.089	.790
9.	Responsibility	.898	.052	.809
10.	Socialization	.893	.120	.813
I	Violent & destructive behaviour	-.053	.783	.617
II	Antisocial behaviour	.390	.668	.599
III	Rebellious behaviour	.320	.687	.575
IV	Untrustworthy behaviour	.379	.482	.376
V	Withdrawal	-.329	.258	.175
VI	Stereotyped & odd mannerisms	-.438	.419	.367
VII	Inappropriate interpersonal manners	.148	.467	.240
VIII	Unacceptable vocal habits	.113	.666	.457
IX	Unacceptable or eccentric habits	-.337	.623	.502
X	Self-abusive behaviour	-.325	.474	.330
XI	Hyperactive tendencies	-.036	.555	.309
XII	Sexually aberrant behaviour	.163	.277	.103
XIII	Psychological disturbances	.395	.665	.598
XIV	Use of medications	-.307	.203	.135
Eigenvalue:		8.957	3.909	Total:
Proportion of total variance:		37.3 %	16.3 %	53.6 %
Proportion of common variance:		69.6 %	30.4 %	100.0 %

the factor, the bipolar name, e.g. "Personal independence and abscence of personal maladaptation" would be more accurate. The present name was selected for the sake of brevity.

Factor 2: Maladaptive behaviour. Almost all of Part Two domains loaded high on the second factor. Only Withdrawal, Sexually aberrant behaviour and Use of medication got low loadings, and consequently their communalities remained all under .200. Factor loadings of Part One domains were all low on this factor, with the exception of Physical development. This indicates that a certain minimum level of motor development was needed for the appearance of these forms of maladaptive behaviour.

3.1.3.2 The three factor solution

The three factor solution accounted for 57.6 % of the total variance of the variables (see Table 7, p. 59).

Factor 1: Personal independence. The factor was the same as in the two factor solution.

Factor 2: Social maladaptation. In this factor high loadings were obtained by Part Two domains which expressed outer-directed and socially oriented maladaptive behaviour (e.g. violent and destructive behaviour). High loadings of certain Part One domains (Language development, Numbers and time) indicated that a certain level of intellectual development was needed for these behaviour disorders to appear.

The second factor was almost identical with the social maladaptation or interpersonal adjustment factors noted by Nihira (1969a, 1969b), Lambert and Nicoll (1976) and Godfrey et al. (1986).

Factor 3: Personal maladaptation. The third factor was defined by domains which measured inner-oriented, autistic like behaviour disorders (e.g. stereotypes and self-abusive behaviour) (see Table 7). Physical development was the only domain in Part One which loaded positively in this factor. It indicated that a certain level of physical development was needed for these kinds of behaviour disorders to appear. The overall negative loadings of the domains in Part One indicated that the third factor was associated with more severe mental retardation than the second factor.

TABLE 7. *Orthogonal Varimax-rotation of the ABS domain variables - a three factor solution.*

Domain:	Factor:	1	2	3	h^2
1.	Independent functioning	.957	.169	-.002	.944
2.	Physical development	.767	.204	.278	.707
3.	Economic activity	.802	.247	-.186	.738
4.	Language development	.780	.349	-.235	.786
5.	Numbers and time	.695	.329	-.309	.687
6.	Domestic activity	.837	.175	-.187	.765
7.	Vocational activity	.818	.218	-.049	.719
8.	Self-direction	.881	.147	-.132	.816
9.	Responsibility	.843	.194	-.240	.807
10.	Socialization	.848	.238	-.187	.811
I	Violent & destructive	-.008	.604	.494	.608
II	Antisocial behaviour	.262	.846	.044	.786
III	Rebellious behaviour	.246	.751	.165	.651
IV	Untrustworthy behaviour	.339	.511	.105	.387
V	Withdrawal	-.209	.006	.419	.219
VI	Stereotyped & odd mannerisms	-.268	.054	.628	.470
VII	Inappr. interpersonal manners	.202	.328	.311	.245
VIII	Unacceptable vocal habits	.143	.536	.377	.450
IX	Unacceptable or eccentric	-.185	.271	.675	.563
X	Self-abusive behaviour	-.182	.157	.576	.389
XI	Hyperactive tendencies	.018	.390	.392	.306
XII	Sexually aberrant behaviour	.231	.142	.236	.129
XIII	Psychological disturbances	.301	.775	.101	.701
XIV	Use of medications	-.296	.139	.182	.140
Eigenvalue:		8.995	3.956	0.875	Total:
Proportion of total variance:		37.4	16.5	3.6	57.6 %
Proportion of common variance:		65.1	28.6	6.3	100.0 %

The third factor was almost identical with the personal maladaptation or intrapersonal adjustment factors noted by Nihira (1969a, 1969b), Lambert and Nicoll (1976) and Godfrey et al. (1986).

If four factors were rotated, the fourth factor, which accounted for 2,1 % of the total variance, was defined by Violent and destructive behaviour. It expressed a very annoying maladaptive behaviour.

3.1.3.3 Oblique rotations

When in orthogonal rotation the final factors delineate statistically independent variation, and are therefore necessarily uncorrelated, in oblique rotations the factors are allowed to become correlated. Because it seems reasonable to assume some degree of correlation among latent dimensions in the domain of adaptive behaviour, factor analyses were also made using the oblique rotation.

When the two factor solution was rotated to the Oblimin-criterion delta = 0.0, a factor structure appeared which was very similar to that obtained by the Varimax-rotation. The first factor was Personal independence, and the second one Maladaptive behaviour. The correlation between the factors was low, .082, which explains the similarity.

When three factors were rotated to Oblimin-criterion, the results were again very similar to that of orthogonal rotation, the three factors being Personal independence, Social maladaptation, and Personal maladaptation (see: Saloviita, 1988d).

3.1.4 Separate factor analyses for Part I and II

Separate factor analyses were made for Part One and Part Two in order to get a more precise picture of the dimensionality of both parts.

Factor analysis of Part One on the level of domains. Factor analysis produced only one factor with an eigenvalue greater than 1 (7.702). The factor accounted for 77 % of the total variance of the 10 domain variables. The result showed the clear one-dimensionality of Part One. The second factor accounted for 6 % of the total variance. After varimax-rotation it loaded high on the domains Language development and Numbers and time

TABLE 8. *Orthogonal Varimax-rotation of the ABS Part Two domain variables - a two factor solution.*

Domain:		Factor: 1	2	h^2
I	Violent & destructive	.638	.436	.597
II	Antisocial behaviour	.886	-.054	.787
III	Rebellious behaviour	.799	.066	.642
IV	Untrustworthy behaviour	.626	-.052	.394
V	Withdrawal	-.018	.472	.223
VI	Stereotypes & odd mannerisms	.023	.732	.536
VII	Inappr. interpersonal manners	.440	.175	.225
VIII	Unacceptable vocal habits	.588	.318	.446
IX	Unaccept. or eccentric habits	.283	.686	.551
X	Self-abusive behaviour	.147	.631	.419
XI	Hyperactive tendencies	.415	.366	.306
XII	Sexually aberrant behaviour	.272	.083	.081
XIII	Psychological disturbances	.818	.010	.669
XIV	Use of medications	.027	.316	.101
Eigenvalue:		4.263	1.714	Total:
Proportion of total variance:		30.5 %	12.2 %	42.7 %
Proportion of common variance:		71.3 %	28.7 %	100.0 %

and correspondingly could be described as Academic skills or Intelligence. Oblique rotation produced similar results.

Factor analysis of Part One on the level of subdomains. Factor analysis on the level of subdomains (n = 25) produced three factors with an eigenvalue greater than 1. The values were 16.952, 1.609, 1.087, .914. According to Cattell's scree test, one factor solution appeared the most agreeable. The first factor accounted for 67.8 % of the total variance of the 25 subdomain variables. The second factor which accounted for 5.5 % of the total variance loaded high on academic skills after varimax-rotation. The result was thus identical to the factor analysis on the domain level. However, the result does not confirm the three factor structure obtained by Nihira (1976), who conducted a factor analysis with subdomain scores of Part One of the ABS.

Factor analysis of Part Two on the level of domains. Factor analysis on the level of domains (n = 14) delineated three factors with an eigenvalue greater than 1. The successive values of factors were 4.729, 2.231, 1.061, .969, .799. Cattell's scree-break criterion suggested a two factor solution to be rotated (see Table 8).

The first factor can be defined as Social maladaptation factor, and the second one as Personal maladaptation factor. Both oblique and orthogonal rotations gave, on the second factor, high loadings on the domains of Withdrawal, Stereotypes and odd mannerisms, Unacceptable or eccentric habits, Self-abusive behaviour, and Use of medications.

If three factors are rotated, the third factor, which accounts for 2.7 % of the total variance, was defined by Inappropriate interpersonal manners, Sexually aberrant behaviour, and Violent and destructive behaviour. It could be interpreted as Annoying maladaptive behaviour and it corresponded with the fourth factor appearing in the factor analysis of the entire scale.

3.1.5 Discussion

Factor analysis made from the entire ABS on the level of domains showed that the ABS measures two separate dimensions of adaptive behaviour: Personal independence (Part One) and Maladaptive behaviour (Part Two). Similar results were obtained whether orthogonal or oblique rotations were used. Part One showed to be clearly one-dimensional, while Part Two could also be seen as two-dimensional: Varimax-rotation produced high loadings for the third factor on some of the domains in Part Two. If the three factor solution is accepted, Part Two divides into Social maladaptation and Personal maladaptation factors.

Oblique rotation for the three factor solution on the level of domains of the entire ABS produced a factor structure, which differed from orthogonal rotation. The factors were Personal independence, Maladaptive behaviour and Absence of behaviour. The third factor was characterized by the lack of both adaptive and maladaptive behaviour, and seemingly expressed the most severe conditions of mental retardation.

Separate factor analyses from Part One on the domain level and subdomain level supported the view of the one-dimensionality of Part One. This result corresponds with the results obtained by Godfrey et al. (1986), Nihira (1969a, 1969b), and Spreat (1980), but is opposite to the results obtained by Nihira (1976), Lambert & Nicoll (1976), and Tomiyasu (1977). Actually, the view of multidimensionality of adaptive skills has achieved a position of rather regular finding (Meyers, Nihira & Zetlin, 1979). However, the factor analytic studies have not reported the proportion of total variance accounted by the additional factors. On the basis of factor analysis of five factor variables measuring adaptive behaviour Arndt (1981) argued for the essential one-dimensionality of Part One and Part Two of the ABS, because the general scores of adaptive and maladaptive behaviour accounted for the major portion of variance in each factor.

Separate factor analysis from Part Two supported the view of its possible two-dimensionality, the factors being Social maladaptation and Personal maladaptation. This result corresponded with the results by Godfrey et al. (1986), Lambert & Nicoll (1976), and Nihira (1969a, 1969b), but was opposite with the multidimensional factor structure obtained by Spreat (1980) and one-dimensional structure supported by Arndt (1981). The two factors accounted for successively 30.5 % and 12.2 % of the total variance of domain in Part Two. The second factor was clearly a minor one. If preferred, Part Two can therefore be treated as one single dimension. There are, however, reasons to give a chance for a separate status to the Personal maladaptation factor. Its interpretation is clear and the division between advanced social and more primitive personal forms of maladaptation carries a heuristic value. The discriminant validity of the Personal maladaptation factor is enhanced by the fact that domains defining this factor correlate negatively with IQ, whereas other Part Two domains have zero or positive correlations with IQ (see Table 19). In addition, empirical research showed that deinstitutionalization of profoundly mentally retarded individuals manifested different effects on these two forms of maladaptive behaviour: social maladaptation decreased after deinstitutionalization but not personal maladaptation (Saloviita, 1989a).

3.1.5.1 Construction of new factor variables. On the basis of the previous discussion, new factor variables were formed in order to condense in later analysis the information contained by the domain scores of ABS. Firstly, the factor variables of Personal independence (Part One) and Maladaptive behaviour (Part Two) were formed. Secondly, Part Two was divided into the Social maladaptation factor and Personal maladaptation factor. On the basis of factor analyses reported above, the Social maladaptation factor variable was formed as a sum score from the following domain scores:

I	Violent & destructive behaviour
II	Antisocial behaviour
III	Rebellious behaviour
IV	Untrustworthy behaviour
VII	Inappropriate interpersonal manners
VIII	Unacceptable vocal habits
XI	Hyperactive tendencies
XII	Sexually aberrant behaviour
XIII	Psychological disturbances

Accordingly, the Personal maladaptation factor variable was formed as a sum score from the following domain scores:

V	Withdrawal
VI	Stereotyped behaviour and odd mannerisms
IX	Unacceptable or eccentric habits
X	Self-abusive behaviour
XIV	Use of medications

3.2 RELIABILITY

Reliability refers to the degree to which the results of testing are attributable to systematic sources of variance. Typically estimating the reliability coefficients call for correlating at least two sets of similar measurements. There are different methods of doing this. The selection between them depends in part on what source of error we are interested

in. Cronbach (1947) separated two different types of reliability: equivalence, and stability. Later, the concept of test homogeneity or internal consistency was added as a third form of reliability (Cronbach, 1951). Besides these classical types the measurement of interrater reliability or interrater agreement has become an important part of psychometric evaluation. The term interrater agreement is preferred here because the term "reliability" is usually reserved for the aforementioned classical types of reliability. Reliability coefficients have often only limited practical value for test users. The standard error of measurement may be more useful because it identifies limits that have a defined probability of including the true scores.

3.2.1 Interrater agreement

Interrater agreement refers to the extent to which independent raters agree in their scoring of behaviour. The most usual way of estimating the interrater reliability of ABS has been to let a sample of two independent raters (typically nurses, aides or teachers) complete the AB booklet from the same individual. Product moment correlations or Phi coefficients (Nihira, Foster, Shellhaas & Leland, 1975; Salagaras & Nettelbeck, 1983), or Spearman rank order correlations (Isett & Spreat, 1979) has then been computed between the pairs of ratings. A more sophisticated intraclass correlation has also been applied (Stack, 1984). Table 9 summarizes the results. The lowest reliabilities in Part One were observed in Independent functioning (Nihira, Foster, Shellhaas & Leland, 1975; Stack, 1984), Physical development (Isett & Spreat, 1979), Responsibility (Stack, 1984) and Socialization (Nihira, Foster, Shellhaas & Leland, 1975). In Part Two the lowest reliabilities were observed in Hyperactive tendencies (Stack, 1984), Unacceptable vocal habits (Isett & Spreat, 1979; Nihira, Foster, Shellhaas & Leland, 1975; Salagaras & Nettelbeck, 1983) and Untrustworthy behaviour (Isett & Spreat, 1979).

3.2.1.1 Method. Interrater reliability was computed from 83 pairs of independent ratings using product moment correlation or Phi coefficient in cases of very skewed frequency distributions.

TABLE 9. *Studies on the interrater agreement of the AAMD Adaptive Behavior Scale.*

Studies:	Nihira et al., 1975	Isett & Spreat, 1979	Salagaras & Nettelbeck, 1983	Stack, 1984
Population sampled:	133	28	78 (Part I) 68 (Part II)	90
Informants:	ward personnel	ward personnel	teachers	teachers and other staff
Coefficient:	Pearson, Phi	Spearman rank order	Pearson, Phi	Intraclass correlation
Part One:	.86	.76	.80	.73
domains:	.71 - .93	.42 - .91	.72 - .87	.48 - .87
Part Two:	.57	.56	.52	.56
domains:	.37 - .77	.32 - .84	.36 - .78	.25 - .70

3.2.1.2 Results and discussion. Table 10 lists the interrater reliabilities. The lowest reliability in Part One was found in Economic activity and the lowest values in Part Two in Rebellious behaviour, Unacceptable vocal habits and Hyperactive tendencies. The values correspond with the results of previous research. However, the interrater reliability of Part One (.97) was notably higher than was reported in earlier studies. While the interrater reliability of Part One was excellent, the reliability of Part Two (.53) was so low that it produces problems in research and practice.

The highest reliabilities were counted in domains where easily observable adaptive skills were evaluated, e.g. Independent functioning. The lowest reliabilities were observed in domains where much subjective evaluation was included in the rating, e.g. Hyperactive tendencies, where, for example, the item "speaks too much" was scored. Additionally, the evaluation of the frequency of behaviour in Part Two in terms of its regularity ("occasionally - frequently") was very vaguely defined.

TABLE 10. *Reliability coefficients for the AAMD Adaptive Behavior Scale.*

Domain: (Number of items)		Interrater agreement 1) (n = 83)	Consistency 2) (n = 421)	Stability 1) (n = 40)
1.	Independent functioning (21)	.97	.97	.99
2.	Physical development (6)	.93	.83	.95
3.	Economic activity (4)	.81*	.89	.75*
4.	Language development (9)	.92	.91	.99
5.	Numbers and time (3)	.89	.91	.97
6.	Domestic activity (6)	.93	.93	.99
7.	Vocational activity (3)	.83*	.87	.90*
8.	Self-direction (5)	.86	.87	.92
9.	Responsibility (2)	.85	.89	.91
10.	Socialization (7)	.87	.89	.97
	PART ONE TOTAL (Personal independence) (66)	.97	.99	1.00
I	Violent & destructive behaviour (5)	.69	.78	.93
II	Antisocial behaviour (6)	.77	.83	.93
III	Rebellious behaviour (2)	.41	.82	.93
IV	Untrustworthy behaviour (2)	.60*	.62	.75*
V	Withdrawal (3)	.50	.66	.78
VI	Stereotypes & odd mannerisms (2)	.73	.45	.92
VII	Inappr. interpersonal manners (1)	.59*	-	.58*
VIII	Unacceptable vocal habits (1)	.47	-	.72
IX	Unaccept. or eccentric habits (4)	.52	.80	.89
X	Self-abusive behaviour (1)	.50*	-	.86
XI	Hyperactive tendencies (1)	.42*	-	.65*
XII	Sexually aberrant behaviour (4)	.63*	.64	.61*
XIII	Psychological disturbances (7)	.55	-	.91
XIV	Use of medications (1)	.53	-	.91
	PART TWO TOTAL (Maladaptive behaviour) (44)	.53	.92	.95
	Social maladaptation (33)	.66	.94	.94
	Personal maladaptation (11)	.64	.80	.95

1) Pearson product moment correlation coefficients

2) Cronbach's alpha

*) Phi coefficients

3.2.2 Internal consistency

Internal consistency refers to the homogeneity of the test. If the homogeneity is low, different items of the test measure different traits. In such case the sum score of the test may skip any clear interpretation. Even if the internal consistency of the test is easily calculated, it has been reported only in one study on ABS. Kaipio (1987) computed Cronbach's alpha coefficients from the sample of institutionalized mentally retarded population (n = 250) in Finland. In two successive measurements Cronbach's alpha was .93 and .94 in Part One, and .83 and .80 in Part Two, indicating high internal consistency of both parts.

3.2.2.1 Method. The internal consistency of factor variables and domains of the ABS was computed using Cronbach's alpha coefficient (Cronbach, 1951).

3.2.2.2 Results and discussion. Table 10 summarizes the results. The data shows that the internal consistency of factor variables was good or excellent. In most cases the internal consistency of domains was also good. Only in some short domains the alpha was low, which, however, is natural because alpha is sensitive to the length of the scale.

3.2.3 Equivalence

Equivalence refers to the extent to which the test representatively measures the trait, which it is intended to measure. The coefficient of equivalence is obtained by correlating two tests, which are thought to measure the same trait.

3.2.3.1 Method. To measure the equivalence of the ABS, 40 subjects were randomly selected from about 400 residents of the institution. Two subjects were selected from each ward, which were about equal size, using the alphabetical order of second names. Ward personnel filled the ABS from each subject. The Vineland Social Maturity Scale (Doll, 1965/1977) was then filled by interview method from the same subjects. The Pearson product moment correlation was counted between the measurements.

3.2.3.2 Results and discussion. The correlation between Part One of the ABS and the Vineland Social Maturity Scale was .97. The Vineland Scale measures social adequacy in terms of social self-sufficiency (Doll, 1935). It thus corresponds with Part One of the ABS. Consequently, the result confirms the equivalence of the ABS in relation to a more traditional Vineland Scale. In this case, to be sure, the high correlation is probably partly due to the high heterogeneity of the subjects.

Because of the method of its measurement, the coefficient of equivalence expresses at the same time the concurrent validity of the scale. This theme is discussed further in section 3.3.3.2.

3.2.4 Stability

Stability of the test refers to the extent to which successive measurements with the same test give unchanged results. It is determined by correlating two independent measurements made in different times with the same instrument. Isett and Spreat (1979) studied the stability of the ABS measurements with 28 institutionalized mentally retarded subjects. Time interval between two successive measurements was two weeks. The Spearman rank order correlation between Part One of the ABS total scores was .91 and Part Two total scores .83.

3.2.4.1 Method. The subjects were the same as in the study of equivalence (see 3.2.3.1). To measure the stability of the ABS scores, the same informants, having completed the ABS on the subjects, were requested to complete a second ABS for the same person after four weeks from the first measurement. A Pearson product moment correlation was then computed between the measurements.

3.2.4.2 Results and discussion. Table 10 presents the stability coefficients. The stability coefficients of factor variables were excellent. The stability coefficients of Part One were also good. The same holds for most domains in Part Two. The results show that the stability of the ABS scores may be high even if the interrater agreement is low, as was in the domains of Part Two.

3.2.5 Standard error of measurement

Reliability coefficients have often limited practical value for test users for the interpretation of the reliability of the scores. The standard error is ordinarily more useful, because it presents the error of measurement in absolute terms. With the help of standard error of measurement one can express the limits that have a defined probability of including the true score. Table 11 summarizes these limits for different confidence levels counted from interrater agreement coefficients.

3.3 VALIDITY

Validity refers to the appropriateness of inferences from test scores. The questions of validity can grossly be divided into two groups. The first questions concerns the validity of measurement: how truly the test scores represent the specified domain the test is supposed to measure. The second question asks the closeness of the relationship between test scores and some other behaviour: how useful the measurement is as an indicator of some other performance. The validity of the test depends upon the kinds of inferences one might wish to draw from the scores. Therefore, no single validity coefficient can be all-covering. The instrument may be valid for one purpose but not for another. No test is valid for all purposes or in all situations. Additionally, the validity of the test is always a matter of inference and judgement, not just a question of value of some validity coefficient.

The Standards for Educational & Psychological Tests published by the American Psychological Association (1974) divides the inferential interpretation of the test use into four types, which are logically inter-dependent: 1) construct validity, 2) content validity, 3) predictive validity, and 4) concurrent validity. The last two forms together are referred also as criterion validity.

TABLE 11. *Standard errors of measurement (SE) and confidence levels of 95 % and 99 % for the ABS factor variables and domains counted from interrater agreement coefficients.*

Domain:		M	SD	SE	95 %	99 %
1.	Independent functioning	48.62	29.42	5	10	13
2.	Physical development	16.01	6.41	2	3	4
3.	Economic activity	2.92	4.05	2	3	5
4.	Language development	13.75	10.73	3	6	8
5.	Numbers and time	3.24	3.96	1	3	3
6.	Domestic activity	4.15	5.25	1	3	4
7.	Vocational activity	3.89	4.42	2	4	5
8.	Self-direction	8.19	6.58	2	5	6
9.	Responsibility	1.85	2.03	1	2	2
10.	Socialization	10.50	7.89	3	6	7
	PART ONE TOTAL (Personal independence)	113.13	73.02	13	25	33
I	Violent & destructive	3.99	4.96	3	5	7
II	Antisocial behaviour	4.69	6.30	3	6	8
III	Rebellious behaviour	3.59	5.12	4	8	10
IV	Untrustworthy behaviour	0.98	2.09	1	3	3
V	Withdrawal	3.68	3.95	3	5	7
VI	Stereotypes & odd mannerisms	1.93	2.56	1	3	3
VII	Inappr. interpersonal manners	0.80	1.39	1	2	2
VIII	Unacceptable vocal habits	1.57	1.94	1	3	4
IX	Unaccept. or eccentric habits	3.39	4.07	3	6	7
X	Self-abusive behaviour	1.14	1.83	1	3	3
XI	Hyperactive tendencies	0.81	1.38	1	2	3
XII	Sexually aberrant behaviour	0.54	1.54	1	1	1
XIII	Psychological disturbances	5.50	7.23	5	10	13
XIV	Use of medications	1.90	1.59	1	2	2
	PART TWO TOTAL (Maladaptive behaviour)	34.52	29.09	20	39	54
	Social maladaptation	22.48	24.72	14	28	37
	Personal maladaptation	12.05	9.88	6	12	15

3.3.1 Construct validity

Construct validity refers to the extent to which an instrument purported to measure some specified trait really measures it. Evidence of construct validity is based upon accumulation of research results, which may lead to a theory about the nature of the construct the test is believed to measure. For a test to show construct validity, it is expected that the test results are meaningful in relation to predictions derived from the theory.

One of the most common ways to evaluate the construct validity is factor analytic study. The factorial validity refers to the dimensionality of the test. Factor analysis of the ABS reported in chapter 3.1. revealed the two- or three-dimensionality of the ABS. According to these results Part One of the AAMD Adaptive Behavior Scale measured one single dimension of Personal independence, and Part Two measured one single dimension of maladaptive behaviour. As discussed earlier (3.1.5) Part Two could also be divided into two dimensions of social maladaptation and personal maladaptation. The validity of the distinction between these two constructs was further supported by the study, which indicated differential effects of the deinstitutionalization on these two forms of maladaptive behaviour (Saloviita, 1989a).

If the trait measured by an instrument develops with age, the instrument should be able to manifest age validity. In this case older subjects should score higher than younger subjects. Age validity can be expected from Part One of the AAMD Adaptive Behavior Scale, because it is commonly held that the development of adaptive behaviour is age-dependent (Grossman, 1983). The requirement of age validity was applied in the development of the first intelligence tests (Binet), and the same requirement was applied by Doll while developing the Vineland Scale (Doll, 1935). It is not fully meaningful to evaluate the age validity of a test in a group of mentally retarded subjects. In the sample of this study there were so few children that it was not possible even to try age validation of the ABS during developmental years. The results presented in Figure 8 (p. 96) show the development of the ABS Part One scores across different age groups, which

indicate that adaptive behaviour continues still to develop in adult age among mentally retarded individuals.

The cultural relativity of adaptive behaviour (Grossman, 1983) is another stumbling-block for the tests of adaptive behaviour. For example, Part Two of the ABS includes item 35, "Has homosexual tendencies" which is counted as maladaptive behaviour, although it certainly is not maladaptive in homosexual subcultures. In interpreting the ABS scores it is therefore necessary to take into account the specific cultural milieu where the evaluation is thought to be valid.

Part Two of the ABS has been criticized for not taking into account the severity of the behaviour disorder. Therefore, two persons may score equal although the first may have attempted suicide while the second was only shy (McDevitt, McDevitt & Rosen, 1977; Knapp & Salend, 1983; Taylor, Warren & Slocumb, 1979). Actually, the rating system of Part Two mixes the frequency and topography of the behaviour as well. These shortcomings together with low interrater agreement seriously weaken the construct validity of Part Two. At least two attempts have been made to improve the scoring system of Part Two (Clements, Bost, DuBois & Turpin, 1980; McDonald & Barton, 1986). Even if these efforts really improve the interrater reliability, they may be too complicated for practical use.

Research on the concurrent validity of the instrument also clarifies its construct validity (see section 3.3.3.2).

3.3.2 Content validity

Content validity is called for, when one wants to know whether the contents of the test are a representative sample of the whole field, which the test is intended to evaluate. Content validity is important for example in school achievement tests, when one wants to ascertain that the test includes all the essential themes. The representativeness of the AAMD Adaptive Behavior Scale was constantly under review during its thorough development process (Cook, 1966; Leland, 1964, 1967). After all, the discrimination ability of the scale is weak in many domains (see section

3.4). The scope of measured content has also been held too limited in some areas, e.g. Physical development (Knapp & Salend, 1983). The inclusion of the domain called Use of medications into the ABS may be held unfortunate, because it cannot easily be held as an instance of maladaptive behaviour.

3.3.3 Criterion-related validity

Criterion validity refers to the extent to which it is possible to infer from a test score an individual's most probable standing on some other variable, which is called a criterion. Criterion-related validity is divided into two parts, predictive validity and concurrent validity.

Predictive validity indicates the extent to which an individual's test score predicts his or her future level on the criterion. Concurrent validity refers to an individual's immediate situation on the criterion. The distinction is in the time interval. The study of predictive validity requires a time interval between the test and criterion. The study of concurrent validity requires simultaneity of the test and criterion. Although it is important to note the difference, it is common to use concurrent validity as a substitute for predictive validity. In this case "prediction" is statistical and does not concern the future.

For the present there are no true studies on predictive validity of the ABS, where time interval had existed between the test and the criterion. However, several studies have been made where the discrimination ability of the ABS has been investigated. These studies can be held as studies on predictive validity of the ABS. One must only keep in mind the statistical nature of "prediction". Most frequently the discrimination ability of the ABS has been investigated using discriminant analysis. Studies which have some test score as a criterion are presented in the section on concurrent validity (3.3.3.2). Such studies are correlative in nature.

3.3.3.1 Predictive validity

Predictive validity of the ABS or its parallel forms has been studied in connection with many classification problems. One of them is the use of ABS scores to predict the standing of individuals in different diagnostic classes. Foster and Nihira (1969) demonstrated the ability of ABS to discriminate between mentally retarded psychiatric impairment groups. Salagaras and Nettelbeck (1983, 1984) demonstrated the sensitivity of most of the ABS domains to variation in adaptive and maladaptive behaviour between subgroups of mentally retarded students representing differences in various personal variables.

Many studies have demonstrated the ability of the AB Check List or the ABS School Version to discriminate between special education training levels (Christian & Malone, 1973; Gully & Hosch, 1979; Lambert & Hartsough, 1981; Malone & Christian, 1974). The ABS has shown to discriminate between groups of mentally retarded persons living in different forms of housing or waiting for various housing placements (Campbell, Smith & Wool, 1982; Eyman & Call, 1977; Spreat, 1980). Futterman and Arndt (1983) demonstrated the ability of the ABS to predict program participation in a mental retardation hospital better than IQ, which indicates that the ABS-measurement could possibly replace the traditional IQ-measurement in many selections.

3.3.3.2 Predicting the level of retardation

The discrimination ability of the ABS has been demonstrated in the prediction of placement in psychiatric impairment groups (Foster & Nihira, 1969) and independently estimated adaptive behaviour levels (Salagaras & Nettelbeck, 1983, 1984). One way to study the relationship between adaptive behaviour and intelligence is to use discriminant analysis to investigate the ability of ABS to discriminate between different levels of mental retardation. The research questions are as follows: 1) is it reliably possible to predict the level of mental retardation using ABS scores? 2) which

dimensions of adaptive behaviour best predict the mental retardation level? 3) can the derived predictive functions be reliably used to classify new cases?

3.3.3.2.1 Method. Subjects were the mentally retarded residents of Kuusaa central institution. The subjects and details of data collection are presented in chapter 2. Because the ABS scores are not standardized across age, like IQ scores, the subjects under the age 17 years were removed from the sample. After this, the number of subjects was 363.

Using the SAMPLE-subprogramme of SPSS (Nie et al.,1975, 127) the subjects were randomly divided into two groups. Sample One included about 75 % of the subjects (n = 279), and Sample Two about 25 % of the subjects (n = 84). The groups did not differ significantly from each other in relation to sex, X^2 (df = 1) = .063, p > .05, IQ, $t(351)$ = 1.08, p > .05, age, $t(363)$ = 1.13, p > .05, length of hospitalization, $t(352)$ = .05, p >.05, ABS Part One total score, $t(363)$ = -.28, p > .05, Social maladaptation, $t(363)$ = -.28, p > .05 or Personal maladaptation, $t(363)$ = -.32, p > .05. Sample One was used to compute the discriminating functions. Sample Two was used for their cross-validation.

The 24 domains of the ABS were used as the discriminating variables. The level of mental retardation was the dependent variable. The DISCRIMINANT-subprogramme of SPPS (Klecka, 1975) was used for a stepwise multiple discriminant analysis. Rao's V was used as the stepwise criterion. The procedure seeks to maximize the overall multivariate F ratio by including the variable that best discriminates the groups at each successive step of the analysis.

3.3.3.2.2 Results. At the initial step of discriminant analysis eight domains were eliminated because they failed to achieve the entry criterion of partial multivariate F ratio greater than 1.0. These domains were Socialization, Violent & destructive behaviour, Antisocial behaviour, Rebellious behaviour, Withdrawal, Inappropriate interpersonal manners, Unacceptable vocal habits and Sexually aberrant behaviour. Four domains were eliminated because their inclusion did not significantly increase Rao's

TABLE 12. *Discriminating power of discriminant functions for levels of mental retardation.*

Discriminant function	Eigen-value	Relative percentage	Wilks' lambda	Chi square	df	signi-ficance
			.170	477.76	36	.000
1	2.732	83.93 %	.636	122.21	22	.000
2	.399	12.26 %	.890	31.57	10	.001
3	.124	3.81 %				

V, a generalized measure of the distance between group centroids. These domains were Vocational activity, Untrustworthy behaviour, Unacceptable or eccentric habits, and Self-abusive behaviour.

Because there were four levels of mental retardation, three discriminant functions were possible to be obtained (see Table 12). Before each function was derived, Wilk's lambda was computed and converted into Chi-square statistic for a test of significance. All three discriminant functions were statistically significant. The discriminant functions accounted for 27 % of the total variance. Table 12 shows that relative percentages of the discriminant functions differ greatly, the third function being very small with the percentage of only 3.81 % of the common variance.

Table 13 displays the standardized discriminant function coefficients for the ABS domains which remained in the analysis. The score from one function had a mean of zero and a standard deviation of one. Examination of the standardized coefficients within each function provides information of the relative importance of the corresponding variable. Table 13 shows that the first function was primarily defined by Language development, Numbers and time, and Independent functioning. It can be characterized as a generalized intelligence function. The second function scored high on Domestic activity, Numbers and time, Stereotypes and odd mannerisms, Physical development, and Domestic activity. The function is uneasy to

TABLE 13. *Standardized discriminant function coefficients for the ABS domains.*

Domain:	Function: 1	2	3
1. Independent functioning	.315	-.327	-.092
2. Physical development	-.112	-.465	-.504
3. Economic activity	-.212	.538	-.674
4. Language development	.531	-.214	.211
5. Numbers and time	.464	.500	-.216
6. Domestic activity	.060	.462	.434
7. Self-direction	-.172	-.395	-.190
8. Responsibility	.176	-.123	.495
9. Stereotypes & odd mannerisms	-.196	.479	.334
10. Hyperactive tendencies	.147	-.243	-.285
11. Psychological disturbances	-.016	-.115	.975
12. Use of medications	-.108	.224	-.108

TABLE 14. *Group centroids of discriminant scores on canonical discriminant functions for levels of mental retardation.*

Level of mental retardation	function 1	function 2	function 3
mild	2.911	1.124	-.603
moderate	1.703	-.072	.535
severe	.003	-.804	-.263
profound	-1.825	.432	.053

interpret. The third function was defined by Psychological disturbances and might be accordingly considered a function of psychological disturbances.

Table 14 shows the group centroids for each level of mental retardation.

TABLE 15. *Classification results for levels of mental retardation.*

Actual group	Predicted group membership 1	2	3	4	Total %	No. of cases
1. mild	74	19	4	4	101	(27)
2. moderate	19	64	16	1	100	(63)
3. severe	6	18	66	10	100	(87)
4. profound	-	-	20	80	100	(102)

Classification functions were derived on the basis of discriminant functions for each level of retardation. An individual was classified as a member of the group associated with the algebraic solution resulting in the largest score. The classification functions classified 71.3 % of cases back to their actual groups. Table 15 shows the results.

The classification functions that were derived from Sample One were cross-validated on Sample Two. The classification functions identified correctly 67 % of the cases as members of the groups to which they actually belong. The classification result was above the chance level (25 %) of success, X^2 (df = 1) = 77.778, p < .001.

3.3.3.2.3 Discussion. The result of the discriminant analysis showed that it was possible to successfully predict the membership of mentally retarded individuals in the diagnostic classes of mental retardation using the ABS scores. The discriminant functions based on ABS domain scores classified correctly 71 % of the cases. Three discriminant functions were derived, which accounted for 27 % of the total variance. The first function was clearly an intelligence function. Contents of the second function was scattered and difficult to interpret. In it both mildly and profoundly retarded groups scored high. The third function was defined by psychological disturbances. Eight of the ten domains of ABS Part One were

needed for an optimal solution. In contrast, only four domains of Part Two remained.

The discriminant functions were cross-validated in a second independent sample, where 67 % of the cases were correctly classified. The result was statistically significantly above the chance level of success (25 %).

3.3.3.3 Concurrent validity

Concurrent validity is another form of criterion-related validity and expresses the extent to which the test score of an individual can be used to estimate the individual's standing on some simultaneous criterion variable. Concurrent validity is closely associated with the concept of construct validity as well, because the intercorrelations of the tests scores refer to the similarities and dissimilarities between the constructs behind the tests.

Campbell and Fiske (1959) have introduced the concepts of convergent validity and discriminant validity to note the two dimensions of concurrent validity. Convergent validity means that two tests intended to measure the same trait, should have high intercorrelations. Discriminant validity means that two tests planned to measure different traits should correlate low with each other.

Only a couple of studies have treated the convergent and discriminant validity of the ABS. Roskowski (1980) demonstrated the high convergent validity of ABS Part One (r =.79), and a high discriminant validity of Part Two (r = .11) in relation to the Vineland Social Maturity Scale. Futterman & Arndt (1983) showed that the ABS Part One Short Form scores correlated positively with many other measures of adaptive behaviour indicating good convergent validity of the ABS Short Form. The correlation with IQ was high indicating problems in discriminant validity. Clements, DuBois, Bost and Bryan (1981) demonstrated a fairly good convergent validity of the ABS Part Two scores in relation to clinical judgement of the seriousness of behavioural disturbances (r = .43).

In this study the convergent and discriminant validity of the ABS factor variables will be studied in relation to each other, the Vineland Social Maturity Scale, and IQ.

3.3.3.3.1 Method. Data collection of ABS and IQ scores were presented in section 2. IQ scores were obtained from the documents of the subjects. The quality of IQ measurements was moderate at most, because the intelligence tests applied had poor or outmoded standardization and the measurements could be many years old. The most commonly used tests were the Stanford-Binet -based TMH/TML (35 %), Cattell (15 %), WAIS (14 %), and WISC (7 %). Additionally, in 22 % of the cases (all were profoundly retarded) the IQ was estimated from Vineland scores. The comparison of ABS and Vineland scores was based on data which were collected as presented in section 3.2.3.1.

3.3.3.3.2 Results and discussion. Table 18 summarizes the product moment correlations counted between the measurements. All were statistically significant, with the exception of Vineland correlations to ABS Part Two variables.

ABS Part One. Convergent validity of ABS Part One was demonstrated by its high correlation to the Vineland Scale (.97). Discriminant validity of ABS Part One was demonstrated by its relatively low correlation to ABS Part II (.25), and by negative correlation to Personal maladaptation (-.32). Moderate correlation of ABS Part One to Social maladaptation (.42) indicated the near relationship of these dimensions. It seems that Social maladaptation variable at least partly measures the same things as ABS Part One, namely Personal independence (see also Table 7, p. 59).

Adaptive behaviour and intelligence. The correlation of ABS Part One to intelligence quotient was high (.79) which revealed a low discriminant validity of ABS Part One scores in relation to IQ measurement.

If the effect of age is controlled and correction for attenuation (Guilford & Fruchter, 1978, 450) is made using the reliability of WAIS (.96) (von Fieandt & Kalimo, 1971) as an estimate for the reliability of IQ measurement, the final intercorrelation between IQ and ABS Part One was .87.

TABLE 18. *Intercorrelations between factor variables of the ABS (n= 421) and their product moment correlations with Vineland Social Maturity Scale (n = 40) and IQ (n = 406).*

Variable:	2	3	4	5	6
1. Personal independence (ABS I)	.25	.42	-.32	.97	.79
2. Maladaptive behaviour (ABS II)	1.00	.95	.58	.12	.12
3. Social maladaptation		1.00	.28	.30	.37
4. Personal maladaptation			1.00	-.29	-.31
5. Vineland Social Maturity Scale				1.00	**
6. Intelligence quotient					1.00

** = missing data

There was a clear association between the concepts of adaptive behaviour and intelligence. The main difference is that while the concept of intelligence refers to cognitive processes, the concept of adaptive behaviour is mainly associated with the abilities and skills of daily living. Because the quality of general adaptation is mediated by the level of intelligence the concepts overlap in meaning; there still remains, however, the difference between the abstract potential implied by intelligence and actual everyday coping with environmental demands expressed by adaptive behaviour.

A more detailed review of relations between IQ and adaptive behaviour is obtained from Table 19, which presents the product moment correlations of ABS domains to IQ.

ABS Part Two. Discriminant validity of ABS Part Two in relation to ABS Part One, the Vineland Scale and IQ was good. The intercorrelation between Social maladaptation and Personal maladaptation scores was fairly low (.28), which confirmed the discriminant validity of these factor variables in relation to each other.

TABLE 19. *Product moment correlations between ABS domains and IQ (n = 406).*

Domain:		r
1.	Independent functioning	.72
2.	Physical development	.56
3.	Economic activity	.70
4.	Language development	.84
5.	Numbers and time	.82
6.	Domestic activity	.67
7.	Vocational activity	.58
8.	Self-direction	.68
9.	Responsibility	.76
10.	Socialization	.76
	PART ONE TOTAL (Personal independence)	.79
I	Violent and destructive behaviour	.05
II	Antisocial behaviour	.39
III	Rebellious behaviour	.35
IV	Untrustworthy behaviour	.32
V	Withdrawal	-.22
VI	Stereotyped behaviour and odd mannerisms	-.27
VII	Inappropriate interpersonal manners	.19
VIII	Unacceptable vocal habits	.20
IX	Unacceptable or eccentric habits	-.20
X	Self-abusive behaviour	-.17
XI	Hyperactive tendencies	.08
XII	Sexually aberrant behaviour	.12
XIII	Psychological disturbances	.43
XIV	Use of medication	-.23
	PART TWO TOTAL (Maladaptive behaviour)	.21
	Social maladaptation	.37
	Personal maladaptation	-.31

significance levels for coefficients: 5 %: = .098, 1 % = .128

3.4 NORMS FOR THE ABS

For the purpose of individual programming it is often helpful to obtain knowledge of the relative level of the individual's abilities in relation to other people as well as in relation to other adaptive behaviour domains of the person himself. Therefore norms were computed for the ABS scores.

3.4.1 Method

Because the distribution of many domains was very skewed, the use of means and standard deviations for computing the norms was abandoned, and decile norms were counted for the sample of this study (n = 421). Norms were computed both for the whole sample and for different age groups with a sufficient number of subjects. Because the measurement of adaptive behaviour is thought to be an independent way of evaluating the subjects compared to IQ, no norms were computed for different levels of mental retardation.

3.4.2 Results and discussion

The decile norms are presented in the Finnish manual of the ABS (Saloviita, 1988a). They represent the behavioural variation of the residents of one central institution (Kuusaa) for mentally retarded people in Finland. Because of the national uniformity of the services for the mentally retarded, the norms can be considered applicable also to other institutional populations of mentally retarded persons in Finland.

Besides relative positions of individuals, the decile norms express the discrimination ability of the domains. In this respect not all domains fared well: the scores concentrated heavily in many domains. The discrimination ability of Part One was best for severely and moderately mentally retarded (see Figure 7, p. 93). For the profoundly and mildly retarded the Scale was often too crude. The profoundly retarded often met at the bottom and the mildly retarded at the top of the Scale.

3.5 GENERAL DISCUSSION: FITNESS OF THE ABS

The need to evaluate the adaptive behaviour of the mentally retarded is steadily growing, because of the widening spectrum of new services offered to mentally retarded persons. The contents of this service growth is the expanding integration of mentally retarded people into the mainstream of society. In this framework new evaluative instruments are needed which reflect essential aspects of environmental demands on the behaviour of mentally retarded. The AAMD Adaptive Behavior Scale translated and adapted in this study can only partially satisfy this need. New scales are needed for the many specific purposes of the adaptive behaviour evaluation.

Factor analyses made on the ABS showed the strong one-dimensionality of ABS Part One at least in an institutionalized sample. The same holds in a lesser extent for Part Two, which, if wanted, could also be divided into two factor variables of social maladaptation and personal maladaptation. The optional two-dimensionality of Part Two reflects differences in maladaptive behaviour between severe and mild forms of mental retardation.

The reliability coefficients of the ABS were generally high. This was true as well on internal consistency, equivalence, stability, as on interrater agreement. Problems arose around the interrater agreement in Part Two where the coefficients were rather low. A slender comfort is the observation that reliable measurement of behavioural disturbances havve generally been a problem. Both the formulations of items and the scoring of behaviour frequency in Part Two need more precision. The scoring errors, which are frequent because of the complicated scoring system of the ABS, lower the interrater reliability still more.

The validity of the ABS measurement was esteemed fitting for various purposes. The main problems arouse in the construct validity of Part Two, because the severity of behaviour disorders was not appropriately reflected in the scoring. Better scoring methods have already been proposed (Clements et al., 1980; MacDonald & Barton, 1986). The content validity of the ABS suffered from the excessive conciseness of some domains, which

were later manifested in deficiencies of the discriminant ability of the scale. Predictive validity of the ABS has been shown in many studies. In this study the ability of the ABS to predict levels of mental retardation was demonstrated. Additionally, concurrent validity of ABS factor variables in relation to each others, the Vineland Scale, and IQ, was confirmed.

Decile norms computed for the ABS scores revealed skewed frequency distributions in many domains.

Practical problems associated with the ABS measurement concern the length of the scale. The scoring of one ABS booklet lasts from 20 minutes to over one hour depending on the experience of the scorer. This need not be considered a weakness, however, because the thoroughness of ABS evaluation serves the specific purposes of the scale. Short forms of the ABS are available for brief overviews (Arndt, 1981; MacDonald & Barton, 1986).

In summary, the AAMD Adaptive Behavior Scale can be considered a fitting instrument for the measurement of adaptive behaviour of mentally retarded persons. The deficiencies revealed in the ABS call for a construction of still more developed scales.

4 ADAPTIVE BEHAVIOUR IN INSTITUTION

4.1 PERSONAL INDEPENDENCE

Deficiencies in adaptive skills are probably the single most important factor in determining the placement of the mentally retarded person in an institution (Hill & Bruininks, 1984). Figure 4 on page 30 illustrates the distribution of mentally retarded persons in institutions in relation to the level of mental retardation. Most of the residents were profoundly or severely mentally retarded.

The general level of adaptive behaviour of institutionalized mentally retarded persons has been described in Finland using the information from the data-base sheets of a national register for the individuals receiving special care (Hautamäki, 1987). This register is organized by the National Board of Social Welfare. Hautamäki classified mentally retarded persons living in institutions into three functional groups. According to this classification, 15 % of the residents in institutions did not need any supervision during night. 38 % of the residents needed partial support and care, and the remaining 47 % were in need of continuous care and supervision. The analysis showed some regional differences between institutions: the institutions in Northern Finland (Tahkokangas, Kainuu, Kolpene), Suojarinne and Rinnekoti institutions inhabited fewer persons who belonged to the highest adaptive skills group (8 %) compared to other institutions (19 %).

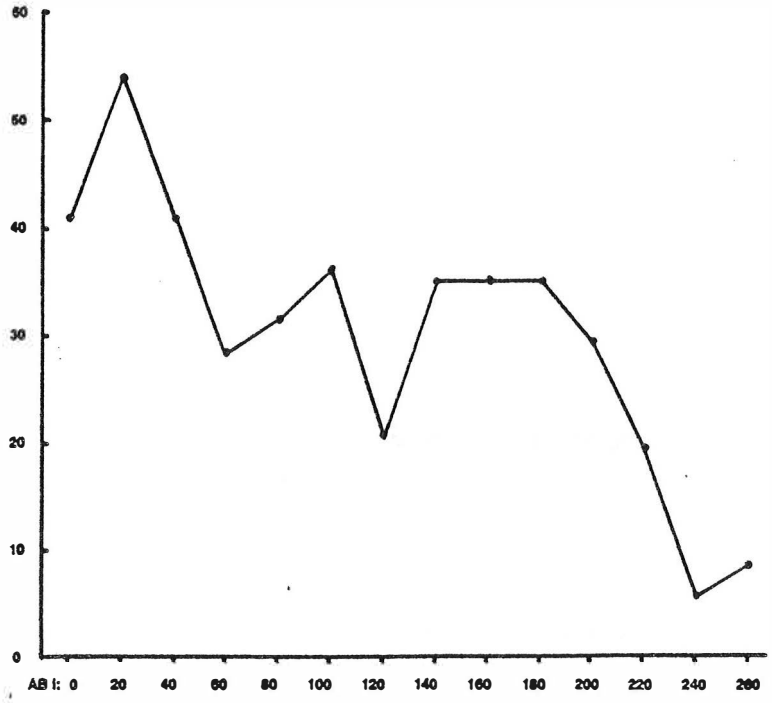

Figure 6. *Frequency distribution of the ABS Part One scores (Personal Independence) in mentally retarded living institution (n = 421).*

4.1.1 Frequency distributions

Figure 6 presents the frequency distribution of Part One of the ABS. Persons living in institution showed a very variable range of adaptive skills. Low scores were the most typical.

A more detailed picture of the level of adaptive skills can be obtained by examining the frequency distributions on the level of some most important single items.

1. INDEPENDENT FUNCTIONING

Use of table utensils. 80 % of the residents were at various levels of independence in eating and drinking. 20 % could not eat or drink themselves.

Toilet use. 42 % of the residents never had toilet accidents and 36 % had complete self-care at a toilet. Toilet training and self-care skills were totally lacking in 20 % of the residents.

Cleanliness. 28 % of the residents washed their hands and face with soap and dried them. 39 % were totally dependent. 13 % prepared and completed bathing unaided. 12 % applied toothpaste and brushed their teeth unaided.

Appearance. 11 % of the residents completely took care of the fitness of their clothing.

Dressing and undressing. 40 % of the residents completely dressed themselves and 48 % completely undressed themselves. 21 % were totally dependent in dressing and 22 % in undressing. 33 % put their shoes on correctly without assistance.

Travel. 20 % of the residents did not get lost in the near environment of the institution. 50 % got lost whenever leaving their own living area. 13 % used public transportation independently.

2. PHYSICAL DEVELOPMENT

Sensory development. 20 % of the residents had difficulties in seeing, which could not be helped with glasses, and 6 % had difficulties in hearing, which could not be helped with a hearing aid.

Motor development. 27 % could not walk alone.

3. ECONOMIC ACTIVITY

37 % of the residents used money and 45 % went shopping.

4. LANGUAGE DEVELOPMENT

28 % of the residents wrote at least their own name, and half of them could write even more. 42 % were able to say at least a few words. Articulation was correct only in 19 % of the residents. 80 % recognized less than ten words. 14 % read simple text.

5. NUMBERS AND TIME

51 % of the residents had at least some understanding of numbers and 37 % some understanding of time.

TABLE 20. *ABS Part One total scores (Personal Independence) in levels of mental retardation in institutionalized population over the age 17.*

Level of mental retardation	Mean	Standard deviation	N:
mild	200.5	71.7	31
moderate	176.8	48.3	82
severe	138.7	43.0	114
profound	58.1	43.8	136

6. DOMESTIC ACTIVITY

48 % of the residents cleared table of dishes, 38 % participated in table setting, 37 % cleaned their room, and 23 % prepared food.

7. VOCATIONAL ACTIVITY

45 % of the residents performed at least simple work.

8. SELF-DIRECTION

24 % of the residents initiated most of their own activities. 33 % were totally passive. 54 % paid attention to purposeful activities for at least five minutes. 34 % surpassed the limit of fifteen minutes. 44 % were incapable of any organized activities. 57 % organized leisure time on at least a simple level, e.g. watching television.

9. RESPONSIBILITY

39 % of the residents took care of their personal belongings, and 34 % were esteemed as generally responsible.

10. SOCIALIZATION

52 % of the residents had at least modest cooperation skills. 68 % recognized at least some people. 67 % had socially acceptable interaction with others.

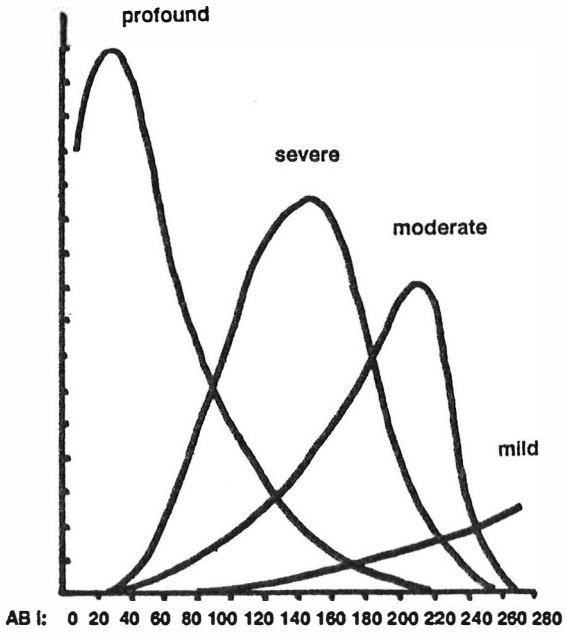

Figure 7. *Frequency distributions of ABS Part One total scores (Personal Independence) in levels of mental retardation among institutionalized persons over the age of seventeen (n = 355). Equalized curves.*

The level of adaptive skills varied from one domain to another as was evident from the listing above. The results seem to be grossly in harmony with the classification results of Hautamäki (1987), who argued that 15 % of the institutionalized mentally retarded persons were quite independent and 50 % needed continuous assistance.

4.1.2 Personal Independence and level of retardation

Table 20 (p. 90) summarizes the ABS Part One scores at each level of mental retardation. The profoundly retarded differed most clearly from other groups. Great standard deviations show a marked variance in adaptive skills within the diagnostic groups.

TABLE 21. *Toilet training skills of institutionalized mentally retarded persons over the age of 17 in levels of mental retardation (ABS Part One, item 5).*

Toilet training:	Level of mental retardation					
	mild	moderate	severe	profound	total	N
full	81 %	67 %	61 %	16 %	47 %	171
partial	10 %	31 %	40 %	46 %	37 %	135
not at all	10 %	2 %	0 %	38 %	16 %	57
Total:	100 %	100 %	101 %	100 %	100 %	
N:	31	82	114	136		363

Figure 7 (p. 91) shows the frequency distributions of ABS Part One total scores in each diagnostic group of mental retardation. Considerable overlap existed between different groups.

In the following, some areas of adaptive skills are examined in more detail across the levels of mental retardation. Persons under the age of 18 were excluded from the analyses.

Toilet use. Table 21 summarizes the toilet training skills in levels of mental retardation. The mildly mentally retarded were almost fully toilet trained. Some exceptions were probably due to progressive disease; in these cases the IQ levels were probably also outdated. The same thing must be remembered in the interpretation of other tables, too. Among the moderately and severely retarded over half were toilet trained; the rest had partial problems. The greatest deficiencies in toilet training skills concentrated in profoundly mentally retarded persons (Table 21). Among them, deficiencies in motor skills explained widely the absence of toileting skills. When only those profoundly retarded were counted, who scored at least 16 in Motor Development Scale, 31 % were toilet trained and only 13 % were fully without any toileting skills.

TABLE 22. *Self-care at the toilet in institutionalized mentally retarded persons over the age of 17 in levels of mental retardation (ABS Part One, item 6).*

Self-care at toilet:	Level of mental retardation:					
	mild	moderate	severe	profound	total:	N
full	77 %	74 %	48 %	7 %	41 %	150
partial	13 %	18 %	50 %	54 %	41 %	149
not at all	10 %	7 %	2 %	39 %	18 %	64
Total:	100 %	99 %	100 %	100 %	100 %	
N:	31	82	114	171		363

Table 22 summarizes self-care at the toilet. These skills were complete in over 70 % of the mildly or moderately retarded residents. Among severely retarded persons already one half had some difficulties, and among the profoundly retarded only a few had complete skills. Again lack of motor skills explained a great part of the deficiencies. When only those profoundly retarded were counted, who scored at least 16 in the Motor Development Scale, 16 % had complete skills and only 7 % were totally dependent.

The results show that deficiencies in toilet training in institutions concentrate on profoundly mentally retarded persons, whereas self-care skills in toilet use begin to be difficult already among severely mentally retarded. Lack of motor skills explained the absence of toileting skills especially among the profoundly retarded, but partially also in severely retarded persons.

The results indicate the need for toilet training programs planned for profoundly retarded persons (see Saloviita, 1989b).

TABLE 23. *Use of table utensils in institutionalized mentally retarded persons over the age of 17 in levels of mental retardation (ABS Part One, item 1).*

Independence:	Level of mental retardation: mild	moderate	severe	profound	total:	N
full	55 %	42 %	18 %	3 %	21 %	75
partial	39 %	54 %	82 %	63 %	65 %	235
not at all	7 %	5 %	1 %	34 %	15 %	53
Total:	100 %	99 %	101 %	100 %	100 %	
N:	31	82	114	171		363

Eating. Table 23 shows the use of table utensils in levels of mental retardation. Full independence means that a person uses a knife and fork correctly and neatly. Total lack of independence means that a person must be fed. Table 23 indicates that the use of a knife and fork began to produce difficulties already in the mildly and moderately handicapped. In the group of profoundly handicapped one third had to be fed. Lack of motor skills explained again most of the poor performance. When only those profoundly retarded adults were counted, who scored at least 16 in the Motor Development Scale, only three were unable to feed themselves. The results also showed that unless physical handicaps prevent it, the profoundly retarded learn to feed themselves. Deficiencies of eating skills among mildly and moderately handicapped residents were amazingly wide. The results obviously reflect more of the restrictive table routines of institutions than the inability of the mildly handicapped to learn normal eating skills: most wards of the institutions used the spoon as their only table utensil.

TABLE 24. *Dressing skills in institutionalized mentally retarded persons over the age of 17 in levels of mental retardation (ABS Part One, item 15).*

Independence:	Level of mental retardation: mild	moderate	severe	profound	total:	N
full	71 %	77 %	54 %	13 %	45 %	164
partial	19 %	12 %	36 %	27 %	26 %	94
not at all	10 %	11 %	10 %	60 %	29 %	105
Total:	100 %	100 %	100 %	100 %	100 %	
N:	31	82	114	171		363

Dressing. Table 24 shows that deficiencies in dressing skills concentrated among severely and especially among profoundly handicapped persons. When only those mentally retarded persons were counted, who scored at least 16 in the Motor Development Scale, only 19 adult residents, 18 of them being profoundly retarded, were totally dependent in dressing. Among those profoundly retarded adults, who were physically well developed, 25 % were independent in dressing and 30 % were totally dependent.

Inspection of some basic adaptive skills in the levels of mental retardation indicated large deficiencies especially among the profoundly handicapped persons. In this group poor motor development due to physical handicaps accounted for a great portion of the lack of basic skills of independent daily functioning. The importance of training physical skills in this group of multiply handicapped persons is evident from these results.

Most of the persons studied here had not received any systematic teaching in the skills of independent daily functioning. The present level of skills was thus obtained as a side effect of daily activities. None the less, even many of the profoundly handicapped residents had achieved several demanding skills of daily functioning. The results are also encouraging

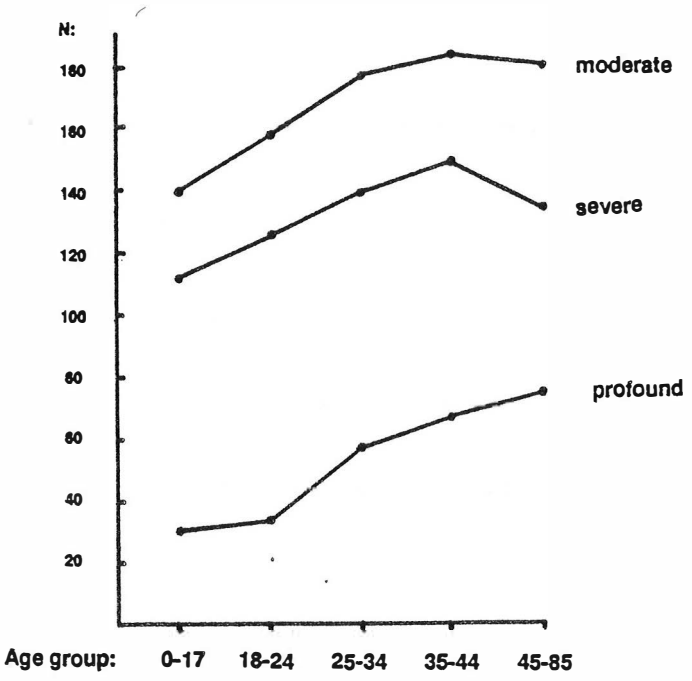

Figure 8. *Total scores of Part One of the ABS (Personal Independence) in various age groups by the level of mental retardation.*

when thinking of the special education for profoundly handicapped persons, which has but just started in Finland.

4.1.3 Personal Independence and age

Figure 8 presents the total scores of Part One of the ABS in different age groups. The mildly handicapped are lacking because their group was too small. In all levels of mental retardation the development of personal independence seems to continue still in adulthood.

Among the profoundly handicapped, the age group of 25-34 years fared better than the age group of 18-24 years, $t(81) = 2.581$, $p < .05$. Probably it can partly be explained by the greater mortality rate of the most serious-

ly handicapped. This explanation is suggested by the fact that the younger group was also intellectually inferior to the older group, $t(80) = 2.35$, $p<.05$.

Among the severely handicapped, the age group of 35-44 years was superior to the age group of 18-24 years, $t(56) = 2.148$, $p < .05$. There were no differences in IQ between the two groups, $t(55) = -.523$, $p > .05$.

Among the moderately handicapped there also seemed to be a development of adaptive skills in adulthood. However, the differences between the age groups were not statistically significant.

Corresponding with the results presented above Nihira (1976) observed that adaptive skills of institutionalized mentally retarded persons were better among the older adult age groups. It seems reasonable to argue that both gradual training and the greater mortality of the most severely handicapped explain these results.

Because of the small sample size, the negative effects of aging could not be analyzed in this study. Janicki and Jacobson (1986) stated that aging of the mentally retarded persons first weakened their mobility and fundamental activities of daily living. Some behavioral losses were noted to occur earlier than would be expected in the general population.

4.1.4 Personal Independence and sex

Men scored higher in ABS Part One (119) than women (105), $t(419) = -.199$, $p <.05$. There were no differences between the two groups in measured IQ, $t(404) = -.079$, $p > .05$.

4.2 MALADAPTIVE BEHAVIOUR

Next to severity of retardation, behavioural problems seem to be the single most important factor in determining the placement in institutions (Hill & Bruininks, 1984). Severe maladaptive behaviour has been the most common

reason for unsuccessful community integration and return to institution (Lakin, Hill, Hauber, Bruininks & Heal, 1983; Landesman-Dwyer & Sulzbacher, 1981; Pagel & Whitling, 1978). The proportion of readmissions to institutions reported to have returned because of maladaptive behaviour ranges up to 55 % (Pagel & Whitling, 1978). Because maladaptive behaviour is such an important factor it should be seriously taken into consideration in the planning of integrated services for mentally retarded persons.

It can be expected that there is much maladaptive behaviour in the institutions. In Finland this topic has not been researched with the exception of self-injurious behaviour (Hagelberg & Virkkunen, 1985).

Earlier research has rather consistently shown that behaviour problems of mentally retarded persons are more frequent in more restrictive surroundings, like institutions, more frequent among the more severely handicapped or psychiatrically ill and more frequent in adults than in children or the aged (Eyman & Call, 1977; Hill & Bruininks, 1984; Jacobson, 1982; Ross, 1972).

Method. Maladaptive behaviour was measured with Part Two of the ABS. For the present it is the only scale for this purpose in Finland. Its interrater reliability was unsatisfactorily low (.53 - .66) in factor variables, (see Table 10, p. 67). In addition, the construct validity of the scale suffers both from mixing the frequency and topography of the behaviour and from not taking into account the severity of maladaptive behaviour. Because of these methodological problems, the detailed frequency distributions of various domains are not presented here.

In order to evaluate the severity of maladaptive behaviour, the persons with 30 total scores or more were classified as maladaptive and persons with 54 total scores or more as severely maladaptive. Construct validity for this classification was based on the observation that staff usually held persons with more than 30 total scores as behaviourally disturbed. The second cutoff was based on the examination of frequency distribution of ABS Part Two total scores.

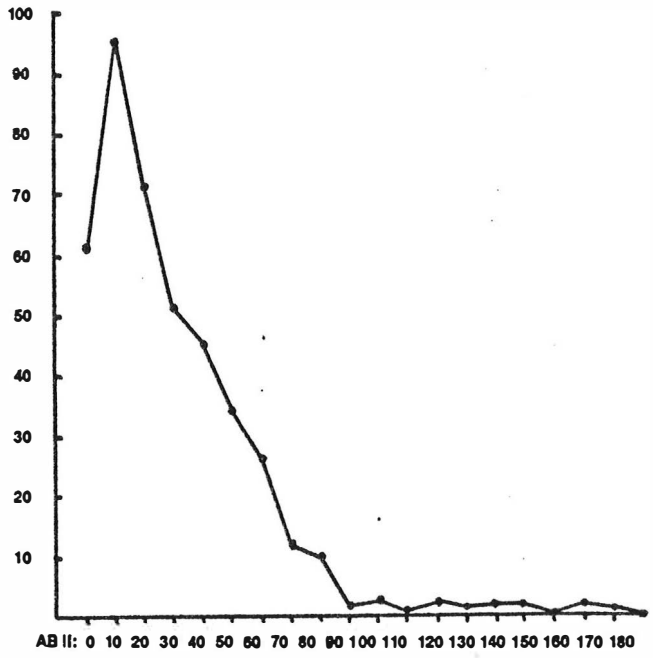

Figure 9. *Frequency distribution of Part Two of the ABS total scores in institutionalized mentally retarded persons (n = 421).*

The frequency distribution of ABS Part Two scores was very skewed as is evident from Figure 9.

TABLE 25. *Means and standard deviations (in brackets) of the factor variables of Part Two of the ABS in institutionalized mentally retarded persons over the age of 17 by level of mental retardation (n = 363).*

Factor variable:	Level of mental retardation: mild	moderate	severe	profound	*F*
Maladaptive behaviour	30.3 (27.1)	48.5 (38.7)	35.6 (28.0)	30.1 (22.4)	7.368***
A. Social maladaptation	25.4 (24.0)	39.5 (33.4)	24.9 (22.8)	13.6 (15.7)	20.834***
B. Personal maladaptation	4.8 (5.6)	8.9 (8.3)	10.6 (8.3)	16.6 (10.3)	22.543***

*** = *F*-ratio statistically significant, $p < .001$

4.2.1 Maladaptive behaviour and level of retardation

Table 25 presents the factor variable scores of ABS Part Two. There were statistically significant differences between the levels of mental retardation in the frequency of maladaptive behaviour (See Figure 10). Social maladaptation was most common among moderately mentally retarded persons, and Personal maladaptation most typical in the profoundly mentally retarded.

4.2.2 Maladaptive behaviour and adaptive skills

Persons with maladaptive behaviour (total score > 30) rated higher in Personal independence (136) than others (110), $t(363) = 3.45$, $p < .001$. When Social maladaptation and Personal maladaptation were examined separately, better Personal independence was observed to concern only those with greater (>37) Social maladaptation, $t(363) = 6.13$, $p < .001$, but not those with greater (>20) Personal maladaptation, who scored lower in Personal independence than others, $t(363) = 5.08$, $p < .001$.

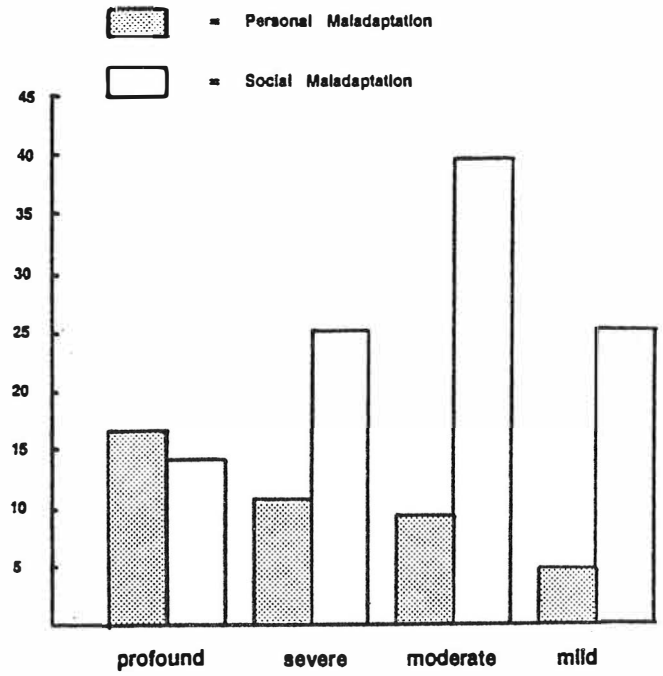

Figure 10. *Total scores of Social maladaptation and Personal maladaptation in institutionalized mentally retarded persons over the age of 17 by level of mental retardation (n = 363).*

There were 79 persons (22 %) over the age of 17 with severe maladaptive behaviour (> 54). They scored higher in Personal independence and IQ than others (see Table 26).

Table 26 shows that severely maladaptive persons scored higher than others in the domains of Functional independence, Physical development, Language development, and Numbers and time. No differences existed in other domains. The results showed that severely disturbed residents were more intelligent and more advanced in personal skills than other residents. However, in domains where motivational factors and social behaviour were important they did not surpass others.

TABLE 26. *Means and standard deviations (in brackets) of IQ and the domains of ABS Part One in institutionalized mentally retarded persons over the age of 17 by level of maladaptive behaviour.*

Domain:	Others (n = 286)	Severely maladaptive (n = 79)	*t*-value (df = 363)
1. Independent functioning	50.6 (29.7)	59.4 (23.5)	2.45*
2. Physical development	16.1 (6.2)	19.3 (4.0)	4.36***
3. Economic activity	3.1 (4.3)	3.8 (3.7)	1.30 n.s.
4. Language development	14.0 (10.7)	18.0 (9.1)	3.06**
5. Numbers and time	3.3 (3.9)	4.5 (4.0)	2.39*
6. Domestic activity	4.4 (5.3)	5.5 (5.4)	1.68 n.s.
7. Vocational activity	4.2 (4.6)	4.9 (3.8)	1.18 n.s.
8. Self-direction	8.8 (6.7)	9.4 (5.3)	0.75 n.s.
9. Responsibility	2.0 (2.1)	2.3 (1.8)	1.18 n.s.
10. Socialization	11.0 (7.9)	12.7 (6.3)	1.70 n.s.
ABS Part One total:	117.6 (73.5)	140.0 (59.3)	2.49*
Intelligence quotient	25.2 (17.8)	30.9 (16.89	2.49*

n.s. = not statistically significant, $p > .05$
* = statistically significant, $p < .05$
** = statistically significant, $p < .01$
*** = statistically significant, $p < .001$

4.2.3 Other background variables

Sex was associated with maladaptive behaviour: women scored higher in ABS Part Two (39) than men (31), $t(419) = 2.80$, $p < .01$. Women scored higher both in Social and Personal maladaptation. The result was surprising, because earlier studies have reported higher maladaptation scores in men than women (Duker, van Druenen, Jol & Oud, 1986; Epstein, Cullinan & Polloway, 1986; Eyman & Call, 1977).

Age groups did not differ in scores of maladaptive behaviour among the moderately retarded, $F(4,80) = .664$, $p > .05$, nor among the severely retarded, $F(4,118) = 1.697$, $p > .05$. However, differences between age groups existed among the profoundly retarded, $F(4,174) = 3.999$, $p < .01$, both in Social maladaptation, $F(4,174) = 2.489$, $p < .05$, and in Personal maladaptation, $F(4,174) = 4.01$, $p < .01$. According to Scheffé-test persons between the age of 25 - 34 years scored higher in Personal maladaptation than the age group of 0 - 17 years. The result is in accordance with earlier results (Eyman, Borthwick & Miller, 1981).

Length of institutionalization was not associated with the frequency of maladaptive behaviour, $r = .079$, $p > .05$.

Probable aetiology of mental retardation was associated with maladaptive behaviour in the group of childhood psychotics. 30 % of persons with severe maladaptive behaviour were diagnosed as childhood psychotic. Among childhood psychotic persons, 50 % were classified as severely maladaptive.

4.3 DOWN'S SYNDROME

Persons with Down's syndrome are reported to have less maladaptive behaviour than other mentally retarded individuals (Moore, Thuline & Capes, 1968; Silverstein et al., 1985) and their adaptive skills (Johnson & Abelson, 1969; Silverstein et al., 1985) and social behaviour (Greenspan & Delaney, 1983) have been observed as more advanced than in other

mentally retarded persons. These results are the more convincing because many studies have applied great sample sizes and control groups which have been matched with the Down's syndrome group.

Another special feature in Down's syndrome is the more rapid decay of adaptive skills after the age of 50 in persons with Down's syndrome than in other mentally retarded. This fact seems to be explained by Alzheimer's disease which is associated more often with Down's syndrome than other causes of mental retardation (Zigman, Schuff, Lubin & Silverman, 1987).

4.3.1 Method. The data-base sheet of the national register of the mentally retarded included class 11, which contained all chromosomal disorders. According to Leisti and Wilska (1982) 93 % of this class consisted of persons with Down's syndrome. With only a slight inaccuracy class 11 can also be held as being an equivalent of Down's syndrome.

4.3.2 Results. Table 27 summarizes the scores obtained by persons with Down's syndrome (class 11) compared to others. The groups did not differ from each other in Personal Independence or measured IQ. Persons with Down's syndrome had less maladaptive behaviour than others. The difference existed in the Social maladaptation factor variable. When the analysis was continued separately in the levels of mental retardation, the difference in Social maladaptation was observed only in the severely retarded group, $t(102) = 3.20$, $p < .01$, not in the moderately or profoundly retarded. In the severely retarded group persons with Down's syndrome scored lower both in Social maladaptation, $t(102) = 3.02$, $p < .01$, and Personal maladaptation, $t(102) = 2.47$, $p < .05$.

4.3.3 Discussion. The results obtained here are in discrepancy with earlier studies in relation to Personal independence which was not observed to be better in persons with Down's syndrome, but the results accord with earlier studies in relation to observed lesser Maladaptive behaviour in Down's syndrome individuals. On the basis of this study the observed scarcity of maladaptive behaviour in Down's syndrome cannot be explained. One speculation can perhaps be presented. Dailey, Allen, Chinsky and Veit (1974)

TABLE 27. *Means and standard deviations (in brackets) of IQ and the factor variables of ABS in institutionalized mentally retarded persons with Down's syndrome and others over the age of 17.*

Variable:	Down's syndrome (n = 61)	Others (n = 273)	*t*-value (df = 332)
Personal Independence	119.9 (64.3)	122.8 (71.9)	0.77 n.s.
Maladaptive behaviour	28.2 (25.1)	38.4 (31.2)	-2.37*
Social maladaptation	17.3 (22.1)	26.0 (26.6)	-2.37*
Personal maladaptation	11.0 (9.3)	12.4 (9.9)	-1.05 n.s.
Intelligence quotient	23.3 (12.2)	27.1 (18.4)	-1.53 n.s.

n.s. = not statistically significant, $p > .05$
* = statistically significant, $p < .05$

noted that mentally retarded persons who were considered charming and intelligent got more positive attention from the staff than other mentally retarded. On the other side, begin-ning from John Langdon Down, who first described Down's syndrome (1866), a cheerful and lovable temperament has been attributed to this condition. Also in the Finnish literature beginning from the textbooks the individuals with Down's syndrome have been known as "joyful, expressive and social individuals" (Kallunki, Leisti & Wilska, 1982, 60), who are contended to be "cheerful and outstanding in imitative behaviour", "stubborn", and "often musical with exceptional rhytmic talent" (Autio, Palo, Aittokallio & Turunen, 1985, 37).

Unfortunately the hypothesis of special temperament associated with Down's syndrome has not received support from the many comparative studies planned to test this old myth (Baron, 1972; Cantor & Girardeau, 1964; Greenberg & Field, 1982; Gunn & Berry, 1985; Heffernan, 1982; Sil-

verstein, 1979). For the moment it is unclear what keeps the myth alive. However, one can speculate that persons with Down's syndrome really are seen as more attractive than other mentally retarded persons. One reason for this could be their characteristic physical appearance. This may have consequences for the style of interaction with them with the result that Down syndrome persons really become the "Prince Charmings" of the retarded population with lesser maladaptive behaviour than others. The myth of special temperament would thus work as a kind of self-fulfilling prophecy.

4.4 CHILDHOOD PSYCHOSIS

Childhood psychosis is a diagnostic class with somewhat unclear boundaries. Its most pronounced syndrome is infantile autism first described by Leo Kanner in 1943. Infantile autism is characterized by impaired development of social relationships, delayed and deviant language development, ritualistic behaviour, and social disturbance (Bartok & Rutter, 1976). A few comparative studies have been made on the adaptive behaviour of autistic persons.

Volkmar and his colleagues (1987) compared a sample of autistic persons (n = 57) with a matched control group. The autistic group exhibited significantly greater deficits in adaptive social behaviour and communication skills. No differences existed in daily functional skills.

Loveland and Kelley (1988) found no differences in adaptive behaviour between young adults with autism or Down's syndrome matched for verbal mental age.

Bartak and Rutter (1976) compared the low IQ and high IQ autistic children with each other. They differed most substantially in terms of self-injury and stereotypes.

TABLE 28. *Means and standard deviations (in brackets) of IQ and the factor variables of ABS in institutionalized childhood psychotic mentally retarded persons and others over the age of 17.*

Variable:	Childhood psychotic (n = 45)	Others (n = 289)	*t*-value (df = 332)
Personal independence	141.7 (60.3)	119.2 (71.6)	2.00*
Maladaptive behaviour	55.7 (41.9)	33.6 (27.1)	4.68***
Social maladaptation	39.6 (36.8)	22.0 (23.2)	4.31***
Personal maladaptation	16.1 (10.6)	11.6 (9.6)	2.92**
Intelligence quotient	30.7 (13.9)	25.8 (18.0)	1.72 n.s.

n.s. = not statistically significant, $p > .05$
* = statistically significant, $p < .05$
** = statistically significant, $p < .01$
*** = statistically significant, $p < .001$

The present study attempted to compare institutionalized childhood psychotic persons with other mentally retarded persons in an institution.

4.4.1 Method. Persons with childhood psychosis were classified in group 57 in the data-base sheet of the national register. The following analysis is based on the comparison of this class with other subjects. A few childhood psychotic subjects were classified in group 13 as well. They could not be separated apart from there. The group of infantile autism could neither be separated from class 57.

4.4.2 Results. Table 28 summarizes the comparison between childhood psychotics and other residents of the institution. No differences existed in Personal independence or IQ between the two groups. The childhood

TABLE 29. *Means and standard deviations (in brackets) of the domains of ABS Part One in institutionalized childhood psychotic mentally retarded persons and others over the age of 17.*

Domain:	Childhood psychotic (n = 45)	Others (n = 289)	*t*-value: (df = 332)
1. Functional independence	61.5 (20.9)	51.2 (29.2)	2.28*
2. Physical development	20.1 (4.5)	16.4 (6.0)	3.96***
3. Economic activity	4.4 (4.3)	3.1 (4.1)	2.08*
4. Language development	17.9 (10.4)	14.2 (10.4)	2.22*
5. Numbers and time	4.3 (4.1)	3.4 (3.9)	1.37 n.s.
6. Domestic activity	5.4 (5.2)	4.4 (5.3)	1.14 n.s.
7. Vocational activity	4.8 (3.8)	4.3 (4.5)	0.71 n.s.
8. Self-direction	9.0 (5.5)	8.9 (6.5)	0.07 n.s.
9. Responsibility	2.2 (2.1)	2.0 (2.0)	0.66 n.s.
10. Socialization	12.0 (6.9)	11.2 (7.7)	0.66 n.s.

n.s. = not statistically significant, $p > .05$
* = statistically significant, $p < .05$
** = statistically significant, $p < .01$
*** = statistically significant, $p < .001$

psychotic persons rated significantly higher than others in all maladaptive behaviour variables.

When the scores were compared in the domains of ABS Part One (see Table 29), it was noted that childhood psychotic persons scored higher than others in Functional independence, Physical development, Economic activity, and Language development. No differences existed in the domains associated with social skills or motivational factors of adaptive behaviour.

When the comparison was continued in the levels of mental retardation, no differences in Personal independence between the groups were noted inside the diagnostic classes. Moderately, $t(74) = 3.29$, $p < .01$ and severely, $t(102) = 3.40$, $p < .001$ retarded childhood psychotic persons scored higher in Maladaptive behaviour than others, but this was no more true among profoundly retarded persons, $t(123) = 0.11$, $p > .05$.

4.4.3 Discussion. The structure of adaptive behaviour in childhood psychotic persons differed from that of other mentally retarded persons. The relative superiority of their functional skills compared to social skills corresponded with earlier results (Volkmar et al., 1987). Koegel and Mentis (1985) argued that the behavioural failures of autistic persons may be due to a state of "learned helplessness" produced by their special reinforcement history. The results presented here stress the importance of motivational factors in the development of adaptive behaviour skills in childhood psychotic persons.

The social and personal maladaptive behaviour of childhood psychotic persons was significantly higher than in others among moderately and severely mentally retarded groups. Even if the diagnostic class of childhood psychosis amounts to only 3 % of all persons receiving special care (Leisti & Wilska, 1982), in the institutionalized sample of this study their number was 13 %. It seems likely that because of their abundant maladaptive behaviour the childhood psychotic persons become subjects of institutionalization more often than others.

5 SELF-INJURIOUS BEHAVIOUR (SIB)

5.1 INTRODUCTION

Among the behavioural disorders of mentally retarded persons self-injurious behaviour (SIB) is certainly one of the most distressing to observe. At least for an unaccustomed outsider, a self-injuring person seems to be in need of urgent help. Even so, self-injurious behaviour belongs to the regularities of work among the mentally handicapped, especially in big wards of mental retardation institutions. Ward personnel there may be accustomed to follow daily, how some of the residents, many of whom are children, repeatedly bang their head against the wall, slap or strike themselves, or bite their hand. The consequences of SIB most often consist of various deformations of the skin, like bleeding wounds, bruises, and thickening of the connective tissue. In most extreme cases, an individual may beat or gouge himself to unconsciousness or blindness or possibly even death unless prevented (Baumeister & Rollings, 1976; Windahl, 1985).

In central institutions various means are applied to prevent the potential tissue damage caused by SIB. Restraining clothing are used to deter the individual from self-injury. An individual may also be tied fast e.g. in his bed to prevent SIB. Psychotropic drugs are regularly used even if their efficacy is still controversial (Favell et al., 1982). Physical or chemical ties are emergency measurers intended to prevent acute damage. Their long-term application produces great side problems, because they restrict constructive adaptation to the environment. Restraints may be dangerous, too. As ward personnel in many mental retardation institutions surely

know, a person, when unwatched, may be strangled or suffocated by a bandage (case report: Beasley, 1986).

In addition to direct physical harm SIB has many indirect negative consequences. Self-injury may prevent a person from participating in educational or integrating programmes. SIB stresses the social deviancy of the person and may promote her segregation. SIB can be a cause for institutionalization or induce a failure of deinstitutionalization (Landesman-Dwyer & Sulzbacher, 1981; Lakin, Hill, Hauber & Bruininks, 1983). A self-injuring person may spread feelings of anxiety, demoralization and hopelessness among those who take care of him.

Although SIB seems to be a serious problem, it has attracted only tiny attention in Finland. Only recently a few studies have been published on the prevention of SIB (Saloviita, 1983, 1984, 1988a, 1989c, Saloviita, Laitinen & Huuhko, 1984) or on the frequency of SIB (Hagelberg & Virkkunen, 1985). Therapeutic programmes developed for the elimination of SIB have been applied only sporadically. The disinterest in the prevention of SIB seems to stem primarily from the low social status of the mentally retarded, and especially self-injuring mentally retarded persons. These people are mostly segregated into institutions, where their personal problems have become almost invisible in big residential wards of twenty or even thirty persons in each.

Contrary to general views, SIB is not an insurmountable disorder. Several studies beginning from the mid-sixties have demonstrated the efficacy of behavioural analytic treatment programmes on SIB (Schroeder, Schroeder, Rojahn & Mulick, 1981; Favell et al., 1982; Fulcher, 1984). Johnson and Baumeister (1978) already review in 1978 altogether 62 studies on SIB, where 19 different programmes were applied with positive results in 60 cases. Today it is no more a question of means and ways of preventing SIB. The primary problem is the low social status of self-injurious mentally retarded persons, and consequently a lack of social validity for preventive measures.

5.1.1 Definition of SIB

The concept of self-injurious behaviour has commonly used to refer to a large group of different behaviours, which are usually highly repetitive or stereotypic in character and which result in direct physical damage to the person. Typical forms of SIB include head banging, and slapping, scratching, or biting oneself. Although this kind of behaviour is sometimes observed in non-handicapped infants (DeLissovoy, 1962; Kravitz, Rosenthal, Teplitz, Murphy & Lesser, 1960), it is most typical in mentally retarded persons, and especially in the profoundly and severely mentally retarded (Baumeister & Rollings, 1976).

The above definition of SIB was first presented by Tate and Baroff (1966). They wanted to delineate a concept, which was purely descriptive without reference to possible motivation to self-injury. In this respect the concept of SIB differs from parallel concepts applied in psychiatry, where self-abusive behaviour may be interpreted e.g. as conscious or unconscious attempts at suicide (Achté, Alanen & Tienari, 1982, 396).

There exists much diversity in the precise definition of topographies of SIB. At least the following topographies have been included in various studies: banging of the head or some other part of the body against objects; hitting oneself with hands or feet; scratching, biting or picking oneself; scratching or hitting oneself with some object; digging of eyes or rectum; pulling ones own hair or ears; poking objects into ears, nose, or mouth; pica; coprophagy; aerophagy; excessive drinking of water; rumination and vomiting; bruxism; smearing with feces; provoking epileptic seizures.

Most studies limit the area of SIB more narrowly than the above list. So, for example, Kebbon and Windahl (1986) provided that SIB includes an overt motor component, one part of the body moving against another or against objects in the individual's surroundings. This definition excluded behaviour such as pica, vomiting and rumination, which other writers have counted as SIB (e.g. Fulcher, 1984).

Another problem in definition concerns the frequency or magnitude of behaviour to be included as an instance of SIB. How severe damage, for example, is needed for inclusion? In various epidemiological studies the

limits have varied, which makes the comparison between the results insecure.

5.1.2 Theoretical accounts of SIB

At first sight self-injurious behaviour seems, besides distressing, extremely odd and bizarre. One has difficulties trying to conceive of, what could be the motivation of a child or adult to beat and brutalize herself. The control and prevention of SIB demands, however, that despite its oddity, SIB is seen as lawful behaviour.

Several theories have been presented on the origin and development of SIB. These theories are not necessarily contradictory, because the reasons for SIB may change even in the same person. SIB may also be multiply determined by several causes. In the following, some main explanations are reviewed.

5.1.2.1 Psychodynamic explanations. Among the earliest conceptualizations of the causes of SIB belong the psychodynamic hypotheses. The self-destructive behaviour may be considered to be serving an establishment of "bodily reality" or "ego boundaries" in a situation, where an individual has difficulties in distinguishing the self from the external world. SIB can also be conceived of as a reduction of guilt, carried out through self-inflicted pain, or as aggression turned against the self. Cain (1961) has presented a review of psychodynamic explanations for SIB. Those researchers, who are experimentally oriented, have criticized psychodynamic explanations for their inability to operationalize such constructs as "bodily reality", and for their consequent inability to empirically test such hypotheses (Carr, 1977). Nor has psychodynamic orientation produced successful treatment methods to eliminate SIB (Bachman, 1972).

5.1.2.2 SIB as learned behaviour. Skinner (1953, 266-267) presented two alternative ways in the development of self-injurious behaviour. They are positive and negative reinforcement.

Positive reinforcement happens, when a response produces a stimulus change and as a result becomes more probable. Several studies beginning from the sixties have demonstrated the nature of SIB as a learned behaviour, which is maintained by its consequences, like attention. The first studies using operant methods to prevent SIB already indicated that the exclusion of attention from SIB may result in its extinction (Wolf, Risley & Mees, 1964) and, on the other side, giving attention to SIB e.g. through mild blaming, may result in its increase (Lovaas, Freitag, Gold & Kassorla, 1965; Lovaas & Simmons, 1969). These observations were important, because the natural way of responding to SIB is to give attention to a self-injuring individual by blaming or comforting him. According to operant conditioning principles, these kinds of behaviours may be instances of positive reinforcement of SIB.

Negative reinforcement happens, when a response removes a stimulus from the environment and becomes more probable. According to the negative reinforcement hypothesis, SIB may be conceived of as avoidance behaviour. The noxious stimuli avoided with the help of SIB may be e.g. various demands presented by the social environment. This hypothesis has also acquired empirical support (Carr, Newsom & Binkoff, 1976; Durand, 1982; Iwata, Dorsey, Slifer, Bauman & Richman, 1982).

Several writers have documented the connection between SIB with low communication ability, and have hypothesized that SIB may have a communicative function (Schroeder et al., 1978; Shodell & Reiter, 1968 & Wadström, 1986, 1987). This hypothesis is in accordance with the notion of SIB as learned behaviour.

The learning theory approach has generated numerous methods to eliminate SIB (see Favell et al., 1982; Fulcher, 1984 or Schroeder et al., 1981 for review).

5.1.2.3 Developmental interpretation. The prevalence of stereotypic and self-injurious behaviour in infants (DeLissovoy, 1962) indicates that they can be a part of normal development. This idea is supported by the Piagetian theory of child development (Baumeister & Rollings, 1976; Kahn, 1979; Woodward, 1959). According to it, the second stage of the

sensorimotor development of the child is characterized by primary circular reactions: the child repeats simple bodily movements, like hand movements before his eyes. This is typical for siblings at the age of 1 - 4 months. At the third stage of sensorimotor development secondary circular reactions are noted, where the child uses objects in a simple repetitive manner (e.g. rocks the rattle) (Piaget, 1936/1979). Self-injurious and stereotypic behaviour can thus be understood as manifestations of primary or secondary circular reactions to which the development has arrested (Baumeister & Rollings, 1976).

5.1.2.4 SIB as self-stimulation. Much support has surrounded the notion of self-stimulation as a cause of SIB. This hypothesis holds that a certain level of sensory stimulation is necessary for the organism. When such stimulation occurs at an insufficient level, the organism may engage in stereotyped behaviour, e.g. SIB, to get it (Baumeister & Forehand, 1973; Baumeister & Rollings, 1976; Carr, 1977). This hypothesis has been given support from the studies where stereotypic behaviour has been eliminated by removing sensory feedback from it (Rincover, 1978; Rincover, Cook, Peoples & Packard, 1979; Rincover & Devany, 1982). The provision of outside stimulation has also reduced stereotypic behaviour (Baumeister & Forehand, 1973).

According to some writers, self-stimulation may also be due to overactivation (Hutt & Hutt, 1968). Simple, repetitive behaviour may in this case help to lower the overall arousal level near the optimal one. This idea has also been given empirical support (Räisänen, 1975; Tiernay, McGuire & Walton, 1978).

5.1.2.5 Effect of early isolation. Studies made with animals have demonstrated that SIB and stereotypic behaviour are often sequelae of isolation during critical developmental periods. Most of the studies have been made with rhesus monkeys. Isolation-reared males showed self-biting in 50 % of the observed sessions, but non-deprived animals showed virtually no self-injury (Sackett, 1968, referred in: Cataldo & Harris, 1982). From this perspective it may be noteworthy that child rearing practices in

Finnish central institutions for the mentally retarded may still be characterized by almost total isolation (see e.g. Ahonen, 1984).

5.1.2.6 Organic account. According to the organic hypothesis, SIB is the product of aberrant physiological processes. At least two medical syndromes have been described which are characterized by SIB. They are Lesch-Nyhan syndrome and Cornelia-DeLange syndrome.

Both surgical and biochemical studies have demonstrated that abnormal neurological conditions, particularly those related to sensory input, have resulted in stereotypy and SIB. Further, conditions which cause a general increase in autonomic arousal have resulted in stereotypy and SIB. Most important is biochemical activity, which accounts for diminished pain (production of endogenous opiates). It may happen that head-banging results in biochemical reinforcement of a very powerful nature, the effects of endogenous opiates being similar to morphine or cocaine (Cataldo & Harris, 1982). The self-injurious person might thus actually be enjoying the "head-bangers high" comparable to the well-known "runners high".

5.1.3 Epidemiological studies on SIB

Most of the epidemiological as well as other studies on SIB have been made in the United States. The earliest studies were not published until the sixties. They investigated prevalence of SIB among the non-handicapped or psychotic children. Head-banging among non-handicapped infants was often reported to be associated with Otitis media or the eruption of incisors. It was more prevalent among infants with neurological faults. The prevalence rates varied between 4 % and 15 % in these studies (DeLissovoy, 1961; Kravitz & Boehm,1971; Kravitz, Rosenthal, Teplitz, Murphy & Lesser,1960).

Among childhood psychotic children residing in an institution the prevalence of SIB was reported as high as 37 - 40 % (Green, 1967; Shodell & Reiter, 1968). Among them SIB was associated with low communication

TABLE 30. *Studies on the prevalence of self-injurious behaviour in institutionalized mentally retarded persons.*

Studies:	Sample size:	Country:	Method:	Overall percentage:
Ballinger, 1971	626	England	Survey	14.9
Eyman & Call, 1977	1 827	USA	ABS	34
Griffin et al.,1986	10 000	USA	Survey	13.6
Hagelberg et al.,1985	6 169	Finland	Survey	20.3
Hill & Bruininks, 1984	2 271	USA	Interview	21.7
Jacobson, 1982	11 194	USA	Survey	15.6
Kebbon & Windahl,1986	7 629	Sweden	Survey	11.2
Maisto et al.,1978	1 300	USA	Survey	14.0
Maurice & Trudel, 1982	1 249	Canada	Survey	22.7
Oliver et al., 1987	2 532	England	Interview	12
Ross, 1972	11 139	USA	Survey	23
Schroeder et al.,1978	1 150	USA	Interview	10
Singh, 1977	368	New Zeal.	Survey	22.8
Smeets, 1971	400	USA	Survey	8.8

ability, but not with intelligence or neurological damage.

During the seventies the institutionalized mentally retarded persons became the object of interest. Mainly during the eighties the prevalence studies spread from the United States to other countries. At the same time individuals other than institutional populations came under scrutiny as well. Currently over twenty epidemiological studies on SIB exists, most of them being published during the eighties.

5.1.3.1 Prevalence in institutions and community. Results from prevalence studies of SIB in institutions for mentally retarded persons vary considerably. Table 30 presents the overall prevalence percentages reported in different studies. The highest prevalence rate reported was 34 % and it was obtained using the ABS as a survey instrument (Eyman & Call, 1977.

TABLE 31. *Surveys on the prevalence of self-injurious behaviour in mentally retarded persons living in community.*

Studies	Country	Population sampled (sample size)	Overall percentage
Eyman & Call, 1977	USA	Living with parents (n = 2991)	6
		community residence (n = 2052)	10
Jacobson, 1982	USA	Independent living (n = 770)	1.2
		Living with parents (n = 9 289)	2.9
		Family care (n = 3 253)	1.6
		Community residence (n = 3 357)	5.4
Hagelberg et al., 1985	Finland	Family care (n = 316)	1.6
		Community residence (n = 523)	3.4
Kebbon & Windahl, 1986	Sweden	Living with parents (n = 16 022)	1.1
		Community residence (n = 4 564)	3.7
Oliver et al., 1987	England	Community/parents (n = 292)	3
Rojahn, 1986	West Germany	Community/parents (n = 25 872)	1.7

Other results vary between 9 % to 23 %. One explanation for the great variance of results certainly is different definitions of SIB applied in various studies. No systematic differences in results seemed to exist between the survey and interview as screening methods. However, the results indicate that ABS as a survey instrument possibly gives greater percentages than other methods.

The comparison between results obtained from the Swedish study (Kebbon & Windahl, 1986; reported also in Wallner, 1983 and Windahl, 1984, 1985) and Finnish study (Hagelberg & Virkkunen, 1985) is of special interest,

because the Finnish study was made using almost exactly the same method as the Swedish study. The results indicate that SIB was more prevalent in Finnish (20.3 %) than in Swedish (11.2 %) institutions.

Only a few studies exist on the prevalence of SIB in mentally retarded persons living in the community. Table 31 summarizes these studies. The results show that SIB was less prevalent among the mentally retarded living in the community than in an institution, the prevalence rate being only a few percents. Again, the result obtained with ABS (Eyman & Call, 1977) gave the greatest prevalence rates. When Swedish and Finnish results were compared, no differences were observed in prevalence rates in community residences, contrary to institutions.

The main result from the prevalence studies summarized in Tables 30 and 31 is that SIB is the more prevalent the more restrictive the form of housing is. This does not prove, however, that institutions produce SIB. There is one important intervening variable, which may account for the differences of SIB between various forms of housing. This variable, level of mental retardation, will be discussed next.

5.1.3.2 SIB and level of retardation. One of the most consistent findings of the epidemiological studies is the association of SIB with severe mental retardation. Table 32 summarizes the results from studies in institutions, where the level of mental retardation has been controlled. Even if the absolute percentages of the studies differed with each other, the general result was the same: where SIB was more prevalent, the more severe was the level of mental retardation. SIB was also more serious (Smeets, 1971) and more frequent (Hagelberg & Virkkunen, 1985; Wallner, 1983) in the most defected groups.

When the level of mental retardation was controlled, there still existed an association between SIB and restrictiveness in the form of housing (Eyman & Call, 1977). Even this does not demonstrate that institutions produce SIB, because the alternative explanation is also intelligible, namely the greater probability of self-injurious persons becoming institutionalized.

TABLE 32. *Prevalence of self-injurious behaviour among institutionalized mentally retarded persons by level of mental retardation.*

Level of mental retardation	Ballinger, 1971	Ross, 1972	Eyman & Call, 1977	Maisto et al. 1978	Schroeder et al. 1978	Rojahn 1984
mild	6	13	}15	0	2	
moderate	10	18		3	9	
severe	18	25	38	}21	}14	}66
profound	29	27	47			
Total:	15 %	23 %	34 %	14 %	10 %	

5.1.3.3 Other descriptors and correlates. Studies on the *frequency* of SIB among self-injuring mentally retarded persons show remarkable uniformity, as indicated by Table 33. About 40 % of self-injuring mentally retarded persons seem to be occupied in SIB daily. Typical of SIB seems thus to be its usually high frequency among those persons who engage in it.

Another important, but insufficiently researched topic concerns the *severity of damage* produced by SIB. Two Swedish studies have investigated this dimension (see Table 34). Moderate or severe damage was reported among 32 - 42 % of the persons engaged in SIB. A substantial part (23 - 33 %) was without any visible signs of damage.

Treatment provided for self-injuring persons has been investigated in some studies. Large differences seem to prevail among countries. Griffin and his colleagues (1986) reported that 40 % of the self-injuring mentally retarded individuals in Texas were in some form of intensive behaviour therapy aimed at eliminating SIB. Oliver and his colleagues (1987) report from London that only 12 % received some kind of psychological treatment, while 44 % received medication. In Scandinavia the situation was still worse: only 1 % received some psychological treatment, 54 % received medication, and

TABLE 33. *Frequency of SIB among self-injuring mentally retarded persons.*

Frequency of SIB:	Hagelberg & Virkkunen, 1985 (n = 1 277)	Windahl, 1985 (n = 1 198)	Griffin et al., 1986 (n = 1 360)
daily	42	40	40
weekly	31	34	26
monthly	16	16	18
quarterly	11	9	16
Total:	100 %	99 %	100 %

41 % were without any treatment (Windahl, 1984). These numbers are alarming, taking into account the negative results concerning the effects of medication, which has the additional disadvantage of negative side-effects. In their three-year follow-up study with a large institutional sample, Schroeder and his colleagues (1978) demonstrated that medication was ineffective in eliminating SIB, while behaviour therapeutic measures resulted in rapid success.

The most frequent *topographies* of SIB include head banging (stated among the most frequent forms in 11 studies), biting oneself (9), scratching or picking oneself (5), and slapping oneself (4). Several topographies in one person were frequent: they appeared in 54 - 58 % of cases (Griffin et al., 1986; Oliver et al., 1986) or even 75 - 80 % of cases (Rojahn, 1984, 1986; Hüllert, 1986).

Onset of SIB has seldom been reported. Smeets (1971) reported that SIB started before the age of four in 50 % of his sample.

Frequently reported *correlates* of SIB include other behavioural disturbances, especially stereotyped or violent behaviour (Griffin et al., 1986; Maisto et al., 1978; Smeets, 1971; Windahl, 1986). Neurological defects are often reported (Kravitz & Boehm, 1971; Maisto et al., 1978). SIB was also more frequent among those with greater communication difficulties (Shodell & Reiter, 1968, Schroeder et al., 1978; Wadström, 1986).

TABLE 34. *Severity of damage among self-injuring mentally retarded persons in institutions.*

Severity of damage:	Windahl, 1985 (n = 160)	Hüllert, 1986 (n = 30)
No visible damage	33 %	23 %
Minor, occasional	35 %	33 %
Moderate, occasional	6 %	
Severe, continuous	26 %	} 42 %

SIB was more frequent among children or adolescents than adults (Griffin et al., 1986; Maisto et al., 1978; Oliver et al., 1987; Schroeder et al, 1978). Eyman and Call (1977) noted that SIB was more common in childhood than adulthood among the mildly handicapped, but more common in adulthood than childhood among the severely handicapped.

The results from the correlation of sex to self-injurious behaviour are incoherent. Some studies report no differences between the sexes (Barron & Sandman, 1984; Griffin et al., 1986). Some studies report more severe SIB among men than women (Maisto et al., 1978; Schroeder et al, 1978), and more frequent SIB among women than men (Green, 1967; Maisto et al., 1978).

5.2 METHOD

Subjects, setting, and data collection of this study were presented in chapter 2. Data concerning self-injurious behaviour were obtained from the domain of Self-abusive behaviour of ABS Part Two. The domain consists of ten statements, which specify the type of self-injurious behaviour (see Table 35). The frequency of SIB is scored in each, either as occasional (1) or frequent (2). If the behaviour does not appear at all, the score is zero.

The interrater agreement of the domain was .50 (Phi) and stability .89 (alpha) (see Table 10, p. 67). Low interrater agreement is surely a problem and may prevent the revelation of especially existing invariances of SIB.

5.3 RESULTS

Table 35 (p. 124) shows the frequency of SIB in each category. The overall prevalence of SIB was 41,6 %. Of the 421 residents, a total of 175 persons were engaged in SIB either occasionally or frequently.

The frequency of SIB obtained here clearly exceeds all of the percentages reported in previous studies. However, because of the different methods of data gathering, only one study is fully comparable with the present one. Eyman and Call (1977) used the ABS and obtained the prevalence rate of 33.8 % for SIB in institutions. When the level of mental retardation and age of the subjects (over 12 years) was controlled, the present prevalence rates were still higher in the profoundly retarded, Chi square ($df = 1$, $n = 837$) = 5.428, $p < .05$ and mildly or moderately retarded, Chi square ($df = 1$, $n = 647$) = 10.593, $p < .01$, but not in severely retarded, Chi square ($df=1$, $n=437$) = .445, $p > .05$.

5.3.1 Structure of SIB: factor analysis

Because the domain of Self-abusive behaviour consisted of ten separate statements, its one-dimensionality was studied using factor analysis. A few control variables were added to an analysis, which was made using Hotelling's principal axis method (HYLPS manual, 1983). According to Cattell's scree test, a two factor solution appeared the most agreeable. It was rotated orthogonally to a Varimax-criterion. The interpretation of factors was based on factor loadings greater than .250. Table 36 presents the rotated factor matrix.

TABLE 35. *Prevalence of self-injurious behaviour in an institution for mentally retarded persons (n = 421).*

Topography of SIB:	Occasionally %	Frequently %	Total %	N:
1. Bites or cuts self	10.7	2.6	13.3	(56)
2. Slaps or strikes self	11.4	5.5	16.9	(71)
3. Bangs head or other parts of the body against objects	9.5	4.5	14.0	(59)
4. Pulls own hair, ears, etc.	6.9	0.7	7.6	(31)
5. Scratches or picks self causing injury	10.7	3.8	14.5	(61)
6. Soils and smears self	10.5	1.4	11.9	(50)
7. Purposely provokes abuse from others	1.7	0.2	1.9	(8)
8. Picks at any sores he might have	5.7	2.9	8.6	(36)
9. Pokes objects in own ears, eyes, nose, or mouth	1.7	0.7	2.4	(10)
10. Other, specify	0.5	0.2	0.7	(3)
Sum total:			41.6	(175)

On the first factor, all of the topography variables of SIB loaded higher than .250, excluding the variables "Purposely provokes abuse from others" and "Other, specify". Of the control variables, "Stereotypes" loaded high on the first factor (.539), and IQ received a negative loading (-.290). The first factor was named as Self-injurious behaviour. It was associated with stereotyped behaviour and low intelligence, but was not correlated with age, sex, or length of institutionalization.

Only four variables loaded high on the second factor. They were the two SIB variables, "Scratches or picks self causing injury", and "Picks at any sore he might have", and two control variables, age and length of institutionalization. The second factor seems to represent another type of self-injurious behaviour, which is not associated with stereotypy or low intelligence, but with older age and longer history of hospitalization. The result is in accordance with the observations of Oliver, Murphy, and Corbett (1987), who noted that picking or scratching the skin was more prevalent

TABLE 36. *A two factor solution for the topographies of SIB and some control variables rotated orthogonally into Varimax-criterion.*

Variable:	Factor 1	Factor 2	h^2
1. Sex	-.091	-.056	.011
2. IQ	-.290	.074	.089
3. Age	-.215	.496	.292
4. Length of institutionalization	.074	.427	.188
5. Stereotypes	.539	.000	.291
6. Bites or cuts self	.534	.032	.286
7. Slaps or strikes self	.565	-.062	.323
8. Bangs head or other parts of the body against objects	.565	-.201	.360
9. Pulls own hair, ears, etc.	.367	.071	.140
10. Scratches or picks self causing injury	.442	.451	.399
11. Soils and smears self	.503	.065	.258
12. Purposely provokes abuse from others	.048	-.073	.008
13. Picks at any sore he might have	.281	.499	.328
14. Pokes objects in own ears, eyes, nose, or mouth	.311	-.053	.100
15. Other, specify	.009	-.052	.003
Eigenvalue:	2.142	.935	Total:
Proportion of common variance:	68.9 %	31.1 %	100.0 %
Proportion of total variance:	14.3 %	6.2 %	20.5 %

among persons with milder handicaps, whereas among the severely handicapped head-banging was more prevalent. The second factor might be called Social self-injury. For the sake of simplicity it is excluded from the following analysis, because the SIB topographies of the second factor loaded high on the first factor, too.

A factor variable of Self-injurious behaviour was constructed on the basis of factor analysis as a sum scale of the SIB variables. The variables "Purposely provokes abuse from others" and "Other, specify" were removed because of their low loadings and low communalities.

TABLE 37. *Self-injurious behaviour and some background variables (n = 421).*

Variable:	Self-injurious behaviour: no 0 (n=250)	occasional 1 (n=114)	frequent 2 (n= 57)	statistical significance:	
Sex					
man	62 %	26 %	13 %	1.129 n.s.	1)
woman	56 %	29 %	15 %		
Age (in years)					
Mean	32.4	32.5	29.8	0.958 n.s.	2)
St.dev.	14.3	12.8	12.9		
Years in institution					
Mean	14.3	16.9	17.8	4.969**	2)
St.dev.	9.8	8.5	9.7		
IQ					
Mean	27.3	22.0	18.5	7.547***	2)
St.dev.	18.9	15.5	14.0		
ABS Part One					
Mean	124.4	102.0	85.9	8.581***	2)
St.dev.	77.9	64.6	54.8		
ABS Part Two					
Mean	25.6	41.7	59.4	43.596***	2)
St.dev.	22.9	27.7	37.0		

n.s. = not significant, $p > .05$
* = statistically significant $p < .05$
** = statistically significant, $p < .01$
*** = statistically significant, $p < .001$

1) Chi square (one-dimensional test)
2) F - value (one-dimensional analysis of variance)

5.3.2 SIB and some background variables

The prevalence of SIB as measured by the new factor variable was 40.6 % (171 persons). SIB was occasional in 27.1 % of the cases (114 persons) and frequent in 13.5 % of the cases (57 persons). Table 37 summarizes the association of SIB with some background variables.

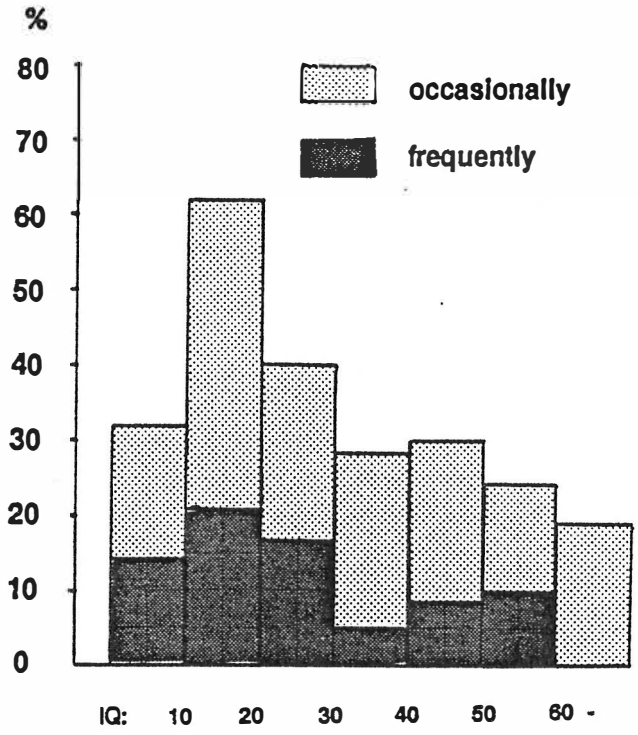

Figure 11. *Frequency of self-injurious behaviour in various IQ groups (n = 409).*

5.3.3.1 Intelligence quotient. Table 37 shows that IQ was statistically significantly associated with the frequency of SIB. A post hoc-test (Scheffé) indicated that IQ scores of both occasional and frequent self-injurers were lower than the IQ scores of those without SIB. The association between IQ and SIB was not linear, however, as illustrated by Figure 11. Most frequent SIB appeared in persons with the IQ score between 10 and 20.

5.3.3.2 Level of mental retardation. Table 38 (p. 128) presents the frequency of SIB in levels of mental retardation. The association was statistically significant, Chi square (6, n=419) = 23,575, p< .001.

TABLE 38. *Prevalence of self-injurious behaviour in levels of mental retardation (n = 419).*

Level of mental retardation (IQ)		Self-injurious behaviour: occasionally % (n)	frequently % (n)	Total:	(N) (419)
mild	(50-70)	15.6 (5)	3.1 (1)	18.8	(32)
moderate	(35-49)	21.2 (18)	9.4 (8)	30.6	(85)
severe	(20-34)	22.8 (28)	12.2 (15)	35.0	(123)
profound	(- 20)	34.6 (62)	18.4 (33)	53.1	(179)
Total:		27.0 %	13.6 %	40.6 %	
n:		(113)	(57)		(170)

5.3.3.3 Age, sex, and length of hospitalization. SIB was not associated with *sex* in the entire sample, as indicated by the low loading (-.091) of sex variable on the first factor. Table 37 shows the frequency of SIB in men and women. Among childhood psychotic persons the frequency of SIB was more prevalent among women (84 %) than men (46 %), Chi square (2, n = 49) = 7.885, $p < .05$.

Age was not associated with SIB in the total sample (r = -.09; partial correlation between age and SIB with IQ controlled = -.05.). However, among the profoundly mentally retarded there existed an association of SIB with the age of a person (see Table 39). SIB was most prevalent in the age group of 25 - 34 years.

Length of institutionalization was not associated with the total score of self-injurious behaviour, as indicated by their low intercorrelation (r = .11; partial correlation r = .07, IQ controlled). *F*-value in the Table 38 was statistically significant, however. Post hoc - analysis (Scheffé test) indicated, that persons with frequent SIB stayed in institutions longer than persons with no SIB at all.

TABLE 39. *Self-injurious behaviour (in percentages) in age groups according to level of mental retardation (n = 421).*

Level of mental retardation:		Age group: 0-17	18-24	25-34	35-44	45-85	Statistical
	(n)	(56)	(74)	(117)	(86)	(88)	significance:
mild	(32)	0	50	0	0	25	.011* 1)
moderate	(85)	33	20	41	32	21	3.020 n.s. 2)
severe	(123)	44	46	29	36	28	2.454 n.s. 2)
profound	(179)	33	47	74	56	50	16.906** 2)
Total:	(421)	33.9	43.2	49.2	38.4	33.0	7.463 n.s. 2)

n.s. = not statistically significant, $p > .05$
* = statistically significant, $p < .05$
** = statistically significant, $p < .01$
1) = Fisher exact probability test
2) = Chi square

5.3.3.4 Personal independence. Domains of Personal independence as measured by ABS Part One were correlated negatively with SIB with the exception of the domain of Physical development (r = .07). Otherwise the correlation coefficients varied between -.14 and -.24 and the correlation of SIB with the sum score of ABS Part One was -.18 (See Table 46 in Appendix). However, persons with SIB did not differ from others in their general level of adaptive behaviour when intelligence was controlled (partial correlation r = -.06). Figure 12 shows the frequency of SIB in decile groups of Personal independence. It shows that the relationship is curved in the same way as in the case of IQ. Self-injurious behaviour becomes more frequent in deciles of lesser personal independence with the exception of the two lowest deciles.

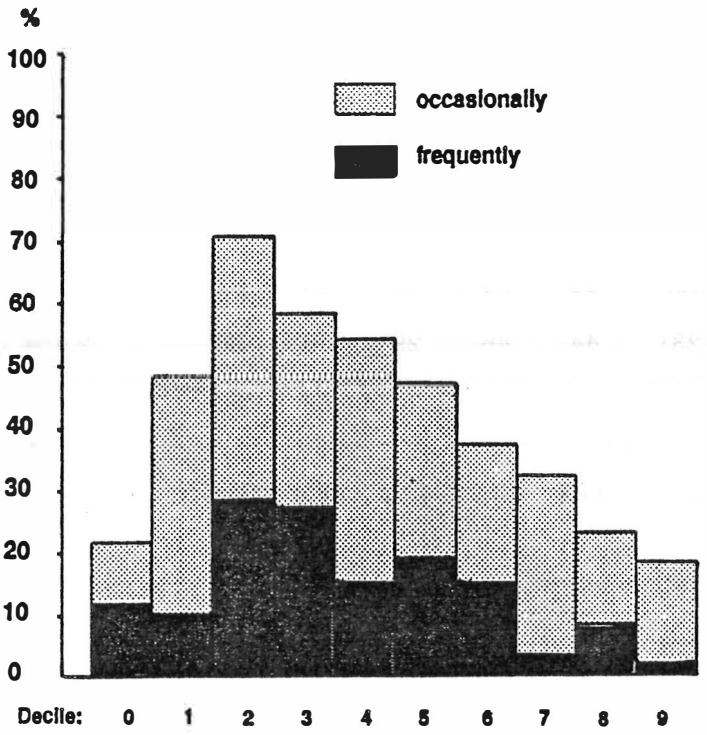

Figure 12. *Frequency of self-injurious behaviour in deciles of Personal independence (ABS Part One sum score) (n = 421).*

Physical development. Physical development was measured using the ABS domains. Table 40 shows that SIB was less frequent among those who could not walk alone. Deficiencies in vision or hearing had no statistically significant association with SIB, even if SIB seemed to be more frequent among the deaf.

The frequency of SIB was not associated in the entire sample with Sensory development, F (2,421) = .096, $p > .05$, nor with Motor development, F (2,421) = .148, $p > .05$. Among the profoundly mentally retarded,

TABLE 40. *The association of self-injurious behaviour with motor ability, vision and hearing (n = 421).*

Physical development:	Self-injurious behaviour: no	yes	total	N	X^2
Walking					
walks alone	56	44	100 %	308	4.912*
not independent	68	32	100 %	113	
Vision					
normal	59	41	100 %	336	0.552 n.s.
difficulties	62	38	100 %	68	
blind	65	35	100 %	17	
Hearing:					
normal	60	40	100 %	386	3.750 n.s.
difficulties	63	38	101 %	24	
deaf	36	64	100 %	11	

TABLE 41. *The association of self-injurious behaviour with physical development in profoundly mentally retarded persons (n = 179).*

Domain:	Self-injurious behaviour: no 0 (n = 84)	occasional 1 (n = 62)	frequent 2 (n = 33)	Statistical significance F (df = 2)
Sensory development				
Mean	5.3	5.4	5.2	.078 n.s.
St.dev.	1.4	1.3	1.4	
Motor development				
Mean	4.9	8.9	7.9	8.111***
St.dev.	5.7	4.6	5.1	

those engaged in SIB had better motor development than persons with no SIB (see Table 41). Post hoc-test (Scheffé) indicated that both occasional and frequent self-injurers differed from the non-injurers.

TABLE 42. *Means and standard deviations (in brackets) of Language development scores in frequency classes of self-injurious behaviour.*

Group investigated:	Self-injurious behaviour: no 0	occasional 1	frequent 2	*F*
Entire sample (n = 421)	15.5 (11.3)	12.3 (9.5)	8.9 (8.8)	10.536***
Severely retarded (n = 123)	16.7 (6.0)	14.6 (7.4)	11.7 (6.7)	4.368*
Profoundly retarded (n = 179)	3.8 (5.3)	6.5 (5.7)	3.8 (3.2)	5.599**
Down's syndrome (n = 70)	15.5 (8.0)	5.2 (6.4)	2.4 (1.5)	16.746***
Childhood psychosis (n = 49)	21.1 (11.1)	16.8 (9.4)	13.5 (9.3)	2.316 n.s.
Other causes (n = 302)	15.0 (11.8)	12.8 (9.3)	8.0 (8.4)	6.617**

Communication skills. The level of communication skills was measured by the domain Language development of ABS Part One. The partial correlation between SIB and Language development (IQ controlled) was $r = -.11$, which was significant at the level of $p < .05$. Table 42 presents the association between these variables. It indicated that in several groups, SIB was associated with deficiencies in communication ability.

5.3.3.5 Maladaptive behaviour. The domain of self-abusive behaviour had statistically significant positive correlations with all of the domains of ABS Part Two, Untrustworthy behaviour excluded (.05). The highest inter-correlations were with the domains of Unacceptable or eccentric habits (.55), violent and destructive behaviour (.50), and Stereotypes and odd mannerisms (.44) (see Table 46 in Appendix). Self-abusive behaviour had

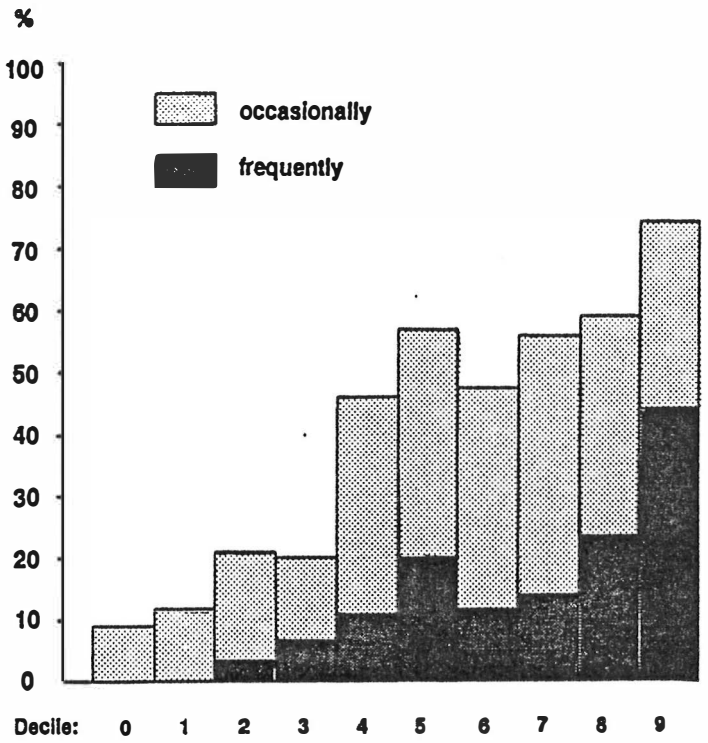

Figure 13. *The frequency of self-injurious behaviour in deciles of Maladaptive behaviour (n = 421).*

high intercorrelations with Maladaptive behaviour (.46), Social maladaptation (.27) and Personal maladaptation (.67). Level of intelligence did not explain these correlations; the corresponding partial correlations with controlled intelligence were in succession .52, .37 and .66. Figure 13 presents the frequency of self-injurious behaviour in the deciles of Maladaptive behaviour. The association is clearly linear: SIB increases, when the general level of maladaptation increases.

TABLE 43. *Prevalence rates (in percentages) of various maladaptive behaviour in frequency classes of self-injurious behaviour (n = 421).*

ABS Part Two domain	Self-injurious behaviour: no 0 (n=250)	occasional 1 (n=114)	frequent 2 (n= 57)	Statistical significance (Chi square) (df = 2)
Violent & destructive	55.6	86.0	94.7	54.091***
Antisocial behaviour	66.4	78.9	80.7	8.694*
Rebellious behaviour	61.6	65.8	57.9	1.113 n.s.
Untrustworthy behaviour	30.4	32.5	42.1	2.898 n.s.
Withdrawal	66.0	82.5	93.0	23.289***
Stereotypes	33.2	66.7	82.5	64.745***
Iappr. interpers. manners	30.0	48.2	45.6	13.246**
Unacceptable vocal	52.4	75.4	73.7	21.676***
Unaccept. or eccentric	60.8	86.8	96.5	45.565***
Hyperactive tendencies	24.8	45.6	64.9	38.925***
Sexually aberrant	17.6	24.6	28.1	4.343 n.s.
Psychological disturb.	69.6	84.2	82.5	10.802**
Use of medications	60.4	82.5	87.7	27.953***

Figure 13 demonstrates that people with frequent SIB typically have many other behavioral disturbances as well. One third of the persons engaged in frequent SIB were classified in the last decile with greatest disturbances.

Table 43 presents the prevalence of various forms of maladaptive behaviour (in percentages) in the frequency classes of self-injurious behaviour. It shows, that persons with SIB differentiated most clearly from others with their high rate of stereotypes (82.5 %). Violent and destructive behaviour was also common among them (94.7 %).

TABLE 44. *Frequency of self-injurious behaviour in the classes of probable cause of mental retardation.*

Probable cause of mental retardation	Total:	Self-injurious: N:	%
1 Genetic disorder	**114**	**47**	**41 %**
11 chromosomal disorders	70	22	31 %
12 single gene disorder	1	1	100 %
13 multifactorial disorders	43	24	56 %
2 CNS malformations or multiple malformations of unknown origin	**35**	**12**	**34 %**
21 isolated CNS malformation	8	4	50 %
22 multiple congenital malform.	27	8	30 %
3 Prenatal, acquired disorders	**53**	**24**	**45 %**
31 infections	6	4	67 %
32 toxic agents	3	2	67 %
33 gestational disorders	22	9	41 %
34 others	22	9	41 %
4 Paranatal, acquired disorders	**52**	**19**	**37 %**
41 infection	1	1	100 %
42 delivery complication	49	18	37 %
43 others	2	0	0 %
5 Postnatal, acquired disorders	**71**	**43**	**61 %**
51 infection	14	8	57 %
52 toxic agents	0	0	0 %
53 vascular accidents	0	0	0 %
54 brain tumors	1	1	100 %
55 trauma	5	2	40 %
56 hypoxia	0	0	0 %
57 childhood psychosis	49	32	65 %
58 psychosocial	1	0	0 %
59 others	1	0	0 %
6 Unknown aetiology	**57**	**14**	**25 %**
61 pure mental retardation	12	3	25 %
62 others	45	11	24 %
Total:	383	160	41.8 %

TABLE 45. *Comparison of the frequency of self-injurious behaviour between persons with Down's syndrome and others when the level of mental retardation is controlled.*

Level of retardation	Self-injuring: Down	Other	N:	X^2
severe or moderate	10 %	40 %	192	12.848***
profound	60 %	53 %	161	0.659 n.s.
Total:	31 %	46 %	41 %	4.654*
N:	(70)	(283)	(353)	

5.3.3.6 Probable causes of mental retardation. Probable causes of mental retardation were obtained from the data sheets of national register for individuals receiving special care. The classification was based on the system developed by Leisti and Wilska (1982). Table 44 summarizes the results. The Chi square counted from the main headings of Table 44 was statistically significant, $X^2(5, n=383) = 19{,}058$, $p < .01$. The probable cause of mental retardation was thus associated with SIB.

Childhood psychosis. Self-injurious behaviour was most common in the group of childhood psychosis (65 %). Difference to the others was statistically significant, Chi square (1, n=383) = 12,134, $p < .001$. Also the group of multifactorial genetic disorders showed more frequent SIB than others (56 %), Chi square (1, n=383) = 3.875, $p < .05$. This group included mentally retarded or childhood psychotic persons with first degree relatives similarly affected. The level of mental retardation had no relation to self-injurious behaviour either in the childhood psychotic group, Chi square (2, n=48) = 0,407, $p > .05$, or in the multifactorial genetic disorder group, Chi square (2, n=43) = 1.478, $p > .05$.

Down's syndrome. In group 11, "chromosomal disorders", 93 % of the cases are persons with Down's syndrome (Leisti & Wilska, 1982). With only a slight inaccuracy it is therefore possible to use it as an equivalent of

Down's syndrome. SIB in group 11 was not less frequent than in others, Chi square (1, n = 383) = 3,528, p > .05. However, SIB among moderately and severely mentally retarded persons with Down's syndrome was less frequent than among others of the same level of mental retardation (see Table 45).

Unknown aetiology. In the group of unknown aetiology, SIB was less frequent (25 %) than in others, Chi square (1, n = 383) = 8.459, p < .01. The level of mental retardation did not explain the finding, because the group did not differ from others in this respect, Chi square (2, n = 381) = 4.169, p > .05. The group included individuals with no clinical symptoms or signs suggesting organic brain damage (pure mental retardation), and those in whom CNS symptoms or signs were suggestive of organic brain damage, but in whom malformations or dysmorphic features had not been detected.

5.4 DISCUSSION

Even if the interrater agreement of the ABS domain measuring self-injurious behaviour was low (.50), the study revealed several interesting invariances in the prevalence of SIB in institutions.

SIB was mainly studied using the one-dimensional factor variable of self-injurious behaviour, which was constructed on the basis of the ABS domain of Self-abusive behaviour. The general level of SIB obtained in this study (40,6 %) was the greatest percentage reported until now. The percentages have mostly moved between the values of 10 to 20 % (see Table 30, p. 117). The only one study made with the same method (Eyman & Call, 1977) also reported a large percentage (34 %), which still was lower than the present result. In addition, the comparison between the decile norms made on the basis of this study (Saloviita, 1988a) and the norms based on the institutional sample from the United States (Nihira, Foster, Shellhaas & Leland,1975) indicated that SIB was more prevalent in Finland than in the United States. The comparison of studies made with an almost identical

method in Finland and Sweden (Hagelberg & Virkkunen, 1985; Kebbon & Windahl, 1986) revealed greater prevalence rates of SIB in Finnish institutions than in Swedish. For the present, the prevalence studies indicate that SIB is more prevalent in Finnish institutions than in Swedish or North-American institutions.

There was an inconsistency between the institutional prevalence rate of SIB obtained in this study (40,6 %) and the one obtained by Hagelberg and Virkkunen (1985) (22,8 %). The survey method used by them was, however, very general and rough, and this probably explains the inconsistency.

SIB was investigated against some background variables. Corresponding to previous results, the level of mental retardation best explained the engagement in SIB. Among profoundly retarded persons, the prevalence of frequent SIB was 18 %, whereas among the mildly retarded it was only 3 % (see Table 38, p.128). However, among childhood psychotic persons SIB was not associated with the level of retardation. This finding was also consistent with previous results (Green, 1967). There was another exception in the linear dependency of SIB on the severity of disability. SIB was again less frequent among the most handicapped persons. Their undeveloped motor abilities simply prevented their engagement in SIB.

There was no general association of SIB with the sex or age of the subjects. However, SIB was more prevalent among childhood psychotic women than men. This finding corresponded with earlier results (Green, 1967). The results also indicated that SIB was more prevalent among profoundly handicapped adults than among children or adolescents. This result was also supported by earlier findings (Eyman & Call, 1977; Oliver, Murphy & Corbett, 1987). Length of institutionalization was associated with SIB, but the connection was probably best explained by the early institutionalization of persons engaging in SIB.

The communication abilities of persons engaging in SIB were less developed than in others. This was evident even after controlling the level of mental retardation. The association of SIB with deficits in communication skills supports the notion of SIB as a means to communicate. The finding was also in accordance with earlier reports (Shodell & Reiter, 1968; Schroeder et al., 1978; Wadström, 1986).

SIB was strongly associated with other forms of maladaptive behaviour. Especially violent and destructive behaviour and stereotypes were prevalent among persons with SIB. This association remained even after controlling the intelligence level. These findings are consistent with previous research (Griffin et al, 1986; Maisto et al., 1978; Smeets, 1971; Windahl, 1986). The closeness of SIB with stereotyped behaviour supports the notion of SIB as stereotyped behaviour which is reinforced by the self-stimulation it produces. The closeness of SIB with violent and destructive behaviour supports the notion of SIB as a means of communicating with the environment: the hypothesis of the communicative function of aggressive behaviour is widely supported (Carr & Durand, 1985; Donellan, Mirenda, Mesaros & Fassbender, 1984). In this case the reinforcers of SIB would mostly be social.

The probable cause of mental retardation was associated with the prevalence of SIB in many ways. SIB was especially widespread among childhood psychotic persons (65 %); a finding which was consistent with previous research (Green, 1967; Shodell & Reiter, 1968). SIB was also more severe in this group and exceptionally not associated with the level of intelligence. SIB was less prevalent in the group of unknown aetiology, which consisted of persons with no or only indirect signs of organic aetiology. This supports the notion of the organic background of SIB, supported also by earlier studies (Kravitz & Boehm, 1971).

SIB was less frequent among persons with Down's syndrome (10 %) than others (40 %) in the groups of moderately or severely mentally retarded. One possible explanation for this finding is the communicative function of SIB and the social perception of persons with Down's syndrome discussed earlier (see p. 106).

5.4.1 Challenge of SIB

A vast majority of all self-injuring mentally retarded persons reside in institutions (Hagelberg & Virkkunen, 1985). There exists, however, no direct evidence that institutions produce SIB. On the contrary, some studies have

shown that institutionalized persons with SIB typically have started their self-injury already before their institutionalization (Smeets, 1971; Maisto et al., 1978).

According to the present study, the mentally retarded person who is engaged in SIB, typically is profoundly or severely retarded (81 % of all SIB cases) and may have childhood psychosis as a second diagnosis (25 % of all cases). Organic disorder is often stated. His communication abilities are below the average level of his peers of the same intelligence level. He or she is more often than other residents engaged in other forms of maladaptive behaviour as well, especially violent and destructive behaviour and stereotypes.

Even if SIB is often described as a serious behavioural problem, it seems that SIB usually is relatively mild and produces at most minor damage for the person engaged in it (Hüllert, 1986, Windahl, 1985), although there are severe cases as well.

Puonti (1989) has recently investigated how SIB was treated in a Finnish institution for the mentally retarded. The most typical way to respond to SIB was to increase the restrictiveness of the environment, for example, through the use of restrictive clothing. Therapy was given only to 5 % of the cases and medical treatment was applied in 10 % of the cases.

Although the role of institutions as producers of SIB has not been proved (and not really studied either), it seems believable that the present level of institutional routines to treat severe SIB is inadequate compared to the current knowledge concerning its treatment. The reason for this perhaps comes from the fact that SIB is mostly a behavioural disorder of those persons who are extremely socially deviant. Because of their low social status the treatment of their behavioural problems lacks social validity. The appearance of self-injurious behaviour indicates, however, that even extremely socially deviant people may have individual needs. Here is the challenge of self-injurious behaviour.

6 ADAPTIVE BEHAVIOUR AND COMMUNITY INTEGRATION

Social policy towards mentally retarded persons has gradually changed from their segregation to their physical and social integration into the mainstream of society. This development has accordingly changed the research questions concerning the adaptive behaviour of the mentally retarded. The question for institutionalized population is no longer to detect the "wrong" placements of persons actually not in "need of institutional care". From the perspective of community integration, the task is to specify the challenges which the deficiencies of adaptive behaviour of mentally retarded persons set forth for their community integration.

The results of this study illustrated that the diagnostic level of mental retardation does not tell all about the level of adaptive behaviour of the person: the variation within the diagnostic categories was remarkably wide. This observation stresses the need for an independent evaluation of adaptive behaviour as a basis for programme planning. The detailed analysis of adaptive behaviour showed that a small minority of institutionalized mentally retarded persons was fairly advanced in various skills; the deficiencies concentrated heavily on the profoundly retarded, by whom physical handicaps often hindered the development of adaptive skills. The great variation in adaptive skills among the residents revealed that people of very different competency levels were cared for in the same form of services, i.e. institutional care. This condition demonstrates the consequences of the one-sidedly institution-dominated structure of mental retardation care in Finland.

It has usually been thought that the deficiencies of adaptive skills constitute the greatest obstacle for the community integration of mentally retarded persons. This idea is supported by the fact that typical of the majority of the institutional population are the notable deficiencies in Personal independence (see Figure 6, p. 88). The reasons for admission into an institution need not, however, be the same as obstacles for departure from an institution. Even if institutionalization is mostly determined by low adaptive skills level associated with profound retardation, the failure of deinstitutionalization has often been reported to be caused by the existence of social maladaptation associated with milder forms of mental retardation (Gollay, 1981; Landesman-Dwyer & Sulzbacher, 1981; Sutter, Mayeda, Call, Yanagi & Yee, 1980). This result is quite understandable. The institutionalized mentally retarded persons have mostly come from their parent's homes. The main reason for institutionalization has been their need for care, which has surpassed the capacity of the family. Deinstitutionalized mentally retarded persons typically move into small community residences, where the need for care can be satisfied with adequate staffing. However, this formula is not always sufficient to eliminate disturbing maladaptive behaviour, which can result in the reinstitutionalization of the person.

Maladaptive behaviour seems to be quite common in institutions. According to criterion selected, 46 % of the residents in this study had behavioural disturbances, and 22 % were severely disturbed. Institutions control maladaptive behaviour of their inmates simply by various restrictions and constraints. Typical means include special clothing, the use of bandages, isolation rooms and medication. The doors are often closed and furniture removed or replaced by special equipment. The control of maladaptive behaviour in institutions has not occurred without ethical and legal problems. The use of constraint in Finnish institutions has been weakly controlled by law (Keränen, 1988).

It is sometimes thought that maladaptive behaviour of mentally retarded persons does not produce special problems in their deinstitutionalization, because maladaptive behaviour is associated with institutional care, which itself, through its many restrictions, produces disturbed behaviour (Kylén,

1978/1981; Työryhmä, 1981). It has been referred to the fact that maladaptive behaviour is vastly more frequent in institutions than in community settings (see e.g. Eyman & Call, 1977; Hill & Bruininks, 1984; Jacobson, 1982). This argument does not take into account that behavioural disturbances are an important selection criterion for institutional care (Hill & Bruininks, 1984). There exists no direct support for the thesis that institutions produce maladaptive behaviour. On the contrary, one longitudinal study showed that the maladaptive behaviour of institutionalized mentally retarded persons did not increase during the three years after their institutionalization (Eyman, Borthwick & Miller, 1981).

Even if research has not for the present proved that institutions increase maladaptive behaviour, some studies have indicated that deinstitutionalization decreases it (Hemming, Lavender & Pill, 1981; Kleinberg & Kalligan, 1983; Saloviita, 1989a). Positive changes after deinstitutionalization have probably been due to better quality of care in the community-based small residences compared to institutions. Thus, if institutions do not produce maladaptive behaviour, they can at least be accused of not treating it adequately.

Small community residences apparently can treat the maladaptive behaviour of their residents better than institutions. High rates of failure in community placements show on the other hand problems associated with them. Possibly the best solution for the community integration of mentally retarded persons with serious maladaptive behaviour is a double strategy, where intensified individual attention and programming takes place both in an institution before the person leaves and in the receiving community facility. One recent study reported a deinstitutionalization process of a profoundly mentally retarded man with whom this double strategy was successfully applied (Saloviita, 1989c). It seems to be a case to contend that behavioural programmes to eliminate maladaptive behaviour (see Barrett, 1986; LaVigna & Donellan, 1986; Matson & DiLorenzo, 1984 or Whitman, Sciback & Reid, 1983 for recent review) become more important the farther the deinstitutionalization process proceeds. For programme planning in the future, psychometrically still more advanced scales for the measurement and evaluation of adaptive and maladaptive behaviour are also needed.

TIIVISTELMÄ: LAITOKSESSA ASUVIEN KEHITYSVAMMAISTEN ADAPTIIVINEN KÄYTTÄYTYMINEN

Kehitysvammaisuuden käsitteen historiallinen kehitys on liittynyt tiiviisti kehitysvammaisten yhteiskunnallisen aseman muutoksiin. Niiden myötä myös adaptiivisen käyttäytymisen käsitteen merkittävyys on vaihdellut eri aikoina.

Kehitysvammaisuuden erottaminen mielisairaudesta tapahtui vasta 1800-luvun alkuun mennessä, jolloin yksilön arvoa korostava valistusfilosofia herätti kiinnostuksen kehitysvammaisten opetusta kohtaan. Tällöin kohosi ajankohtaiseksi myös adaptiivinen käyttäytyminen. Adaptiivinen käyttäytyminen ilmaisee tasoa, jolla yksilö täyttää hänen päivittäiseen suoriutumiseensa kohdistuvat odotukset.

1800-luvun lopussa teollistuminen ja kaupungistuminen johtivat kehitysvammaisten sosiaalisen aseman heikentymiseen. Taloudellisesti passiivisen väestön siirtäminen laitoksiin nopeutti teollistumista ja väestön keskittymistä kaupunkeihin. Ideologisella tasolla kehitysvammaisuus miellettiin perinnölliseksi sairaudeksi, josta oli päästävä eroon eristämällä kehitysvammaiset yksilöt laitoksiin. Vuosisadan alussa älykkyystestit levisivät keinoina seuloa kehitysvammaiset normaaliväestöstä. Kehitysvammaisuuden määrittelyssä korostui älykkyyden käsite.

Adaptiivisen käyttäytymisen käsite alkoi uudelleen kohota tärkeäksi toisen maailmansodan jälkeen, jolloin kehitysvammaisten eristämispolitiikka alkoi taloudellisesti kehittyneimmissä maissa vaihtua integraatiopyrkimykseen. Adaptiivinen käyttäytyminen lisättiin myös kehitysvammaisuuden määrittelyyn. Kehitysvammaisten aseman yhteiskunnallisen muutoksen taustalla oli elinkeinorakenteen jälkiteollinen muutos ja siihen liittyvä uusi

yhteiskunnallinen ilmapiiri. Suomessa elinkeinorakenteen muutokset tapahtuivat muita kehittyneitä maita myöhemmin. Vastaavasti kehitysvammahuollon peräkkäiset aallot koettiin Suomessa kansainvälisesti jälkimainingeina.

Adaptiivisen käyttäytymisen käsitteen keskeisiä sovellutusalueita ovat kehitysvammaisuuden määrittely ja siihen liittyvä palvelujen suunnittelu sekä opetusohjelmien suunnittelu ja arviointi. Suomessa kehitysvammahuollon piirissä käytössä olleita adaptiivisen käyttäytymisen arviointiasteikoita ovat Vinelandin asteikkko ja PAC - kaaviot. AAMD:n adaptiivisen käyttäytymisen asteikolla (AB-asteikolla) on maailmanlaajuisesti eräänlainen erikoisasema: lukuisten adaptiivisen käyttäytymisen arviointiasteikoiden joukossa se on laajimmin käytetty ja tutkituin mittari.

Tämän työn tarkoituksena on tutkia laitoksessa asuvien kehitysvammaisten adaptiivista käyttäytymistä sekä analysoida AB-asteikon psykometrisiä ominaisuuksia.

Menetelmä. Tutkimuksen koehenkilöinä olivat Kuusaan keskuslaitoksen asukkaat. Laitoksen hoitohenkilökunta täytti kaikista asukkaista (n = 407) kevään 1984 aikana AB-asteikon. Talvella 1985 aineistoon lisättiin 14 uutta asukasta. Koehenkilöiden kokonaismäärä oli tällöin 421. Asukkaista 20 %:lle tehtiin rinnakkaismittaus AB-asteikolla arvioitsijareliabiliteetin laskemista varten. Kesällä 1986 tehtiin 40 asukkaalle kuukauden välein mittaus AB-asteikolla stabiliteettikertoimen laskemiseksi. Näistä asukkaista täytettiin myös Vinelandin asteikko. AB-asteikon lisäksi kaikista asukkaista kerättiin taustatietoja kehitysvammahuollon asiakkaan peruskortista sekä hoitokertomuksista.

AB-asteikon psykometriset ominaisuudet. AB-asteikosta ja sen osista I ja II tehtiin faktorianalyyseja sekä alueiden että osa-alueiden tasolla käyttäen sekä suorakulmaisia että vinokulmaisia ratkaisuja. Tulosten mukaan AB-asteikon I osa oli selkeän yksiulotteinen ja muodosti itsenäisen elämän taitoja mittaavan faktorimuuttujan. AB-asteikon II osa muodosti eitoivottua käyttäytymistä mittaavan faktorimuuttujan. Haluttaessa se voitiin jakaa kahdeksi faktorimuuttujaksi, jolloin toinen mittasi sosiaalisia käytöshäiriöitä ja toinen motorisia käytöshäiriöitä.

AB-asteikon I osan tulomomenttikertoimella mitattu arvioitsijareliabiliteetti oli .97 ja II osan .53. Cronbachin alfa-kertoimella laskettu I osan konsistenssi oli .99 ja II osan .95. Tulomomenttikertoimella laskettu I osan stabiliteetti oli 1.00 ja II osan .95. AB-asteikon kyky ennustaa kehitysvammaisuuden diagnostisiin luokkiin sijoittumista osoitettiin erotteluanalyysin avulla. Tulokset ristivalidoitiin toisella aineistolla. AB-asteikon faktorimuuttujien nykyisvaliditeettia tutkittiin suhteessa toisiinsa, Vinelandin asteikkoon ja älykkyysosamäärään. AB-asteikolle laskettiin desiilinormit sekä koko aineistossa että ikäryhmittäin. Asteikon erottelukyky oli parhaimmillaan vaikeasti ja keskivaikeasti kehitysvammaisten ryhmissä. Asteikon II osan erottelukyky oli heikko.

Psykometrisen tutkimuksen nojalla AB-asteikko on käyttökelpoinen väline kehitysvammaisten adaptiivisen käyttäytymisen mittaamiseen.

Adaptiivinen käyttäytyminen. Laitosasukkaiden adaptiivisten taitojen taso oli hyvin vaihteleva. Huomattavia puutteita esiintyi etenkin syvästi kehitysvammaisilla, joilla usein motoristen taitojen puute esti muiden taitojen oppimista. Adaptiivisten taitojen kehitys jatkui vielä aikuisiässäkin. Viitteitä näkyi siitä, että laitosympäristön rajoittavuus esti taitojen kehitystä.

Laitosasukkaista 46 % oli asetetun kriteerin mukaan käytöshäiriöisiä ja 22 % vaikeasti käytöshäiriöisiä. Vaikeasti käytöshäiriöisistä noin kolmannes oli lapsipsykoottisia. Sosiaaliset käytöshäiriöt olivat yleisimpiä keskivaikeasti kehitysvammaisilla ja motoriset käytöshäiriöt syvästi kehitysvammaisilla. Vaikeat käytöshäiriöt heikensivät suoriutumista niillä adaptiivisten taitojen alueilla, joilla korostuivat motivaatiotekijät ja sosiaaliset taidot.

Henkilöillä, joilla oli Downin syndrooma, esiintyi muita vähemmän eitoivottua käyttäytymistä. Lapsipsykoottisilla henkilöillä oli poikkeuksellisen runsaasti käytöshäiriöitä.

Itsensä vahingoittaminen. Adaptiivisen käyttäytymisen alueista itsensä vahingoittamista tutkittiin yksityiskohtaisesti erikseen. AB-asteikon itsensä vahingoittamista mittaavan osion arvioitsijareliabiliteetti oli .50 ja stabiliteetti .89. Alkuperäisestä osiosta tehtiin faktorianalyysi, jonka nojalla muodostettiin uusi yksiulotteinen summa-asteikko. Itsensä vahingoittamisen yleisyys laitoksessa oli 41 %. Asukkaista 14 % vahingoitti itseään säännöl-

lisesti ja 27 % satunnaisesti. Säännöllisen itsensä vahingoittamisen yleisyys oli 3 % lievästi kehitysvammaisilla, 9 % keskivaikeasti kehitysvammaisilla, 12 % vaikeasti kehitysvammaisilla ja 18 % syvästi kehitysvammaisilla. Yleisimmät muodot olivat itsensä lyöminen, raapiminen tai pureminen sekä pään hakkaaminen.

Itsensä vahingoittamisella ei ollut yhteyttä ikään eikä laitoksessa olon pituuteen. Lapsipsykoottisilla henkilöillä käytöshäiriö oli yleisempi naisilla kuin miehillä. Itsensä vahingoittaminen oli sitä yleisempää, mitä alempia henkilön älykkyysosamäärä ja itsenäisen elämän taidot olivat. Tasoltaan kaikkein heikoimmilla itsensä vahingoittaminen oli kuitenkin vähäistä, mikä johtui motoristen taitojen puutteesta. Itsensä vahingoittamisella ei ollut tilastollisesti merkitsevää yhteyttä aistivammoihin. Kommunikaatiotaidoiltaan muita heikommilla esiintyi tavallista enemmän itsensä vahingoittamista myös sen jälkeen, kun kehitysvamman taso oli vakioitu. Itseään vahingoittavilla henkilöillä esiintyi poikkeuksellisen paljon muitakin käytöshäiriöitä, kuten väkivaltaisuutta ja tuhoavuutta, sopimattomia tapoja sekä erityisesti stereotyyppista käyttäytymistä.

Kehitysvammaisuuden todennäköisen syyn luokista suurin satunnaisen tai säännöllisen itsensä vahingoittamisen yleisyysprosentti havaittiin lapsuusiän psykoosien ryhmässä (65 %). Itsensä vahingoittajista oli lapsipsykoottisia vähintään neljännes. Keskivaikeasti tai vaikeasti kehitysvammaisten ryhmässä itsensä vahingoittaminen oli vähäisempää niillä henkilöillä, joilla oli Downin oireyhtymä (10 %) kuin muilla (40 %). Vastaavaa eroa ei havaittu syvästi kehitysvammaisilla. Itsensä vahingoittaminen oli keskimääräistä vähäisempää niillä henkilöillä, joilla ei todettu neurologisia vaurioita.

Adaptiivinen käyttäytyminen ja yhteisöintegraatio. Tutkimus havainnollistaa niitä haasteita, joita laitoksessa asuvien kehitysvammaisten adaptiivisen käyttäytymisen puutteet asettavat yhteisöintegraatiolle. Suurimmat adaptiiviseen käyttäytymiseen liittyvät haasteet integraatiopyrkimys nähtävästi kohtaa siinä, miten kehitysvammaisten ei-toivottua käyttäytymistä kyetään hallitsemaan ympäristöissä, jotka ovat vähemmän rajoittavia kuin laitos.

REFERENCES

Achte, K., Alanen, Y.O. & Tienari, P. (1982). *Psykiatria.* Porvoo: WSOY.

Ahonen, H. (1984). *Toiminnan ja henkilöstösuunnittelun kehittäminen Rinnekodin hoito-osastolla* (Valtakunnallisen tutkimus- ja kokeiluyksikön julkaisuja 30). Helsinki: Kehitysvammaliitto.

American Psychological Association (1974). *Standards for educational and psychological tests.* Washington, D.C.: Author.

Arndt, S. (1981). A general measure of adaptive behavior. *American Journal of Mental Deficiency, 85,* 554-556.

Autio, S., Palo, J., Aittokallio, M. & Turunen, S. (1985). *Kehitysvammaisuus.* Porvoo: WSOY.

Bachman, J.A. (1972). Self-injurious behavior: A behavioral analysis. *Journal of Abnormal Psychology, 80,* 211-224.

Ballinger, B.R. (1971). Minor self-injury. *British Journal of Psychiatry, 118,* 535-538.

Baron, J. (1972). Temperament profile of children with Down's syndrome. *Developmental Medicine and Child Neurology, 14,* 640-643.

Barrett, R.P. (Ed). (1986). *Severe Behavior Disorders in the Mentally Retarded. Nondrug Approaches to Treatment.* New York: Plenum Press.

Barron, J.L. & Sandman, C.A. (1984). Self-injurious behavior and stereotypy in an institutionalized mentally retarded population. *Applied Research in Mental Retardation, 5,* 499-511.

Bartak, L. & Rutter, M. (1976). Differences between retarded and normally intelligent autistic children. *Journal of Autism and Childhood Schizophrenia, 6,* 109-120.

Baumeister, A.A. & Forehand, R. (1973). Stereotyped acts. *International Review of Research in Mental Retardation, 6,* 55-96.

Baumeister, A.A. & Rollings, J.P. (1976). Self-injurious behavior. *International Review of Research in Mental Retardation, 8,* 1-34.

Beasley, S.W. (1986). Use of restraining belt at night causing accidental death of severely retarded child. *Australian and New Zealand Journal of Psychiatry, 20,* 502-503.

Binet, A. & Simon, Th. (1976). Upon the necessity of establishing a scientific diagnosis of inferior states of intelligence. In: M. Rosen, G.R. Clark, M.S. Kivitz (Eds.) *The History of Mental Retardation. Collected Papers. Volume 1.* pp. 329-354. Baltimore: University Park Press. (First published in 1905).

Björkman, A. (1912). Om svagsintheten i Finland och några synpunkter i fråga om dess bekämpande. *Finska Läkaresällskapets Handlingar, 54,* 129-153.

Bonsdorff, A. von, (1925). *Tylsämielisten lasten hoidosta Suomessa.* Suomen sosiaaliministeriön julkaisemia tiedonantoja XXI. Helsinki.

Borgström, C.A. (1958). *Tilllämpningen av lagen om sterilisering i Finland 1935-55 kastreringarna obeaktade* (Bidrag till kännedom av Finlands natur ock folk H. 103). Helsinki: Finska Vetenskaps-Societeten.

Brockett, L.P. (1976). Idiots and the efforts for their improvement. In: M. Rosen, G.R.Clark & M.S. Kivitz (eds.). *The History of Mental Retardation.* Collected Papers. Volume 1. s. 69-86. Baltimore: University Park Press. (first published 1856).

Bruininks, R.H., Thurlow, M. & Gilman, C.J. (1987). Adaptive behavior and mental retardation. *The Journal of Special Education, 21,* 1, 69-88.

Cain, A.C. (1961). The presuperego "turning-inward" of aggression. *Psychoanalytic Quarterly, 30,* 171-208.

Campbell, D.T. & Fiske, D.W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56,* (2), 81 - 105.

Campbell, V., Smith, R. & Wool, R. (1982). Adaptive behavior scale differences in scores of mentally retarded individuals referred for institutionalization and those never referred. *American Journal of Mental Deficiency, 86,* 415-418.

Cantor, G.N. & Girardeau, F.C. (1964). Rhytmic discrimination ability in mongoloid and normal children. *American Journal of Mental Deficiency, 68,* 621-625.

Carr, E.G. (1977). The motivation of self-injurious behavior: a review of some hypotheses. *Psychological Bulletin, 84,* 800-816.

Carr, E.G. & Durand, V.M. (1985). Reducing behavior problems through functional communication training. *Journal of Applied Behavior Analysis, 18,* 11-126.

Carr, E.G., Newsom, C.D. & Binkoff, J.A. (1976). Stimulus control of self-destructive behavior in a psychotic child. *Journal of Abnormal Child Psychology, 4,* 139-153.

Cataldo, M.F. & Harris, J. (1982). The biological basis for self-injury in the mentally retarded. *Analysis and Intervention in Developmental Disabilities, 2,* 21-39.

Christian, W.P. & Malone, D.R. (1975). Relationships three measures used in screening mentally retarded for placement in special education. *Psychological Reports, 33,* 415-418.

Clausen, J.A. (1967). Mental deficiency: Development of a concept. *American Journal of Mental Deficiency, 71,* 523-533.

Clements, P.R., Bost, L., DuBois, Y. & Turpin, W. (1980). Adaptive Behavior Scale, Part Two: Relative severity of maladaptive behavior. *American Journal of Mental Deficiency, 84,* 465-469.

Clements, P.R., DuBois, Y., Bost, L. & Bryan, C. (1981). Adaptive Behavior Scale, Part Two: predictive efficiency of severity and frequency scores. *American Journal of Mental Deficiency, 85,* 433-434.

Cook, J.J. (1966). A conceptual framework within which to view adaptive behavior in the retarded. *American Journal of Mental Deficiency, 71,* 64-72.

Craig, E.M. & McCarver, R.B. (1984). Community placement and adjustment of deinstitutionalized clients: issues and findings. *International Review of Research in Mental Retardation, 12,* 95-122.

Cronbach, L.J. (1947). Test "reliability": Its meaning and determination. *Psychometrika, 12,* 1-16.

Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16,* 297-334.

Cronbach, L.J. (1984). *Essentials of psychological testing.* 4rd edition. New York: Harper & Row.

Dailey, W.F., Allen, G.J., Chinsky, J.M. & Veit, S.W.(1974). Attendant behavior and attitudes toward institutionalized retarded children. *American Journal of Mental Deficiency, 78,* 586-591.

DeLissovoy, V. (1961). Headbanging in early childhood: A study of incidence. *Journal of Pediatrics, 58,* 803-805.

DeLissovoy, V. (1962). Head banging in early childhood. *Child Development, 33,* 43-56.

DeLissovoy, V. (1963). Head-banging in early childhood: A suggested cause. *The Journal of Genetic Psychology, 102,* 109-114.

Doll, E.A. (1935). A genetic scale of social maturity. *American Journal of Orthopsychiatry, 5,* 180-188.

Doll. E.A. (1941). The essentials of an inclusive concept of mental deficiency. *American Journal of Mental Deficiency, 46,* 214-219.

Doll, E.A. (1977). *Vinelandin sosiaalisen kehityksen asteikko. Ohjekirja.* Helsinki: Psykologien Kustannus (Originally published in 1965).

Doll, E.E. (1988). Before the big time: Early history of the training school at Vineland, 1888 to 1949. *American Journal of Mental Retardation, 93,* 1-15.

Donellan, A.M., Mirenda, P.L., Mesaros, R.A. & Fassbender, L.L. (1984). Analyzing the communicative functions of aberrant behaviour. *Journal of the Association for the Severely Handicapped, 9,* 201-212.

Donner, S.E. (1955). Planering av en modern sinneslöanstalt. In: *Förhandlingar vid nordiska kongressen för sinneslövård i Helsingfors 3-11 Juni 1954.* p. 86-89. Pieksämäki: Centralförbundet för sinneslöanstalterna.

Dugdale, R.L. (1976). Hereditary pauperism as illustrated in the "Juke" family. In: M. Rosen, G.R. Clark, M.S. Kivitz (Eds.). (1976). *The History of Mental Retardation. Collected Papers. Volume 1.* p. 271-282. Baltimore: University Park Press. (First published in 1877)

Duker, P., van Druenen, C., Jol, K. & Oud, H. (1986). Determinants of maladaptive behavior of institutionalized mentally retarded individuals. *American Journal of Mental Deficiency, 91,* 51-56.

Durand, V.M. (1982). Analysis and intervention of self-injurious behavior. *Journal of the Association for the Severely Handicapped, 7,* (4),44-53.

Epstein, M.H., Cullinan, D. & Polloway, E.A. (1986). Patterns of maladjustment among mentally retarded children and youth. *American Journal of Mental Deficiency, 91,* 127-134.

Eyman, R.K., Borthwick, S.A. & Miller, C. (1981). Trends in maladaptive behavior of mentally retarded persons placed in community and institutional setting. *American Journal of Mental Deficiency, 85,* 473-477.

Eyman, R.K. & Call, T. (1977). Maladaptive behavior and community placement of mentally retarded persons. *American Journal of Mental Deficiency, 82,* 137-144.

Favell, J.E., Azrin, N.H., Baumeister, A.A., Carr, E.G., Dorsey, M.F., Forehand, R., Foxx, R.M., Lovaas, O.I., Rincover, A., Risley, T.R., Romanczyk, R.R., Russo, D.C., Schroeder, S.R., Solnick, J.V. (1982). The treatment of self-injurious behavior. *Behavior Therapy, 13,* 529-554.

Fernald, W.E. (1976). Description of American Institutions. In: M. Rosen, G.R. Clark, M.S. Kivitz (Eds.) *The History of Mental Retardation. Collected Papers. Volume 1.* p. 323-325. Baltimore: University Park Press. (First published in 1893).

Fieandt, K., von & Kalimo, E. (1971). *WAIS-käsikirja. Wechslerin aikuisten älykkyysasteikko.* Helsinki: Psykologien Kustannus.

Foster, R. & Nihira, K. (1969). Adaptive behavior as a measure of psychiatric impairment. *American Journal of Mental Deficiency, 74,* 401-404.

Fulcher, G. (1984). A review of self-injurious behaviour - (SIB) from a behavioural perspective, with an emphasis on treatment strategies. *Australia and New Zealand Journal of Developmental Disabilities, 10,* 51-67.

Futterman, A.D. & Arndt, S. (1983). The construct and predictive validity of adaptive behavior. *American Journal of Mental Deficiency, 87,* 546-550.

Goddard, H.H. (1976). Improvability of feeble-minded children. In: M. Rosen, G.R. Clark, M.S. Kivitz (Eds.) *The History of Mental Retardation. Collected Papers. Volume 1.* pp. 369-376. Baltimore: University Park Press. (First published in 1913).

Godfrey, H.P.D., Frost, S., Snelling, E., Knight, R.G., Shelton, E.J. & Longmore, B.E. (1986). AAMD Adaptive Behaviour Scale: normative, reliability and validity data. *New Zealand Journal of Psychology, 15,* 62-67.

Gollay, E. (1981). Some conceptual and methodological issues in studying the community adjustment of deinstitutionalized mentally retarded people. In: R.H. Bruininks, C.E. Meyers, B.B. Sigford & K.C.Lakin (Eds.) *Deinstitutionalization and community adjustment of mentally retarded people.* pp. 89-106. Monograph of the American Association on Mental Deficiency, Nr 4. Washington, DC: AAMD.

Green, A.H. (1967). Self-mutilation in schizophrenic children. *Archives of General Psychiatry, 17,* 234-244.

Greenberg, R. & Field, T. (1982). Temperament ratings of handicapped infants during classroom, mother and teacher interactions. *Journal of Pediatric Psychology, 7,* 387-405.

Greenspan, S. & Delaney, K. (1983). Personal competence of institutionalized adult males with or without Down syndrome. *American Journal of Mental Deficiency, 2,* 218-220.

Griffin, J.C., Williams, D.E., Stark, M.T., Altmayer, B.K. & Mason, M. (1986). Self-injurious behavior: a state-wide prevalence survey of the extent and circumstances. *Applied Research in Mental Retardation, 7,* 105-116.

Grossman, H.J. (Ed.). (1973). *Manual on terminology and classification in mental retardation.* Washington, D.C.: American Association on Mental Deficiency.

Grossman, H.J. (Ed.). (1983). *Classification in mental retardation.* Washington, D.C.: American Association on Mental Deficiency.

Grunewald, K. (1976). Antal, ålder och kön. In: K. Grunewald (Ed.) *Omsorg om utvecklingsstörda. Nya rön och praktiska metoder.* (p. 207-211). Stockholm: Natur och Kultur.

Gully, K.J. & Hosch, N.M. (1979). Adaptive behavior scale: development as a diagnostic tool via discriminant analysis. *American Journal of Mental Deficiency, 83,* 518-519.

Gunn, P. & Berry, P. (1985). The temperament of Down syndrome children. In: J.M. Berg (Ed.). *Science and service in mental retardation. Proceedings of the seventh congress of the International Association for the Scientific Study of Mental Deficiency (IASSMD).* p. 149-156. London: Methuen.

Gunzburg, H.C. (1977). *Progress assessment chart of social and personal development (in 2 volumes). 5th edition.* Stratford-upon Avon: SEFA.

Hagelberg, M. & Virkkunen, E. (1985). Självdestruktivt beteende. *Psykisk Utvecklingshämning, 87,* (1), 7-9.

Harrison, P.L. (1987). Research with adaptive behavior scales. *The Journal of Special Education, 21,* 37-68.

Hautamäki, J. (1987). Kehitysvammaiset laitoksessa. *Ketju, 23,* 2-4.

Heber, R. (1959). A manual on terminology and classification in mental retardation. *American Journal of Mental Deficiency, 64,* Monograph Supplement.

Heber, R. (1961). Modifications in the Manual on Terminology and classification in Mental Retardation. *American Journal of Mental Deficiency, 66,* 499-500.

Heffernan, L., Black, R.W. & Poche, P. (1982). Temperament patterns in young neurologically impaired children. *Journal of Pediatric Psychology, 7,* 415-423.

Hemming, H., Lavender, T. & Pill, R. (1981). Quality of life of mentally retarded adults transferred from large institutions to new small units. *American Journal of Mental Deficiency, 86,* 157-169.

Hill, B.K. & Bruininks, R.H. (1984). Maladaptive behavior of mentally retarded individuals in residential facilities. *American Journal of Mental Deficiency, 88,* 380-387.

Hodapp, M. & Zigler, E. (1986). Reply to Barnett's comments on the definition and classification of mental retardation. *American Journal of Mental Deficiency, 91,* 117-119.

Holman, J. & Bruininks, R. (1985). Assessing and training adaptive behaviors. In: K.C. Lakin & R.H. Bruininks (Eds.) *Strategies for achieving community integration of developmentally disabled citizens* (pp. 73-104). Baltimore: Paul H. Brookes.

Horn, E. & Fuchs, D. (1987). Using adaptive behavior in assessment and intervention: an overview. *The Journal of Special Education, 21,* 11-26.

Huberty, T.J., Koller, J.R. & Brink, T.D.T. (1980). Adaptive behavior in the definition of mental retardation. *Exceptional Children, 46,* 256-261.

Hüllert, P. (1986). *Självskadande beteende hos institutionsboende utvecklingsstörda.* Uppsala: Projekt Mental Retardation.

Hutt, S.J. & Hutt, C. (1968). Stereotypy, arousal and autism. *Human Development, 11,* 277-286.

Härkönen, K., Jäppinen, I., Tukiainen, K., & Ylänen, E. (1974). *PAC-arviointikaaviot sosiaalisen käyttäytymisen arviointimenetelmänä* (Selosteita ja tiedotteita nro 17). Jyväskylä: Jyväskylän yliopisto, Kasvatustieteiden tutkimuslaitos.

Isett, R.D. & Spreat, S. (1979). Test-retest and interrater reliability of the AAMD Adaptive Behavior Scale. *American Journal of Mental Deficiency, 84,* 93-95.

Itard, J.M.D. (1982). *The Wild Boy of Aveyron.* Englewood Cliffs, N.J.: Prentice-Hall (first published in 1801, 1806).

Iwata, B.A., Dorsey, M.F., Slifer, K.J., Bauman, K.E. & Richman, G.S. (1982). Toward a functional analysis of self-injury. *Analysis and Intervention in Developmental Disabilities, 2,* 2-20.

Jacobson, J.W. (1982). Problem behavior and psychiatric impairment within a developmentally disabled population 1: behavior frequency. *Applied Research in Mental Retardation, 3,* 121-139.

Janicki, M.P. & Jacobson, J.W. (1986). Generational trends in sensory, physical, and behavioral abilities among older mentally retarded persons. *American Journal of Mental Deficiency, 90,* 490-500.

Johnson, R.C. & Abelson, R.B. (1969). The behavioral competence of mongoloid and non-mongoloid retardates. *American Journal of Mental Deficiency, 73,* 856-857.

Johnson, W.L. & Baumeister, A.A. (1978). Self-injurious behavior. A review and analysis of methodological details of published studies. *Behavior Modification, 2,* 465-487.

Kahn, J.V. (1979). Application of the piagetian literature to severely and profoundly mentally retarded persons. *Mental Retardation, 17,* 273-280.

Kaipio, K. (1987). *Kehitysvammaisten adaptiivisen käyttäytymisen mittaaminen ja seuranta keskuslaitoksen osastoilla.* Moniste. Keski-Suomen erityishuoltopiirin kuntainliitto.

Kallunki, I., Leisti, J. & Wilska, M. (1982). *Downin oireyhtymä. Opas vanhemmille.* Hämeenlinna: Karisto.

Kebbon, L. & Windahl, S-I. (1986). Self-injurious behaviour - results of a nation-wide survey among mentally retarded persons in Sweden. In: J.M.Berg (Ed.) *Science and service in mental retardation. Proceedings of the seventh congress of the International Association for the Scientific Study of Mental Deficiency (IASSMD).* pp.142-148. London: Methuen.

Kerlin, I.N. (1976). Moral imbecility. In: M. Rosen, G.R. Clark, M.S. Kivitz (eds). *The History of Mental Retardation. Collected Papers. Volume 1.* s. 303-310. Baltimore: University Park Press.(originally published in 1889).

Keränen, V. (1988). *Kehitysvammahuollon pakkokeinonormisto ja perusoikeudet* (Valtakunnallisen tutkimus- ja kokeiluyksikön julkaisuja 50). Helsinki: Kehitysvammaliitto.

Kettunen, T. (1984). (Resident-to-staff ratios in the mental retardation institutions). (Unpublished paper).

Kidd, J.W., Bartlett, R.H., Forgnoge, C., Goldstein, H., Gorton, C., Moreno-Milne, N., Roseboro, D. & White, R. (1979). An open letter to the committee on terminology and classification of AAMD from the committee on definition and terminology of CEC-MR. *Education and Training of the Mentally Retarded, 14,* 74-76.

Klecka, W,R. (1975). Discriminant analysis. In: Nie,N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K. & Bent, D.H. (Eds.) *Statistical package for the social sciences.* 2nd ed. pp. 434-467. New York: McGraw-Hill.

Kleinberg, J. & Kalligan, B. (1983). Effects of deinstitutionalization on adaptive behavior of mentally retarded adults. *American Journal of Mental Deficiency, 88,* 21-27.

Knapp, S. & Salend, S.J. (1983). Adapting the Adaptive Behavior Scale. *Mental Retardation, 21,* 63-67.

Komiteamietintö (1947:2). *Vajaakykyisten lasten huoltokomitean mietintö II.* Helsinki.

Komiteamietintö (1961:11). *Vajaamielishuollon suunnitelmakomitean mietintö.* Helsinki: Valtion painatuskeskus.

Komiteamietintö (1970 A 12). *Kehitysvammakomitean mietintö II. Ehdotus kehitysvammalaiksi.* Helsinki: Valtion painatuskeskus.

Kotilainen, N. (1955). En översikt av sinneslövårdens senaste utveckling i Finland. In: *Förhandlingar vid nordiska kongressen för sinneslövård i Helsingfors 3-11- juni 1954.* s.44-48. Pieksämäki: Centralförbundet för sinneslöanstalterna.

Kouluhallitus (1986). *Peruskoulun harjaantumisopetuksen opetussuunnitelman perusteet.* Helsinki: Valtion painatuskeskus.

Kravitz, H. & Boehm, S. (1971). Rhytmic habit patterns in infancy: the sequence, age of onset, and frequency. *Child Development, 42,* 399-413.

Kravitz, H., Rosenthal, V., Teplitz, Z., Murphy, J.B. & Lesser, R.E. (1960). A study of head-banging in infants and children. *Diseases of the Nervous System, 21,* 203-208.

Kylén, G. (1981). *Institutionsboendets psykologiska effekter på utvecklingsstörda.* Stockholm: Stiftelsen ALA (originally published in 1978).

Laki lapsen hoitotuesta (L 444/1969).

Laki kehitysvammaisten erityishuollosta (L 519/1977).

Laki vammaisuuden perusteella järjestettävistä palveluista ja tukitoimista. (L 380/1987).

Lakin, K.C., Bruininks, R.H. & Sigford, B.B. (1981). Introduction. In: R.H. Bruininks, C.E. Meyers, B.B. Sigford & K.C. Lakin (Eds.) *Deinstitutionalization and community adjustment of mentally retarded people.* pp. 182-194. Monograph of the American Association on Mental Deficiency, Nr 4. Washington,DC: American Association on Mental Deficiency.

Lakin, K.C., Hill, B.K., Hauber, F.A. & Bruininks, R. (1983). New admissions and readmissions to a national sample of public residential facilities. *American Journal of Mental Deficiency, 88,* 13-20.

Lambert, N.M. & Hartsough, C.S. (1981). Development of a simplified diagnostic scoring method for the school version of the adaptive behavior scale. *American Journal of Mental Deficiency, 86,* 138-147.

Lambert, N.M. & Nicoll, R.C.(1976). Dimensions of adaptive behavior of retarded and nonretarded public-school children. *American Journal of Mental Deficiency, 81,* 135-146.

Lambert, N.M., Windmiller, M.B., Cole, L.J. & Figueroa, R.A. (1975). *AAMD Adaptive Behavior Scale: Public School Version, 1974 revision.* Washington, D.C.: American Association on Mental Deficiency.

Lambert, N.M., Windmiller, M., Thuringer, D. & Cole, L. (1981). *AAMD Adaptive Behavior Scale: School Edition.* (CTB/McGraw-Hill, Monterey, California, 93940).

Landesman-Dwyer, S. & Sulzbacher, F.M. (1981). Residential placement and adaptation of severely and profoundly retarded individuals. Teoksessa R.H. Bruininks, C.E. Meyers, B.B. Sigford & K.C. Lakin (Eds.) *Deinstitutionalization and community adjustment of mentally retarded people.* pp. 182-194. Monograph of the American Association on Mental Deficiency, Nr 4. Washington, DC: AAMD

LaVigna, G.W. & Donellan, A.M. (1986). *Alternatives to Punishment: Solving Behavior Problems with Non-aversive Strategies.* New York: Irvington.

Leisti, J. & Wilska, M-L. (1982). (Mental retardation in Finland. Probable aetiologies as studied with the aid of national register). (Unpublished manuscript).

Leland, H. (1964). Some thoughts on the current status of adaptive behavior. *Mental Retardation, 2,* 171-176.

Leland, H., Shellhaas, M., Nihira, K. & Foster, R. (1967). Adaptive behavior: a new dimension in the classification of the mentally retarded. *Mental Retardation Abstracts, 4,* 359-387.

Lovaas, O.I., Freitag, G., Gold, V.J. & Kassorla, I.C. (1965). Experimental studies in childhood schizophrenia: analysis of self-destructive behavior. *Journal of Experimental Child Psychology, 2,* 67-84.

Lovaas, O.I. & Simmons, J.Q. (1969). Manipulation of self-destruction in three children. *Journal of Applied Behavior Analysis, 2,* 143-157.

Loveland, K.A. & Kelley, M.L. (1988). Development of adaptive behavior in adolescents and young adults with autism and Down syndrome. *American Journal of Mental Retardation, 93,* 84-92.

Lowitzer, A.C., Utley, C.A. & Baumeister, A.A. (1987). AAMD's 1983

Classification in Mental Retardation as utilized by state mental retardation/developmental disabilities agencies. *Mental Retardation, 25,* 287-291.

Lääkintöhallitus (1969). *Tautiluokitus.* Helsinki: Valtion painatuskeskus.

Lääkintöhallitus (1986). *Tautiluokitus 1987. Osa 1 systemaattinen osa.* Helsinki: Valtion painatuskeskus.

Malone, D.R. & Christian, W.P. (1974). Adaptive behavior scale as a screening measure for special education placement. *American Journal of Mental Deficiency, 79,* 367-371.

Marthinsen, R. (1955). Översikt över den senaste utvecklingen och läget nu med hänsyn till sinneslöväsendet i Danmark. In: *Förhandlingar vid nordiska kongressen för sinneslövård i Helsingfors 3-11- juni 1954.* s. 16-27. Pieksämäki: Centralförbundet för sinneslöanstalterna.

MacDonald, L. & Barton, L.E. (1986). Measuring severity of behavior: a revision of Part II of the Adaptive Behavior Scale. *American Journal of Mental Deficiency, 90,* 418-424.

Maisto, C.R., Baumeister, A.A. & Maisto, A,A. (1978). An analysis of variables related to self-injurious behavior among institutionalized retarded persons. *Journal of Mental Deficiency Research, 22,* 27-36.

Matson, J.L. & DiLorenzo, T.M. (1984). *Punishment and its Alternatives. A New Perspective for Behavior Modification.* New York: Springer.

Maurice, P. & Trudel, G. (1982). Self-injurious behavior. Prevalence and relationships to environmental events. In: J.H.Hollis & C.E. Meyers (Eds.) *Life-threatening behavior: analysis and intervention.* Monographs of the American Association on Mental Deficiency, nro 5, pp. 81-103. Washington, DC: AAMD.

McGrew, K. & Bruininks, R. (1989). The factor structure of adaptive behavior. *School Psychology Review, 18,* 64-81.

McDevitt, S.C., McDevitt, S.E. & Rosen, M. (1977). Adaptive Behavior Scale, Part II: a cautionary note and suggestions for revisions. *American Journal of Mental Deficiency, 82,* 210-212.

McLaren, J. & Bryson, S.E. (1987). Review of recent epidemiological studies of mental retardation: prevalence, associated disorders, and etiology. *American Journal of Mental Retardation, 92,* 243-254.

Melin, D. (1955). Något om sinneslövårdens utveckling i Sverige under åren 1936-1954. In: *Förhandlingar vid nordiska kongressen för sinneslövård i Helsingfors 3-11- juni 1954.* s. 38-43. Pieksämäki: Centralförbundet för sinneslöanstalterna.

Meyers, C.E. & Blacher, J. (1987). Historical determinants of residential care. In: S. Landesman, P.M. Vietze & M.J. Begab (Eds.) *Living environments and mental retardation.* pp. 3-16. Washington: American Association on Mental Retardation.

Meyers, C.E., Nihira, K. & Zetlin,A . (1979). The measurement of adaptive behavior. In: N.R.Ellis (Ed.) *Handbook of mental deficiency. Psychological theory and research. 2nd ed.* p.431-482. Hillsdale, N.J.: Lawrence Erlbaum Associates.

Moore, B.C., Thuline, H.C. & Capes, L.V. (1968). Mongoloid and non-mongoloid retardates: a behavioral comparison. *American Journal of Mental Deficiency, 73,* 433-436.

Munch, O.B. (1955). De senare årens utveckling av sinneslövården i Norge. In: *Förhandlingar vid nordiska kongressen för sinneslövård i Helsingfors 3-11- juni 1954.* s. 28-38. Pieksämäki: Centralförbundet för sinneslöanstalterna.

Miettinen, A. (1976). *Martti-pojasta se alkoi. Rinnekodin vaiheita vuosilta 1927-1959.* Pieksämäki: Kirjapaja.

Nie, N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K. & Bent, D.H. (1975). *Statistical package for the social sciences. 2nd ed.* New York: McGraw-Hill.

Nihira, K. (1969a). Factorial dimensions of adaptive behavior on adult retardates. *American Journal of Mental Deficiency, 73,* 868-878.

Nihira, K. (1969b). Factorial dimensions of adaptive behavior in mentally retarded children and adolescents. *American Journal of Mental Deficiency, 74,* 130-141.

Nihira, K. (1976). Dimensions of adaptive behavior in institutionalized mentally retarded children and adults: developmental perspective. *American Journal of Mental Deficiency, 81,* 215-226.

Nihira, K., Foster, R., & Spencer, L. (1968). Measurement of adaptive behavior: a descriptive system for mental retardates. *American Journal of Orthopsychiatry, 38,* 622-634.

Nihira, K., Foster, R., Shellhaas, M. & Leland, H. (1969). *Adaptive Behavior Scale Manual.* Washington, D.C.: American Association on Mental Deficiency.

Nihira, K., Foster, R., Shellhaas, M. & Leland, H. (1974). *AAMD Adaptive Behavior Scale.* Washington, D.C.: American Association on Mental Deficiency.

Nihira, K., Foster, R., Shellhaas, M. & Leland, H. (1988). *AAMD:n adaptiivisen käyttäytymisen asteikko.* Suomennos: T. Saloviita ja V. Tuisku. Helsinki: Kehitysvammaliitto. (Originally published in 1974).

Nirje, B. (1969). The normalization principle and its human management implications. In: R.B. Kugel & W. Wolfensberger (Eds.) *Changing patterns in residential services for the mentally retarded.* Washington, DC.: President's Committee on Mental Retardation.

Oliver, C., Murphy, G.H. & Corbett, J.A. (1987). Self-injurious behaviour in people with mental handicap: a total population study. *Journal of Mental Deficiency Research, 31,* 147-162.

Pagel, S.E. & Whitling, C.A. (1978). Readmissions to a state hospital for mentally retarded persons: reasons for community placement failure. *Mental Retardation, 16,* 164-166.

Piaget, J. (1979). *The origin of intelligence in the child.* London: Routledge & Kegan Paul (Originally published in 1936).

Pitkänen, M. (1986). *Päivä alkaa valjeta. Kappale kehitysvammaisten huoltoa- ja opetusta. Toivola-koti 1926 - 1986.* Oulu: Nuorten Ystävät ry.

Potter, A., Kane, J.K., Martin, J., Wood, G.B. & Cleaveland, C.D. (1976). Education of idiots: an appeal to the citizens of philadelphia. In: M. Rosen, G.R. Clark & M.S. Kivitz (Eds.). *The History of Mental Retardation. Collected Papers. Volume 1.* pp. 61-67. Baltimore: University Park Press. (orinally published in 1853).

Puonti, M. (1989). Itsensä vahingoittaminen kehitysvammalaitoksessa. Psykologian kandidaatin tutkintoon kuuluva syventävien opintojen tutkielma. Joensuun yliopisto.

Riepula, E. (1973). *Eduskunnan perustuslakivaliokunta perustuslakien tulkitsijana* (Suomalaisen lakimiesyhdistyksen julkaisuja A:101). Vammala: Suomalainen lakimiesyhdistys.

Rincover, A. (1978). Sensory extinction: a procedure for eliminating self-stimulatory behavior in developmentally disabled children. *Journal of Abnormal Child Psychology, 6,* 299-310.

Rincover, A., Cook, R., Peoples, A. & Packard, D. (1979). Sensory extinction and sensory reinforcement principles for programming multiple adaptive behavior change. *Journal of Applied Behavior Analysis, 12,* 221-233.

Rincover, A. & Devany, J. (1982). The application of sensory extinction procedures to self-injury. *Analysis and Intervention in Developmental Disabilites, 2,* 67-81.

Robinson, N.M. & Robinson, H.B. (1976). *The mentally retarded child. 2nd ed.* New York: McGraw-Hill.

Rojahn, J. (1984). Self-injurious behavior in institutionalized, severely/profoundly retarded adults - prevalence data and staff agreement. *Journal of Behavioral Assessment, 6,* 13-27.

Rojahn, J. (1986). Self-injurious and stereotypic behavior of noninstitutionalized mentally retarded people: prevalence and classification. *American Journal of Mental Deficiency, 91,* 268-276.

Ross, R.T. (1972). Behavioral correlates of levels of intelligence. *American Journal of Mental Deficiency, 76,* 545-549.

Roszkowski, M.J. (1980). Concurrent validity of the Adaptive Behavior Scale as assessed by the Vineland Social Maturity Scale. *American Journal of Mental Deficiency, 85,* 86-89.

Rummel, R.J. (1970). *Applied Factor Analysis.* Evanston: Northwestern University Press.

Ruoppila, I. (1966). *Suomen vajaamieliset ja heidän huollontarpeensa 1962. II Psykologinen osa.* Suomen Virallinen Tilasto XXXII:26

Räisänen, H. (1975). *Musiikin vaikutus vaikeasti ja syvästi vajaamielisten lasten itsetuottoiseen käyttäytymiseen.* Julkaisematon erityispedagogiikan pro gradu-tutkielma. Jyväskylän yliopisto.

Salagaras, S. & Nettelbeck, T. (1983). Adaptive behavior of mentally retarded adolescents attending school. *American Journal of Mental Deficiency, 88,* 57-68.

Salagaras, S. & Nettelbeck, T. (1984). Adaptive behavior of mentally retarded adults in work-preparation settings. *American Journal of Mental Deficiency, 88,* 437-441.

Saloviita, T. (1983). Märehtivän oksentelun ehkäisy liikasyöttämällä. *Psykologia, 18,* 267-270.

Saloviita, T. (1984). *Liikasyöttäminen kehitysvammaisten oksentelun hoitokeinona* (Valtakunnallisen tutkimus- ja kokeiluyksikön julkaisuja 29). Helsinki: Kehitysvammaliitto.

Saloviita, T. (1986). *Kehitysvammaisten lasten aktivointi leikinohjauksen avulla* (Valtakunnallisen tutkimus- ja kokeiluyksikön julkaisuja 36). Helsinki: Kehitysvammaliitto.

Saloviita, T. (1988a). *Kehitysvammaisten henkilöiden adaptiivisen käyttäytymisen rakenne ja AB-asteikon ominaisuudet* (Valtakunnallisen tutkimus- ja kokeiluyksikön julkaisuja 46). Helsinki: Kehitysvammaliitto.

Saloviita, T. (toim.) (1988b). *AAMD:n adaptiivisen käyttäytymisen asteikko. Suomenkielisen laitoksen käsikirja.* Helsinki: Kehitysvammaliitto.

Saloviita, T. (1988c). Elimination of self-injurious behaviour by brief physical restraint and DRA. *Scandinavian Journal of Behaviour Therapy, 17,* 55-63.

Saloviita, T. (1988d). *Itsensä vahingoittaminen keskuslaitoksessa. Epidemiologinen tutkimus* (Valtakunnallisen tutkimus- ja kokeiluyksikön julkaisuja 47). Helsinki: Kehitysvammaliitto.

Saloviita, T. (1989a). Tavoitteena tavallinen elämä. Tutkimus laitoksesta ryhmäasuntoon siirrettyjen syvästi kehitysvammaisten aikuisten hoidosta. Julkaisussa: T. Saloviita (toim.) *Keskuslaitoksesta ryhmäasuntoon. Tutkimuksia kehitysvammaisten asumisesta, hoidosta ja opetuksesta* (Valtakunnallisen tutkimus-ja kokeiluyksikön julkaisuja 52). s. 51-83. Helsinki: Kehitysvammaliitto.

Saloviita, T. (1989b). Syvästi kehitysvammaisen miehen siisteyskasvatus pienessä ryhmäasunnossa. Julkaisussa: T. Saloviita (toim.) *Keskuslaitoksesta ryhmäasuntoon. Tutkimuksia kehitysvammaisten asumisesta, hoidosta ja opetuksesta* (Valtakunnallisen tutkimus-ja kokeiluyksikön julkaisuja 52). s. 84-94. Helsinki: Kehitysvammaliitto.

Saloviita, T. (1989c). Vaikeiden käytöshäiriöiden ehkäiseminen käyttäytymisterapian avulla syvästi kehitysvammaisten asuntolassa. Julkaisussa: T. Saloviita (toim.) *Keskuslaitoksesta ryhmäasuntoon. Tutkimuksia kehitysvammaisten asumisesta, hoidosta ja opetuksesta* (Valtakunnallisen tutkimus-ja kokeiluyksikön julkaisuja 52). s. 95-110 Helsinki: Kehitysvammaliitto.

Saloviita, T. (1989d). Elämää keskuslaitoksessa. Tutkimus poikkeavien henkilöiden elämänlaadusta. Julkaisussa: T. Saloviita (toim.) *Keskuslaitoksesta ryhmäasuntoon. Tutkimuksia kehitysvammaisten asumisesta, hoidosta ja opetuksesta* (Valtakunnallisen tutkimus-ja kokeiluyksikön julkaisuja 52). s. 13-48. Helsinki: Kehitysvammaliitto.

Saloviita, T. (1989e). *Kehitysvammaisten adaptiivinen käyttäytyminen laitoksessa* (Valtakunnallisen tutkimus-ja kokeiluyksikön julkaisuja 55). Helsinki: Kehitysvammaliitto.

Saloviita, T., Laitinen, J. & Huuhko. L. (1984). *Kehitysvammaisen pojan itsensä vahingoittamisen ehkäiseminen käyttäytymisterapian avulla* (Valtakunnallisen tutkimus- ja kokeiluyksikön julkaisuja 27). Helsinki: Kehitysvammaliitto.

Scheerenberger, R.C. (1983). *A History of Mental Retardation.* Baltimore: Paul H. Brookes.

Schroeder, S.R., Schroeder, C.S, Rojahn, J. & Mulick, J.A. (1981), Self-injurious behavior: An analysis of behavior management techniques. In:

J.L. Matson & J.R. McCartney (Eds.) *Handbook of behavior modification with the mentally retarded.* pp. 61-116 New York: Plenum Press.

Schroeder, S.R., Schroeder, C.S., Smith, B. & Dalldorf, J. (1978). Prevalence of self-injurious behaviors in a large state facility for the retarded: a three-year follow-up study. *Journal of Autism and Childhood Schizophrenia, 8,* 261-269.

Seguin, E. (1976). Origin of the treatment and training of idiots.In: M. Rosen, G.R. Clark & M.S. Kivitz (Eds.). *The History of Mental Retardation. Collected Papers. Volume 1.* pp. 151-159. Baltimore: University Park Press. (First published 1864).

Seltzer, G.B. (1983). Systems of classification. In: J.L. Matson & J.A. Mulick (Eds.) *Handbook of mental retardation.* (p. 143-156) New York: Pergamon.

Shodell, M.J. & Reiter, H.H. (1968). Self-mutilative behavior in verbal and nonverbal schizophrenic children. *Archives of General Psychiatry, 19,* 453-455.

Silverstein, A.B., Ageno, D., Alleman, A.C., Derecho, K.T., Gray, S.B. & White, J.F. (1985). Adaptive behavior of institutionalized individuals with Down syndrome. *American Journal of Mental Deficiency, 89,* 555-558.

Silverstein, A.B., Aguilar, B.F., Jacobs, L.J., Levy, J. & Rubinstein, D.M. (1979). Imitative behavior by Down's syndrome persons. *American Journal of Mental Deficiency, 83,* 409-411.

Sinclair, E. & Forness, S. (1983). Classification: educational issues. In: J.L. Matson & J.A. Mulick (Eds.) *Handbook of mental retardation.* (pp. 171-183) New York: Pergamon.

Singh, N.N. (1977). Prevalence of self-injury in institutionalized retarded children. *New Zealand Medical Journal, 86,* 325-328.

Skinner, B.F. (1953). *Science and human behavior.* New York: MacMillan.

Sosiaalihallitus (1987). *Tilastotiedotus 1987:3.* Helsinki: Valtion painatuskeskus.

Sosiaalihallitus (1987). *Harjaantumisopetuksen opetussuunnitelma 2. Toiminta-alueet ja tavoitteet.* Helsinki: Valtion painatuskeskus.

Sloan, W. & Birch, J.W. (1955). A rationale for degrees of retardation. *American Journal of Mental Deficiency, 60,* 258-264.

Smeets, P.M. (1971). Some characteristics of mental defectives displaying self-mutilative behavior. *Training School Bulletin, 68,* 131-135.

Sparrow, S.S., Balla, D.A. & Cicchetti, D.V. (1984). *Vineland Adaptive Behavior Scales: Interview edition, survey form manual.* Circle Pines, M.N.: American Guidance Service.

Spreat, S. (1980). The Adaptive Behavior Scale: a study of criterion validity. *American Journal of Mental Deficiency, 85,* 61-68.

Suomen Mielenterveysseura (1987). *Laitokset, laki, valta.* Helsinki: Suomen Mielenterveysseura.

Suomen Tilastollinen Vuosikirja (1982). Helsinki: Valtion Painatuskeskus.

Stack, J.G. (1984). Interrater reliabilities of the Adaptive Behavior Scale with environmental effects controlled. *American Journal of Mental Deficiency, 88,* 396-400.

Sutter, P., Mayeda, T., Call, T., Yanagi, G. & Yee, S. (1980). Comparison of successful and unsuccessful community-placed mentally retarded persons. *American Journal of Mental Deficiency, 85,* 262-267.

Tate, B.G. & Baroff, G.S. (1966). Aversive control of self-injurious behavior in a psychotic boy. *Behavior Research and Therapy, 4,* 281-287.

Tarasti, A. (1959). Vajaamielislaki selityksin. Teoksessa: L.Tarvainen & A. Tarasti (toim.) *Vajaamielishuolto ja lainsäädäntö.* Helsinki: Sosiaalihuollon keskusliitto.

Tarvainen, L. (1959). Vajaamielishuolto. Teoksessa: L. Tarvainen & A. Tarasti (toim.) *Vajaamielishuolto ja lainsäädäntö.* s. 5-34. Helsinki: Sosiaalihuollon keskusliitto.

Tarvainen, L. (1966). *Suomen vajaamieliset ja heidän huollontarpeensa 1962. I Sosiaalinen osa.* Suomen Virallinen Tilasto XXXII:26.

Taylor, R.L., Warren, S.A. & Slocumb, P.R. (1979). Categorizing behavior in terms of severity: considerations for Part Two of the Adaptive Behavior Scale. *American Journal of Mental Deficiency, 83,* 411-414.

Tiernay, I.R., McGuire, R.J. & Walton, H.J. (1978). The effects of music on body-rocking manifested by severely mentally deficient patient in ward environments. *Journal of Mental Deficiency Research, 22,* 255-261.

Tomiyasu, Y. (1977). Measurement of adaptive behavior in Japan. A factor analytic study. In: P. Mittler (Ed.) *Research to practice in mental retardation. vol. II.* (pp. 177-183) Baltimore: University Park Press.

Työryhmä (1981). *Laitoshuollon tehtävä ja asema kehitysvammahuollossa.* Helsinki: Kehitysvammaliitto.

Työryhmä (1986). *Kehitysvammahuollon kehittämistavoitteet* (Sosiaalihallituksen julkaisuja 11). Helsinki: Valtion painatuskeskus.

Utley, C.A., Lowitzer, A.C. & Baumeister, A.A. (1987). A comparison of the AAMD's definition, eligibility criteria, and classification schemes with state departments of education guidelines. *Education and Training in Mental Retardation, 22,* 35-43.

Vajaamielislaki ja -asetus. (L 107/1958 ja A 263/1958).

Veit, S.W., Allen, G.J. & Chinsky, J.M. (1976). Interpersonal interactions between institutionalized retarded children and their attendants. *American Journal of Mental Deficiency, 80,* 535-542.

Volkmar, F.R., Sparrow, S.S., Goudreau, D., Cicchetti, D.V., Paul, R. & Cohen, D.J. (1987). Social deficits in autism: an operational approach using the Vineland Adaptive Behavior Scales. *Journal of the American Academy of Child and Adolescent Psychiatry, 26,* 156-161.

Wadström, O. (1986). *Självskadande beteende istället för språk - konsekvenser av bristande kommunikation hos döva psykiskt utvecklingstörda.* Stencil.

Wadström, O. (1987). Självskadande beteende - ett sätt att kommuni- cera. *Psykisk Utvecklingshämning, 89,* 29-36.

Wallner, T. (1983). Självdestruktivt beteende. *Psykisk Utvecklingshämning, 85* (4), 12-15.

Whitman, T.L., Sciback, J.W. & Reid, D.H. (1983). *Behavior Modification with the Severely and Profoundly Retarded. Research and Application.* New York: Academic Press.

Wilbur, C.T. (1976). Institutions for the feeble-minded. In: M. Rosen, G.R. Clark & M.S. Kivitz (Eds.). *The History of Mental Retardation. Collected Papers. Volume 1.* pp. 293-301. Baltimore: University Park Press. (First published 1888).

Windahl, S-I. (1979). *Från social isolering till meningsfull habilitering. En analys av den sociala samspelproblematiken mellan det gravt multihandikappade barnet och vårdaren.* Pedagus-projektet. Forskningsgruppen i Mental Retardation, Ulleråkers sjukhus, Uppsala.

Windahl, S-I. (1984). *Självdestruktivt beteende bland psykiskt utvecklingsstörda.* Uppsala: Projekt Mental Retardation.

Windahl, S-I. (1985). Självdestruktivt beteende i inventeringsresultatens belysning. Julkaisussa: *Självdestruktivt beteende.* Rapport från en konferens i Stockholm den 9 maj 1984 (pm 113/85) s.11-28. Stockholm: Socialstyrelsen.

Windahl. S-I. (1986). *Självdestruktivt beteende (SDB) bland psykiskt utvecklingsstörda i det sörmländska elevhemsboendet.* Uppsala: Projekt Mental Retardation.

Wolf, M., Risley, T. & Mees, H. (1964). Application of operant conditioning procedures to the behavioural problems of an autistic child. *Behaviour Research and Therapy, 1,* 305-312.

Wolfensberger, W. (1980). The definition of normalization. Update, problems, disagreements, and misunderstandings. In: R.J. Flynn & K.E. Nitsch (Eds.). *Normalization, social integration, and community services.* (pp. 71-115). Baltimore: University Park Press.

Wolfensberger, W. (1981). The extermination of handicapped people in World War II Germany. *Mental Retardation, 19,* 1-7.

Wolfensberger, W. (1983). Social role valorization: a proposed new term for the principle of normalization. *Mental Retardation, 21,* 234-239.

Woodward, M. (1959). The behaviour of idiots interpreted by Piaget's theory of sensory-motor development. *British Journal of Educational Psychology, 29,* 60-71.

Woolfson, R.C. (1984). Historical perspective on mental retardation. *American Journal of Mental Deficiency, 89,* 231-235.

Zigler, E., Balla, D. & Hodapp, R. (1984). On the definition and classification of mental retardation. *American Journal of Mental Deficiency, 89,* 215-230.

Zigler, E. & Hodapp, R. (1986). *Understanding mental retardation.* Cambridge: Cambridge University Press.

Zigman, W.B., Schuff, N., Lubin, R.A. & Silverman, W.P. (1987). Premature regression of adults with Down syndrome. *American Journal of Mental Deficiency, 92,* 161-168.

APPENDIX

TABLE 46. *Intercorrelations between the domain scores of the ABS (n = 421).*

Domain:	1	2	3	4	5	6	7	8	9	10
2	81									
3	79	59								
4	79	60	75							
5	70	48	69	90						
6	86	65	73	74	72					
7	82	65	76	69	61	75				
8	87	67	75	75	66	76	77			
9	82	57	80	77	73	80	77	84		
10	82	64	78	83	75	73	73	86	82	
I	10	28	01	04	-02	-01	09	06	02	06
II	42	38	39	46	43	37	39	37	37	40
III	38	42	36	40	38	31	39	29	27	32
IV	39	40	37	38	35	35	39	39	35	40
V	-17	-02	-20	-24	-22	-26	-19	-27	-31	-31
VI	-27	-05	-31	-31	-28	-32	-25	-32	-34	-34
VII	23	32	21	18	10	16	21	19	16	22
VIII	20	30	22	27	15	12	22	15	14	18
IX	-15	07	-22	-20	-24	-23	-11	-20	-25	-20
X	-14	03	-20	-20	-23	-24	-16	-21	-23	-21
XI	07	23	03	10	04	03	08	-03	-01	02
XII	24	28	13	18	13	17	22	18	12	20
XIII	43	41	44	47	44	39	40	34	39	41
XIV	-28	-20	-24	-19	-19	-28	-20	-25	-23	-24

TABLE 46 (continued)

Domain:	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
II	59												
III	53	73											
IV	40	54	46										
V	14	-04	13	-08									
VI	29	-01	08	-02	40								
VII	37	36	33	32	-01	16							
VIII	45	47	52	32	13	27	37						
IX	57	21	25	14	35	59	25	34					
X	42	09	10	08	30	43	19	27	45				
XI	37	33	37	24	12	36	21	44	32	28			
XII	19	21	15	23	03	03	26	19	20	10	16		
XIII	49	73	69	51	02	-01	30	51	24	15	36	19	
XIV	18	01	01	-02	09	20	07	14	21	29	14	-08	05