Social Psychological Aspects of Blindness: A Review

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A detailed review of the literature concerned with the social and psychological aspects of blindness is presented. In particular, emphasis is placed on the areas of blindness in children, personal and social adjustment to blindness, attitudes to blindness, and communication in the adult blind. Many of the problems created by blindness, for example in communication between blind and sighted people, are outlined. These problems are shown to have implications for the integration of the blind person into a sighted society, for the coping and adjustment of the blind, and for the attitudes of the sighted. Unfortunately, much of the available evidence is based on anecdotal or biographical material or on clinical case reports and observations. A case is made for carefully controlled investigations into the social and psychological aspects of blindness. The paper concludes with a consideration of current developments.

Blindness is among the most severe of all forms of physical disability. Without vision blind people are cut off from a major segment of the social and physical environment to which they must adapt. This creates problems for mobility and everyday skilled activities for which vision is important. At the same time, in relating to other people, the blind can only guess at the meanings and intentions of non-verbal communication, and the social context in which these occur. Blindness may therefore create formidable social and psychological problems for the individual. These problems are compounded by the fear which this handicap produces in others – few handicaps are more dreaded than blindness (Gowman, 1957) – and by the unreasonable attitudes and reactions of sighted people to it (Scott, 1969a).

Over the past 30 years a great deal of interest has been directed towards the problems produced by blindness, both by research workers and by practitioners in the field. These workers have included psychoanalysts, sociologists, educationists and psychologists, among others, and so the findings produced have come from a variety of theoretical perspectives and methodological orientations. Unfortunately,

carefully conducted investigations, particularly in the areas concerned with the social and psychological aspects of blindness, have been rare. It is the purpose of this paper to review the evidence concerned with the social and psychological aspects of blindness, particularly as they relate to blindness in children, personal and social adjustment to blindness, attitudes to blindness and communication in the adult blind. The paper attempts to summarize the current state of knowledge and to suggest ways in which research might develop. The paper begins with an outline of the definitions, incidence and prevalence rates of blindness.

Definitions of Blindness

The definitions of blindness, the number of blind people, the causes of impairment, and the extent of disability, have proved to be extremely troublesome (Cullinan, 1977). Although there is good agreement about the definition of total blindness as an 'inability to perceive light in either eye', there is confusion about the definition(s) of visual impairment which is less than total. It is estimated that approximately 90 per cent of the registered blind in the USA have some residual vision (Goldstein, 1972). Indeed, there are are least 67 different definitions of blindness world-wide, affecting a total population of about 30 million people (Nizetic, 1975).

A good deal of the discussion of definitions is dependent upon a quantitative (clinical), as against a functional, description of blindness - visual acuity versus visual ability - with implications for 'legal', 'social' or 'economic' divisions of disability (Braley, 1963; Graham, 1963; Hoover, 1963; Jones, 1963; Schloss, 1963; Page, 1974).

A typical clinical definition of blindness is as follows: 'Visual acuity of 20/200 (Snellen) or less in the better eye with proper correction, or a limitation in the fields of vision such that the widest diameter of the visual field subtends an angular distance no greater than 20 degrees' (AFB, 1961). A person is said to have visual acuity of 20/200 if he must be at a distance of 20 feet in order to read the standard type which a person with normal vision (20/20) can read at a distance of 200 feet. The restriction of the visual field to 20 degrees is tantamount to a description of 'tunnel vision' (Telford & Sawrey, 1967). Those people who are considered 'partially sighted' or 'visually impaired' fall into a visual-acuity range of between 20/70 and 20/200 in the better eye after maximum correction (Ashcroft, 1963). In 1973 the World Health Organization attempted to provide a generally accepted definition of blindness and visual impairment which views visual disability as a continuum down to total blindness (see Table 1, WHO, 1973).

Functional definitions vary according to the purposes they are intended to serve (Telford & Sawrey, 1967). There are descriptions, therefore, of 'travel vision' (mobility), 'shadow vision', 'near vision' and 'distance vision', as well as 'educational blindness' and 'occupational blindness'. For example, a person may be 'travel blind', in the sense that independent travel is extremely problematic, while retaining sufficient vision to read normal print for educational purposes (e.g. by using special lenses).

The relationship between quantitative and functional classifications of blindness is poor (Jones, 1963). This, coupled with the problems of population census returns (for example, questions on blindness are no longer included in the National Census of the United Kingdom, although they are reported in the USA and Canada), problems of sight surveys and legal, but voluntary, registration of the

Table I. Definition of visual impairment and blindness (WHO, 1973): visual acuity
(both eyes using best correction)

WHO Category	Maximum less than	Minimum equal to or better than
1	6/18	6/60
2	6/60	3/60
3	3/60	1/60
	(or visual field $>10°$ and $>5°$)	(finger counting at 1 metre)
4	1/60	
	(Finger counting at 1 metre or visual field $<5°$)	light perception
5	no light perception	
9	undetermined or unspecified	

blind, makes the description of the incidence and prevalence of visual impairment a relatively difficult and imprecise one (Cullinan, 1977).

Blindness in England   The registration of blind and partially sighted people in England is dependent on both a clinical and a functional description. Particular emphasis is placed on an 'inability to perform any work for which eyesight is essential', as well as clinical testing of visual acuity. Table 2 presents the number of blind and partially sighted people registered in England in 1974 (DHSS, 1974).

Of the 98 141 people registered, 38 005 are partially sighted, and of the total number 73 per cent are aged 65 or over. The major problems of providing services for the blind are therefore concerned with an aged population, over retirement age, many of whom are thought to have additional disabilities (Cullinan, 1977). Of the 16-64 age group (24 933 people), about one third are in employment (8239 people), whilst only a small proportion of the blind population (2 per cent) are below 16 (RNIB, 1976). It is officially recognized that about 0.2 per cent of the population of England are visually disabled, although estimates have reached 0.5 per cent (Cullinan, 1977).

The causes of blindness in England   The eye conditions leading to visual impairment are classified according to site and aetiology. Table 3 presents the major causes of blindness in England and Wales (Sorsby, 1972).

Table 2. Estimated numbers of blind and partially sighted persons registered at 31
March 1974, and new registrations during the 12 months ended 31 March 1974
(England)

Age	Blind persons registered at 31 March 1974			Blind persons registered as new cases during 12 months		
	Male	Female	Total	Male	Female	Total
Under 2 years	32	19	51	28	18	46
2-4	172	135	307	53	41	94
5-15	980	753	1 733	80	58	138
16-20	512	431	943	27	30	57
21-39	2 986	2 122	5 108	157	108	265
40-49	2 562	1 804	4 366	131	133	264
50-59	4 366	3 828	8 194	276	343	619
60-64	3 085	3 237	6 322	261	312	573
65-74	8 021	11 068	19 089	954	1380	2 334
75 or over	14 878	37 066	51 944	2105	4848	6 953
Age unknown	32	52	84	6	42	48
All ages: total	37 626	60 515	98 141	4078	7313	11 391

Source: DHSS Local Authority Social Services Statistics SSDA 902, England Summary.

The three major causes are attributable to diabetes (where a presumed genetic influence is manifested in later life); prenatal factors (congenital blindness); and degenerative eye conditions after birth (adventitious blindness), for example macular degeneration (the largest single cause of severe visual disability in old age, i.e. in those over 65), myopic chorioretinal atrophy, glaucoma, cataract and retinitis pigmentosa. By far the largest contribution to the blindness population is through eye conditions after birth (adventitious blindness), particularly in old age. Congenital factors accounted for only about 1 per cent of new additions to the blind register in 1974 (RNIB, 1976).

So far we have been concerned with outlining the definitions, incidence, prevalence and causes of blindness. It is now necessary to consider the social and psychological aspects of blindness. Problems such as mobility, education, training

Table 3. Causes of blindness (all ages up to 65) in England and Wales 1963-1968

	Men	Women	All men and women
Infectious diseases			
syphilis	27	6	33
tuberculosis	18	17	35
trachoma	9	11	20
all other	29	53	82
Trauma			
occupational	45	4	49
military	15	2	17
all other	83	27	110
Poisoning, all types	23	17	40
Tumours			
ocular	23	25	48
intracranial	211	216	427
other	23	25	48
Systematic diseases			
diabetes	886	1282	2 168
vascular disease	200	162	362
neurological disorder	234	180	414
all other	266	181	447
Pre-natal			
genetic	836	673	1 509
maternal infection	103	134	237
congenital	762	648	1 410
Aetiology undetermined			
myopic degeneration	778	1230	2 008
other	1956	1822	3 778
Total	6527	6715	13 242

Source: Sorsby, A. The Incidence and Causes of Blindness in England and Wales, 1963-68. DHSS, 1972, p.44.

and employment - of undoubted importance - will not be considered, even though there are definite social and psychological aspects of these areas (see Lowenfield, 1971; Graham, 1972; Buijk, 1977; Gill, 1977a and b).

Blindness and Early Childhood Development

The early physical and psychological development of blind children is the most extensively studied area of blindness. The greatest source of information is derived from clinical observations and reports and interpretations of case histories, usually by psychoanalytically oriented authors, although recently experimental evidence has been added. Warren (1977) has produced an excellent review of the area in his book 'Blindness and Early Childhood Development', an updated addition to Lowenfield's (1971) comprehensive review.

Major areas of study have investigated the perceptual and motor development of blind infants and young children, cognitive development, intelligence, communication, social development and personality development. Emphasis in this section will be placed on the social and psychological areas, particularly communication, social development and personality, although we begin with a brief description of the area of perceptual-motor and cognitive development.

Perceptual-motor and cognitive development   In the field of perceptual-motor development, discrimination abilities such as perception of texture, weight or sound do not typically show differences between different sub-groups of blind children. In more complex or integrative categories of perception, such as form identification, spatial relations, intermodality relations, and perceptual and motor integration, there are some substantial deficits shown by blind children. There are also several types of cognitive abilities that show differences between blind and sighted children, or between various categories of blind children. These abilities range from relatively specific (understanding spatial concepts) to relatively general ones (understanding the properties of the world, as assessed by Piagetian tasks). Among the principal investigators in these areas are Burlingham (1961) and Fraiberg (1968, 1976, 1977), who instigated a compensatory educational programme for blind children (Fraiberg, Smith & Adelson, 1969).

Language development and non-verbal communication   In most areas of language development the research findings show little evidence of a developmental difference between blind and sighted children. The production and refinement of sounds (Maxfield & Fjeld, 1942; Wilson & Haverson, 1947; Burlingham, 1961; Elonen & Zwarensteyn, 1964; Haspiel, 1965) and the acquisition of early vocabulary (Brieland, 1950; Miner, 1963) are not apparently different in important ways, although Miner (1963) found a greater incidence in speech deviations among blind children than among sighted. The acquisition of grammatical forms is similarly not affected (Wilson & Halverson, 1947; Burlingham, 1961; Tillman & Williams, 1968), although Maxfield (1936) noted fewer statements and negatives and more questions in blind children, and McGuire and Meyers (1971) and Fraiberg and Adelson (1976) have described the misuse of personal pronouns by blind children.

The area that has produced the most disagreement in theories of language development of the blind is that of meaning, and particularly that of 'verbalisms' (Cutsforth, 1932). Verbalisms are words used by blind children for which they could not have a first-hand sensory base, and lead to 'loose thinking' (Cutsforth, 1932). The use of colour words, or words describing various hues or degrees of brightness, is an example of visually related verbalisms, where the congenitally blind child could not have a direct sensory experience. This notion of 'loose thinking', or the use of meaningless words by the blind, has been severely criticized by Dokecki (1966), and investigated by Schlaegel (1953), Nolan (1960), Harley (1963) and De

Mott (1972), who point out the dangers of limiting a child's language by educational programmes designed to exclude verbalisms. These researchers argue that blind children should not be shielded from words or concepts that are normally based on visual experience. Rather, they should be fully exposed to these words and concepts, and attempts should be made to enhance their meaning. Certainly sighted children use terms for which they have no sensory referents, and it would appear that the 'meaning' of words is not always directly associated with objects or sensory experiences (Slobin, 1974). However, there is some evidence for differences between blind and sighted children in 'richness of meaning', but research has not been adequate to justify any strong conclusions (Warren, 1977).

There have been a few studies of non-verbal communication in blind children and they are generally concerned with 'expressiveness'. There are two main areas: facial and body expressions that accompany speech, and the facial expression of emotional states. Brieland (1950) found that congenitally blind children were significantly less expressive (as rated by observers from films of the children telling stories) than sighted children in the degree of expressive body action, although Eisenstadt (1955) presents contradictory evidence in a study of the visually impaired.

Blass, Freedman and Steingart (1974) conducted a study on the relationship between body movement and verbal fluency. They found that blind adolescents produced more 'body-focused' gestures (finger-to-hand, body touching), as opposed to 'object-focused' gestures, than sighted adolescents, and that these movements (especially finger-to-hand) were positively related to verbal fluency. This was not the case for the sighted adolescents. These findings may have implications for potential difficulties in the reception of the speech and gesture of the blind by the sighted.

The research material on the expression of emotional states has shown little difference between blind and sighted children (Goodenough, 1932; Thompson, 1941; Freedman, 1964), for example in the smiling response of babies (Freedman, 1964; Fraiberg, 1977), although facial activity decreases with age (Thompson, 1941; Fulcher, 1942).

Many blind children develop 'blindisms' - inappropriate non-verbal behaviour, for example body rocking, eye rubbing and rolling the eyeballs - and these, and their eradication, are discussed by Apple (1972) and Knight (1972). Interestingly, most of the research on non-verbal communication has been concerned with adolescents, and not with young children or infants at a pre-verbal level. The research findings appear to show a divergence in the development of non-verbal behaviour between blind and sighted children, and this is probably related to the unavailability of vision as a mediator of imitation in blind children.

In summary, the research on communication shows: first, that the language of blind children is not impaired, although there may be differences in 'meaning' between blind and sighted children; second, that there are differences in the use of non-verbal communication between blind and sighted children, with a divergence in development in, for example, the use of emotional facial expressions.

Social development   There is a good deal of evidence that the course of social development is different in blind and sighted children (see, for example, Scott, 1969b). Sommers (1944), Imamura (1965), Tait (1972) and Lairy and Harrison-Covello (1973) have investigated parental attitudes towards blind children (in particular, depression, rejection and over-protection) and have drawn implications for differential socialization processes. Lairy and Harrison-Covello (1973), for

example, link the emergence of extremely passive and dependent blind children with parental over-protection.

In the areas of social attachment and social responsiveness, especially smiling in infants and in older children (Freedman, 1964; Fraiberg, 1970), separation anxiety and fear of strangers (Schaffer & Emerson, 1964) and separation (Fraiberg, 1970, 1972), development is slower, and problems are more marked in the blind child than in the sighted child. Problems also exist in social maturity (Bauman, 1973) and sexual knowledge and behaviour (Cutsforth, 1951; Gendel, 1973; Foulke & Uhde, 1974). It is not known, however, whether the research findings denote a less adequate socialization process, as developmental indicators may not be equivalent for blind and sighted children (Warren, 1977).

Personality development   The area of personality development in blind children is beset by methodological problems of precisely how to test blind children (this is, of course, equally true of the testing of sighted children), and many interpretations rely heavily on psychoanalytic interpretations (Burlingham, 1961; Carroll, 1961; Cutsforth, 1966). Many of the personality tests used have been standardized on sighted children (e.g. the California Personality Inventory), and use sight-related items. The tests therefore have dubious validity, although a start has been made in developing tests specifically for blind children (see, for example, Bauman, Platt & Strauss, 1963; Chase & Rapaport, 1968). Indeed, the problem of what is meant by 'personality' - particularly in young children - has led researchers to focus on specific areas within the two broad categories of interpersonal and intrapersonal characteristics (Warren, 1977). Social adjustment (Brieland, 1950), assertiveness (Imamura, 1965) and aggression (McGuire & Meyers, 1971) have been examined in relation to interpersonal characteristics, while moral development (Stephens & Simpkins, 1974), the 'self-concept' (Jarvis, 1959; Tait, 1972) and neuroticism (Zahran, 1965) are examples of intrapersonal characteristic research. If the findings of the research are taken together then there is some evidence to suggest that blind children are more passive, less aggressive, more dependent, and somewhat more emotionally disturbed (Warren, 1977). In general, though, 'there is relatively little known about either the determinants of, or the functional significance of, personality characteristics in blind children' (Warren, 1977, p.246).

Summary   There is a considerable body of literature on the development of blind children, but there is little reliable evidence (Warren, 1977). Many of the reports are either based on descriptive case-study material of single subjects (e.g. Burlingham, 1961; Fraiberg, 1972) or are methodologically inadequate, for example in the selection of subjects (totally blind versus partially sighted, the age of blind subjects and length of blindness) and in the selection of adequate controls (Warren, 1977, especially Chapter 9). Problems have been shown to exist, however, with respect to developmental lags and divergence from the development of sighted children. These problems have led to the establishment of compensatory educational programmes, particularly in the USA.

The Adult Blind

The majority of blind people are blinded after birth, and about 70 per cent of all blind people are aged 65 years or over (DHSS, 1974). The problems of the adult blind

are presumed, by the majority of research workers, to be extensively influenced by the social environment in which the blind are located. In the next three sections we will pursue this theme by discussing the personal and social adjustment of the adult blind, attitudes towards blindness, and communication and social interaction between blind and sighted people.

<u>Personal and social adjustment to blindness</u>   When blindness occurs in later life - particularly once cognitive development, independence and the socialization of the individual are established - the difficulties it creates may be less fundamental. Carroll (1961) places great emphasis on differences in adaptation to blindness between the congenitally and the adventitiously blinded, especially in personality. This difference, though, is not as great as was originally thought, as both types of blind people have reached a similar condition, for example in their relationship to society and the problems of disability, via different paths (Jastrzembska, 1973). Sighted people do not distinguish between different sub-groups of the blinded (Feinman, 1978), and in the field of personality there appears to be no special blind personality type (Greenberg & Jordan, 1957; Telford & Sawrey, 1967; Schontz, 1970).

The sequence of reaction to the onset of blindness, involving 'initial shock' and a 'mourning period', has been described by a number of authors, and usually interpreted from a psychoanalytic viewpoint (Cutsforth, 1951, 1966; Blank, 1957; Cholden, 1958). A psychological 'loss-model' (Fitzgerald, 1970) has been postulated which suggests that the greater the physical damage, the greater the psychological damage. Although the model has been useful in practice in attempting to understand adjustment processes (Hicks, 1979), it has been criticized, particularly in the light of sociological studies, and it is considered inadequate as an explanation of handicap (see, for example, Wright, 1960; Lukoff & Whiteman, 1972). The reactions of others to the handicap is considered to be a more important consideration, especially in adjustment (Lowenfield, 1953). Many processes have been suggested for recovery, and Table 4 shows the areas that have been considered important in a number of studies (Sommers, 1944; Bauman, 1954; Fitting, 1954; Zarlock, 1961; Lukoff & Whiteman, 1962). (See also the reviews by Cowen et al, 1961; Pringle, 1964; Bauman and Yodor, 1966.)

The process of depression and recovery from the trauma of blindness has been termed a dying as a sighted person and rebirth as a blind one (Cholden, 1958; Carroll, 1961). Blank (1957) suggests a three-stage reaction to blindness: depersonalization, depression and recovery. The onset of blindness may bring personal problems to a head (Lokshin, 1957), while pre-existing individual differences influence the course of adjustment and rehabilitation (Hallenbeck, 1954). Blindness may also serve to mask psychological maladjustment (Cutsforth, 1951). Interest has centred on the effect of blindness on a person's self-esteem (Delafield, 1976) and on the self-concept (Scott, 1969a).

Much of the literature on adjustment to blindness, particularly from a sociological perspective, has been concerned with describing the eventual status of the blind person as being determined, to a large extent, by the expectations and attitudes of his milieu (Lukoff & Whiteman, 1970). Lukoff and Whiteman pay particular attention to the socialization and the segregation of the blind person as being legally enforced. This forces the blind person into dependent role relationships, resulting in stereotyped responses by both blind and sighted people. Kim (1970) examines the integration of the blind into the sighted community, while Graham et al (1968) and Josephson (1968) investigate the social and economic

Table 4. Areas of adjustment to blindness measured by several studies

Fitting (1954)	Bauman (1954)	Zarlock (1961)	Lukoff and Whiteman (1962)	Sommers (1944)
1. Morale	1. Sensitivity	1. Employment	1. Employment	1. Compensatory behaviour
2. Attitude towards sighted people	2. Somatic symptoms	2. Travel	2. Travel independence	2. Denial reactions
3. Outlook on blindness	3. Social competency	3. Indoor orientation	3. Independence in eating	3. Defensive behaviour
4. Family relationships	4. Attitudes of distrust or paranoid tendencies	4. Socialization	4. Independence in shopping	4. Withdrawal
5. Attitude toward training	5. Feelings of inadequacy	5. Communication		5. Non-adjustive behaviour
6. Occupational outlook	6. Depression	6. Recreation		
	7. Attitude to blindness	7. Eating problems		
		8. Dressing problems		
		9. Business problems		
		10. Physical hygiene		

Source: Delafield (1976).

conditions of the blind for rehabilitation services, training and personal needs, and leisure activities, respectively.

In his interesting monograph, Kim (1970) suggests that for the majority of blind people there is very little integration into the sighted community. Furthermore, it is claimed that the exclusion of blind people into 'semi-closed minority communities' is a product of social definitions acting in conjunction with the problems presented by the physical handicap. Thus, evidence is presented that the acceptance of blind people into a sighted society is influenced by the attitudes and

stereotypes of blind and sighted people towards one another. In addition, the degree of this polarization of communities is moderated by a variety of factors, such as perception of prejudice on the part of the sighted against the blind, position in the class, status and power hierarchies of the blind, and degree of blindness. It is concluded that integration will be possible only when sighted people are educated to accept and understand blind people, in addition to the usual attempts to rehabilitate and train blind people. Kim suggests, therefore, that however willing a minority group is to be integrated, they cannot be integrated until the majority group opens the door.

As was mentioned earlier, many of the problems of blindness are specific to old age. Sadly, this has been a much neglected area of study, although the problems of the old blind, many of whom have additional handicaps, are discussed by Clark (1968), Josephson (1968) and Scott (1968).

In summary, the research findings point towards the importance of the social environment in supporting and in providing resources, both personal and financial, to enable the blind person to adjust to his or her handicap. Of particular importance for this adjustment, besides the intrinsic coping capabilities of the particular blind individual, are the attitudes and reactions of the sighted, to which we now turn.

<u>Attitudes towards blindness</u>   The attitudes and beliefs (see, for example, Fishbein & Ajzen, 1975) of blind and sighted people towards the blind are presumed to influence the behaviour of the blind, over and above the problems posed by the handicap of blindness. Scott (1969a) holds the view that 'the disability of blindness is a learned social role' (p.14), while Lukoff and Whiteman (1972) assert that the 'social disabilities associated with blindness result from the prejudiced attitudes of sighted persons who come in contact with the blind' (p.15). Unfortunately, although there are a few systematic studies of attitudes to blindness, most of the available information is anecdotal or biographical. Helen Keller, for example, said 'Not blindness, but the attitude of the seeing to the blind is the hardest burden to bear' (Platt, 1950).

The blind have been presented as devious, exceptionally clever, having special talents, or stupid, possessed of a magical quality, or having a special personality in compensation for their handicap (Langworthy, 1930; Twersky, 1955). Farrell (1965) describes three attitudes of the sighted towards the blind: non-acceptance, leading to social isolation and segregation; the view that the blind are helpless and therefore dependent; and the conviction that the sighted must help the blind. A great amount of effort and money has been utilized in order to provide services to help the blind and cushion them from society (Chevigny & Braverman, 1950; Cutsforth, 1951; Scott, 1972).

Many of the negative attitudes of the sighted to the blind (Villey, 1930; Simmons, 1949; Gowman, 1957; but see Rusalem, 1950) are seen to arise as part of a general stereotype to handicap (Meyerson, 1948; Barker et al, 1953; Wright, 1960; Goffman, 1965).

Lukoff and Whiteman (1963) have investigated the consistency of attitudes of the sighted towards the blind. They found a wide range of attitude dimensions with little relationship between them. There was, however, reasonable agreement by sighted people that blindness enables people to understand other persons, particularly if they are suffering; that the cues blind people receive are more readily translated into accurate perceptions; that the blind are not especially prone to unhappiness, resentment or mental illness; and that blind persons are more

sensitive to music and literature. However, evidence of some consistency in attitudes does not necessarily relate to the behaviour of the sighted towards the blind, or to reports of how the sighted would interact with the blind (Lukoff & Whiteman, 1963), or even to the reactions and attitudes of the blind (McDonald & Hale, 1969).

Cutsforth (1951) has described three characteristic reactions of the blind to the expectations and stereotypes presented by the sighted: internalization, withdrawal, and rejection/independence. A similar typology has been presented by Lukoff (1960), who concludes that his differentiation is, not surprisingly, attributed to a complex interplay of individual and situational factors.

In summary, there is a good deal of literature (Diderot, 1916; French, 1950; Hines, 1950; Ross, 1950; Zahl, 1950; Gowman, 1957; Graham, 1960; Rose, 1970; Kirtley, 1975), by both blind authors and sighted workers, to suggest that the attitudes of others towards blindness do affect the behaviour and integration of the blind into society, but direct evidence is very difficult to find. As Delafield (1976) has pointed out, 'Early studies on sighted attitudes to the blind seem to suggest that there was a unitary dimension which might be discoverable ... Recent studies (e.g. Siller et al, 1967) have shown that sighted attitudes are neither consistent nor pervasive. The stereotyped responses noted by the blind themselves are not as persistent and homogeneous as was at first presumed.'

Communication and social interaction   The language and non-verbal communication of congenitally blind children were discussed earlier. In this section the verbal and non-verbal behaviour, and related topics, of adult blind people will be considered. Much of the evidence is based on biographical reports and observations, with few, if any, experimental findings. The reports do not consider different degrees of blindness - partial or total, or congenital versus adventitious - and, in particular, pay little attention to the possibility that adventitiously blinded people may retain the social skills they developed while sighted.

The inability to write or to read ordinary books, the loss of aesthetic appreciation through vision, and the loss of a great deal of information of social and physical settings are among the more obvious difficulties of communication and blindness. Some form of compensation for these difficulties can be found in technical advancements (e.g. braille, tape-recording machines, devices to help mobility) and instruction in social skills, e.g. shopping, cooking. Gray and Todd (1968), for example, in a survey commissioned by the Ministry of Health, investigated the mobility and reading habits of the blind. They showed that there were many different levels of performance ability which were closely related to various characteristics of the blind population (e.g. age, the degree of residual vision and the influence of additional disabilities). They concluded that improvements in travel independence and reading ability required the tailoring of training, rehabilitation and equipment to satisfy the varying needs. The learning of Braille, for example, is very difficult and becomes more so with increasing age, while listening to 'talking books' is acceptable to most blind people.

Less obvious difficulties created by blindness are those concerned with communication, particularly in speech and in non-verbal communication. Brieland (1950) has listed some of the commonly observed (but rarely empirically tested) speech characteristics of the blind:

1.   The blind speak at a slower rate than the sighted.

2. The blind talk louder, modulate their voices less, and project their voices less appropriately (more of a 'broadcast' voice).

3. The blind have less vocal variety.

4. The blind use fewer bodily movements, facial expressions and gestures in talking.

5. The blind use less lip movement in articulation.

In his study of speech in blind and sighted people, however, Brieland (1950) concluded that his findings 'failed to show the inferiority in the use of the voice which the literature on speech of the blind would lead one to expect'. Indeed, other writers have suggested that investigators may be over-critical in assessing speech defects in the blind (Lowenfield, 1971; Kirtley, 1975).

Perhaps the most sensitive interpretation of problems of communication in blind people is provided by Carroll (1961). Although many of his observations are not proven, they are accepted and echoed by other workers (e.g. Scott, 1969a). The following account details many of Carroll's suggestions.

Without sight a person is deprived of feedback and the available semantic non-verbal and contextual cues of the situation. Lip reading is impossible, as is the recognition and interpretation of non-verbal cues, for example, facial expressions and gestures. There is a loss of certainty in the location and recognition of who is speaking, especially in a group. The blind person may lack his/her former ability to judge the meaning of silences in the conversation - is it his/her turn to speak? Are the others leaving or sharing a private joke? Many blind people develop a 'broadcast' voice (Cutsforth, 1951) in order to be sure to address a listener. Carroll explains that it is difficult for a blind speaker to monitor his/her conversation as he/she finds it difficult to 'profit' from the non-spoken reactions of the listener. As well as the difficulties in comprehending non-verbal behaviour, the blind person's performance of non-verbal signalling is affected. Gestures may be altogether removed and replaced by a 'bland' look or fixed smile. This places great emphasis on the verbal parts of speech. Blind people may also develop 'blindisms' - inappropriate non-verbal behaviour - for example, rocking, rolling the eyeballs, turning away from the speaker (to hear better) etc. In conversation the blind person may find it very difficult to interrupt, or to synchronise his speech, something that Carroll states 'is most difficult for blind persons' (p.161). Most serious of all, though, and underlying all the other problems, for Carroll, is the very great loss in the communication (and interpretation) of 'affect' (p.51, parentheses added)

Scott (1969a), in discussing 'blindness and the conduct of personal relationships', pays particular attention to the inability of the blind in forming immediate impressions of others (see also Cantril & Allport, 1935), and in presenting themselves in appropriate ways (e.g. expected behaviours, roles, etc.). Initial encounters between blind and sighted people may become asymmetrical, since 'one actor is blind, each is deprived of significant information about the other' (Scott, 1969a, p.29). In summary, Scott presents four features of personal relationships that affect interaction: (a) the stereotyped beliefs of the

participants; (b) the fact that blindness is a stigma; (c) the disturbed mechanics of the interaction when one of the people cannot see; (d) the fact that these relationships are based on social dependency.

Many of the difficulties of communication and social interaction that have been presented are based on descriptive material, with mainly inconclusive findings, but even so, attempts have been made to alleviate the problems encountered by blind people (e.g. Heaton, 1968). Carroll (1961) discusses rehabilitation programmes to eradicate blindisms and to improve conversational ability, self-presentation and the ability to 'picture' and judge others. Siegel (1965) has developed techniques to improve posture in the blind, while Apple (1972) outlines a programme for kinesic training. Toonen and Wilson (1969) have taught blind people to localize sound sources, and Webb (1974) the use of myoelectric feedback in teaching facial expressions to the blind. Finally, Bonfanti (1979) describes a procedure for evaluating non-verbal and verbal traits and behaviours of blind adults and the effect of training on these behaviours. A problem for all these training procedures, however, is to be able to distinguish between 'cosmetic' training and the restoration of communicative skills.

In summary, problems in communication between blind and sighted people have been outlined. It should be noted, however, that the systematic investigation of the difficulties in social interaction that have been described has been largely neglected.

DISCUSSION AND CONCLUSIONS

Previous work on the social and psychological aspects of blindness has been described in some detail. Particular emphasis has been placed on the developmental problems of congenitally blind children, and the problems and adjustment of the adventitiously blinded adult. It has been shown that problems do exist with respect to certain areas, for example in communication in both adults and children, in cognitive development in children, etc., which have implications for the integration of the blind person into a sighted society, for the coping and adjustment of the blind, and for the attitudes of the sighted. It has been pointed out, however, and is emphasized again here, that a good deal of the available evidence is speculative in that it is based on anecdotal or biographical material or on clinical case reports and observations, with the reports being mainly atheoretical. There is a definite case to be made for carefully controlled experimental investigations into the social and psychological aspects of blindness, taking both theoretical and practical implications into consideration. A start has been made with respect to development problems in blind children (see Warren, 1977), but experimental investigations of the adult blind have been very scarce. Given the wealth of observations by both the blind and sighted of, for example, the problems of communication, person perception, and social interaction, it is considered appropriate that investigations using the methodology of experimental social psychology should be instigated.

A start has been made in the experimental investigation of the social interaction of the adult blind, by the author (Kemp, 1979, 1980). Theoretically the research is located in a social psychological analysis of the role of visual communication in social interaction. Previous research findings have suggested that visual communication has an important part to play in social interaction. In particular, vision helps people to adapt the way they interact with others, to

monitor their partners' responses, to synchronize switches from speaker to speaker, and to express interpersonal attitudes and emotions. The bulk of this early work has been summarized by Argyle and Cook (1976), Short, Williams and Christie (1976), Williams (1977) and Harper, Weins and Matarazzo (1978). However, more recently, Rutter and Stephenson (1979) and Rutter, Stephenson and Dewey (1981), in reviewing a number of studies, have concluded that visual communication is less important in social interaction than has generally been supposed, and that what is important is the aggregate number of social cues available to the participants in interaction.

Given the fact that blind people are deprived of the ability to communicate visually, various predictions of differences between blind and sighted people can be deduced from previous research on the role of visual communication in social interaction. In particular, four main questions were asked in the author's research. First, how do blind people open, maintain and regulate conversations, given the limited number of social cues - particularly visual cues - they are able to receive? Second, do they form accurate and confident impressions of strangers? Third, are there detectable differences from sighted people in their competence and performance of non-verbal signalling? And finally, does their behaviour with other blind people differ from their behaviour with sighted people?

The research has recently been completed, and the results indicate that indeed there are differences between blind and sighted people in social interaction. The frequency of interruption in conversation by blind pairs is twice that of sighted pairs. However, this was not due to a mis-match in the mechanics of speech, but to differences in the content of conversations, where conversations which are interpersonal, as against task-oriented, lead to a more spontaneous speech style. In impression formation, blind people evaluate others in more positive terms than do sighted people, although the accuracy of perception of biographical details and socio-political beliefs is similar in both blind and sighted. Blind people are, however, less confident in evaluating emotional behaviour. There are also considerable differences between the congenitally blind and the adventitiously blinded in recognizing that problems exist, and in admitting that there are problems in social interaction. Blind people also use fewer gestures and turn less frequently towards their conversation partner than do the sighted. Finally, while the members of blind-blind pairs and the members of sighted-sighted pairs complement each other's behaviour, there are differences between blind-sighted pairs on a variety of measures of the style and content of conversation, and in impression formation.

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REFERENCES

AFB (American Foundation for the Blind) (1961). A Teacher Education Program for

Those Who Serve Blind Children and Youth. New York: American Foundation for the Blind.

Apple, M. (1972). Kinesic training for blind persons: a vital means of communication. New Outlook for the Blind, 66, 201-208.

Argyle, M. & Cook, M. (1976). Gaze and Mutual Gaze. London: CUP.

Ashcroft, S.C. (1963). Blind and Partially Sighted Children. In L.M. Dunn (ed.), Exceptional Children in the Schools. New York: Holt, Rinehart and Winston.

Barker, R., Wright, B., Meyerson, L. & Gonik, M. (1953). Adjustment to Physical Handicap and Illness: A Survey of the Social Psychology of Physique and Disability (rev. ed.), Social Science Research Council, No. 55.

Bauman, M. (1954). Adjustment to Blindness. Pennsylvania: State Council for the Blind.

Bauman, M., Platt, H. & Strauss, S. (1963). A measure of personality for blind adolescents. International Journal for Education of the Blind, 13, 7-12.

Bauman, M. & Yodor, N. (1966). Adjustment to Blindness - re-viewed. Springfield, Illinois: Charles C. Thomas.

Bauman, M.K. (1973). The social competency of visually handicapped children. Paper presented at Conference on the Blind Child in Social Interaction: Developing Relationships with Peers and Adults. New York.

Blank, H. (1957). Psycho-analysis and blindness. The Psycholoanalytic Quarterly, 26, no.1, 1-24.

Blass, T., Freedman, N. & Steingart, I. (1974). Body movement and verbal encoding in the congenitally blind. Perceptual and Motor Skills, 39, 279-293.

Bonfanti, B. (1979). Effects of training on nonverbal and verbal behaviour of congenitally blind adults. Visual Impairment and Blindness, January, 1-9.

Braley, A.C. (1963). The problem of definition of blindness. Research Bulletin of the American Foundation for the Blind, No. 3, August, p. 119.

Brieland, D.M. (1950). A comparative study of the speech of blind and sighted children. Speech Monographs, 17, 99-103.

Buijk, C.A. (1977). Mobility of the Blind and Partially Sighted. Amsterdam: Laboratory for Applied Psychology.

Burlingham, D. (1961). Some notes on the development of the blind. Psychoanalytic Study of the Child, 16, 121-145.

Cantril, H. & Allport, G. (1935). The Psychology of Radio. New York: Harper & Row.

Carroll, T.J. (1961). Blindness. Boston: Littler, Brown & Co.

Chase, J. & Rapaport, I. (1968). A verbal adaption of the draw-a-person techniques for use with blind subjects. International Journal for Education of the Blind, 18, 113-115.

Chevigny, H. & Braverman, S. (1950). The Adjustment of the Blind. New Haven: Yale University Press.

Cholden, L. (1958). A Psychiatrist Works with Blindness. New York: American Foundation for the Blind.

Clark, L. (ed.) (1968). Proceedings of the Research Conference on Geriatric Blindness and Severe Visual Impairment. New York: American Foundation for the Blind.

Cowen, E., Underberg, R., Verillo, R. & Benham, F. (1961). Adjustment to Visual Disability in Adolescence. New York: American Foundation for the Blind.

Cullinan, T.R. (1977). The Epidemiology of Visual Disability: Studies of Visually Disabled People in the Community. HSRU Report No. 28, University of Kent at Canterbury.

Cutsforth, T.D. (1932). The unreality of words to the blind. Teachers Forum, 4, 86-89.

Cutsforth, T.D. (1951). The Blind in School and Society. New York: American Foundation for the Blind.

Cutsforth, T.D. (1966). Personality and social adjustment among the blind. Research Bulletin of the American Foundation for the Blind, 12, 53-67.

Delafield, G. (1976). Adjustment to blindness. New Outlook for the Blind, February, 64-68.

De Mott, R. (1972). Verbalism and affective meaning for blind, severely visually impaired, and normally sighted children. New Outlook for the Blind, 66, 1-8.

DHSS (1974). Statistics of the Registered Blind and Partially Sighted Persons during the 12 months ending 31 March 1974. Local Authority Social Services Departments. DHSS Statistics and Research Division No. 6. London: HMSO.

Diderot, D. (1916). Early Philosophical Works (trans. M. Jourdain). Chicago: Open Court.

Dokecki, P. (1966). Verbalism and the blind: a critical review of the concept and the literature. Exceptional Children, 32, 525-530.

Eisenstadt, A. (1955). The speech status and the speech ability of visually handicapped children. Speech Monographs, 22, 199-200.

Elonen, A. & Zwarensteyn, S. (1964). Appraisal of developmental lag in certain blind children. Journal of Pediatrics, 65, 599-610.

Farrell, G. (1965). The Story of Blindness. Cambridge: Harvard University Press.

Feinman, S. (1978). Do Sighted, People Respond to Differences of Visual Loss among Visually Impaired Individuals? Dept of Sociology, University of Wyoming.

Fishbein, M. & Ajzen, I. (1975). Belief, Attitude, Intention and Behaviour. London: Addison-Wesley.

Fitting, G. (1954). In G. Delafield (1976), Adjustment to blindness. New Outlook for the Blind, February, p.64.

Fitzgerald, R. (1970). Reactions to blindness. Archives of General Psychiatry, 22, 370-379.

Foulke, E. & Uhde, T. (1974). Do blind children need sex education? New Outlook for the Blind, 68, 193-200.

Fraiberg, S. (1968). Parallel and divergent patterns in blind and sighted infants. Psycholoanalytic Study of the Child, 23, 264-300.

Fraiberg, S. (1970). Smiling and stranger reaction in blind infants. In J. Hellmuth (ed.), Exceptional Infant. New York: Bruner-Mazel.

Fraiberg, S. (1972). Separation crisis in two blind children. Psycholoanalytic Study of the Child, 26, 355-371.

Fraiberg, S. (1977). Insights from the Blind. London: Souvenir Press.

Fraiberg, S. & Adelson, E. (1976). Self representation in language and play: observations on blind children. In Z. Jastrzembska (ed.), The Effects of Blindness and Other Impairments on Early Development. New York: American Foundation for the Blind.

Fraiberg, S., Smith, M. & Adelson, E. (1969). An educational program for blind infants. Journal of Special Education, 3, 121-142.

Freedman, D.G. (1964). Smiling in blind infants and the issue of innate v. acquired. Journal of Child Psychology and Psychiatry, 5, 171-184.

French, R. (1950). From Homer to Helen Keller. New York: American Foundation for the Blind.

Fulcher, J. (1942). 'Voluntary' facial expression in blind and seeing children. Archives of Psychology, No. 272.

Gendel, E.S. (1973). Sex education of the blind child. Paper presented at Conference on the Blind Child in Social Interaction: Developing Relationships with Peers and Adults. New York.

Gill, J. (1977a). International Register of Research on Blindness and Visual Impairment. (Also 1979.) Warwick Research Unit for the Blind, Warwick University.

Gill, J. (1977b). Summary of Warwick Research Unit for the Blind. Warwick University.

Goffman, I. (1965). Stigma. Englewood Cliffs, N.J: Prentice-Hall.

Goldstein, H. (1972). Demography of Blindness. In M.D. Graham (ed.), Science and Blindness. New York: American Foundation for the Blind.

Goodenough, F. (1932). Expression of the emotions in a blind-deaf child. Journal of Abnormal Social Psychology, 24, 328-333.

Gowman, A. (1957). The War Blind in American Social Structure. New York: American Foundation for the Blind.

Graham, M. (1960). Social Research on Blindness: Present Status and Future Potentials. New York: American Foundation for the Blind.

Graham, M., Robinson, R., Lowrey, A., Sarchins, M. & Tims, F. (1968). 851 Blinded Veterans: A Success Story. New York: American Foundation for the Blind.

Graham, M.D. (1963). Towards a functional definition of blindness. Research Bulletin of the American Foundation for the Blind, No. 3, August, p.130.

Graham, M.D. (ed.) (1972). Science and Blindness. New York: American Foundation for the Blind.

Gray, P.G. & Todd, J.E. (1968). Mobility and Reading Habits of the Blind. London: HMSO.

Greenberg, H. & Jordan, S. (1957). Differential effects of total blindness and partial sight. Exceptional Children, 24, 123-124.

Hallenbeck, J. (1954). Pseudo-retardation in Retrolental Fibroplasia. The New Outlook for the Blind, vol. 48, 4, 301-307.

Harley, R. (1963). Verbalism among blind children. Research Bulletin of the American Foundation for the Blind, No. 10.

Harper, R., Weins, A. & Matarazzo, J. (1978). Non-Verbal Communication: The State of the Art. London: Wiley.

Haspiel, G. (1965). Communication breakdown in the blind emotionally disturbed child. New Outlook for the Blind, 59, 98-99.

Heaton, J. (1968). The Eye: Phenomenology and Psychology of Function and Disorder. London: Tavistock.

Hicks, S. (1979). Psychosocial and rehabilitation aspects of acquired visual loss. New Beacon, July/August, 169-174.

Hines, J. (1950). Some concepts of blindness in American culture. Social Casework, 31 (10), 410-416.

Hoover, R.E. (1963). Visual efficiency as a criterion of service needs. Research Bulletin of the American Foundation for the Blind, No. 3, August, p. 116.

Imamura, S. (1965). Mother and blind child. Research series, American Foundation for the Blind, No. 14.

Jarvis, F.M. (1959). A comparison of self-concepts of blind and sighted children. In C. Davis (ed.), Guidance Programs for Blind Children. Watertown, Massachusetts: Perkins Publication No. 20.

Jastrzembska, Z. (1973). Social and psychological aspects of blindness, a sampling of the literature. Research Bulletin of the American Foundation for the Blind, No. 25, 169-173.

Jones, J.W. (1963). Problems in defining and classifying blindness. Research Bulletin of the American Foundation for the Blind, No. 3, August, p. 123.

Josephson, E. (1968). The Social Life of Blind People. New York: American Foundation for the Blind.

Kemp, N.J. (1979). An Experimental Analysis of Social Interaction in the Blind. Paper to the BPS Social Section. Guildford, University of Surrey. September 14-16.

Kemp, N.J. (1980). Social interaction in the blind. International Journal of Rehabilitation Research, 3 (1), 87-88.

Kim, Y. (1970). The Community of the Blind - Applying the Theory of Community Formation. New York: American Foundation for the Blind.

Kirtley, D. (1975). Psychology of Blindness. Nelson-Hall.

Knight, J. (1972). Mannerisms in the congenitally blind child. New Outlook for the Blind, 66, 297-302.

Lairy, G.C. & Harrison-Covello, A. (1973). The blind child and his parents: congenital visual defect and the repercussion of family attitudes on the early development of the child. Research Bulletin of the American Foundation for the Blind, 25, 1-24.

Langworthy, J. (1930). Blindness in fiction. Journal of Applied Psychology, 14, 269-286.

Lokshin, H. (1957). Psychological factors in casework with blind older persons. The New Outlook for the Blind, vol. 51, 1-8.

Lowenfield, B. (1953). In Garrett (ed.), Psychological Aspects of Physical Disability. Rehabilitation services series No. 210. Washington: Office of Vocational Rehabilitation, US Department of Health, Education and Welfare.

Lowenfield, B. (1963). The visually handicapped. Review of Educational Research, XXXIII, 38-41.

Lowenfield, B. (1971). Psychological Problems of Children with Impaired Vision. In W.M. Cruickshank (ed.), Psychology of Exceptional Children and Youth (3rd ed.) New York: Prentice-Hall.

Lukoff, I. (1960). A sociological appraisal of blindness. In S. Finestone (ed.), Social Casework and Blindness. New York: American Foundation for the Blind.

Lukoff, I. & Whiteman, M. (1963). Attitudes and Blindness: Components, Correlates and Effects. Washington DC: Vocational Rehabilitation Administration, US Department of Health, Education and Welfare and the Seeing Eye.

Lukoff, I. & Whiteman, M. (1970). Socialization and segregated education. Research Bulletin of the American Foundation for the Blind, 20, 91-107.

Lukoff, I. & Whiteman, M. (1972). The Social Sources of Adjustment to Blindness. New York: American Foundation for the Blind.

Maxfield, K. (1936). The spoken language of the blind pre-school child. Archives of Psychology, No. 201.

Maxfield, K. & Fjeld, H. (1942). The social maturity of the visually handicapped pre-school child. Child Development, 13, 1-27.

McDonald, A. & Hale, J. (1969). Perception of disability by the non-disabled. Journal of Consulting and Clinical Psychology, 33, 645-660.

McGuire, L. & Meyers, C. (1971). Early personality in the congenitally blind child. New Outlook for the Blind, 65, 137-143.

Meyerson, L. (1948). Physical disability as a social-psychology problem. Journal of Social Issues, 4 (4).

Miner, L. (1963). A study of the incidence of speech deviations among visually handicapped children. New Outlook for the Blind, 57, 10-14.

Nizetic, B. (1975). Public Health Opthalmology. In W. Hobson (ed.), The Theory and Practice of Public Health. London: OUP.

Nolan, C. (1960). On the unreality of words to the blind. New Outlook for the Blind, 54, 100-102.

Page, J. (1974). Definition of Blindness and Partial Sight. In Technological Prosthetics for the Partially Sighted. IIASA.

Platt, P. (1950). Additional factors affecting the blind. In P. Zahl (ed.), Blindness. Princeton, NJ: Princeton University Press.

Pringle, M. (1964). The emotional and social adjustment of blind children. National Foundation for Educational Research.

RNIB (1976). Directory of Agencies for the Blind. London: Royal National Institute for the Blind.

Rose, J. (1970). Changing Focus. London: Hutchinson.

Ross, I. (1950). Journey into Light. New York: Appleton-Century-Crofts.

Rusalem, H. (1950). The environmental supports of public attitudes towards the blind. New Outlook for the Blind, 44, 227-288.

Rutter, D.R. & Stephenson, G.M. (1979). The role of visual communication in social interaction. Current Anthropology, 20, 124-125.

Rutter, D.R., Stephenson, G.M. & Dewey, M.E. (1981). Visual communication and the content and style of conversation. British Journal of Social and Clinical Psychology, 20 (1), 41-52.

Schaffer, H.R. & Emerson, P.E. (1964). The development of social attachment in infancy. Monographs of the Society for Research in Child Development, 29, No. 1.

Schlaegel, T. (1953). The dominant method of imagery in blind as compared to blind adolescents. Journal of Genetics, 83, 265-277.

Schloss, I.P. (1963). Implications of altering the definitions of blindness. Research Bulletin of the American Foundation for the Blind, No. 3, August, p. 111.

Scott, R. (1968). The social and cultural context of ageing in American society. In L. Clark (ed.), Proceedings of the Research Conference on Geriatric Blindness and Severe Visual Impairment. New York: American Foundation for the Blind.

Scott, R. (1969a). The Making of Blind Men. Russell Sage Foundation.

Scott, R. (1969b). The Socialization of Blind Children. In B. Goslin (ed.), Handbook of Socialization Theory and Research, Chapter 26. Chicago: Rand McNally.

Schonz, F. (1970). Physical disability and personality: theory and recent research. Psychological Aspects of Disability, vol. 17, no. 2, 51-69.

Short, J., Williams, F. & Christie, B. (1976). The Social Psychology of Telecommunications. London: Wiley.

Siegel, I. (1965). The expression of posture in the blind. International Journal of Education of the Blind, October, 15.

Siller, J., Chipman, A., Van, D. & Ferguson, L. (1967). Studies in Reactions to Disability: XI, Attitudes of the Non-disabled toward the Physically Disabled. New York: University School of Education.

Simmons, H. (1949). The attitude of the sighted toward the blind. American Association of Workers for the Blind, 54-57.

Slobin, D. (1974). Psycho-linguistics. London: Scott, Foresman & Co.

Sommers, V.S. (1944). The Influence of Parental Attitudes and Social Environment on the Personality Development of the Adolescent Blind. New York: American Foundation for the Blind.

Sorsby, A. (1972). The Incidence and Causes of Blindness in England and Wales 1963-1968. DHSS Reports on Health and Medical Subjects no. 128. London: DHSS.

Stephens, B. & Simpkins, K. (1974). The reasoning, moral judgement, and moral conduct of the congenitally blind. Final Project Report, H23-3197, Office of Education, Bureau of Education for the Handicapped.

Tait, S. (1972). The effect of circumstantial rejection on infant behaviour. New Outlook for the Blind, 66, 139-151.

Telford, C. & Sawrey, M. (1967). The Exceptional Individual. Hemel Hempstead: Prentice-Hall.

Thompson, J. (1941). Development of facial expression of emotion in blind and seeing children. Archives of Psychology, No. 264.

Tillman, M. & Williams, C. (1968). Associative characteristics of blind and sighted children to selected form classes. International Journal for Education of the Blind, 18, 33-40.

Toonen, B. & Wilson, J. (1969). Learning eye-fixation without visual feedback. Research Bulletin of the American Foundation for the Blind, June, 123-128.

Twersky, J. (1955). Blindness in Literature: Examples of Depictions and Attitudes. New York: American Foundation for the Blind.

Villey, P. (1930). The World of the Blind (A Psychology Study) (trans., A. Mallard) New York: Macmillan.

Warren, D.H. (1977). Blindness and Early Childhood Development. New York: American Foundation for the Blind.

Webb, N. (1974). The use of myoelectric feedback in teaching facial expression to the blind. Research Bulletin of the American Foundation for the Blind, 27, 231-262.

WHO (1973). The Prevention of Blindness. WHO Technical Report Series No. 518. Switzerland: Geneva.

Williams, E. (1977). Experimental comparisons of face-to-face and mediated communication: a review. Psychological Bulletin, 94, 963-976.

Wilson, J. & Halverson, H. (1947). Development of a young blind child. Journal of Genetic Psychology, 71, 155-175.

Wright, B. (1960). Physical Disability, A Psychological Approach. New York: Harper.

Zahl, P. (ed.) (1950). Blindness. Princeton University Press.

Zahran, H. (1965). A study of personality differences between blind and sighted children. British Journal of Educational Psychology, 35, 329-338.

Zarlock (1961). In G. Delafield (1976): Adjustment to blindness. New Outlook for the Blind, Feb., 64-68; and in Journal of Consulting and Clinical Psychology, 25, 155-159.

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