

THE
DIGNITY OF SYMBOLS



*Subhas C. Maharaj
With Contributions from
Sweden & Japan*

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*“The clear way of ascertained science need not always be the best way;
it may stand often in the path of development
of a yet greater and deeper knowledge.”*

Sri Auribindo, Evolution, Arya, September 1915
Arya Publishing House, 1944

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This has been a long journey and my effort concludes with this project. Pictogram Symbols will continue with new minds and new supports as it has been over the past forty years.

Many individuals have used and contributed to the growth and stature of Pictogram Symbols internationally.

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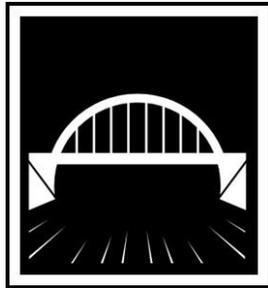
Pictogram Symbols would have drifted into the corners if it had not been for the efforts of Margrita Lundman, Magnus Magnason, Per Gunval, Hans Carlberg, Kerstin Rudin; Henry Svahn; Staffan Holmberg and Kerstin Falk, The Spirit of Pictogram.

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Pictogram Symbols have been a very rewarding part of my career and my life, but it has also been the bitter-sweet experience of creativity.

Subhas

CHAPTER ONE



Symbols like Words

Provide the Bridges for Communication and Interaction

BRIDGES FOR COMMUNICATION

There is no direct evidence as to the seminal creation of spoken words and written language; however, the evolutionary threads indicate that signs and vocalizations may have been the foundation for the advancement of a linguistic form within a culture. This is a respectable speculation , but there is no proof that random sounds can lead to structured combinations to form words and coalesce into defined verbal communication within a culture. Multiple theories have tried to explain the formulations for spoken language from the imitation of environmental sounds to an arousal of some genetic material to external intervention.

Signs, as signals, have a more rational basis for communication. Primitive gestures such as personal identification and need, directional indicators or social interaction continue to be a part of our communication strategies and many basic manual signs and gestures have universal interpretations.

Besides signs and vocalizations the need to communicate included primitive attempts to capture incidences and information through rock art which included drawings and carvings. The depictions may be interpreted as the first attempts to draw-carve-write historic events and pertinent information relative to the clans contacts and survival. While there is no linkage as to the formalization of rock drawings and paintings to a higher level for implicit communication, the basis of narrative symbols and ideational symbols were combined to create hieroglyphics as a distinct written form for the spoken language.

The written form was further abstracted as man evolved to a new level of sophisticated reporting with abstract designs representing spoken sounds and the sound-shapes have advanced the factors for communication. The Gutenberg Press and modern technology has advance the proliferation of the written language and the dissemination of information. The written language from simple short statements to complex religious and philosophical texts have open to personal and group interpretation.

The basic conveyors of a message are nouns and verbs and as such they are the primary symbols for communication and interaction. Dr. Cecilia Olson (SPS, Sweden, 2010) states; *Images can appear differently depending on their intended function in communication.* Dr Olson continues to explain that while personalized conversations may be embellished through photographs; generalized conversations require implicit symbols; that is, more generalized symbols. *This is where Pictogram comes in as a linguistic tool. Images like these must by necessity have a higher degree of abstraction in order to serve as a common linguistic code.*

Pictogram Symbols, a *Pictorial Language*, provide a distinct symbol to encapsulate the communicative intent; however, they may have multiple interpretations, but the symbol expresses the intended concept. The white symbol with essential information only on a black background is the communicative intent.

The Dignity of Symbols provides information on the logic and design of Pictogram Symbols and the application of the symbols for Speech and Language, Alternative and Augmentative Communication (AAC), Literacy and Numeracy.

Pictogram Symbols have been used in education since the early 1980's and the observation has been that the white symbol on a black background draws attention to the bold, crisp and graphic symbols. Pictogram Symbols have been used successfully in classrooms which have included cognitively impaired individuals, individuals with attention deficit, hyperactive individuals, autistic, Down's syndrome and cerebral palsied individuals, and with adults who have had a stroke, brain injury and neurological disabilities.

Pictogram Symbols are a Companion Pictorial Language to natural languages and the symbols can be adapted to cultural and linguistic designs and structures to facilitate social interaction.

The use of Pictogram Symbols in the world environment illustrates the acceptance of such symbols as a universal communication strategy.

The National Agency for Special Needs Education and Schools, Sweden. 2010, encapsulated the benefits of Pictogram Symbols by stating:

Pictogram is a well-tested and functional visual language developed for people with cognitive difficulties." "With Pictogram, people with learning difficulties and also others who have limited or not ability to speak, read or write are able to receive language in the form of images. Thus, this alternative to the written language supports thinking, memory and communication.

Pictogram Symbols provide the communication linkage through-out the lifespan of the individual. The quality of the symbols and its application as a substantive mode of communication in the classroom and in the environment encourages the transition of the symbols from student to adult without stigmatization or curiosity. The visibility of the symbols in the environment, e.g. identifying bus routes in a Swedish town allows for independence for the non-reader and without creating a sub-culture of individuals with special needs.

As a tool for communication the Pictogram Symbols attain the sophistication for dignity, the appropriateness for maturity and the depth for interaction. The symbols provide a communication strategy that can be used within academic circles and in communities by individuals to express visual information as the message of an idea and achieve a level of satisfaction for personal needs. The inclusion of the Pictogram Symbols within a community or society and its recognition and comprehension universally reflects communication and interaction in the broadest sense.

The words pictogram and ideogram were coined expressly for the symbols and for the program in 1976. The prevailing terms were petroglyphs and subsequently pictoglyphs. During the copyright process in 1981, an application for International Copyright, I was asked to add a personalized identification since the terms *Pictogram* and symbols were too generic and could be used as a descriptor and not as a specific identifier. I chose to leave the words in the public domain. My reasoning was that as a *Pictorial Language* there should be no names or other identifier attached to the symbols.

Nouns were labelled as *Pictograms* and the ideas as *Ideograms*. They were conceived as the conveyor of the message. The attachment of *gram* was suffixed from the word *telegram* as the transported message and thus, the words *Pictogram* and *Ideogram*

were coined. The copyright was registered as Pictogram Ideogram Communication (PIC) and over time it was shortened to Pictogram Symbols and Pictograms.

The symbols were designed over a five-year period with test after retest to determine transparency. The unfiltered and unbiased comments from Kindergarten students were the clearest in redesigning the symbols. The determinants for symbol design were established initially as: (i) that the symbols should be bold, clear and graphic and, (ii) that only elements that would enhance recognition should be included, that is, the foundation of the symbols should be minimalism.

The fundamentals created the distinctive Pictogram Symbols; however, during the formative period there was an additional distinction of maintaining a black background for Pictograms and a white background with black symbols for Ideograms. Once again testing proved that the white symbol on a black background was more readily identified than the black symbol on a white background. Dr. Shinji () in his research proved the identification value of the white symbol on a black background.

Further information regarding the structures of the symbols are provided in the documentation of Pictogram Symbols.

The fundamental shift in philosophy was the use of Pictogram Symbols as an educational support program that is used equally as a communication strategy. This conceptual expansion allowed for program integration in the classroom rather than establish the exclusivity of the strategy for the communicatively handicapped individual only. The goal and objective was to integrate the use of Pictogram Symbols into classroom program and studies so that teachers could apply the same educational activity for both verbal and nonverbal students.

The applications in the classrooms in Sweden was the most significant shift in educational programs and continue to be the vanguard in the promotion of inclusivity and the global experience of the student. The carryover of the Pictograms into community settings demonstrated the versatility of the symbols in the workplace and in the identification of bus routes in Umea, Sweden.

Pictogram symbols are the selected identifiers at public facilities, on highways, at air terminals, rail and subway stations, thus, blending the real-life applications with the teaching-learning process in the classroom; and the application process in the workplace and the visibility of the symbols in the international community. The use of the symbols create a life-long journey for communication and interaction.

The ability to communicate has provided us with the most powerful tool for interaction. The power of speech is a prized human attribute for contact and communication. Speaking and thinking have given us the vision into the future while retaining the significance of the past. We have accepted the gift of speaking as casually and naturally as a process of life and we use our skills with varying degrees of adeptness. This is our humanness, our ascendancy as a species and yet within this formidable framework of man we have to acknowledge the fact that many members of society must face the life process without the gift of speech either from birth or from changes caused by accidents or disease.

The challenge of communicating with those who do not share the power to speak has existed for eons, however, physical care and comfort of the person has superseded our attention and energy.

Man has used rock drawings and paintings to record and communicate life patterns and sequences, but these attempts were rudimentary and while we may speculate on the possibility of its use; the creation of the drawings for the non-speaking members of the clan is remote.

Manual gestures and signs have been used by clans, tribes and invaders throughout history to communicate, amalgamate and to subjugate. How many misinterpreted signs and signals led to disaster – we will never know.

We can presume that as a natural progression gestures and manual signs may have been used by speaking and non-speaking persons to communicate. Thus, it stands to reason that this type of informality gradually generated into formalized manual signs and formalized manual systems for communication.

Manual sign systems were the first real attempt to provide an alternative communication strategy to oral speech and this was a quantum leap in changing the hard-held customs, beliefs and traditions of the time to a new vision for communication. Manual communication bore the challenges of change from a speech-biased society and it is only the passage of time that becomes the assimilator of new ideas.

The first half of the twentieth century saw a growth in the paper and print industry, but it was the second half of the twentieth century that began to see the inclusion of pictures and drawings from catalogues and magazines as a new choice for communication within the rehabilitation process. The first communication boards were developed as a rudimentary strategy for Stroke patients. While the boards were customized for the patient and the creator of the board; there was no consistency for communication between one patient as well as the meaning of a picture between the patient and a family member. This in itself is prone to confusing interpretations

In the 1960's some of the University Clinics in the United States of America began using a line-drawing approach with 'stick-figures' to standardize the visual images. The drawings were an extension of the Rebus Drawings used to assist in remedial reading. The Rebus drawings and figures became the precursors to commercialized systems developed in the 1980s and 1990s. The world-view was still within the conservative frameworks for health and education and the anticipated goal for all habilitation and rehabilitation programs was an oral communication outcome and; therefore, the visual images were inconsequential.

Blissymbols advanced the acceptance of a visual communication strategy for nonverbal individuals at an international level; however the system design and application marginalized its use in time. Pictogram Symbols were developed in the mid 1970's to provide a 'common sense' approach to visual communication for nonverbal individuals. A fundamental premise was *that while the Pictogram Symbols would provide a visual strategy for communication, there was an equal potential for the symbols to be applied in the educational program of the nonverbal individual.*

In 1970 I was employed as a Speech Consultant at a residential facility (Valley View Centre, Moose Jaw) for cognitively disabled individuals. This was my first experience with individuals who had limited speech-language skills and individuals who were nonverbal. The prevalent view was that through practice and perseverance individuals could be encouraged and taught *how to speak*. Speech was the objective and speaking was the goal. The emphasis was speech.

The strategy was to work on consonant-vowel combinations to structure words and then proceed to a noun-verb or verb-noun combination with the anticipated outcome of spoken speech and language. This was an elegant idea in theory but the application was onerous.

Behaviour Modification and subsequently Operant Conditioning emphasised modelling and prompting and while the approach conditioned responses through rewards and consequences demonstrated the generation of vocalizations and at the highest level spoken words, spontaneous responses in conversational speech was extremely tenuous. The prohibitive factors with individuals at the Centre were *Memory and Retention* and to cope with this challenge a new plan had to be devised.

With the assistance of the Music Teacher I prepared a twelve-week program for children with short action rhymes and songs to stimulate oral expression. Each session was recorded at the local radio station and introduced with great enthusiasm.

The anticipation was that through consistency and frequency children could be taught to repeat and generate speech and language sequences, with the possibility that the sequences could be used in spontaneous speech and generate new oral speech sequences. This was a Utopian idea and an admirable effort; however, the elements of *Memory and Retention* surfaced as the main barricades. The pervading philosophy that speaking would miraculously change genetics, and that the residents of the Centre would achieve integration in the community; however, this was the naive understanding of cognitive disability.

The emphasis was *speech*, and under the umbrella of this dictum in 1972 I worked with a 6-year-old girl, Peggy, who had cerebral palsy. Her speech was limited to a single

syllable - /ba/ and after many sessions and many months of modelling and prompting she was able to say /ba-ba/. The current thinking was that sound-word-therapy would generate speech and that the disability was inconsequential. The repetition of the syllable was considered progress and the potential for orality.

In the Fall of 1972 I enrolled in a Master's program at Minot University (f-Minot State College), North Dakota, and during the session-break I visited the residential facility. While I was in conversation with some of the staff there was a tug on my coat and a little girl looked up at me and said /ba-ba/. It was the little girl I had worked with and she was responding with what I had taught her.

The image of Peggy stayed with me. I had taught this little girl a meaningless sound-combination and she came to show me what she had learned and what she had remembered. This was the outcome of a speech-directed program and I was responsible for the hollow change.

In December 1972 I watched a news-clip on the use of Blissymbols as a visual strategy for communication with cerebral palsied individuals. The participants from the Ontario Crippled Children's Centre, Toronto, Canada, demonstrated the use of the symbols as an alternate form of communication.

Blissymbols was introduced by an Occupational Therapist as a reaction to the lack of effective services provided by Speech Language Pathologists for nonverbal individuals and individuals limited in verbal communication. Blissymbols was an admirable application that not only benefitted a group of cerebral palsied individuals but was included for use by individuals with autism and cognitive disabilities.

Blissymbols caused Speech-Language Pathologists to re-evaluate the application of communication strategies over the traditional anticipation of speech as an additional strategy for expression and interaction.

The reported success of communication through the use of Blissymbols caught the imagination of educators in Canada and the United States. It was this new concept that changed the Speech-Language Pathology landscape from traditional speech-output strategies to pragmatic applications that assisted communication and social interaction.

Bliss Symbols created an attraction for professionals from multiple disciplines to express their eagerness and studies. The reports of its use were almost evangelical. The excitement and advocacy attracted the Canadian Federal Government and subsequently provincial programs to fund workshops and seminars, with the eventual purchase of the copyright from Mr. Bliss by Ontario Easter Seals on behalf of the Blissymbolics Communication International (BCI). The moderated analysis of the symbols and its impact as a visual communication strategy was less formidable than its promotion; however, rational analysis was stymied.

The structured strategy of symbols representing words was a quantum leap from random cut-outs of pictures to create picture-boards for communication. The organized format meant that communication and interaction could be expanded to include other Blissymbol users and educators.

Charles Bliss followed the tradition of creating a world language and developed Semantography based on the Chinese writing system and electrical symbols. The symbols were composed of abstract shapes to represent concepts or part of a concept used to indicate objects and ideas through symbol combinations. As a writing format the symbols were designated a Modern English Alphabet *to use in memorizing the alphabet of 26 shapes*. While the conceptualization of the symbols replacing the native written language might have been noble, the application of the symbols was overwhelming and less successful in real-life communication and interaction.

a	wavy line	b	heart
c	cross hatches	d	building
e	ear	f	arrows
g	wheel	h	large circle
i	small circles	j	large half circles
k	open circle parts	l	squares
m	rectangles	n	open squares
o	open rectangles	p	right triangles

q	dots	r	right angles
s	lines on a base	t	crosses
u	isosceles triangle	v	acute angle signs
w	horizontal lines	x	other straight lines
y	pointers	z	letters, numbers, punctuation

Blissymbols for Use © 1980 The Blissymbolics Institute. Toronto, Ontario

The basic shapes had variants and in combination with other shapes formed the written concept as indicated below.

The 26 basic shapes have “Different Forms and Orientations of the shape, e.g.

fire	water/liquid	medical
A wavy line could express: 		
and with an arrow <i>water</i> becomes <i>rain</i>		

Small circles are used to create symbols:

mouth	eye	adult, grown-up	Vegetable (below ground
			

While the construct logic was commendable, symbol creation was unwieldy and the learning curve equally complicated for many users. However, the symbols were promoted for use with cerebral palsied individuals and gradually included individuals with autism and other disabilities with marginal success.

At a meeting organized by Blissymbolics Communication International (BCI) sponsored by the Government of Canada in Toronto in the 1980's the advocates of the system expressed the intellectual levels of the users implying intellectual superiority to

others not using the symbols. My reaction was that the implication suggested discrimination based on the exclusive use of Blissymbols.

At the same meeting an extreme Blissophyle announced that he had translated Shakespeare's Hamlet from English to Blissymbolics to accolades from the attendees.

Paul M. was introduced at the meeting to demonstrate his skill at using Blissymbols to an exuberant crowd of Blissymbol advocates. Paul's effort was commendable; however, twenty-five years later at a presentation I made at the Bliss Centre in Toronto, Paul was introduced to show his use of Blissymbols. An interesting note was that as I left the meeting Paul handed me a book he wrote and had printed regarding his life. He had used the English orthography and had persevered typed the book.

It was disappointing to see that although Paul demonstrated his proficiency in reading and written English, there was no attempt made to progress his skills into the technological world of writing and *speaking*. He was locked in Blissymbols.

The most significant advent of Blissymbols in the field of communication was a shift from the demand for oral expressive speech to a new strategy for interaction and stimulated research, publications and applications from professionals from multiple disciplines. The excitement was almost evangelical.

Upon the completion of a Master's Program in August 1973 I returned to Valley View Centre where Blissymbols was embraced as the vibrant communication strategy for the residents. The teaching methodology was based on Behaviour Modification and Operant Conditioning strategies with the use of reinforcements to establish positive behaviours and responses. Those on the program were given Smarties (M&M's) as reinforcements and a few achieved successes through this method. For many participants in the program the edible reinforcement was attractive but the retention of appropriate responses was negligible. The elimination of rewards reduced the use and efficacy of the use of Blissymbols drastically, and gradually the excitement diminished.

	Man	Woman	I - Me	Friend	Ice Cream	Car	Teacher
BLISS SYMBOLS							

Adapted from: Blissymbols for Use © 1980 The Blissymbolics Institute. Toronto, Ontario

An analysis was that Blissymbols were far too abstract for the cognitive level of individuals at the Centre. Operant Conditioning elicited patterned responses and these responses were maintained as long as the consequence was a reward. As soon as the reward was varied to establish a learning process and when the reward was eliminated the created response pattern fluctuated and in time was extinguished. Once again, it was the question of *Memory* and *Retention* and the understanding of cognitive disabilities.

My biggest reservation was that Blissymbols created a new sub-group of users, defeating the purpose of functional communication and that the success of the *Tutor-Client* interaction did not carryover readily to other Educators and peers at the Centre. That is, the client's responses were the only to the scripted phrases or sentences devised by the *Tutor* with none or occasionally the correct response when prompted by an educator other than the *Primary Tutor*

Blissymbols was based on a logical foundation for a written language; however, this required some ability to recognize, distinguish and determine the compounding changes to basic symbols to create a conceptual idea, e.g. the symbol for *telephone*  is constructed through the logical foundation of the strategy, while the symbol for *computer* is less evident  slight changes to symbols through arrows or pointers were not readily understood by cognitively disabled nonverbal individuals.

While the Symbols presented more difficulties than applications, its greatest contributions to the field of Communication and Education were:

1. The removal of barriers in the use of alternate forms of communication with non-verbal individuals.

2. The inclusion of the broad spectrum of *communication options* to the scope of Speech- Language Services and Education for nonverbal individuals.
3. The orderly display of symbols on communication boards.
4. The sophistication of the communication process for nonverbal individuals from the *hodgepodge* of magazine cut-outs to create communication boards.
5. Raising the barrier of the potential of nonverbal cognitively disabled individuals.

This was a logical strategy except for the fact that the symbols were based on size and symbol complexity. A slight difference in size or orientation of the symbol changed the intent and compound-symbols, e.g. *Ice cream* provided no symbolic characteristic to the real-thing. This was far too abstract for many users of the symbols.

The reservations regarding Blissymbols as a communication strategy for individuals with cognitive disabilities led to the following conclusions:

1. The most revealing difficulty with Blissymbols were abstraction, complexity and differentiation.
2. The symbols were far too abstract for the cognitive level of the individuals that the symbol-program was directed towards.

E.g. the symbols for *Man*  and *Woman*  have no reference in the general library of books for children or adults, and the symbols are non-existent in society. A graduate from the Blissymbols program would be hard-pressed to find a restroom looking for a Blissymbol display.

3. The size of some symbols determined the concept and this was confusing for individuals with reduced visual acuity. E.g. the symbol for *Sun*  is differentiated from the symbol for *Mouth*  by size only.
4. The complexity of the symbols are evident as for *television*  and a more complicated symbol for *internet* .
5. That Blissymbols created a new sub-group of users apart from the communication mediums available in the society. That is, an individual using pictures or symbols would be unable to communicate with a Blissymbol-User even at the basic level of wants and needs.

6. That the *User* and the *Viewer* had to learn the symbols and/or that the 'Viewer' had to be able to read the label for the symbol to acknowledge the communicative intent.

The sample of symbols provided revealed the difficulty of Blissymbols being used as a world written language with the intent that it would be read and understood with universal implications. It is evident that the symbols for *man* and *woman* is not displayed to indicate restroom locations, nor is *ice cream* a symbol that a business would use to identify the desert item.

The simple conclusion is that Blissymbols may be forced upon the nonverbal or limited verbal individual when there is no other option offered for communication. The individual is trapped within the poor judgement of the universal written language protagonist who presents a stance of a so-called *Communication Expert*.

Communication Experts, in my opinion, did not consider the multi-level performance human dynamics demand. The silo-thinking approach to communication cannot be forced through a symbol format that may be logical in structure but alien in application, thus creating a sub-grouping of *Users* with no connection to society or the environment.

This creation of sub-group of *Users* was the biggest reservation in defeating the purpose of functional communication and the ease of social interaction for the many nonverbal individuals who relied on prominent educators and tutors to change the Quality of Life.

Blissymbols evolved from the history of creating a new world writing system with a common platform for writing and comprehension. The enthusiasm reached a pinnacle in the 1970's and gradually subsided as the efficacy of the strategy did not bear the promotion.

In 2012 BCI was moved from Toronto, Canada, to Upsala, Sweden, and small pockets of devotees continue the masquerade in some of the Nordic and European Countries,

The fanfare of Blissymbols was reminiscent of Johann Schleyer's Volapuk which promoted a universal spoken language. The inherent failure of a created language is that it has to compete with natural languages that have evolved over time and change traditions and culture. Written forms, such as hieroglyphics and cuneiform, were in favour until more pragmatic written texts were developed and the advent of the Gutenberg Press reformed the composition of written language.

Colonization and Christianizing of the world led to the teaching and learning of languages of the conqueror and through aggressive means the language of the oppressor surfaced as the dominant language to the exclusion of native languages.

While no single written or spoken language form has gained ascendancy; polyglot languages like Esperanto may emerge in the future to extend regional communication, but the limitations are evident

There will always be the challenge to develop a world spoken and written language and the protagonists will promote the benefits, but promotion has to contend with natural spoken and written languages; spoken and written cultures and spoken and written identities. Independent languages may succumb to modernization and modification, but this will have little impact on languages in other cultures and countries. We may evidence changes as we have witnessed the changes from Old English to Modern English; from Sanskrit text to Hindi translations, but new created languages like Blissymbolics and Volapuk will have limited reception and may exist as exercises in bending logic.

The difficulties with Blissymbols led to its abandonment not only at Valley View Centre, one small town in Canada, but across North America. The difficulty was inherent and the competition with natural written languages was evident. Like spurious social interventions and divine interventions, the day of analysis was near and Blissymbolics remained with die-hards; the lustre had tarnished. However, the greatest contribution of Blissymbols was the opening of prospects of communication for nonverbal individuals and this achievement cannot be ignored.

Blissymbols did not serve the purpose of facilitating communication for many nonverbal cognitively disabled nonverbal children and adults at the Centre, however, the door to alternate communication experiences was open. The consideration was given to the use of manual signs as a strategy for communication. This may be less of a burden when *Memory* and *Retention* were fundamentally problematic.

The next step was to investigate to most simple and suitable sign language system that can be used with participants at the Centre. The search was for a system that included gesture-like signs that could be learned with ease and retained with ease.

Various sign language systems were explored including American Sign Language (ASL or AMESLAN) which included manual signs and gestures, facial expressions to express feelings, ideas and concepts visually. ASL was used exclusively by Deaf and Hard of Hearing persons; however, the complexity of the system was its grammatical structure. While there was no intent to expand beyond isolated and perhaps multi sign responses for functional communication, the conclusion was that this was not a suitable system to use at the Centre.

Seeing Essential English, Seeing Essential English (SEE 1) and Signed Exact English (SEE II) were also considered, but once again the grammatical complexity and the inclusion of fingerspelling was onerous. Signed English, developed by Harry Bornstein, was similar to SEE I and SEE II, but it was less complicated with tenses and the basic concepts were relatively close to natural gestures.

In 1975 a Summer-Student, Karen Wolfe, and I conducted a 10-week study using Signed English with cognitively handicapped individuals at Valley View Centre. We considered the use of oral and manual strategies to facilitate communication as a Total Communication package. I designed a manual with formats for recognizing, comprehending and expressing signs, in addition to test protocols; the Quick-Sign Test, Signed English Receptive and Expressive Test and a pamphlet, *Eloquence of Hands*. and. The tests were used to determine the efficacy of sign language as a mode of communication.

The program was successful in teaching some functional signs; *eat, drink, bathroom,* etc. to 4 adolescent participants. Based on routines and consistency (1-hour, 5-times per week) a few signs were remembered and used successfully as requests for needs and as responses to questions. However, the rate of retention on items tested periodically was limited and after a short break a re-test of the signs revealed that the recollections were random hand-movements but the actual sign-configurations were forgotten.

An evaluation of the project resulted in the following conclusions:

1. Although the participants learned a few of the basic hand-signs during the training sessions and could provide a reasonable response when requested, they floundered in expressing their wants and needs spontaneously.
2. The hand-signs closest to natural gestures, single motion signs, were the easiest to remember and execute, however, the rate of learning dropped when an additional hand movement was required to complete the sign.
3. The question of Memory and Retention was obvious and the analysis was that while manual communication at a natural-gestural may be accommodated by some non-verbal cognitively disabled individuals, sign-language was not a viable communication strategy.
4. A significant hindrance was the reluctance of the peer group and the care-givers to learn and respond to the signs.

A report on the outcome of using manual signs; *The Initiation of Social Interactive Processes through the Use of Total Communication (Oral and Manual) with Mentally Retarded Children limited in Verbal Abilities* was prepared and presented at the Canadian Speech Association Conference in Halifax, Nova Scotia in 1976.

A critical analysis indicated that it was self-defeating to demand the learning and retention of a secondary cognitive layer (the manual sign) from individuals who had fundamental weaknesses in *Memory* and *Retention*. The conclusion was that a visual representative of an item or action may be a more direct strategy and would allow for easier inclusion and communication for non-verbal individuals.

The rejection of Bliss Symbols as a visual strategy and the rejection of Signed English as a manual strategy meant the exploration of an item-representative visual system of communication.

The advantages of using pictures were; (i) that the *User* could communicate intent successfully because the pictures expressed the concepts, and (ii) that communication interaction did not require the *Viewer* to learn or read the label to grasp the communicative intent.

The universality of basic picture-shapes remain constant, although design formats may change from designer to designer and from country to country, an *apple* is still an *apple* based on shape, and a *car* is a *car* although the design and model may vary. The application of colour may enhance the picture; however, coloured pictures arranged side by side in multiple rows may have visual implications.

Individuals with low or impaired-vision may have difficulty distinguishing items and concepts. The Swedish Team were clear in stating that *we prefer to read letters that are ordinary (familiar sic) and in one colour* rather than what they termed *Jokey and Colourful*. My interpretation of *Jokey* refers to the poor-quality drawings of the prevailing visual systems which included *stick-figures* and *puerile presentations* of drawings.

The visual strategy of cutting pictures from books and magazines to create communication boards provided for an ease in visual recognition for the individual and encouraged the expression of the communicative intent. However, it was a tedious task of looking through stacks of magazines to find one suitable picture, and furthermore, the pictures and drawings from magazines and catalogues came in all different sizes and shapes; thus creating individualized and unique communication boards. The time was before the entrance of duplicating machines, scanners and computers, but the advantage of communication boards was recognized as a useful tool for communication and interaction.

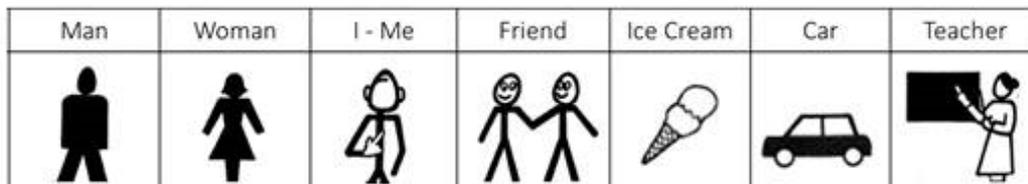
The advantages of using pictures were that *Users* could communicate intent through the pictures without much training and learning. Furthermore, self explanatory

pictures did not place a demand on *Memory* and *Retention*. In addition, The interaction did not require the *Viewer* to learn or read the label to grasp the communicative intent.

The benefits were well understood but difficulties encountered were in gathering pictures for a communication board. Finding the same picture to maintain standardization over multiple communication boards was difficult and almost impossible. There was also the difficulty of finding pictures for specific actions and items, and this was challenging.

The need for drawings and symbols led to the formulation of Picture Communication Symbols (PCS). This was a major step in providing symbols that had referents in the environment and were relatively representational of items and actions, although the drawings were puerile and *scrappy*. There was little consideration given to the fact that the symbols were the major medium of communication for the nonverbal individual and added to any referred to or insinuated disability.

The poor quality of the symbols reflected the artists unsympathetic approach to a powerful strategy for nonverbal individuals. Initially the drawings were *black-outlines* of items and objects and people were represented as *stick-figures*. Subsequently, colour was added to PCS to enhance the symbol-value; however, the quality of the drawings with the addition of colour did not change the presentation.



THE PICTURE COMMUNICATION SYMBOLS © 1981 Roxanna Mayer Johnson.
Mayer Johnson Company, Solana Beach, CA. (Second Ed. 1990)

Roxanne Mayer understood the difficulties with Blissymbolics and revived the use of the Rebus drawings. This was a *transparent strategy* displaying a symbol as it would be seen in the environment and expressed as behavioral interactions. That is, *a car looked like a car* and the symbol of *female* on a restroom door meant what was displayed. However, the poor quality of the drawings did not influence its use in the environment.

The Picture Communication Symbols were recognized as a valuable advancement in reducing the time consumed looking for appropriate pictures. While the search-time for symbols was drastically reduced it was the ability to create multiple communication boards that appealed to the program designed.

PCS provided banks of symbols separated by categories and formalized the size of the symbols. In addition, each category was identified by colour.

The primary reason for colour-coding is that, when put on a communication board or book, it is quicker and easier to locate a particular symbol. It also makes the aid a more attractive and colourful tool. THE PICTURE COMMUNICATION SYMBOLS (Second Ed. 1990) P-4.

The colour coding for PCS was adapted from the coding for Blissymbols and the Fitzgerald Key.

Category	Colour		Category	Colour
<i>People</i>	<i>Yellow</i>		<i>Nouns</i>	<i>Orange</i>
<i>Verbs</i>	<i>Green</i>		<i>Miscellaneous</i>	<i>White</i>
<i>Descriptive</i>	<i>Blue</i>		<i>Social</i>	<i>Pink/Purple</i>

The scope of usage of the symbols was identified on Page-7 of the PCS Book as, *persons disabled by severe physical handicaps, mental retardation, autism, and brain damage due to strokes or accidents.*

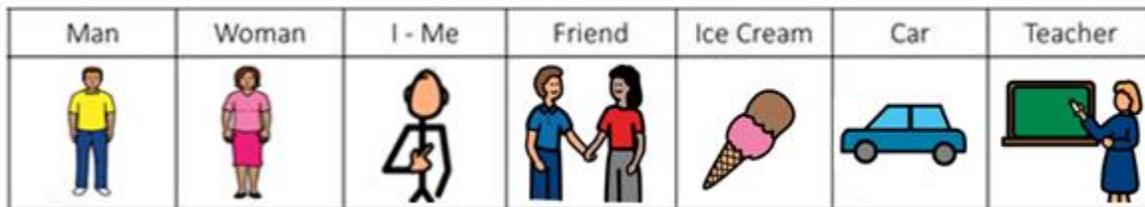
The system designer provide a list of consideration to determine the applicability of PCS to the individual.

1. Level of Language Sophistication. *The symbols are most appropriate for use with persons for whom a simple level of expressive language is acceptable.*
2. Visual Acuity and Perception. *The difficulty of differentiating between the symbols.*
3. Cognitive Skills. *The ability of the individual to recognize and remember the symbols.*
4. Attitude of the Aid User. *The Users attitude towards the use of a visual strategy for communication.*
5. Attitude of the Listener. *The listener must be willing to accept the use of symbols fro communication.*

6. A Facilitator. The need for a *Tutor* to create and teach the User the advantages of symbol-usage.

PCS was readily accepted as an alternative to Blissymbolics. This was the major causative factor for the demise of the complex writing strategy in North America to the chagrin of professionals from multiple disciplines who researched, documented and promoted the use of Blissymbols internationally. Attempts at co-mingling PCS and Blissymbols met with little success and PCS prevailed as the Alternative and Augmentative Communication Strategy.

In addition, PCS was embraced due to the availability of the symbols and the potential of standardizing symbol-identification through colour-coding on communication boards and subsequently, the addition of colour and more 'humanized' figures.



Boardmaker © 2021 Tobii Dynavox, LLC. Licensed by SHA, Saskatchewan, Canada

I recall visiting a school where I was shown a binder with PC Symbols by the Special Education Teacher. The student, the owner of the binder, was called to provide a demonstration. In attendance were Educators from Sweden and this demonstration was arranged by the Saskatchewan Department of Education. The student entered the classroom, picked-up the binder and stormed out of the classroom. I sensed the embarrassment of the teenage-student in displaying *child-like drawings* as her means of communication.

The disadvantages were identified as follows:

1. That the drawings were thrust-upon a captured audience, school children, with no recourse; adolescent and adult consumers were critical and sensitive to the poor drawings..

2. The intent of the drawing was not always clear – as in the drawing for the symbols *I* or *Friend*, and figure-ground distortions may interfere with the intent of the symbol.
3. The poor quality of the drawings appeared to add another stigma to the already disadvantaged consumer.
4. Figure-ground distortions can inhibit the learning process.
5. Colour may interfere with the visual interpretation of the drawing and disrupt communication intent if visual acuity is in question.
6. To compensate for figure-ground distortions and for the enhancement of the coloured symbols for individuals with visual impairments the symbol background was shifted from white to black.

Advocating the symbols for individuals with low vision revealed a lack of understanding of colour and vision.

Despite the inherent weaknesses of the symbols, educators applied the strategy in schools, created books and software, and disseminated information without question. The use of colour was contentious. Coloured symbols could interfere with the visual interpretation of the drawing and disrupt the communication intent if visual acuity was in question.

7. Coloured backgrounds (Roxanne Meyers, 1990) with coloured symbols *can make the communication board look attractive*, but an overload with coloured symbols can be overwhelming visually and mentally. It is for this reason that our written text is mono-colour and not a series of colours within a line.

While some symbol systems may survive the logical critique of sensitivity and dignity that symbols should present, many systems may fall by the wayside led by a discerning public and Educators who consider symbols not merely as the transmission of information without human awareness, but as language that encompasses the total human spirit, emotionally and mentally. That the symbol system must elevate the individual and not deprecate and add to the visible and invisible disability.

The realization may take time and only through advocacy and the efforts of the disabled, the Parents and Educators who understand the need for integration and normalization can there be the respect and understanding that visual communication must be based on the *Dignity of Symbols*.

CHAPTER TWO



*Ideas Create Dreams
And Dreams are Lost
Without Action*

THE DESIGN OF AN IDEA

Our human endeavour to talk and interact is the pivotal dimension of our progress. As much as we prize our ability to speak, communicate and socialize we must provide the same nobility of communication for the nonverbal individual. Communication in whatever form or mode creates the inclusiveness we strive for within our social group.

Our life journey begins with the cry of the newborn child; the first signal of communication and interaction with a *New World*. As the child grows the random production of sound gradually refines into words for communication. This action of using speech to communicate and interact is the *Journey for a Lifetime*.

What we have to say and how we say it defines and expands our identity within our social group. Speech changes our dimensionality and allows us to use words to express feelings and emotions, recall and analyze past events, comprehend the present and contemplate the future. The spoken word is a powerful tool for those who possess this attribute. For those who do not have the capacity to use oral expressive language we have to apply other modes for expression and communication to generate interaction and inclusion.

We are searching for ways and means constantly to give *silent voices* the power to interact and the *muted expression* the *Essence to Communicate*. We are the technological pioneers developing, designing and creating new methods to give words and language new dimensions within the communication spectrum. We are changing silence into action and isolation into inclusiveness. Technology has connected us to the world and we are no longer communities and societies of a particular country or a particular continent. Technology has made us participants of a world community.

In the last few decades the computer has given us the potential to create and build programs and convert us from passive consumers into printers and publishers of educational and recreational material.

Technology is opening doors for individuals with communication disabilities both through software development and through printed materials. Communication is no longer the exclusive activity of a communication device, but communication now includes the subtleties of commanding the environment. In the home the individual can use devices to control lights and appliances and from home the individual can purchase groceries, clothing, books, etc. Through technology we can visit the world from our homes.

The Journey of Life is a Journey within Ourselves. We must understand ourselves to understand others and we must plan our own journeys before we plan the journeys of others. This is a special honour that is given to the Educators and Practitioners and we must accept this honour with all humility.

Our duty is to analyze and select what is best for the nonverbal individual beyond our own biases. The right action and the right pathway will be rewarding today as it will be tomorrow.

Over the years I have been asked the question; “What is the best mode of communication for the nonverbal individual – Visual or Manual Communication?” and my response has been:

That we have to understand the strengths of the individual and then choose the program direction. Working with the individual is the basis for success. When we focus more on the system and less on the individual, our results lead to disappointments.

As professionals we are influenced by programs, strategies and reported outcomes. Communication is an *art first and then a science*. We need to be influenced by the strengths and needs of the individual; the social-psychological and environmental factors that will develop the individual’s communication skills. *Communication Use* must supersede the need for *Communication Data*.

The approach that is advocated is a *holistic* one where the focus is on the person’s need for functional communication and not the concern of advocating a system or the statistics. The fundamental platform in developing any program is *individual strength and individual success*.

What must be recognized is that the '*Journey in Communication*' that is selected for the individual is also the journey of the advocate and the success of the process means that the best communication path was chosen for the client and success is the reward for both.

The ultimate journey is unconditional, it is creative and alive. A journey of vision and practicality; a journey that seeks to communicate when there is silence; a journey that adds a new dimension to self-image and identity.

Pictogram Symbols have been used to begin many journeys in many parts of the world. The Symbols provide the communication linkage throughout the life span of the individual. As a tool for communication the symbols attain the sophistication for dignity, the appropriateness for maturity and the depth for interaction. The Symbols create bonds for communication in a challenging world for the nonverbal individual and the professional and, this is *The Journey of a Lifetime*.

In 1975 it was a chance recognition and association made by my 4-year-old son, Bash, with regards to road signs and symbols, that led to the concept of constructively developing symbols for communication and interaction. The idea was intriguing and created an awareness of the signs and symbols in the environment, but the question was; "How would these symbols work as a communication platform?" I scribbled and drew a few symbols, co-opted some of the traffic symbols and included conventional and common-sense symbols. This was fascinating and the symbol bank grew. What I realized was that *Visual Symbols* transcend international languages and cultural barriers by engaging globally recognized symbols as a means of communication.

The clear symbol of a *man* is a *man* and understood as sexually different from a *woman*. The graphic drawing of a *cup* was a *cup* while the drawing might vary in size, the shape is the identifier with a leaf on the stem or without the leaf. A *bicycle* is a *bicycle* and not a *motorbike* and this distinction is understood without laborious lessons.

The visual displays of items and objects in our environment communicate with us and for us. The cup with a handle may be a teacup or a coffee cup depending on the shape and in some instances the cup communicates the presence of tea or coffee. A book with text narrates a story or a treatise; a book without text provides the opportunity to write

or draw and personalize the book. Environmental symbols are alive and communicate the messages of the Earth on a universal scale through seasons and weather patterns. In our miniscule worlds our homes define areas for rest and areas for the preparation of food. We are not taught in written words or written symbols; we learn to differentiate a *chair* from a *table*; a *plate* from a *cup*; a *cat* from a *dog*; and these are the visual images that facilitate our cognition and our responses.

We have understood without much tutoring from a young age that arrows provide directions and we have internalized corporation logos without explanation. Symbols for cars, restaurants, electronic items have become easily recognized in our environment and beyond. We rely on visual markers during travels whether it is to the crowded city or to the hinterland for the return voyage. This is reminiscent of the Greek Legend of Theseus who used string to trace his path out of the labyrinth after defeating the Minotaur. The labyrinth had no visual markers and Theseus used an alternate indicator.

The idea and imagery of visual symbols floated for a while and I had to have a clear rationale for the application and design, and considered the construction of a *Picture Language for Communication*. Our languages are generated by two major classes of words; words that represent items and objects, and words that represent actions and ideas. After much deliberation I formed the term *Pictogram* to represent items and objects and *Ideograms* for the symbols representing actions and ideas. The suffix *gram* was selected to indicate the transmission of the message; thus it was a symbol-message that could be interpreted in any spoken language. This resulted in the copyright information as *Pictogram Ideogram Communication* or *PIC Symbols*.

I prepared a visual display of about 40 symbols on a cardboard tray painted orange with the distinctive white symbols on a black background to demonstrate the effectiveness of the symbols. This little art-project attracted the interest of some administrators at Valley View Centre and I continued with the idea of symbols; however, there were many obstacles that had to be overcome and through research and writing I attempted to consolidate the idea of Pictogram-Ideogram Symbols.

I had a name, PIC Symbols and undertook to ask myself a series of questions and in the winter of 1975 wrote *Explicit Aspects of the PIC System*. There were 7 concepts that were fundamental to the development of Pictogram Symbols.

1. PIC is essential conceptual communication for the initiation and the maintenance of interaction, communication and social integration for and with non-verbal individuals who demonstrated limited ability in utilizing an alphabetic code system, either reading and/or writing to grasp and express ideation.
2. PIC is an alternate mode of communication for non-verbal individuals (using visual and manual abilities to point or arrange sequentially ideation for expression and reception. The system is designed as a catalyst to encourage utility communication and initiate social interaction. Once the individual displays competence in handling the PIC System he/she can graduate to a system of communication most appropriate for him/her. In short, PIC is a temporary means of establishing communication and encouraging social interaction and social integration.
3. PIC is a bold, clear, neutral, uncluttered system with pictograms expressed as picture-representations of items/objects as they appear in the environment, together with synthetic (constructed) symbols, the ideograms, to express abstract concepts that are necessary to achieve simple, utility communication.
4. PIC for the balance between analytical ideograms that are too artificial and amorphously designed pictograms that achieve no constancy. The pictograms in the PIC system maintain a neutral responsive referential and the ideograms are based on traditionally expressed patterns (arrow through the heart representing *love*) and apparent forms (the stylized hands to express *give, take, thank you, etc.*).
5. PIC is not a constructed language attempting to gain the status of a natural language and therefore, creates no illusion of attaining competitive status with other polygraph or gestural systems of communication.

6. The system can be structures grammatically (simple sentences) or can be used ungrammatically (conceptual presentations) to achieve the expression and reception of ideas.
7. PIC can be used as a fixed arrangement on a page to express a number of concepts; food, water, washroom, sleep, etc. or as a single elaborated concept (I + want + (to) go + (to the) beach. Yes/No) or as separate pictograms and ideograms that could be sequences into essential or elaborated forms by the individual independently.

While the concept of PIC Symbols was germinating and my understanding of the idea was solidifying, there were continued questions on *The Merits and De-Merits of the PIC System*. I was hesitant to embark on a huge project that I may not have the information or the tools to accomplish the undertaking.

Many questions were raised regarding Blissymbols and PCS with regards to learning and remembering, especially with Blissymbols , and the fear that teaching a child to communicate with PCS would prevent the child from developing oral expressive speech. In addition, the burden of carrying a communication board or book at all times and in all locations would discourage the user from the task and defeat the purpose of symbol communication.

I had to resolve the issues before developing the strategy of Pictogram-Ideogram Communication. My research on created world languages provided a historic background as well as the flaws and fallacies of such endeavours, and I had to have the information and logic to respond to questions that would surface in time. I challenged my own thinking and developed a series of questions and answers. This was a period before computers and sophisticated printing devices. The printers, as I recall, were a drum-type piece of equipment subject to rapid failures, and the questions that surfaced reflect the state of introducing a communication strategy that would challenge the traditional expectation of speech at all costs and under all circumstances for nonverbal individuals.

The questions and responses have been edited for simplicity from long, convoluted hesitations and uncertainties.

Question 1.

The Pictogram-Ideogram Communication (PIC) System is a manual-visual system with no provisions for the recording of messages. Pointing from one symbol to another is lost in the motion and therefore, it lacks permanence.

Response

PIC makes no claim towards being or becoming a *recorded system* and; therefore, it does lack permanence. This is an inherent flaw of both visual and manual strategies of communication. The system was designed for nonverbal individuals limited in expressive communication to convey information through visual symbols. Oral communication has no permanence unless it is recorded electronically or through print.

Question 2.

The large drawings would limit the number of pictograms and ideograms that could be placed per page and this would require excessive paging through to seek and select a pictogram or an ideogram to initiate intent and interaction.

Response

There is no denying that the size of the pictograms and the ideograms restrict the number of symbols that can be displayed per page. The individual can choose only those symbols that would be used most frequently and gradually incorporate other symbols as the language skills are expanded.

Question 3.

What we are looking at is a time-lag in the presentation of an idea which ultimately loses its urgency or impact and may require a repeated identification of the symbol which could lead to frustration if it was a common occurrence.

Response

One cannot escape from time-lag; however, through essential sequencing, only symbols necessary to complete an idea, one can reduce time-lag. Furthermore, we are not examining the PIC system in competition with any of the natural languages, but as a

constructed Pictorial Language devised for the specific purpose of establishing a communication channel for nonverbal individuals

Question 4.

A second objection germinating from the first is that the viewer-spectator, the person to whom the message is being imparted, has to retain the visual/cognitive impression and image of each pictogram or ideogram if multiple symbols are being indicate and wait patiently for the total linkage before providing an appropriate response. This piecing of information becomes reminiscent of joining the pieces of a puzzle to eventually discover the intent of the picture, an extremely labored process of communication. A viewer-spectator who is distracted would experience "communication in confusion". In addition, this could be hindrance for peer-to-peer communication and interaction.

Response

If the symbols are maintained on a page-to-page basis representing different categories, e.g. food, drinks, locations, etc. then exacting visual retention is necessary. The flexibility of the system is that it could be appropriated as a *set of symbols* existing on a page or as a single symbol expressing a composite idea. PIC opens a channel of communication and offers the nonverbal individual an opportunity to express communicative intent, the time-lag is no different from a person expressing an occurrence or a need.

Question 5.

The synthetic or constructed symbols (ideograms) as well as some pictograms will have to be learned and this may slow the interactive process.

Response

Many Pictogram Symbols can be represented easily since there is already a conceptual acceptance of what the items should look like. The Symbols are based on minimalism and present the most neutral, graphic and bold design for easy recognition and recollection.

Ideograms with all the logical intention of capturing the essence of the concept will have to be learned and only through time it may be accepted and assimilated into a culture. Abstract concepts in natural languages have to be taught and learned, Ideograms share the same requirement.

Question 6.

The general estimation of a language core necessary to communicate adequately is 250-1000 words or symbols. If one were to devise even the minimum number of Pictograms and Ideograms, it would become a laborious task searching for a particular symbol to complete ideation.

Response

PIC does not emulate the nuances of natural languages and may work well with less than 100 symbols to initiate functional communication. The symbols can be displayed in 1x1 inch (2.5 cm) squares on a single board or separated on smaller boards by categories.

Note: The first PIC Symbol board was designed with 400-symbols organized as *concept-clusters* rather than in grammatical rows of nouns and verbs. This was a major shift in expediting the communication process and opposed to the columnar design for nouns and verbs that other visual systems were based upon.

Question 7.

The individual utilizing the PIC System is burdened by a briefcase of pictograms and ideograms and has to carry this impediment at all times to conduct and maintain even the simplest form of social interaction.

Response

A non-verbal individual without the collection of pictograms and ideograms may not be able to conduct let alone maintain even the simplest form of social interaction; the argument is circular.

Perhaps we can concede the point that by the mere raising of a hand the nonverbal individual can initiate social interaction (basic acknowledgement) and then resort to gestures or signs to express intent. However, if the viewer-spectator is not familiar with

the specialized gestures or signs then the interaction can become confusing and a breakdown of communication interaction, furthermore, manual dexterity is the prime requirement.

The concern is for the nonverbal individual to initiate and maintain interaction and Pictogram Symbols open this avenue for communication. If this same individual demonstrates ineptitude in manual dexterity then PIC becomes the system open to establish contact. Without this recourse the individual may resign himself to the non-participatory member status within our society.

Oral and written communication is the transference of verbal images for communication. In its encapsulated form oral and written languages are telegraphic (presenting conceptual aspects of a message with little or no redundancy) and in its expanded form the languages draw on redundancy to achieve grammatical and syntactical appropriateness as based on convention.

PIC as a system is not copying the grammatical and syntactical conventions impressed upon by the natural languages. Its strength is on symbol communication and as the saying goes, A Picture says a thousand words; a bold, clear and graphic Pictogram Symbol provides a bundle of information.

Question 8.

The viewer-spectator has to become familiar with the system to work within its limits and; therefore, a novice to the system may be overwhelmed by the numerosity of the Pictograms and Ideograms.

Response

As expressed earlier when learning a new system of communication or a new language, one has to become cognizant with the fundamentals of each. The same pattern holds true for Pictograms and Ideograms.

The structure and design of the symbols reduces the learning time and the anxiety of learning complex designs and a complex written code. We have to remember that the PIC System was designed specifically for nonverbal individuals as an alternate means of communication and interaction.

Question 9.

The historic development of man's progress becomes relevant and concrete only with the emergence of a form or forms of recording of social experiences. The conjecture of the development of language is that it evolved from visual, gestural, oral to a written format. That is, from scenic drawings on cave walls to Pictographs and ultimately to alphabets that could be used to record the spoken language.

The PIC System, with a disregard for written communication; with its lack of versatility, with its overweight pictograms and ideograms, is moving converse to progress and must, therefore, be viewed as a regressive system for communication.

Response

No one can deny the versatility of the alphabetic code over hieroglyphics and cuneiform systems, but the historical emphasis of relevance to progress or regress can easily become a philosophical treatise or mundane sophistry. This prospect can be easily dispensed with if we accept PIC as the initiator of communication and interaction among non-verbal individuals and the verbal counterparts, with no exaggeration as to role as a communication strategy.

Question 10.

If the pictograms do not have universal significance how much more confusion can ideograms anticipate creating. The concept *money* in North America the dollar sign (\$) would be most appropriate, in Australia the pound sign (£) conveys the idea of *money*. The question is: What are the implications of ideograms on a universal scale?

Response

Ideograms pose a problem over and beyond the scope of bold, clear and graphic representations; however, it is the ideational core that has to be presented as the symbol. The difference is that the symbol-core may have many interpretive features and selection will depend on culture and acceptance of the symbol

As the symbol differs so does the ideational core; however, some concepts do have universal ideograms, e.g. arrows while symbols have different meaning. Cognizant of such difficulties the ideograms designed for PIC were based on a "neutral" presentation

of the “ideational core”; some aspect of the idea that has a referential point in the environment. PIC employs a limited number of ideograms and if discrepancies arise so does stimulation, and so does the prospect of developing commonality and conventionality.

Question 11.

The pictograms and the ideograms will have to be labelled (words used to identify the concept implied), and if so, why not use and teach the performer and the spectator the words per se. This procedure will save time, space and effort if the word is already employed conventionally.

Response

The versatility of the alphabetic code is undeniable. What has to be examined is not the versatility but the application. PIC was conceived and developed for use with non-verbal individuals who have made negligible gains orally and graphically (alphabetic codes) and; therefore, has the very definite purpose of conceptual communication.

Alphabetic labels may be learned as rote responses, as was evidenced with Blissymbols, but the limitations of *Memory* and *Retention* may defeat the purpose. The *visual-Pictogram Symbol* with an environments referent may have a stronger response. The Pictogram Symbol of a *glass* would be much easier for the individual, especially if the person is a non-reader, to indicate the need for a drink.

Question 12.

There are no symbols within the system to identify the concept of time. The action symbols are in the present tense and the use of arrows may be used to indicate a past event or a future occurrence.

A second observation is that the system employs a limited number of adjectives, conjunctions and prepositions and does not accommodate adverbs. The conclusion drawn is that the Pictogram System operates on a basic, primitive level of communication void of any embellishment and is advocating regressive rather than progressive forms of communication and social interaction.

Response

PIC is described as essential conceptual-communication for the initiation and maintenance of interaction and communication with non-verbal individuals who demonstrate limited reading and writing (alphabetic code) competence. The system has abstained from becoming trapped with an excessive number of markers to differentiate a verb in its various time position as well as avoiding the enlargement of a verb into an adverb. The number of adjectives, conjunctions, prepositions, comparatives and superlatives is limited to keep the system simple, rudimentary (primary) and conceptually clear to enhance communication. If "progressive" is viewed on quantity and embellishment then Pictogram Symbols can only be described in terms of quality.

CHAPTER THREE



Life is a Balance of Action

SYMBOLS WITH A MESSAGE

With an accumulation of information I used my limited artistic ability to draw and co-opt the first 50-pictograms. I realized that symbols varied from designer to designer and that fashions and dress codes would differ from culture to culture; however, there had to be some foundational representative so that the symbol had the highest visual recognition. Furthermore, cultural identity and linguistics may dictate the traditional designs for items and objects and this had to be respected as cultural diversity.

With all the considerations there had to be a common ground. The variations may be attributed to *graphic design conceptualization* rather than substantive differentiations and this must be considered in international terms. The highway signs were clear, bold, crisp and graphic and this was accepted as the foundation for the symbols to convey the message. The symbol for a *dog* may vary in breed depiction but it would be clearly differentiated from a *cat* or a *cow*; a *shirt* would not be confused with a *shoe*, etc. The clarity of the symbol would reduce the learning curve and facilitate communication.



No matter what the species a *tree will be a tree*, and the symbol for a bridge in whatever design *indicates a bridge*

It was evident that in some instances symbols have been modified to preserve a country's linguistic and cultural identity, but, bold, crisp and graphic symbols maintain international recognition and the uniqueness of visual presentation, while varied, conveys the intended message.

The idea of symbols for communication was gifted; however, the knowledge of an idea demands foundations for both its growth and containment and this was no easy task. I floundered with the idea and then determined some fundamental principles. The

first principle was that the symbols had to be clear, bold and graphic; a white symbol on a solid background.



Pictogram symbols have maintained the rationale that the *Symbol is the Communicator* and that the symbol should contain only essential details that would enhance the recognition of the symbol.

In addition, symbols that were considered *universally and culturally acceptable* or *familiar* were incorporated within the design format. For example, in western culture and in many countries tying a piece of string on a finger is a reminder of some activity, item or event. This information was translated visually for the symbol *remember*. The release of a dove was used to create the symbol for *freedom*; the rabbit out of hat for *magic* and the symbol for *Peace* is included as the universal symbol for Nuclear Disarmament.



The second principle considered the construction of a *Picture Language for Communication* was the separation of pictograms and ideograms. Pictogram were clearly representative of the item or object and therefore, the symbol was an image of the item or object. Ideograms required more analysis to capture the essence of the concept. The *T-Shirt* and the *tricycle* are clearly identified; however, the decorations are representations of a celebration while the skull and bones indicate danger.



The first attempt was to differentiate *Pictograms* from *Ideograms* and to achieve this, objects and items were designated as white symbols with a black background and actions

and ideas as black symbols on a white background. During the initial test stages it was indicated that both children and adults found the white symbol on a black background easier to recognize, relate to and focus upon than when the reverse image, black symbol on a white background, was presented. Based on this evidence the decision was made to maintain conformity and standardization and subsequently all symbols were created in white with black backgrounds. The illustration below demonstrates two features:



The experience has been that young children; children with attention deficits; hyperactive children; children with autism; Down’s syndrome; and cerebral palsy are more responsive to the task at hand when Pictogram Symbols are used than when line drawings and drawings with colour are used as visual cues. This factor has also been observed with Adults – Stroke Patients and individuals with Alzheimer’s.

The black background removes figure-ground interferences and distortions. The focus is on the symbol and *The Symbol Delivers the Message*.

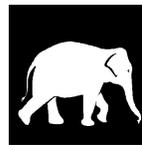
The construction of the symbols required a clear vision of the content and its application. Minimalism was considered as central to symbol design and only relevant details are to be added if they enhance visual recognition. The theme that, *The Symbol is the Communicator* guided symbol design. Symbols like *bowl, window, hammer and cap* are easy to recognize in a one-dimensional plane.



Large *action symbols* are displayed as bold and clear while *small action symbols* are designed with details for easy recognition.



Large and small action symbols are distinguished in that size is not the element to determine the extent of detail. A large item like an *elephant* is recognized by its shape while small items like a *beetle* or a *ladybug* require some detail to assist recognition.



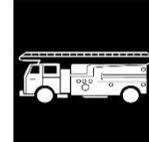
There were many aspects to consider besides the symbol colour; the background and the symbol. The justification for the white symbol came from two sources, (i) the young children and adults who found the white symbol more recognizable than the black symbol on a white background. The black background eliminated interference and confusion; figure-ground distortions and distraction. (ii) That the symbol should provided the greatest visual potency and thus, the knowledge from physics supported design of the white symbol and the black background. White reflects light, and as such, it has visual impact even under low light conditions and can be seen and distinguished by individuals with visual impairments. The result was the clear and bold presentation of the symbol and the trademark for the distinctive Pictogram Symbols.

While the understanding of the symbol design was being formulated a significant factor had to be considered. Common-sense and conventional symbols have existed within nations and cultures and these symbols and ideas had to be incorporated to support the common knowledge of the area and the society, and this factor became integral to achieving *Pictorial Communication*.

There was a need to establish parameters for symbol-construction and the following were considered.

Clarity of Design

That the symbols provide a clear representation of the item, object, action or concept and are easily understood by the community at large.



Focus on Content

That the symbol should consider conventional and common-sense applications for the symbols and that the background should not create any figure-ground distortion or visual-colour disturbances.

The symbol should be highly visible with no background interference.

Recognition

That minimal teaching should be required for symbols expressing abstract concepts, the *Ideograms*. The *shopping cart* represents *grocery shipping*; the position of the *gavel* indicates *decision*; a *clock with a question-mark* represents the question *when* and the *arrows* indicate the movement of the building depicting an *earthquake*.



Concept Maintenance

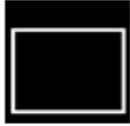
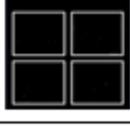
That the symbols shall be white and the background black. That is the copyrighted distinction of Pictogram Symbols.



A significant consideration in the development of the Symbols was to develop standards that could rapidly identify a *room* from a *building* and *book* from a *literature class*.

Five (5) basic formats were created to identify the symbol-message, while the sixth format provided for the identification of categories. These formats add to the messaging of the symbol. The basic Pictogram Symbol presents the basic concept; however, the use of an identifier changes the symbol message from *bed* to *bedroom*, and *money* to *bank*

Standards for Symbol Design

SYMBOL	CATEGORY		EXAMPLE
	Symbol Background		Coffee
	Room / Enclosure		Office
	Building		Swimming Pool
	TV Shows & Documentaries		Soccer
	Classroom / Class		Mathematics
	Categories		Activities

1. The Pictogram Symbol for nouns and verbs: white symbol on a black background.



2. The rectangle around the symbol to indicate a room or an office or an area within a larger building, e.g., a bedroom or a bathroom; a waiting area or an office.



3. A building or a location is identified with a roof over a rectangle.



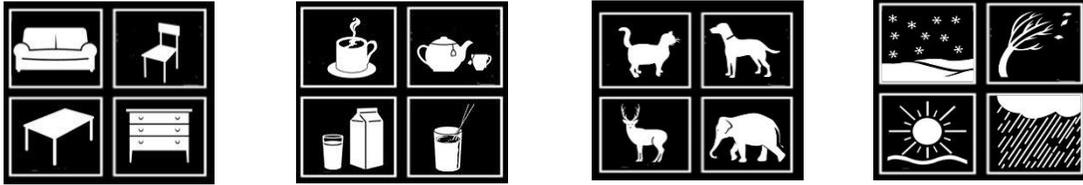
4. A television is used to indicate documentaries and shows



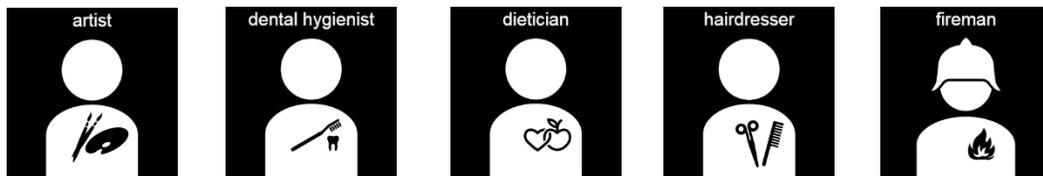
5. Classroom locations are identified with the stylized outline of an open book



6. Categories include four symbols



The Swedish design team led by Henry Svahn created an elegant manner to identify over 40 professionals. This is an example of the ever-evolving designs for symbols and will continue as creative individuals add to the development of Pictogram Symbols



The success of traditional visual symbols is considered a valuable foundation for the adaptation and development of symbols for communication. The intention is to incorporate such symbols and finesse the design to achieve acceptance within the community/society.

It is expedient to use symbols that are well established in society or a culture; however, it is recommended that these symbols follow the same structure as Pictogram Symbols, that is, clear, bold, crisp and graphic white symbols on a black background.

Internationally Recognized Symbols

The symbols for *fork, knife and plate* symbol without the location identifier is used internationally to indicate a *restaurant*; however, the design may vary but the message is clear and to suggest a change would be foolhardy.

It would also be a waste of energy to add the location identifier to the symbol for coffee to indicate a *Coffee Shop* since the symbol is the message .

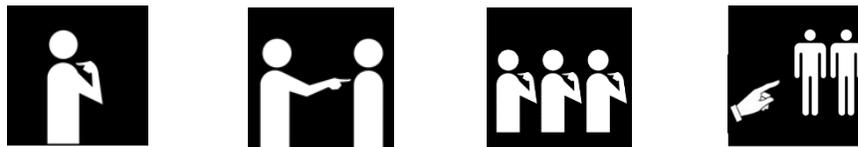
Thumbs-up for *Yes* and the contact of the pointer finger with the thumb says *OK* or *perfect*.



Arrows are used universally to indicate directions and are part of the Pictogram Symbol repertoire. The symbol on the left has the arrow indicating entry or going *into* or *in* while the symbol on the right expresses *exit* or going *out*. The question mark with the arrows asks: *Where* to identify a location, and multiple arrow-heads with an arrow to represent *forward* of moving *forward*.



Initially, pronouns were designed using geometric shapes. A circle to indicate '*I*'; a square for *You*. The rationale for the circle was the enclosure of the self of *I*, and the square as diametrically opposed to the circle for *You*. Combinations of circles and squares represented *Me*, *Mine*, *We* and *They*. These symbols were far too abstract and were eliminated in favor of using *person-figures* designed in Sweden to indicate the pronouns.

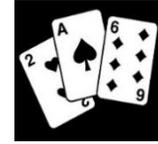
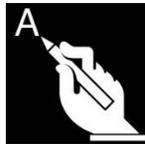


The Impact of the symbols also meant that the high visibility would increase the rapid identification of the symbols, maintain focus and facilitate the flow of communication.

Symbol Quality

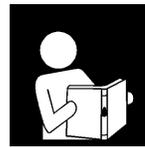
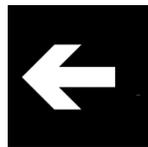
An important consideration was that Pictogram Symbols maintain a quality in drawing design that respects the *User's* dignity and sensitivity. The visibility of Pictogram

Symbols in the environment and the quality of the symbols allow the use of the symbols without stigmatization.



A Pictorial Language

Pictogram Symbols, as visual cues, represent a *Companion Language* to natural written and spoken languages. There is no attempt to develop abstract symbols to *force* the grammatical structure based on a spoken language. The pictorial representations provide a wide variety of messages.



For example: The symbol above may say, *I read (I want to read a book); You Read (I want you to read a book)*. With attentive questions the exact message of the symbol can be obtained and there is no need for additional symbols. However, if the information was being sent or documented then the inclusion of the additional symbol, in this example, the symbol for *I* or *You* or an arrow to indicate *was reading*.

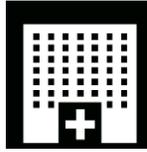
Cultural Diversity

Cultural and linguistic differences may require symbol variations in some instances while a general agreement may exist for others. For example, the North American Symbol for Hospital is "H" while other jurisdictions employ the "Red Cross" Symbol or use the "Crescent and the Star" to indicate Health Services. Thus, three symbols represent a single concept; however, these variations in graphic design still embody a commonality that can be recognized internationally.

North America



Europe



Asia-Oceania

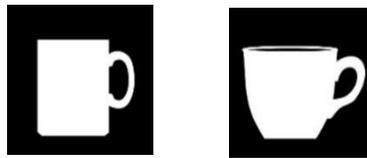


Middle East



Visual Dialects

Pictogram Symbols provide for design variances from country to country; from graphic artist to graphic artist; however, the universal intent is the same. The influence may be cultural or personal; however, the symbol is still representative of the item or concept. These variations may be compared to the “oral dialects” of a language and for Pictogram Symbols they are *Visual Dialects*. The *cup* and *mug* may serve the same purpose or used interchangeably for tea or coffee, but the symbol is indicative of a drink.

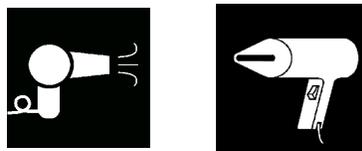


Visual Synonyms

Significant changes in presenting a symbol or an alternate conceptualization for an idea or an action may be regarded as a “visual synonym”. The design-shift may represent the prevalent visualization for the concept from country to country.

The symbols for *hair dryer* are within the variety of dryers that are available in stores; however, the symbol on the left reflects an Oriental-design while the symbol on the right shows an Occidental or European-design influence.

Pictogram Symbols are culturally sensitive and adaptable.



Cultural Symbols

Cultural symbols add to the richness of the symbol repertoire and present the unique quality of the country.

The symbol on the left represents the *Tanabata* Festival of Japan; in the middle is the European symbol for the *Midsummer* celebration and the symbol on the right is the Pictogram Symbol for *Halloween* which is celebrated in North America.

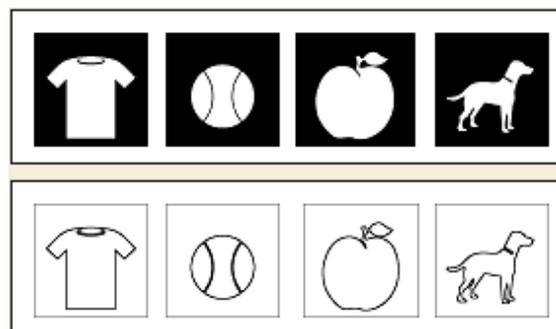


Pictograms Symbols and Colour

Color is a personal choice. The arbitrary selection of a color for an item may not be the personal choice of the individual who needs to use the symbol for communication. If colour adds information to the communicative intent, then it is a logical application.

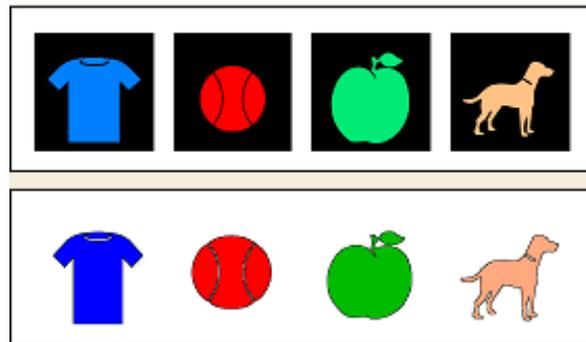
The reasons for maintaining the white symbol on a black background are; (i) colour may interfere with the visual interpretation of the drawing and disrupt communication intent if visual acuity is in question and, (ii) the individual may have a colour preference different from the Educator/Tutor.

This illustration provides a view of the same Pictogram Symbols as line drawings. While both sets provide the message the educator-tutor must consider the visual acuity and focus of that individual. Vision may be biased to the right or left of the symbol, thus interfering with the learning and communicating process.



Over many years of working with Pictogram Symbols, both children and adults have preferred to use the white symbol on the black background. Dr. Shinji in his research has demonstrated that children prefer the white symbols with a black background over black-line drawings.

I have used Pictogram Symbols to correct articulation errors and to generate emergent speech and language and children very rarely coloured the pictograms.



This illustration demonstrates the dulling effect when colour is added to Pictogram Symbols. Multiple line drawings in colour on a communication board or a communication device can have a blurring effect; however, this factor is seldom considered.

The line drawings of Picture Communication Symbols (PCS) were coloured and the backgrounds were coloured in black. This approach was hailed as a strategy for persons with low vision. The understanding of colours and contrasts; colours and colour reversals evaded the developers of this idea. This appeared to be a copy of the elimination of the background and the white symbol providing the highest visual impact for persons with low vision. This was a callous and poor attempt at focusing on the real issue of low vision. A blue shirt on a black background for a person with low vision would appear as a shade of grey and this can create complications.

If visual acuity was not a factor and the individual wished to purchase a shirt and the *colour of choice was blue*, then the use of colour is meaningful. To use a *blue shirt* as a generic symbol on a communication device or a communication board to represent all T-

shirts may be colourful to the *creator* of the software or the communication board but quite meaningless to the *User who is not fond of the colour blue*.

Pictogram Symbols in the Environment.

The first expansion for symbol inclusion was the use of Pictogram Symbols for students in the classroom for as many activities that can be structured around visual symbol supports. This will be detailed in the section on Applications in Education.

The inclusion of Pictogram Symbols in everyday activities was the second consideration. The visibility of symbols in the environment as regulators and locators in a mobile, language-free and culture-free society was meaningful to the acceptance of symbols as a format for communication for nonverbal children and adults.

Directional symbols are recognized internationally.

Up and Down arrows need no explanation even when printed on boxes and parcels. The side-to-side arrows point to the left and right and to entrances and exits.



Arrows may be used to indicate the three dimensions of time, PAST, PRESENT and FUTURE ; however it is still up to the *Listener/Inquirer* to direct *Yes-No* questions to determine the correct time frame.

Example:

The symbol user points to the symbol for *restaurant* and then to the arrow indicator for *Past*. The listener will have to ask questions whether it was earlier on that day, the day before and go backwards in days to determine when the *Symbol-User* had been to the restaurant.



Gender symbols are universal, although variants exist, including some with a black symbol and a white background, but the messaging is clear.

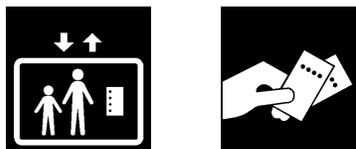


The Symbol for Accessibility is universal although the background may be changed to Prussian Blue or Sky Blue or a Dark Grey. The symbol is generally white unless a colour reversal is applied.

The symbol for *telephone* generally shows the receiver. This symbol may be minimized or considered obsolete with the proliferation of cell phones. However, at the present time it is still the symbol that can be seen in airports, and other transportation terminals.



Pictogram Symbols are in the world around us, informing us about the location of an *elevator* or where to *purchase of a ticket*.



Or identify *sport activities* and locations.



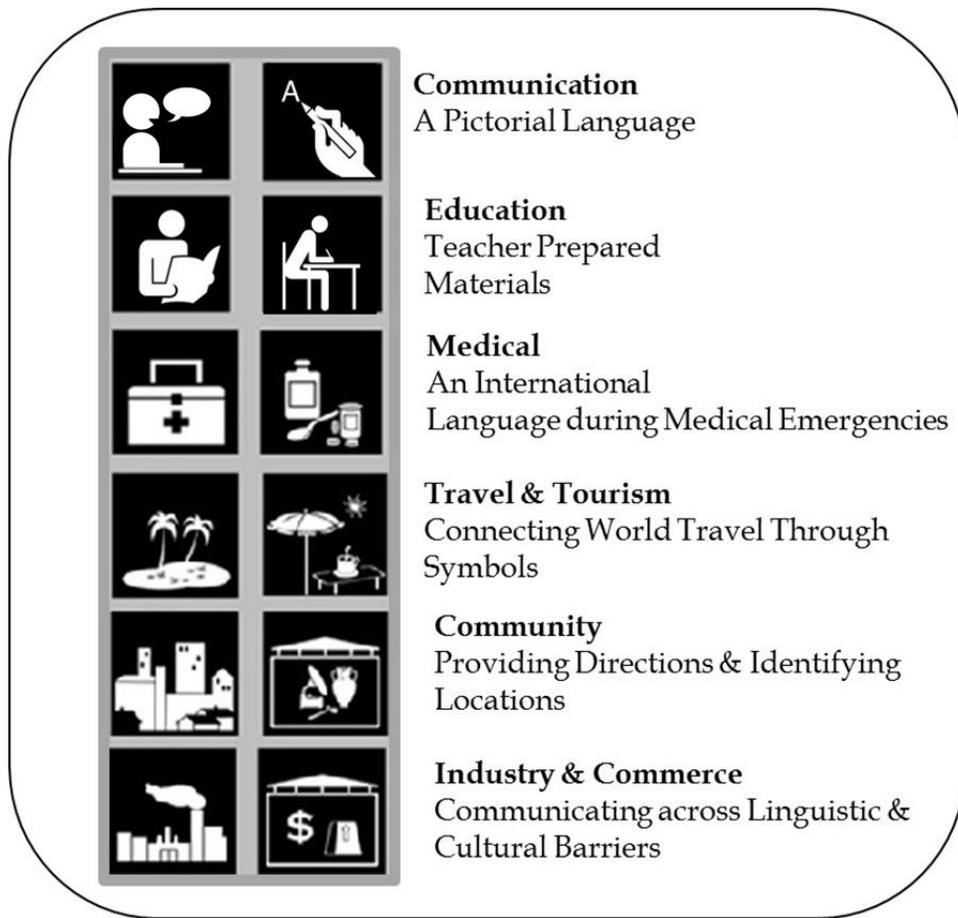
In Sweden bus routes are identified with Pictogram Symbols to provide non-readers with a visual cue as to the route of the bus; for example, the *Tower* route or the *Owl* route.



Pictogram Symbols have become a significant way of communicating nationally and internationally and this same strategy of communication is advocated for the AAC *User*. The Symbols are visually-bold and informationally-succinct thus, strengthening the communicative value. The conceptual transfer of symbols from a communication board or communication device into the environment is a *Language of Pictures*.

*Pictogram Symbols create a Pictorial Language
as a Companion to Natural Languages.*

Visual Symbols transcend international languages and cultural barriers by engaging globally recognized symbols as a means of communication. Pictogram Symbols provide the Pictorial Language as an adjunct to oral and written communication in any situation where a language barrier may exist. The illustration below illustrates the versatility of Pictogram Symbols.



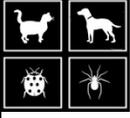
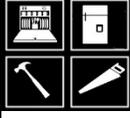
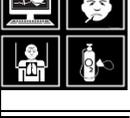
In 2016 and again in 2020 the International Organization for Standards (ISO) acknowledged the “Design principles for communication support board using pictorial symbols” ISO 19027: 2016 (E).

Pictorial Symbols, as visual expressions internationally, remove communication barriers in daily life when the characteristics of the pictorial symbols are easy to understand and able to be applied regardless of regional/cultural differences.

Single Symbol Category Identifiers

Pictogram Symbols are arranged in 24 categories plus an allocation for personalized photographs or symbols to identify a favourite restaurant; the persons home; parent’s car or van; siblings and other relatives. The single symbols are an option when the multi-symbol design and size cannot be accommodated.

 Action Symbols	 Activities
 Animals & Insects	 Animated Symbols
 Appliances & Tools	 Bathroom
 Clothing & Personal	 Dessert & Snacks
 Educational Items	 Food & Drinks
 Fruit & Vegetables	 Household Items
 Human Body	 Infant Care & Toys
 Locations	 Medical
 Miscellaneous	 Months, Seasons & Environment
 Music & On TV	 Occasions & Greetings
 Opposites & Questions	 People & Emotions
 Professions & Pronouns	 Vehicles & Transportation
Your Pictures	

	Action Symbols		Activities
	Animals & Insects		Animated Symbols
	Appliances & Tools		Bathroom
	Clothing & Personal		Dessert & Snacks
	Educational Items		Food & Drinks
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	Music & On TV		Occasions & Greetings
	Opposites & Questions		People & Emotions
	Professions & Pronouns		Vehicles & Transportation
	Your Pictures		

CHAPTER FOUR



Climbing a Mountain with No Feet

STRUGGLING WITH AN INSPIRATION

In the fall of 1975 it was a chance recognition and association made by a 4-year old boy with regards to road signs and symbols that led to the concept of constructively developing symbols for communication and interaction.

The knowledge of an idea demands foundations for both its growth and containment and this was no easy task. A fundamental principle developed was that the symbol had to be clear, bold and graphic with a solid background. Pictograms and Ideograms were coined from the Pictorial nature of the symbols (Picto) and the addition of *gram* from the message component of telegram. In a similar manner the word Ideogram was coined.

Initial drawing and testing favored the development of white symbols with solid black backgrounds over a black symbol on a white background. This was supported by a fundamental principle from physics; white refracts light and would allow for the greatest exposure of the symbols and that the black background would eliminate figure ground distractions and confusions.

The trademark of the white symbol on the black background was launched as the Pictogram Ideogram Communication Symbols (PIC Symbols) and now referred to as Pictogram Symbols.

Initially I wrote a convoluted document, an abridged version was presented in Chapter 2, with a preliminary design for the application of the PIC Program. The document described the structure and strategy of the symbols; the concerns over the use of visual symbols and the suppression of orality; the cumbersome nature of visual communication boards and the use of visual cues and most significantly that the person may never learn to talk.

I sent a copy of document to Dr. Audrey Lunday, Minot State University, for comment. She responded by asking me one simple question. *Who was this document for?*

and I had to re-think and re-write the fundamentals for the symbols and the ensuing program.

The first challenge was to introduce the use of visual symbols as a means of communication for and with nonverbal individuals. Through a moment of creativity I wrote PIC: WHAT IT'S ALL ABOUT? in a question and answer format expressing the use of pictures and photographs that are used to describe and demonstrate significant aspects during conversational speech. That it was not uncommon to use speech, manual signs or gestures, touch and visual cues in everyday communication and interaction. That Pictogram Symbols would standardize the communication format with the availability of symbols to create multiple Boards and that the desired outcome was to facilitate interaction between and among individuals using the symbols.

Pronouns were difficult to symbolize and in a logical construct I used the conventional idea of man representing himself as a dot or a small circle in relation to the surroundings and the universe. *Mandala*, as the magic circle of life, was chosen to represent the unity of self, and both the circle and the dot was used to represent *I* and the square, which is diametrically opposed to the circle both in design and concept was designed for the symbol *You*.

These ideograms were subsequently replaced by the more human-symbol form for the pronouns.

The dialogue focused on three major factors:

- i. The ability of the individual to retain and recall information – the question of memory;*
- ii. The social group of the individual – will the members of this group be able to cope with the alternate system of communication being used;*
- iii. Will the programmer have the time to teach the verbal members of the social group the new system of communication.*

The final question was: *What is your global view for PIC?*

Answer: *Most of the symbols transcend the barriers we call “nations”. If the need for such a system is recognized... then use it. If adjustments have to be made ... let's get on with it. The*

main concern is to give the non-verbal individual the freedom to express wants, needs and desires, the communicative intent.

Almost a year later an elementary schema of the Pictogram Program was initiated at Valley View Centre with about fifty (50) basic hand-drawn symbols. The symbols were tested for transparency with Kindergarten children. Most of the Pictograms were recognized and Ideograms for actions like *walking, running, swimming* were readily identified. The ideograms for *want* and *give* were less readily understood.

Pictogram Symbols were expanded and by 1978 four-hundred-symbols (400) were designed and the application program consolidated. This became the basis for program design and development and the preparation of the PIC Manual.

An observation made during the rush to implement a visual strategy for nonverbal individuals was that there was no determination whether the individual had the prerequisite skills of pointing or touching; adequate manual dexterity; an ability to sustain attention and focus on the task at hand; or appropriate session behaviours.

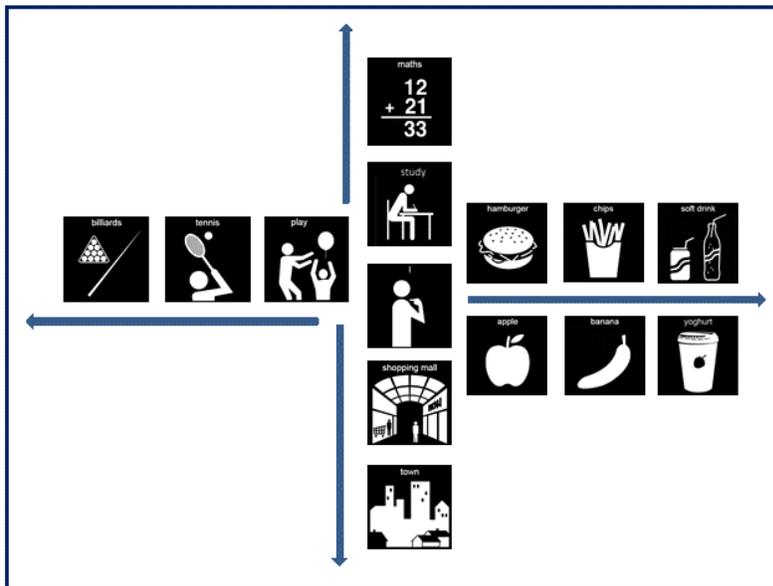
A screening tool was prepared that examined four major requirements for successful programming.

1. Pointing or Touching: The objective was to determine whether the participant had the necessary skills to proceed with the Pictogram Symbol Program
2. Time: This was an assessment that the participant could sit at a task for a period of time. The rule of thumb was that if the participant could sit for x-number of minutes, then it was relatively safe to program for half that time successfully.
3. Distractibility: To determine whether self-created distractions would interfere or impede the teaching-learning process
4. Disruptive Behaviour: To determine whether the participant will disrupt the session by throwing the screening items; create interruption through screaming or shouting; kicking or pushing furniture or wandering away from the assessment area.

Each item examined is scored and this indicates whether the participant is ready for the program phase. The allowance is that only one area may require additional

attention and this is included in the objectives of the program. The *Pre-Test* was an innovative idea to determine the compatibility of the *User* and the program.

The next step involved the selection of symbols for the program. This required consultation with family members, staff and members of the social group to identify and select the symbols that may become the basis for the program. 3 to 5 symbols are placed before the individual and he/she is asked to point-touch the symbol named. If the response is successful then the symbols are rearranged and a different symbol is requested. The sequence is repeated until all the selected symbols are tested. This process is conducted twice and if the symbol is identified correctly on both occasions it is considered a learned item and can be used to develop and design the communication board. The symbols considered necessary for communication and social interaction are included in the training session and as they are learned they become part of the communication board.



The design of the Pictogram Board was based on *concept clusters*, an innovative strategy to facilitate visual communication rather than columns of various parts of speech and language that lose conceptual intent as the User moves from one end of the board to another. The Board can be customized for the

individual or a generic pattern can be developed for multi-User. The first Pictogram Board was designed with 400-symbols with *I* in the central position and symbol-options radiating around the pronoun. An adaptation of the Board, and to personalize the communication process, is the use of a photograph of the individual in place of the symbol.

The PIC SYMBOL: Screening, Assessment and Training Manual was prepared as a guide based on studies conducted at Valley View Centre. The manual described:

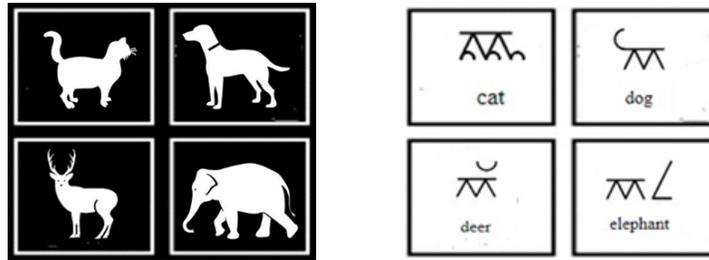
- i. The Screening Process
- ii. The Selection of Symbols that would compose the program
- iii. The Assessment of symbols known and symbols for training
- iv. The Training Program of the symbols considered necessary for the program
- v. Retention Tests of symbols known and the ones in the training program
- vi. Illustration by the participant of the generalized and functional use of the symbols
- vii. A Second Retention Test
- viii. Multi-Symbol Communication – the construction of phrases and sentences.

By the mid 1970's Blissymbols were promoted through workshops and seminars across North America as *the* alternate strategy for nonverbal individuals; however, in time it was evident that the outcomes did not meet expectations. Professionals from many disciplines advocated the benefits of the symbols as opposed to pictures and orthography, but the reality of the abstractions diminished the advocacy.

The observation at Valley View Centre was that on a spectrum based on cognitive ability a few individuals had memorized the symbols as responses to questions by instructors. This was presented and demonstrated as the generalized learning and application of the symbols; however, the reality of the claim was disconcerting.

Pictogram Symbols were being designed and developed as the alternative for generalized communication intent with nonverbal individuals within the broad spectrum of individuals when *Memory* and *Retention* were limiting factors.

In 1978 a project to evaluate the efficacy of Blissymbols and Pictogram Symbols with nonverbal individuals was initiated at the Centre. *A Comparison of Initial recognition and Rate of Acquisition of Pictogram-Ideogram Communication (PIC) and Bliss Symbols with Institutionalized Severely Retarded Adults.* (William B. Leonhart and Subhas C. Maharaj)



Two Experiments were conducted. In the first experiment 180 symbols common to both BPC and Bliss were compared for initial recognition. The results revealed that there was better recognition of Pictogram Symbols (55.4%) than Bliss symbols (20.9%). The initial recognition of nouns was 75.9% compared to 27.1% for Bliss symbols.

The second experiment compared the rate of acquisition and retention of new, unknown symbols common to both systems. The subjects showed a more rapid acquisition of Pictogram Symbols than Bliss Symbols.

The results revealed that nonverbal, cognitively disabled individuals responded more successfully to Pictogram Symbols than to corresponding Blissymbols.

William B. Leonhart, a Psychologist at the Centre, assisted in the preparation of the program report and a version of the report was presented at the National Conference on Mental retardation, Vancouver, British Columbia in October 1979.

At the University of Regina a research and development group, the Mathesis Group initiated the project *A Microcomputer-Based Centre for Nonverbal Communication*. Alan G. Law, Brien Maguire and Subhas C. Maharaj, (Report 8, March 1982) utilized a subset of PIC symbols for display on a monitor, with accompanying computer-synthesized voice support. The rationale for the use of the symbols was that the non-alphabetic system, *with reduced analytic requirements and maximal representational components* places little demand on *Memory and Retention*.

The research concentrated on two questions: (i) the impact on performance from a printed format to a video monitor presentation of the symbols and, (ii) whether the instruction given by a human-voice as opposed to a computer-generated voice had an effect on performance.

Twenty-seven Pictogram Symbols of common nouns were arranged in sets of three (3) per test page for the computer and printed tests. The results indicated that there was; (i) *no significant difference in group recognition of the symbols when the medium was changed from a print format to presentation on a video monitor* and (ii) the participants were less favourable towards the Votrax-generated voice as opposes to human voice.

Additional observations were; (i) attention to task may have influenced performance since there was a time lag between the screen display and the instruction given, (ii) the monotonous tone of the computer-generated voice did *little to sustain interest and attention*, and (iii) the novelty of the toneless-quality of the synthesized voice affected the participants.

The paper was presented by Dr. Alan Law at the Congress on Computers in Education (SACCE), University of Stellenbosch, South Africa, April 1982.

In August 1982 I presented a paper, PIC: A Nonverbal System of Communication, at the International Congress of the International Association for the Scientific Study of Mental Deficiency in Toronto, Canada.

The paper outlined the current use of language boards with pictures, words or letters as a supplement to oral communication, and manual systems that had been used to initiate interaction with *autistic, retarded and aphasic persons*. Professionals focused on orality dismissed signs and gestures as a temporary means of communication. In a study on Total Communication based on the application of Signed English (Maharaj and Wolfe) the conclusion was that the configurational decay of signs were attributed to limitations in *Memory and Retention*, additional complications included manual and physical dexterity.

Blissymbols was considered too abstract for generalized acceptance and application in the community and line-drawings require acute figure-ground discrimination.

Vicker B. (ed.), (1974) Nonoral Communication System Project 1964/1973. University of Iowa, Iowa City, reported in a chapter, Advances in nonoral communication system programming that *figure-ground skills are integral to the learning*

process since the individual will be faced with a mass of coloured pictures on the communication board and must be able to locate specific items within this complex picture and word display.

The form and structure of Pictogram Symbols were detailed, as well as, the programming sequence from screening to determine conditions for programming to the creation of communication boards based on concept clusters that are arranged to enhance conceptual-flow and reduce time-lag.

PIC was designed to place a system of communication within society that could be understood and employed with minimal accommodation from the individual's social and communicative group.

Fahey R., Hagler P., Stead S. and Demeriez L. presented a paper on The Application of PIC within an Adult Multiply-Handicapped Classroom at the Canadian Speech and Hearing Association (CSHA) in May 1983.

The class comprised of fourteen students with language levels ranging from approximately 3 to 5 years with some verbal individuals while the others were limited verbal or nonverbal. Additional factors included hearing impairment, neurological disorders, English as a second language, emotional and behavioral problems which reduced interaction with teachers and peers.

The results of the study were:

1. Most pictographic symbols introduced were immediately recognized and when training was required, *the trials to acquisition were minimal.*
2. Ideographic symbols required training; however, they were *readily learned.*
3. Communication boards were used in the classroom *but inconsistently during other daily activities.* Selected PIC training cards were used throughout the day to facilitate communication.
4. The physical size of the board *may hinder the use of multiple element responding.*
5. The inconsistent use of the communication boards questions the functionality of the item.

The conclusion was that additional programming with both staff and students to establish the use of the system in a daily routing is being conducted.

At the Loddon School in London, United Kingdom, Marion Cornick and Tina Cosham reported on their research with Pictogram Symbols.

The use of PIC Symbols as an effective strategy to improve functional communication and thereby reduce the severe challenging behaviours in children with severe learning difficulties and autistic features. (Draft III, December 1991).

The study focused on six children with severe learning difficulties; severe challenging behaviours and autism who had no recognizable speech *and for whom Makaton signing had not been sufficiently effective.* The baselines of the study proved that the participants were able to *recognize photographs, but after a year's work no progress had been made with Makaton Symbols.* The children did not appear motivated to learn the less pictorial symbols.

Cornick and Cosham state that seeing the use of Pictogram Symbols with autistic children in Norway led to the introduction of the strategy at the Loddon School. The symbols were used in *functional setting, for example, meal-times, outings, leisure and to enable the child to make choices, requests, comments and decisions.*

Sign language was introduced at the School but the students were not applying any of the signs they were taught and reverted to challenging behaviours to indicate their needs. It was recognized that *for these children the encoding of signs from memory was proving too difficult.*

The goal of the study was to evaluate the viability of using PIC symbols as a means of communication to reduce challenging behaviours. The study revealed a trend towards a reduction in the number of incidents of challenging behaviours. The symbols assisted the children understand situations and this improved compliance. It also showed that the children had an increased desire to communicate using PIC symbols and that attention to structured tasks improved.

An interesting attribute was an increase in self-esteem and cordial behaviours towards staff. The demand for new symbols increased and a graphic designer on staff added to the symbol-bank. New developments included menu-boards, menu-mats, time-tables; recipe card; shopping lists; books and environmental labelling.

This study reinforced the use of Pictogram Symbols to generate speech and signing for communication and has been effective in reducing challenging behaviours and improving *concentration and attention*.

A Pictogram Program Package with test forms and procedures for training and testing was designed and evaluated through workshops in Canada and the United States. By 1980 the complete package was ready for printing and distribution.

The Director of the Community Living Program, CORE Services, Saskatchewan Department of Social Services offered the Pictogram Program to the Saskatchewan Association for Community Living (SACL), previously referred to as Saskatchewan Association for Mental Retardation (SAMR). Informally I learned that SAMR was not interested in accepting the program for use and distribution. Subsequently I contacted the President of the SAMR per telephone and he informed me that the Pictogram material was sent to the Department of Special Education at the University of Saskatchewan and was evaluated by my predecessor at Valley View Centre, a Speech-Language Pathologist. The response was that I should scrap the idea of Pictogram Symbols and focus on the use of Blissymbols. This was an anticipated since the evaluator was a staunch supporter of Bliss Symbols.

In 1980 I presented Pictogram Program at a public forum in Regina and at the end of the presentation I was asked about the future of the program. I explained that while the reception towards the program was very favorable I had difficulty finding a publisher in Canada and would be investigating possibilities in the United States.

A young man approached me and asked if he could present my material to the George Reed Foundation for the Handicapped. I agreed and a few days later I got a call from Mr. Harold Gallagher, the CEO for the Reed Foundation, requesting the names of agencies using the Pictogram Program. I provided him with a list of about fifty (50) locations and the Reed Foundation sent letters to twenty-five (25) agencies inviting a response either as a comment or an evaluation of the program. There were eighteen (18) responses with seventeen (17) supporting the publication of the Pictogram Program with one (1) negative response from the Bliss Foundation, Toronto.

The George Reed Foundation reported in the Regina Leader Post that it had evaluated and accepted the work and would be publishing Pictogram Kits. Immediately there was a letter to the Foundation by Cheryl Kinney, a Saskatchewan Speech-Language Pathologist, expressing her concern over the publication of the Pictogram Program. She circulated a letter to the Saskatchewan Speech & Hearing Association and to the Medical Officer of Health, Saskatoon, to influence the Foundation not to publish the material.

The Rocky Road

Prompted by the acceptance and publication of Pictogram Materials by the George Reed Foundation, the Director of the Community Living Program, as a member of SAMR, approached the Department of Justice regarding copyright and royalties.

A Department Memo was prepared by the Civil Law Branch, Department of the Attorney general, Government of the Province of Saskatchewan on February 14, 1980 regarding the issue:

If copyright is obtained, is it in the name of the Crown or in the name of Mr. Maharaj? If royalties are generated through the sale of this particular technique, are they payable to the Crown or to Mr. Maharaj.

The conclusion according to section 38(1) of the Copyright Act 1970 was that he copyright had to be made in the name of the author , *although the ownership of the copyright is still in the crown.*

The initial reaction was that the materials produced belonged to the Queen of England; however, as the author of the work I had to apply for the copyright and then bequeath it to the Queen of England.

In 1982, assisted by the George Reed Foundation, application for copyright was made through the Law firm of McPherson, Leslie and Tyerman, Regina, Saskatchewan.

During the copyright process in 1983 Pictogram Symbols were referred to as PIC Symbols. On March 21, 1983 I received a letter from the Vice-President and General Manager , BIC Inc, Downsview, Ontario, Canada, indicating opposition to the copyright application and that I change the use of PIC to be *free from any possible conflict with the mark "BIC" and avoid the opposition and prospect of infringement litigation*

Merv Phillips, Barrister and Solicitor, Regina, responded to the BIC Ballpoint Company and subsequently he received a telephone call from a lawyer representing BIC. The singular question asked was: *How much money does Maharaj have?* Merv informed the lawyer that *I did not require any money as long as he was representing the Reed Foundation and me.* In addition to explaining the purpose of the PIC Program and the my option to address the opposition by BIC in public resulted in a conciliatory letter from BIC and we changed from PIC Symbols to Pictogram Symbols as more reflective of the images.

On June 4, 1983 I obtained the international copyright; however there was still the question of ownership by the Crown and Mervin Phillips, Barrister & Solicitor, Regina, Saskatchewan, had to pay \$1.00 (one-dollar) to the Government of Saskatchewan to legitimize the sale of the copyright according to the Copyright Act.

In a reactionary move the SAMR through the SLP advocate promoted a manual strategy called Amerind, American-Indian Sign Language, across the province. The reaction to Pictogram Symbols was understandable. The promotion of Amerind through workshops and seminars was short-lived due to the factors of *memory and retention.*

PIC Kits were published by the George Reed Foundation for the Handicapped and included: PIC: What's it all About; PIC Manual; Communication Board with the 400 symbols; 400-symbol cards and stick-on sheets; Data Sheets for Screening; Assessment; Training and Retention Tests.

The generosity of the George Reed Foundation challenged my values and I donated my royalties to the Foundation and to countries translating and publishing Pictogram materials. The agreement allowed the Swedish Institute to design symbols and produce educational materials with the following caveat:

That the royalties generated be used to develop Pictogram Materials and provide Educational Workshops and Seminars on Pictogram Symbols.

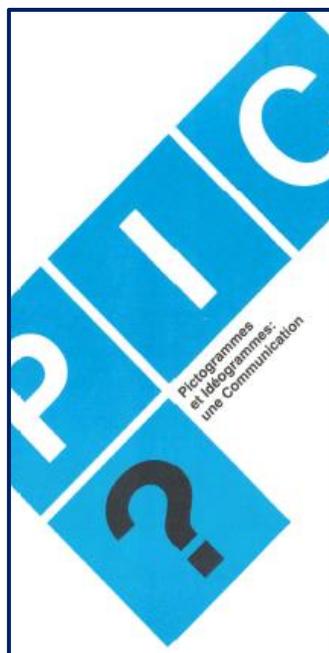
In August 1980 at the International Congress in Toronto, although I was *inadvertently* omitted from the agenda, I did a short presentation on Pictogram Ideogram Symbols.

A clear remembrance is that after my presentation Dr. Lyle Lloyd, Perdue University, USA, a notable researcher and advocate of Blissymbols called Pictogram Symbols *a flash in the pan*, and as a leading voice in the field of Speech-Language Pathology discredited the strategy and program.

While this was discouraging there was a bright side to my attendance. A very fortunate meeting with Margrita Lundman from the Swedish Institute for Handicapped Persons, which was to change the direction and outcome for Pictogram Symbols on the international stage.

Margrita Lundman was not enamoured with Blissymbols or PCS and carried the concept of Pictogram Symbols to Sweden. I am not sure what magic-wand she and Magnus Magnuson waved but the Swedish Ministry accepted and adopted the concept of Pictogram Symbols as a companion language to the spoken language.

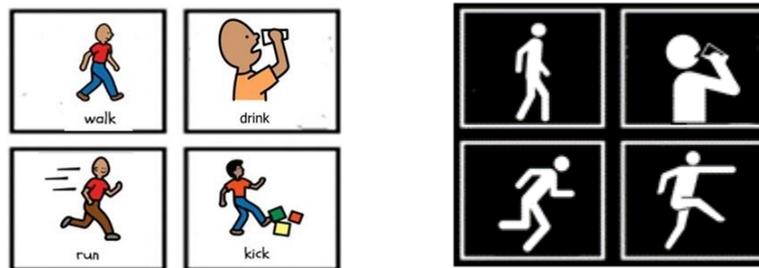
In 1983 the agreement between Pictogram Symbols and the Swedish Institute for Handicapped Persons was signed and Sweden became the first country to translate, design and develop Pictogram materials for special needs students. Umea, Sweden, became the European Centre for Pictogram Symbols. The caveat became standard and continues to be honoured in Sweden and Japan formally, and informally in the Middle-East and Asian Countries.



In 1982 I was approached by Judith Blumberg, Speech Language Pathologist, form the Institut de readaptation de Montreal for permission to translate and publishe Pictogrammes et Ideogrammes: une Communication. This was agreed and the Program was published in 1983, However, it was rapidly supressed due to the promotion of Blissymbolics as a Canadian product.

Blissymbols began fading from the communication landscape and while the Bliss Foundation created an alliance with Picture Communication Symbols (PCS) the line-drawing system prevailed. I received a letter imploring me to join Blissymbols and PCS which I refused. I could not see such visual confusion as being advantageous to the user. The Norwegian experiment using the various visual strategies in the 1990's, from my point of view, may have been an academic pursuit but of limited value and a *confusing-failure*.

PCS drawings were of poor quality with *stick figures* and *unsteady hand-crafted* drawings and these factors amplified the disability of the individual. While the stick figures were given bodies in later years the drawings were considerably puerile. Educators and practitioners ignored this sensitivity and added colour to mask the *scrappy drawings*.



The quality of PCS was passable for children, however, the use of the symbols for adolescents, adults and seniors was less meritorious. The advocacy that the *Dignity of the Symbol* elevated the individual's personal sense and subsequent interactions. The reality was that the student was a *captive audience* to the visual strategy selected in the school program and tastefully or distastefully had to endure the insensitivity of the educator. It became apparent that the continued use of poor symbols in adulthood dropped remarkably as did the prospects of communication. PCS had very little to no relevance in the community and the environment.

The clear, bold, graphic Pictogram Symbols are not demeaning and students, adults and seniors can relate with greater appreciation because of the universal recognition of the symbols. Pictograms *Improve the Quality of Visual Communication*



My work at Valley View Centre was abruptly stopped on March 31, 1983 when the Department of Social Services, Government of Saskatchewan closed my one-man Speech-Language-Communication Department and I was pink-slipped – a glaring visual cue that the person is terminated. I was given 60-days notice of the closure which meant that May 31, 1983 was the last day of service at Valley View Centre. There were four other staff members pink-slipped and six vacant positions abolished.

The termination was reported in the Regina Leader Post Newspaper on April 13, 1983: *Famed Speech Pathologist Axed as Position Ruled Redundant*. This reached the floor of the Saskatchewan Legislature and the Minister of Social Services was asked to reconsider the termination. While government terminations are a short-lived furor the Minister stated that *the situation with regard to Maharaj had been handled contrary to direction*. An investigation regarding my work at Valley View Centre could find no support for the termination.

The former Premier of Saskatchewan, The Hon. Mr. Blakeney asked the Minister. *Because you know (Dr.) Maharaj developed this program, and you admit the program is a good one, why are you now dismissing this man from the services of the Government of Saskatchewan after more than 13 years of devoted service.*

The Minister responded by saying, *The position deletions will proceed as planned.*

I was very fortunate that a gentleman from the Department of Education, Mr. Oran Reiman, was present during the debate regarding my termination and through a relative asked me to contact him with regards to a newly created position in west-central Saskatchewan.

I accepted the position and moved to Rosetown, Saskatchewan. While I had very little opportunity working with Pictogram Symbols in my new position as school Speech-Language Pathologist the concept grew to become an international strategy for

communication and education. The contributions of many professionals and parents over the years have guided the direction of the Pictogram Program and its application in Speech-Language, Alternate and Augmentative Communication and Literacy.

Dr. Kazuko Fujisawa carried the idea of Pictogram Symbols to Japan and both countries have added to the creation of new symbols, educational and community materials, and academic research to support visual communication in educational and the environment. The impact of Swedish and Japanese thought, design and development of Pictogram Symbols have been very significant.

Technology has opened a new vista of including photographs to customize communication. Speech-generating devices have added to the status and *Quality of Life* of individuals and advances in technology will elicit the potential of a multitude of individuals limited in oral expressive speech.

Communication is the Essence of Our Humanity

On a positive note it must be recognized that both Blissymbols and Picture Communication Symbols (PCS) changed the Speech-Language landscape by providing an alternative to the adherence of speech as the only expressive form for communication and interaction. This change in philosophy and attitude has been a heavenly-gift for nonverbal individuals and individuals with limited expressive speech. On the negative side the proponents of Blissymbols failed to realize that social communication extends beyond the clinic or the programming-room into the community at large and this failure has relegated Blissymbols to small pools of enthusiasts. There an old saying: *All that Glitters is Not Gold* and all the promotion by professionals and governments of Blissymbols did not meet expectation.

PCS has continued to be the mainstay for Speech-Language Pathologists and Educators. The symbols have been coloured and the line-drawing steadied for some symbols, but this is insufficient when there is no voice to challenge Professional Ethics.

Pictogram Symbols respects the inherent value of the child, the adult and the senior and every attempt is made to pursue *The Dignity of Symbols*.

CHAPTER FIVE



The Symbol is the Communicator

SYMBOLS & CULTURES

Few symbols have transcended cultures and are recognized globally without design or text changes. The enduring symbols are indicative of religions. The Cross; the Star of David, the Crescent and the Moon, the abstract design Aum-Om as the universal sound in Indian religions. These are iconic symbols and recognized without explanation. Within cultures there are symbols revered as iconic; however, the reverence is limited to that culture. The confusion lies in the diversity of cultures and peoples and symbols are accepted within the tradition of the culture and are inconsequential in other cultures.

Beyond the religious iconic symbols that are recognized internationally, there are few symbols that approach the level of a single shape or design. The most recognized and accepted symbol is the octagonal shape for STOP, however, the word STOP is used in English speaking countries while the word ARRET is used in French speaking countries. The design and colour for the Sign as a Symbol remains, but the language encased in the sign reflects the language of the country.

Symbols for nonverbal communication have come in many shapes from stick-figures to alien-looking figures; from cartoonish drawings to poor artwork, all claiming to provide a viable strategy for communication and interaction. This may be accommodated in sub-groups and function as *cults*; however, the question probes the dignity of the symbols, the sensitivity or insensitivity of the Tutor and the limited use of the strategy in the community. An interesting thought is whether the quality of the symbols used accentuates the disability of the *User* and the sensitivity of the *User* reflects a break in communication.

Abstract symbols like Blissymbols creates the aura of intelligent use; however, it fails to recognize the process of social communication and interaction. Furthermore, all the symbols have to have the linguistic text of the community or the country for symbol comprehension and interaction.

Photographic symbols have been forwarded as a colourful means for nonverbal communication. This is admirable but it presents significant limitations. On a single card the colour of the item may create interest and usage; however, the inclusion of multiple coloured photographs on a screen or a Communication Board, may look attractive, but also have visual complications. Furthermore, it has been noted that a *blue-shirt is a blue-shirt* for everyone using the particular system with no preferential choice of colour by the User, or a *red-apple* is thrust upon all users of the system.

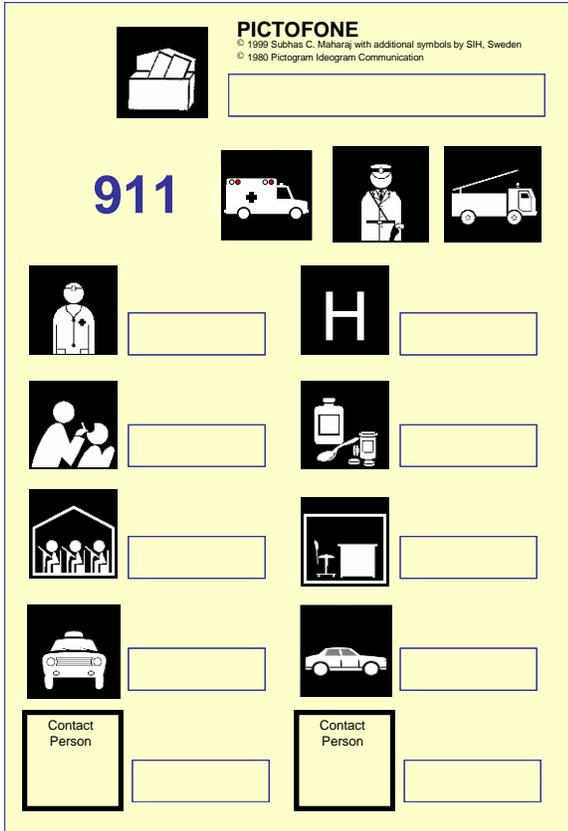
What is not addressed and has not been considered is the visual acuity of the User. The impact of colour if vision is limited and colour reversals, as noted with some Stroke patients, has been attempted with PCS with poor consequences.

Pictogram Symbols are not without limitations and like words have the interpretative complexity of the thought process. Words are more supple in expressing, defining and questioning and the skill of the speaker can be clear, persuasive and passionate. It is the interpretation that becomes debatable.

Pictogram Symbols has been defined as a Pictorial Companion to the Natural Language and the neutral symbols allows for cultural adaptations and generalized interpretations. The white symbol for a shirt represents the word shirt and not the colour, as does the symbol for apple.

Ideograms have a higher level of discernment, for example, the symbol for *want or need* is the same symbol and can be shown as a body with extended hands or a hand pointing to an item. Ideograms require explanation, teaching and learning and are not confined top the Pictogram System, but to all visual strategies. The advantage of Pictograms and Ideograms is that the focus is on the content of the symbol, bold, clear and graphic, and not on colour enhancements.

The application of Pictogram Symbols in the community and in education was reflective of the universality of the symbols.



The value of Pictogram Symbols was noted by members of the public and the first item of interest was a request to design a telephone list of frequent and important numbers so that non-readers at group homes could identify the symbol, copy the numbers and initiate a telephone call. While this would provide the individual with some level of independence, the list became significant for emergencies with the 911 telephone number and the address of the location.

PICTOPHONE was designed in the early 1980's, prior to the advent of smart-phones and verbal command devices.

✓		✓
✓		
X		✓

An additional request was the creation of **Pic'n Things**, a shopping list, for the non-reader; providing independence during shopping. The success of this item led to the publication and distribution of 30,000 Pic'n Things by a major grocery chain in Saskatchewan with the anticipation that it would be taken by non-readers only: however, the public demand was such that all the shopping lists were taken during the first weekend the item was on display.

Using Pictogram Symbols to create Daily/Weekly Schedules.

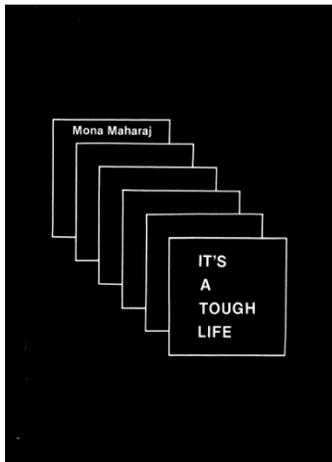
Elementary School Student

Bus 	School 	Bell 	Classroom 
Addition 	Reading 	Recess 	Writing 
Gym 	Lunch 	Craft 	Music 
Bell 	Bus 	Home 	

Junior School Student

Classroom 	Math class 	Focus group 	Computer class 
Lunch 	Literature class 	Laboratory 	Music class 
Bus 	Home 	Homework 	Martial arts 

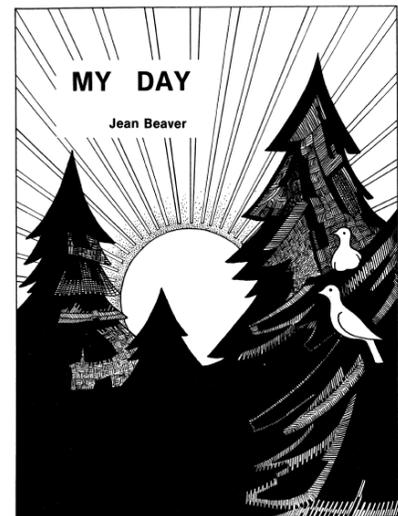
The focus on reading and writing led to the publication of three books using symbols to follow the story sequences.

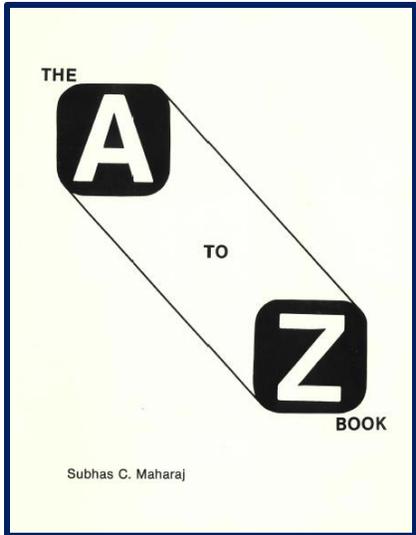


Pico is a young boy who doesn't have to go to school or do homework but he has to help his mother vacuum and pick-up which he feels is A Tough Life for three-years old child.

Jean Beaver provided the text with Pictogram Symbols for MY DAY.

The story follows the day of a boy from getting-up in the morning and going to school to bed-time. He wishes that it would rain the next day so he *can run through the pools of water and make mud pies.*

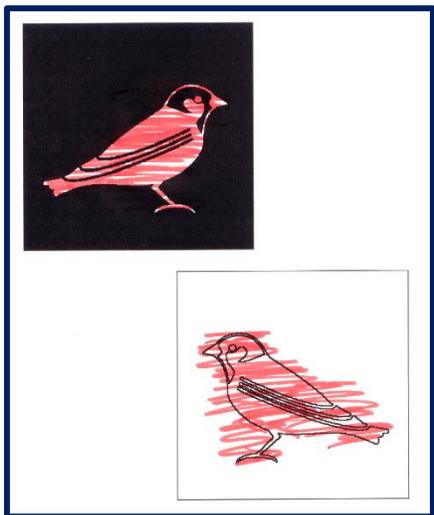
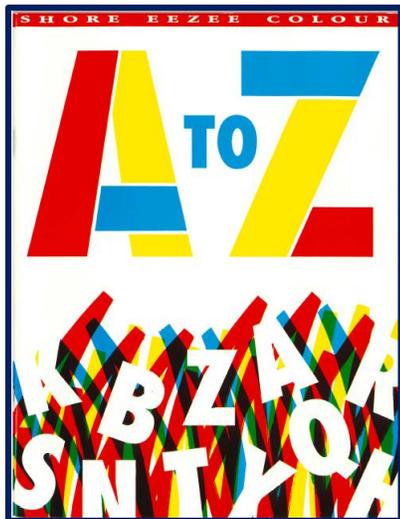




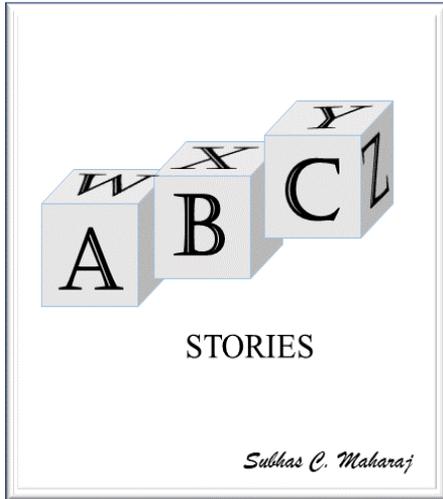
Four-line poems emphasize the alphabet and the target word.

*B is for bicycle
I pedal with my feet
I ride it on pathways
but never on the street*

*C is for camera
to take a photograph
some of the pictures are funny
and they make me laugh*



A totally new concept to make colouring easy and successful. The text and symbols are in white to absorb the colour and the background is black. The result for even very young children is successful accomplishment. This is an illustration of colouring a Pictogram Symbol of a bird and colouring the line-drawing of the same bird by a young child. The successful colouring of the Pictogram Symbol encourages the child to focus and builds confidence.



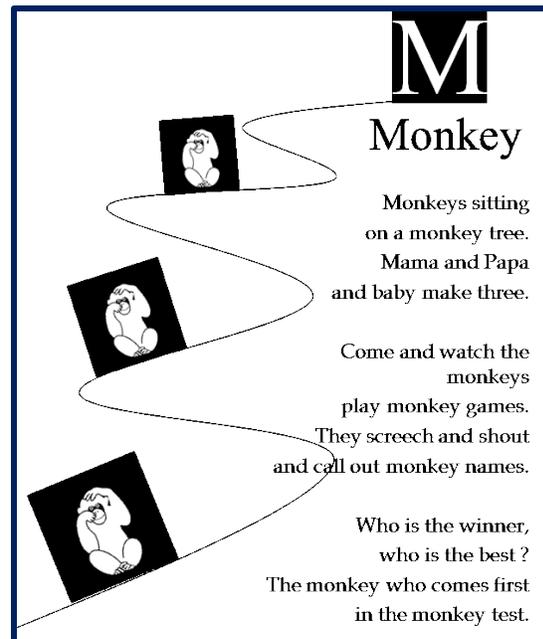
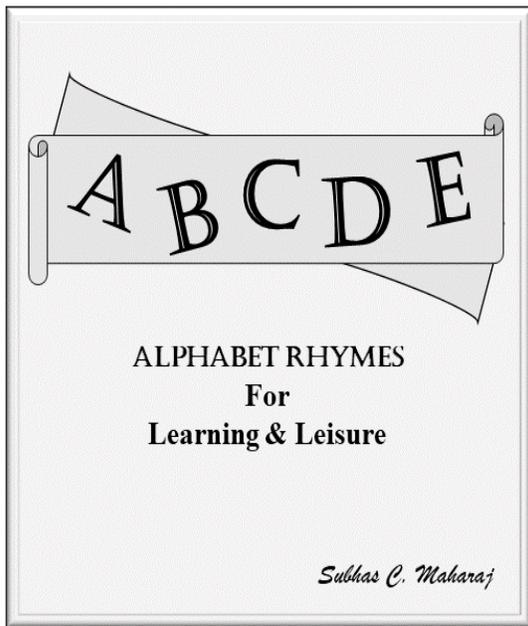
Each alphabet is emphasized within the context of a short story. The use of Pictogram Symbols emphasizes key elements in the story and allows the child to follow the visual pattern of the story.

The Pictogram Symbols encourage 'interactive reading' with the child which develops visual recognition and labeling.

This in turn will encourage the child to 'create' the story in his/her own words.

The stories are short – about 2 to 3 pages to maintain the interest of the child within the interactive process. In addition, the stories can be used as:

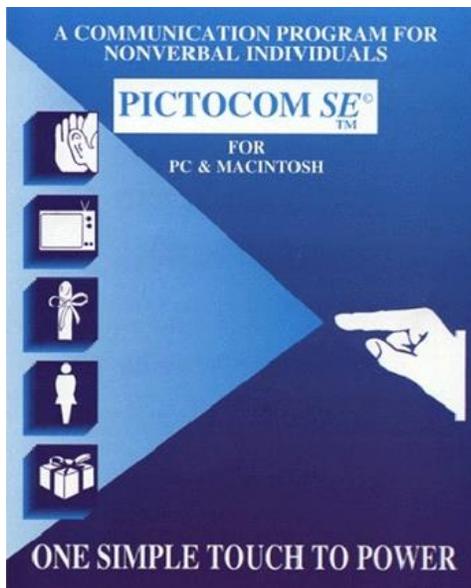
1. An adjunct to articulation programs and
2. Supplementary materials when teaching English as a Second language.





PictoAction is an animated presentation of 76 Pictogram Symbols which can enhance the language learning process. There is a clearer understanding of verbs through action than as a one-dimension symbol.

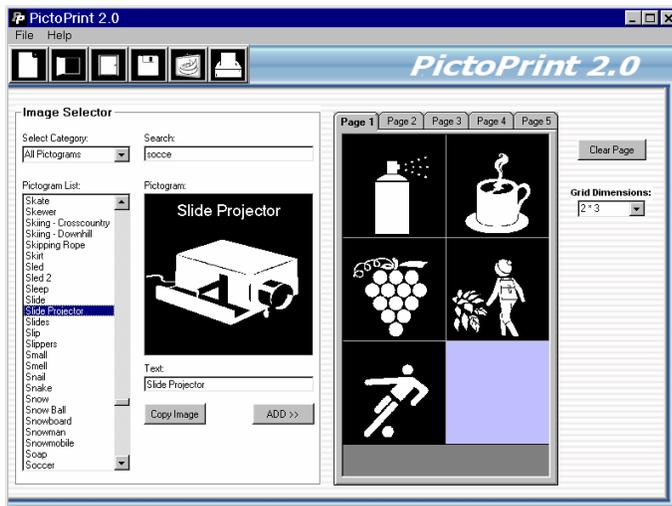
PictoAction © 2008 Fumihiro Hayashi & Godai Embody, Kyoto, Japan



PICTOCOM SYMBOL EXPRESSION was designed to provide Human Voice Responses from basic one- word responses to simple sentences. There are over 200 Symbol that create 600 Sentence Options

PICTOCOM SYMBOL EXPRESSION is framed in 6- sections: Food, Home, Education, Personal, Activities and Nature.

Each section is subdivided to allow for easy access and use and *Lead-in-Statements* (I want; I want to go; I need; Listen to and See) allow the user to express a complete thought.

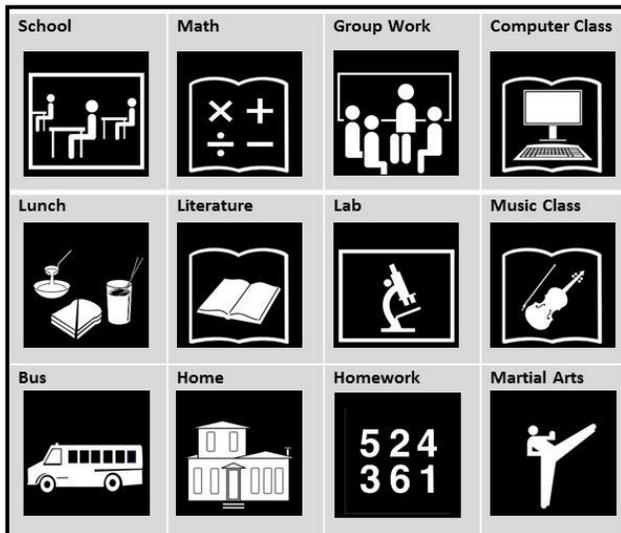


The **PictoPrint** was created as an *Easy to Use and Easy to Print* software with 1400 symbols. The software was easily customizable through the importing of preferential pictures and photographs.

PictoPrint was the most versatile software available for Schools, Workshops, Activity Centres, Clinics and Homes.

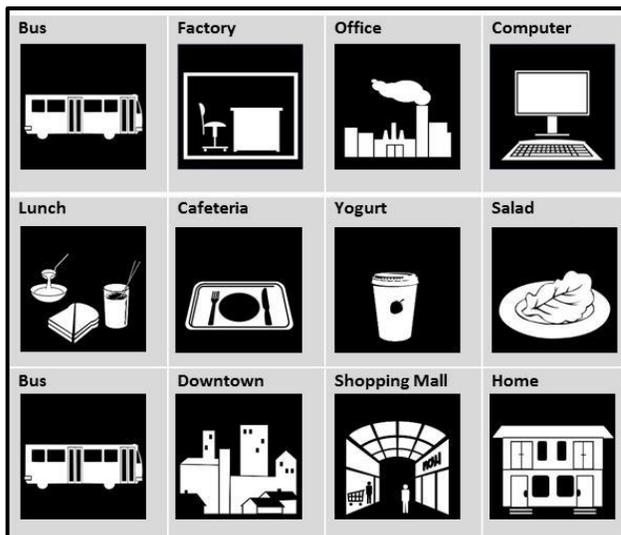


PICTOPAGES is a versatile app with over 2000 symbols in 24 Categories in addition to 76 animated symbols. The software allows for the importation of photographs to customize programs.

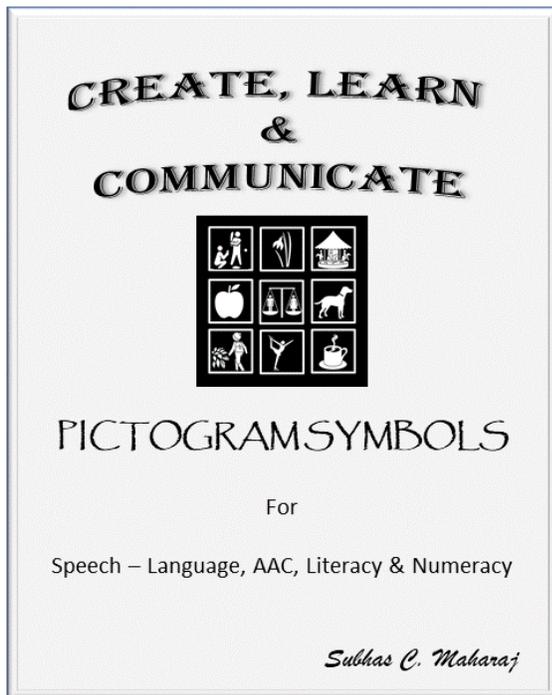


PICTOPAGES can be used for all ages: Creating a Class-schedule or a Work-schedule

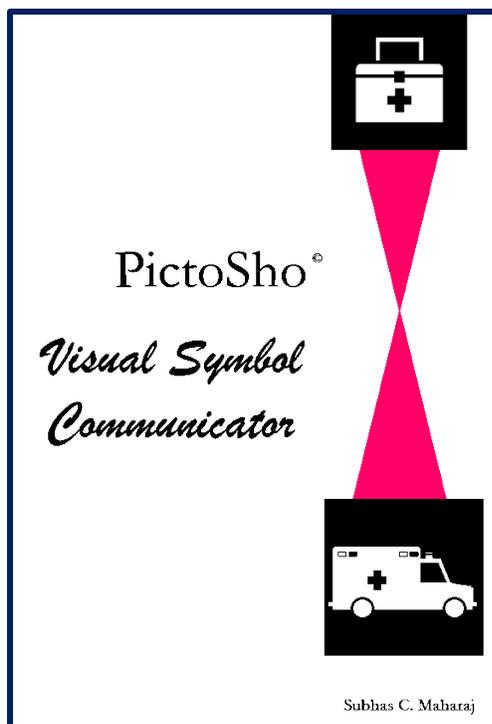
- Vocabulary expansion for the preschool child
- Building language skills
- Articulation
- Teaching English (TESL) or any Language to both the student & the parents
- For nonverbal communication (AAC) **PICTOPAGES** can be used as a visual communication strategy with:
 - Stroke patients
 - Persons with Alzheimer's; Dementia; ABI.....etc.



Pictogram Symbols is A Pictorial Language that is used Internationally



This book provides information and ideas to develop individual programs for verbal and nonverbal (hearing and hard of hearing- deaf) students and adults.

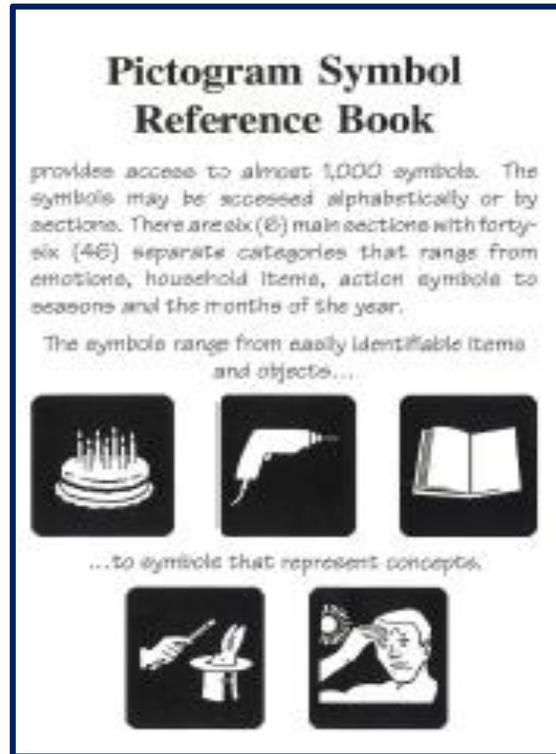
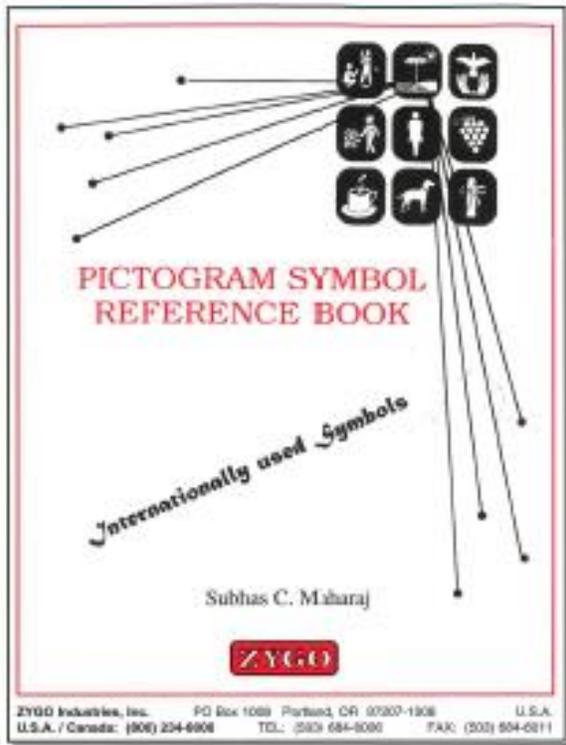


PictoSho is a *Communication Partner* in a medical emergency especially when the patient is deaf or hard of hearing; has had a stroke and is unable to speak; or has been in an accident and cannot speak or does not speak the language.

Pictogram Symbols assist in eliciting pertinent background information to initiate a treatment plan. and inform the patient of the intervention plan.

Activities using Pictogram Symbols

<i>ACTIVITY</i>	<i>Preschool</i>	<i>School</i>	<i>Adult</i>	<i>Senior</i>	<i>Work</i>	<i>Community</i>
Colouring	√	√				
Games & Activities	√	√				
Emergent Language	√	√				
Talking Books	√	√				
Symbol Combination	√	√				
Symbols for Articulation	√	√	√	√		
Articulation in Stories & Rhymes	√	√				
Alphabets & Numbers	√	√				
Language Arts Materials	√	√				
Matching & Associating	√	√				
Grouping & Categorizing		√				
Pronouns, Prepositions		√				
AAC Identification & Training.	√	√	√	√	√	
Reading		√	√	√	√	√
Writing		√	√	√		
Spelling		√	√	√	√	
Communication Items	√	√	√	√	√	√
Communication Devices	√	√	√	√	√	√
Wheelchair Tray -	√	√	√	√	√	√
PictoSho	√	√	√	√	√	√
PictoPhone	√	√	√	√	√	√
Posters	√	√	√	√	√	√



This Symbol Reference Book was published by ZYGO USA

PICTOVIEW COMMUNICATION BOARD



PICTOVIEW is used in facilities for seniors to inform the residents of the schedule for the day. The pockets are made from clear plexiglass and symbols and photographs can be used for display.

The Symbols and times for each activity is indicated. In addition, the date, weather and season is shown. The display creates an anticipation of the day's activities with changes From day-to-day

HOSPITAL CARE PLAN

This visual format was designed to gain and maintain the focus of the patient regarding Post-Surgery information and the Medical intervention per-day and subsequent discharge. The Caregiver is given sequential information about the medical intervention and this hard-copy given to the Caregiver alleviates family and patient anxiety. A copy of the Plan is kept in the Medical file of the patient.

The format allows for clear communication as to the medical process for the patient and supports the surgical and discharge meetings.

	Nutrition	Hygiene	Wound Care	Medication	Activity	Discharge Planning
Day of Surgery	 Intravenous	 Assistance	 Dressing Checked	 Given Regularly	 Deep Breathing	 Communication Board
Day - 1 Post-Op	 Fluids Only	 Basin	 Dressing Changed	 Oral Pain Medication	 Sit - Stand with Assistance	 Discharge Planning
Day - 2 Post-Op	 Regular Diet	 Wash at Sink	 Dressing Changed	 Oral Pain Medication	 Seated for Meals	 Questions about Medications
Days 3-5 Post-Op	 Regular Diet	 Shower or Wash at Sink	 Dressing Changed	 Ask Questions about Meds	 Walking & Climbing Stairs	 Out-patient Physio
Discharge Goals	 Regular Diet	 Shower	 Home Management	 Medications	 Mobility	 Home

DISTINCTIVE POSTERS

Distinctive posters with Pictogram Symbols were created to convey complex messages and broaden the scope of the symbols in the environment, increasing the visibility of information in society.



Posters using Pictogram Symbols can be created and while still maintaining the integrity of the Symbols a distinctive background makes for an attractive method of communicating complex and important messages.

WORKSHOPS

Since the creation of the Pictogram Symbols Program workshops and seminars have been conducted in Canada, the United States, Sweden; Japan, England; Vietnam, Germany and Romania. Two formats for the workshops were developed; one that would apply to children and one for adults and seniors.

CREATE, LEARN & COMMUNICATE

This workshop is for Educator who work with very young children/students and include those with attention deficit and hyperactivity. The information is pertinent for individuals with Autism; Down's Syndrome; Motoric Disabilities; Cognitive Handicaps & Visual Impairments

The primary focus is on the familiarity with the PictoPrint software; the fundamentals of Pictogram Symbols and the applications in the Classroom.

1. Symbols in the Classroom.
 - *Activities for Language Arts & Articulation Skill*
 - *Teacher & Student prepared Worksheets*
2. Pictograms for :
 - *Alternate & Augmentative Communication (AAC)*
 - *Teaching & Testing Strategies*
 - *Low-Tech and Mid-Tech Applications*
3. Literacy: *Basic Vocabulary; Spelling; Reading; Writing & Comprehension*
4. Numeracy. *Basic Number skills - Addition, Subtraction, Multiplication*

SYMBOLS IN MOTION

The workshop is designed for Educators who tutor adolescent students and older, as well, as for Instructors who communicate with adults and seniors in work placements and in facilities.

The primary focus is on the familiarity with the PictoPrint software; the fundamentals of Pictogram Symbols and the applications

1. Symbols in the Classroom.
 - *Activities for Language Arts & Articulation Skill*
 - *Teacher & Student prepared Worksheets*
 - *Creating Daily Schedules*
2. Pictograms for : *Alternate & Augmentative Communication (AAC)*
 - *Low-Tech and Mid-Tech Applications*
3. Literacy
 - *Basic Vocabulary*
 - *Spelling; Reading; Writing & Comprehension*
4. Numeracy.
 - *Skills in Mathematics*
 - *Monetary comprehension*

SUMMARY

Pictogram Symbols are used as the basis for communication by the following consumer groups:

- Individuals with Intellectual Challenges; Cerebral Palsy; Down's syndrome; Autism; Stroke Patients; Patients with Parkinson's; Alzheimer's; Dementia and Neurological

NOTE:

1. Pictogram Symbols are a "Companion Language" to a natural spoken language.
2. It is an alternate communication strategy for the nonverbal individual.
2. On Communication Boards and Devices the white symbol on a black background maintains *neutrality* and is equivalent to reading the text in a book.
3. Pictogram Symbols are much easier to recognize and respond to than a *random assortment of colored symbols*.
4. The black and white symbols maintain *attention to task*.

PICTOGRAM SYMBOLS IN EDUCATION

Pre-School & Kindergarten	Grades One to Three	Grades Three and Up	Learning-Teaching English as an Additional Language
<ul style="list-style-type: none"> • Coloring for Success • Games & Activities • Language Sequencing • Number Sequencing 	<ul style="list-style-type: none"> • Associations • Matching • Same-Different • Word Recognition • Visual Spelling • Creative Writing • Reading 	<ul style="list-style-type: none"> • Visual Spelling • Creative Writing • Developing educational materials 	<ul style="list-style-type: none"> • Basic Vocabulary • Language Concepts • Word Combination • Language Structure

The applications of Pictogram Symbols in the classroom and in the environment are expressed in: **PICTOGRAM SYMBOLS *For All Ages***

Visit

www.pictoworld.com

Access 2,400 Pictogram Symbols: PICTOCOM *Merit*

And

76 PictoAction Symbols

For FREE



CHAPTER SIX



Communicating with the World

PICTOGRAM SYMBOLS IN SWEDEN

In the Fall of 1980, after a short presentation on Pictogram Symbols at the International Congress on Mental Deficiency in Toronto, Margita Lundman, Director of Research and Development, Handikappinstitutet, Bromma, Sweden, approached Subhas Maharaj with the request for materials on Pictogram Symbols. A copy of the Pictogram Kit was sent to the Institute in October 1980.

On January 30, 1981 Ms. Lundman responded:

I found the material very interesting and will pursue discussions on it with Swedish therapists who are working with the non-verbal population.

Pictogram materials were tested at Omsorgsavdelningen, Hedemora, by Kerstin Falk who wrote on December 13, 1981 that children who could not grasp manual signs and other visual systems *have succeeded with your (Pictogram) model of communication.* Kerstin and Anita Holst designed, developed and published many educational books and materials that could be used for all students in the classroom.

Pictogram information was sent to Magnus Magnusson, Information Secretary and Speech Pathologist at the Handikappinstitutet, who discussed the system with several teachers and speech therapists and the results were very favourable. On April 7, 1982 he inquired about the possibility of obtaining the copyrights to produce *non-profit Pictogram materials for Sweden.*

Discussion regarding the translation of Pictogram Symbols was initiated in 1981 and on May 3, 1982 the Privilege to Translate and Publish Pictogram Ideogram Communication (PIC) Symbols was granted to: Handikappinstitutet, Bromma Sweden.

A fundamental expression by the copyright holder was that:

The 10% royalty due to the author will be donated to any agency or institution within the country undertaking the translation and publication with the specific purpose of initiating and implementing a communication program for handicapped persons.

Sweden was the first country to translate Pictogram Materials and in the same month the Institut de Readaptation de Montreal, Montreal, Quebec, Canada, received permission to translate Pictogram materials into French with the same royalty consideration. Modifications and the creation of new symbols were based on French culture and religious persuasion.

On March 3, 1983 Anita Holst informed the George reed Foundation that there will be adjustments to the symbols geographically and culturally which were readily accepted as communication adaptations and as expressed by the author *as visual-dialects*. Ms. Holts sentiments were: *We are really inspired to work with PIC, it is a most stimulating project.*

Subsequently, on May 19, 1983 Magnus Magnusson informed the George Reed Foundation that they considered RHP-Sar in Umea as the most suitable agency *to carry on the concrete work with PIC*. RPH-Sar through Anita Holst responded very favourably and initiated the *Swedifying of the PIC-system*.

The first shift of Pictogram Symbols from the field of Education and nonverbal communication was considered in 1984 regarding the Cooperation Union of Sweden to identify various food packages for the non-reading public. This application of Pictogram Symbols gradually expanded into the community forum as location identifiers and in commerce as product identifiers and product assembly sequences.

Magnus Magnusson informed the George Reed Foundation that the translation of Pictogram into *Swedish Pictograms* was completed and on May 4, 1984 the program was introduced to schools and centres in Sweden. Subsequently RPH-Sar introduced and adapted Pictogram Symbols throughout Europe.

In the publication MY BODY-MY WORDS by Gerd Anden and Jane Brodin (1985) Kerstin Falk wrote: *PIC is a graphic method of communication which was first introduced in Sweden at a summer course for teachers in schools for handicapped children in 1981.*

Kirstin Falk expanded the vision and use of Pictogram by indicating that the symbols can be used as *a reading and writing method for people who cannot read*. In addition, Pictogram Symbols can be used as a communication strategy with *patients suffering from central speech defects (aphasia) and with immigrant children from "language minority groups*.

In 1989 the Pictogram Symbols were digitized. A significant number of printed educational materials were designed and developed including the materials applied through the Picture Base Pictogram 3.1.



Kerstin Falk in the book SPEL PICTOGRAM provided information for educators to create materials for the classroom and also provided sign-language for the Pictogram Symbols

SIH, The National Swedish Agency for Special Education, prepared the booklet, Teaching materials for pupils with special needs and acknowledged that;

It is the policy in Sweden to make schooling accessible to all pupils within the regular school system. Local authorities have the primary responsibility for schools and education. In order to offer good educational opportunities to all children and young people, including those who are disabled, specialist knowledge and appropriate teaching material are needed



Pictogram part 1 was the first publication that consisted of:

A Teacher's manual in Swedish

Box 1 with 400 cards

400 stickers and

A Pictogram Board.

Part 2 added 144 new symbols and Part 3 introduced another 162 Pictogram Symbols.

The Picture Base Program was formatted as software on a floppy disc and this expanded the versatility of program applications.



Picture Book 1.0 used the Picture base Program to express the idea of *cause and effect*. Through the overlay keyboard the student could access Pictogram Symbols. This was determined to be a necessary process for the beginner to learn before *going onto other training programs*.



Write in Picture 1.1 was a program utilizing the Picture Base Pictogram data base. This word processing program which included an overlay keyboard encouraged the pupil to use pictograms as a writing and printing activity.

Other materials developed were Piece by Piece 1.1 which revealed a part of the Pictogram symbol on the screen and encouraged the student or students to identify and label the image.

Picmemo 1.0 was a memory game utilizing 546 pictogram symbols and The Book of the Month was designed as a calendar for persons who had difficulty reading and writing.



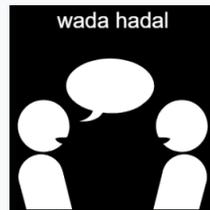
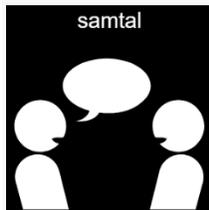
Picto Almanac was printed on thick cardboard to encourage the non-reader use Pictogram Symbols with adhesive Velcro to track the seasons, the months and the days on the board.

On August 26, 1985 Tore Stubberud, Editor, Adventura Forlag, Oslo, Norway, contacted the George Reed Foundation and stated that he had contacted the Swedish publisher of the Pictogram Program, he wished to have a Norwegian edition of the program. A formal agreement with Adventura Forlag was made on November 19, 1985. This was the third translation of Pictogram materials.

In June 1988 the National Swedish Institute for the Handicapped (HKI) granted permission to Suzanne Merz , Bremen, West Germany, the permission to translate and publish Pictogram materials in German with the condition that acknowledgement be given to HKI, RPH-SAR, Henry Svahn and Catherine Sahlander. In addition, a copy of the translated materials be sent to HKI, RPH-SAR, Umea, and to the George Reed Foundation in Canada.

This was the first step in the translation and expansion of Pictogram in Europe and has continued to include 23 languages on its present site www.pictoonline.se .

Swedish	English	Danish	Dari	German	Estonian
Spanish	French	Italian	Kiswahili	Latvian	Lithuanian
Norwegian	Polish	Portuguese	Somali	Finnish	Icelandic
Greek	Russian	Arabic	Sinhalese		



This visual language allows those with cognitive difficulties to interact with people more easily. Pictogram is cross-border communication and can facilitate communication from one country to another..

The first version of Windows 3.1 was released in 1992 and the Bildbas Pictogram software was developed and distributed on floppy disks and CDs. The demands from customers for the images in formats that are readable resulted in the development of digital images. In the mid-1990s the new version of Write in digital format was developed and this made it possible to send emails with Pictogram images between users.

In May 1995 a letter from Per Gunvall, Head of Department and Anita Holst, Head of Pictogram Project, was received with the request that:

- i. Since the Swedish Agency had given permission to all Scandinavia, the Netherlands and Portugal to use the Swedish Symbols; and
- ii. At a conference in Maastricht, Netherlands, there was a great interest from a number of states to translate and develop the Pictogram System into their own language,
- iii. Therefore; SIH Laromedel Would like to go on distributing Pictogram to other countries but we need your permission and cooperation to be able to do that in a simpler way than today.

A new PICTOGRAM PARTNERSHIP AGREEMENT was drafted and signed on October 4, 1998 by Per Gunvall and Subhas and witnessed by Hans Carlberg (SIH,

Sweden); Larry Weiss, President, ZYGO USA and Mona Maharaj at the Maharaj home in Rosetown, Saskatchewan, Canada.

A specific section related to SIH was included with the following conditions:



5.3. SIH This organization will be entrusted with the development of Pictogram Symbols and materials for now and in the future and maintain the specific conditions and spirit of the intent of the Pictogram Program

5.3.1 SIH will be the central organization for all Pictogram materials developed, produced or translated for the European market

5.3.2 SIH will be authorized to license manufacturers and developers for specific products using Pictogram Symbols and will establish a contract and remuneration for this license within the European context.

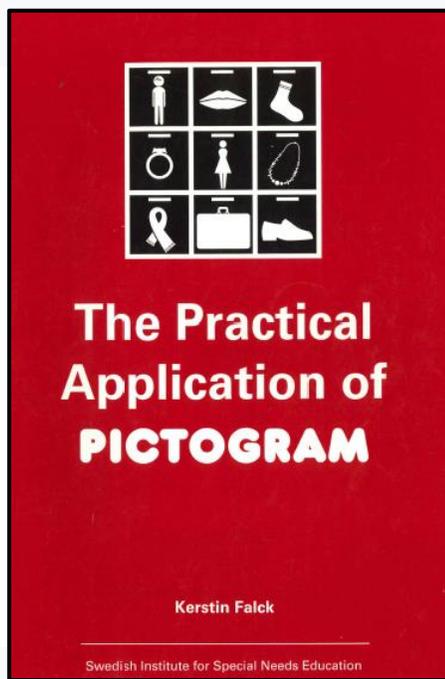
The philanthropic condition of donating the royalties and that the revenues from the project be used to develop and design new applications and be utilized to advance educational endeavours with Pictogram Symbols

In 1999 Subhas and Mona Maharaj were invited to visit Sweden and were hosted by Per Gunvall and Hans Carlberg. The Maharaj's arrived on September 26 and departed on October 4. During this visit Subhas presented Pictogram Symbols to the staff in Umea and discussed the strategy with Kerstin Rudin, Manne Linden, Henry Svhan; Staffan Holmberg and Benny Markstrom. The visit included a presentation to the students at the University of Stockholm and a school in Hedemora where Subhas met Kerstin Falck.

At the school the visitors were shown the variety of programs using Pictogram Symbols and they participated in a classroom activity that demonstrated the inclusion of all students regardless of abilities and disabilities. The enthusiasm and work of Kerstin was an inspiration for Subhas who referred to Kerstin as *The Spirit of Pictogram*.



In 2000 Manne Linden published the Graphic design for Pictogram which identified the parameters for the creation and design for the symbols.



In the Foreword of her book *The Practical Application of PICTOGRAM* (2001) Kerstin Falck states that:

The availability of computers and a concept keyboard specially adapted for Pictogram makes it possible for people with different functional disabilities to write independently. This had led to Pictogram being used as the main alternative to the written word today.

She adds that: *The symbol system provided rich opportunities to adapt communication maps individually to those who cannot speak or those with very little speech. Using speech synthesis and the concept keyboard called Flexiboard, speech communication boards can be produced for different needs.*

Kerstin was visionary and as the need for speech output was an imperative factor, the printed application as an alternatives to speech has evolved to the generation of humanized voice output in speech generating devices.

The summary in her book provides the insight of Kerstin, *The Spirit of Pictogram*.

Pictograms are perfect for fax and e-mail messages and maybe we will soon be able to send Pictogram messages via our mobile telephones.

Around 2003 an external company was contracted to develop the website www.pictogram.se to market pictogram Bildbas Pictogram and other products linked to Pictogram Symbols both in Sweden and in Europe. By 2006 users could download the Pictogram images online and the software included tools for creating different types of documents.

Pictogram Sweden is embarking on an approach compatible with the concept of speech generation for communication and interaction as an advance from two-dimensional graphic images. This is a futuristic step that will have a global impact due to the 23 languages embedded in the data base. This leadership must be applauded as a benefit and boon to the thousands of nonverbal individuals who can have a voice-to-voice conversation, albeit, secondary to the natural human propensity to communicate orally.

CHAPTER SEVEN



A Time for Everything

PICTOGRAM SYMBOL APPLICATIONS

Using
www.pictoonline.se



Illustrations are provided to demonstrate the different ways and means Pictogram Symbols can be used and created through the templates provided.

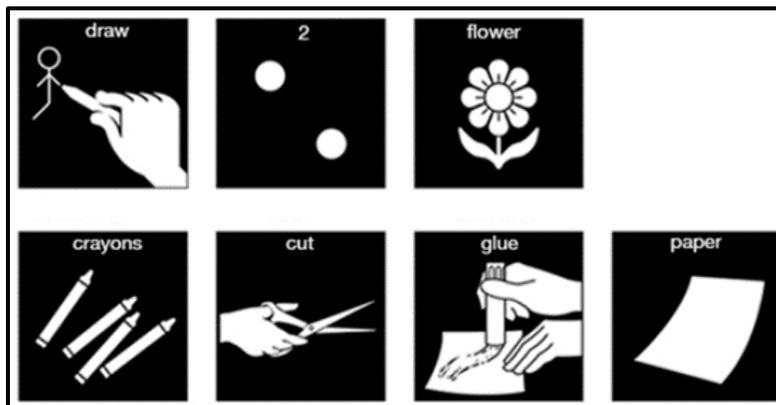


DAY SCHEDULE

This display structures the student's day by identifying the process of school activities from the beginning of the school day to being transported home by taxi.



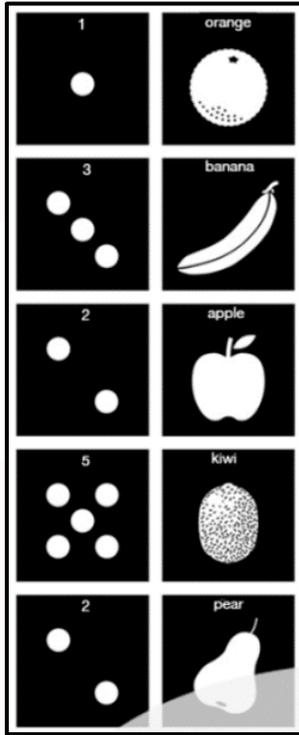
In Europe the days of the week are colour-coded as an added identifier. The colour make it easy for students to maintain the rhythm of the week beyond the text only that is used to identify days in North America.



Pictogram Symbol can be used to distinguish sub-activities within the activity as a whole.

The student is asked to draw two flowers; colour the flowers; cut out the drawing; glue the back of the drawing and then paste it onto a special paper.

The difficulty in remembering the elements of the activity is supported by the visual sequencing and the student can mark each part of the activity completed to achieve the completion of the art and craft activity. This sequencing builds self-confidence and independence.

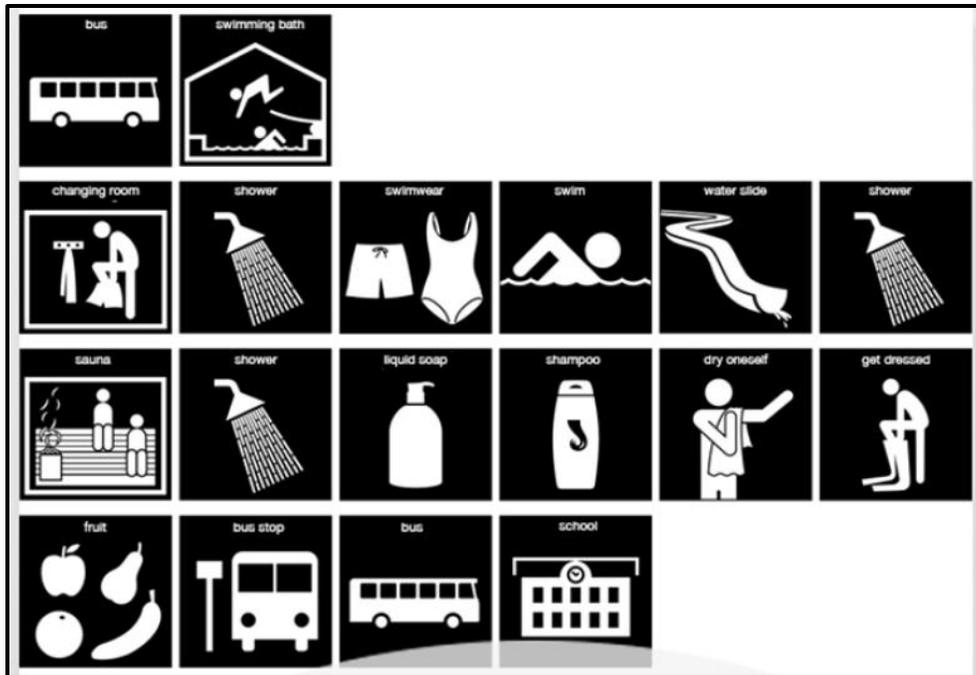


This is a shopping list to make a fruit salad. The items and numbers indicate what is required for the salad and the student/adult can select and purchase the items with confidence



Making a list of item required for swimming facilitates the process and does not leave the student anxious and upset that some item has been forgotten. The packing list is a memory-aid and supports the self-confidence and independence of the student.

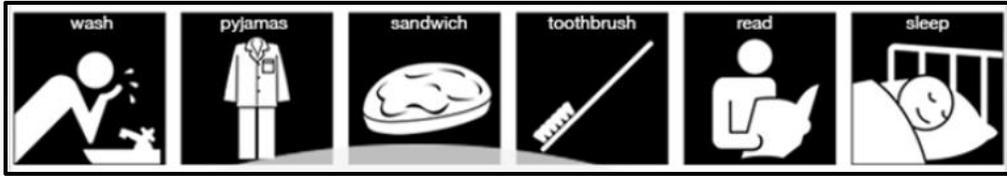
Such lists can be created for multiple activities whether it is outside the school or within the school activity, e.g. the requirements for an arts and crafts class, how to set the table for dinner at home or use the washing machine.



Using Pictogram Symbols is a clear and supportive manner to explain an activity as shown in the image above - Going Swimming. The student follows the sequence from the time of arrival at the location to the return to school. This clarity is a relief to both the staff and the student.

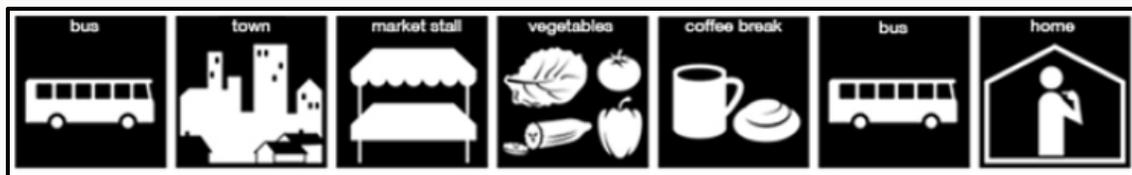


This sequence illustrates having a shower and the item below provides the steps to be taken in preparation for bed-time. The use of symbols can assist the person learn the routine and avoid repetition, anxiety and frustration.



Students have preferences regarding outdoor activities and to encourage them try a new sport through mere verbal description may not have the same impact as the use of a visual a focus. The image and the description increases attention and may make it easier to try something new instead of repeating a familiar activity.

An Activity Chart can be affixed to the wall in a suitable location close to the classroom so that an activity can be explained-discussed with the student. The repeated explanations and discussions can lead to the student attempting a new activity and a new opportunity to try something different.



A student may not remember all the engagements regarding a trip downtown. Going to the market may be the focused event or the visit to the café but not both or in the planned sequence. The use of visual can maintain the sequence of events and if the student is provided a print of the information, then as each action is completed and check-marked the outing can proceed as planned.



A similar preparation can be made for an outing to the lake. If there are multiple persons going on the fishing trip then each should be given the printed sequence so that there is consultation and conversation generated.

CONCLUSION

The international interest in Pictogram is increasing and as the program advances with new and relevant symbols and in the dimension of voice output there will be a consistent and constant need for information, application and symbols. At the present time there are over 2300-symbols translated into 23-languages. The inclusion of voice will enhance the program and the usage and the evolution will continue.

Language is not static and in a similar manner Pictogram Symbols and the concept of a visual language will develop within the changing cultural norms and required circumstances.

SPSM is now working on developing a new web service called Bildspråk with the anticipation that the new website, bildsprak.spsm.se, will be launched in the Spring of 2022. Bildspråk which will include all pictogram images and include two other image bases. This will replace the current web service <https://www.pictogram.se>.

Pictogram is a visual language that supports natural spoken languages and allows people with the total dimension of humanity to interact, in time, with greater ease as a viable international strategy.

CHAPTER EIGHT



The Light in the Sky

THE DEVELOPMENT, RESEARCH AND APPLICATION OF PICTOGRAM SYMBOLS IN JAPAN

Dr. Kazuko Fujisawa (Niigata University of Rehabilitation)

The Beginning

I first encountered Pictogram Symbols in 1989 at a special needs resource center in Gothenburg, Sweden.

“Sounds and Symbols”, which was developed in Australia, was presented by Ms. Hirota and Ms. Yoshida in 1985. However, there were only a few studies on AAC and communication symbols in Japan.

I was interested in the Bliss symbol, which had not yet been introduced in Japan, but when I saw Pictogram Symbols in Sweden I became more interested in it than Bliss Symbols. Pictogram Symbols were subsequently referred to as PIC Symbols in Japan. PIC was the abbreviation for Pictogram Ideogram Communication and the association that we formed was J-PIC; therefore, we talked and wrote about PIC Symbols.

I felt that the simple, black and white design would be easy to understand for people with intellectual disabilities. I saw Pictogram Symbols being used in some of the daycare centers I visited and learned that it was widespread in Sweden.

I found out that the original author was Mr. Subhas C. Maharaj, and I immediately contacted him and received many symbol cards, a communication board, a manual, and other things from Mr. Maharaj. He had created 400 symbols at that time.

In 1990, Dr. Tomoyoshi Inoue, Dr. Hiroyuki Shimizu, Dr. Masanobu Takahashi and I started a research project on Pictogram Symbols. I was teaching children with speech and language disorders at a school so I conducted case studies to see if the symbols really helped people with disabilities to communicate. Since we were also working in the psychology department at the university they conducted the basic psychological research.

I translated the manual and I started using Pictogram Symbols for people with cerebral palsy with speech therapists at the Joseph Orthopedic Institute in Kyoto.

Dr. Inoue, Dr. Shimizu, and Dr. Takahashi conducted two studies with university students on the transparency of the symbols examining the degree of understandability and the functional importance of the symbols.

I was amazed that people with severe cerebral palsy and intellectual disabilities could communicate by pointing to a Pictogram Symbol, which confirmed that the symbols could help people who could not communicate verbally. This prompted me to publish PIC symbols translated into Japanese.

Publication and dissemination of Japanese PIC symbols

We held symposia at the Japanese Psychological Association with the titles "Possibility of Communication with Picture Words: Thinking about Pictogram Ideogram Communication" in 1990 and "Research on Communication with Picture Words" in 1991. We presented fundamental research and case studies which were well received by Psychologists, Teachers at special needs schools and Speech- Language Pathologists.



Pictogram Ideogram Communication



Japanese version of PIC

Twenty-four additional symbols, specific to Japanese culture were added, resulting in 424 Japanese Pictogram Symbols. In 1995 we were able to publish a translation of Maharaj's manual, a Japanese version with 424 symbol cards and stickers through Brain Publishing.

On the front page of the Asahi Shimbun, a major newspaper in Japan, there was an article about how Ms. A, who had severe cerebral palsy was able to communicate using Pictogram Symbols. Ms. A shared her war-time experience as a child. This article made Pictogram Symbols known to many people across Japan. Teachers at special-needs schools, staff at facilities for the disabled, and Speech-Language Pathologists began to use the symbols.

Mr. Masaharu Makiba, a teacher at the special needs school, presented a case study of Down's syndrome student using Pictogram Symbols, and Ms. Sayuri Okada presented a case study of a child with both hearing and intellectual disabilities. With fellow researchers Inoue, Shimizu, Takahashi, Kitagami, Makiba, Okada and others I formed the Japan Institute for Pictogram Ideogram Communication and held well-attended seminars twice a year. This led to the development and sale of Pictogram software and Godai Embody Co., Ltd. developed the "Denou Communication Software" edited by Dr. Inoue in 1998. Subsequently Godai modified PictoPrint, software designed in Canada, and this was marketed in Japan.

The Japanese version of the PCS (Picture Communication Symbol) software was released in 1997, and teachers and facility leaders became more interested in the symbols. Several types of VOCA developed in the U.S. were also sold and this increased interest in AAC practices and research with the introduction of many strategies of teaching in the US and Europe.

Maharaj's Lecture and the Development of Pictogram Symbols in Japan

We invited Mr. Maharaj in 1999 for the first time to give a lecture at Doshisha University in Kyoto, Japan. He expressed the concept of Pictogram Symbols both the application and the potential for visual communication

Mr. Maharaj recommended that symbols be developed to suit the culture of a country, since different cultures require different symbols. Following the recommendation about 400 Pictogram Symbols were developed by Mr. Fumihiro Hayashi in 2001. They included Japanese foods such as sushi, tofu, and okonomiyaki as well as unique Japanese events such as the New Year celebration, the Girls' Festival (Ohinasama), and the Boys' Festival (Tango no sekku).

In 2001, a book of practical examples and case studies was published by Brain Publishing under the editorship of Dr. Fujisawa. A total of nine case studies were included: intellectual disabilities, autism, cerebral palsy, children with multiple hearing and intellectual disabilities, and aphasia. The book helped instructors and families understand how to use the symbols for nonverbal communication.

In addition, the book included the lecture by Mr. Maharaj in 1999 and materials on Pictogram Symbols developed in Sweden.

Mr. Maharaj has visited Japan three times and introduced the characteristics and usefulness of Pictogram Symbols.

Japanese PIC Case Studies



Exchanges with Sweden

In Sweden the National Swedish Agency for Special Education (SIH) had increased the number of Pictogram Symbols adapting it to Swedish culture and developed many books and teaching materials. SIH as a government agency promoted

the use of Pictogram Symbols in schools, day centers, group homes, and other venues and the symbols were used throughout the country.

I visited SIH in Umea in 1995 and met with Hans Carlberg. We discussed the progress and development of pictograms in Sweden where symbols and signs were used simultaneously for communication. I was impressed with the teaching strategies through the creation of cards and games, e.g., where a single word was expressed in a sign and a symbol to meet the characteristics of intellectually disabled persons. I returned to Japan with new materials and new ideas from Sweden.

In 2000 I visited SIH again and met with Kerstin Rudin. She and her staff were working on a CD of pictograms that could be used in several languages in order to promote the use of pictograms. The Swedish pictograms had more symbols and a more sophisticated design.

Establishment of JIS communication symbols

In April 2005, the Ministry of Economy, Trade and Industry (METI) established the design rules for drawing symbols for communication support (JIS T0103). This is the Japanese Industrial Standard (JIS) for pictorial symbols to assist people who have difficulty communicating through written or spoken language to communicate their intentions and needs.

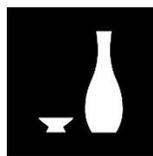
Pictogram Symbols were adopted as a design principle because it could be used by people of any age and was widely used research and practically. The committee consisted of people from the Ministry of Economy, Trade and Industry, designers, researchers, teachers for children with disabilities, and researchers in psychology.

Researchers Fujisawa, Inoue, and Hayashi who were involved in the Japanese version of Pictogram Symbols and participated as committee members.

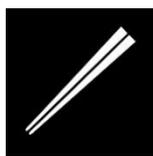
About 300 JIS symbols were created as reference examples.



onigiri



sake



hashi



school



want



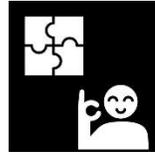
write



wear



difficult



easy



stop

Various Applied Developments and Publications

1. After it was enacted Pictogram Symbols were drawn using the JIS design. Mr. Hayashi and Dr. Inoue published a communication book named "PIC BOOK" published by Brain Publishing.

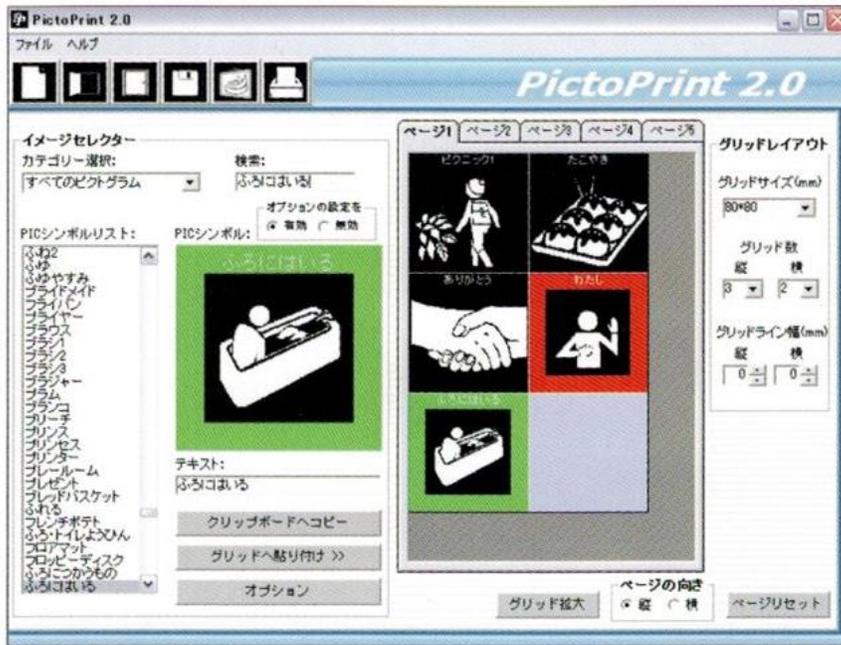
In 2007, Fujisawa, Okada, and Makiba published the "PIC Symbol Teaching Material for use in Special Needs Education" through the Empowerment Institute Publishing Company.



Pictogram Symbol teaching material for use in special needs education

2. In 2011 the Japanese version PICTOPRINT, developed in Canada, was marketed by Godai Embody Co. The CD contained about 2500 Pictogram Symbols developed in Japan, Canada, and Sweden. PICTOPRINT was very popular among users because of the large number of symbols, the ability to search and easily find the symbols needed, and the ability to print the symbols on the board.

3. PICTOPRINT became popular mainly in special needs schools.



PICTOPRINT

4. In 2003, "Psychology of Visual Symbols," edited by Dr. Shimizu, was published by Brain Publishing Co. The focus was on: "How do people perceive symbols, keep them in their memories, and use them?" The evaluation and characteristics of individual symbols were considered, and what could be revealed by using symbols as research materials in psychology.



Psychology of Visual Symbols

5. A CD of animated symbols of verbs was developed by Mr. Hayashi and marketed through Godai Embody Co.

Yamana, Inoue, and Fujisawa investigated the comprehension of animated symbols of verbs for young children, the elderly, and people with intellectual disability. The three target groups showed better comprehension of the animated symbols than of the still images.

Presentation at the International Society for Augmentative and Alternative Communication (ISAAC)

1. In 2011 an article "The Effect of Animation in Learning Action Symbols in Individuals with Intellectual Disabilities" by Fujisawa, Inoue, Yamana, and Hayashi was published in Augmentative and Alternative Communication, and received an award for excellence.
2. At the 2012 ISAAC Conference Fujisawa, Kobayashi, Yoshida and Onko gave a presentation titled "Developing a Pictogram-based Emergency Communication Board for Handicapped People who are unable to Communicate", which created a lot of interest.

The Great Earthquake and Tsunami in Japan's Tohoku Region
March 11, 2011.

The total number of people confirmed dead and people listed as missing from the disaster had reached approximately 20,000 (as of November 8, 2011).

In the event of such a disaster people who have difficulty in understanding and expressing spoken and written words, such as mentally handicapped and autistic people, will experience difficulty in obtaining the necessary information to escape safely and live in evacuation shelters. Especially, the information about the disaster and evacuation procedure vital for survival. Unpredictable catastrophes will make such people anxious.

Furthermore, while living in evacuation shelters, where they are attended by unfamiliar and temporary supporters, such as the administrative staff, volunteers, educational staff, and medical workers, they will have difficulty in expressing their wishes and establishing communication.

We had developed a Pictogram-based Communication Board that can be used in the event of disasters by emergency personnel and supporters to convey information and communicate instructions to help handicapped people escape and live with the minimum of anxiety.

Developing the Communication Board

To make the board readily understandable and user-friendly, we took account of the Board Structure.

The board is folded in half. It has printing on both sides to allow for visibility and use instantaneously. The instructions on its front cover are clear and readable. The other three sections contain lists of pictograms.



Emergency Communication Board

The board is designed for use in disaster situations, such as an earthquake, nuclear accident, and typhoon. Pictograms showing the information to be conveyed or inquired about have been classified into six categories with examples showing their use under each category.

Want: A list of Pictograms that assist individuals in requesting what they want and know what can be handed out to them.

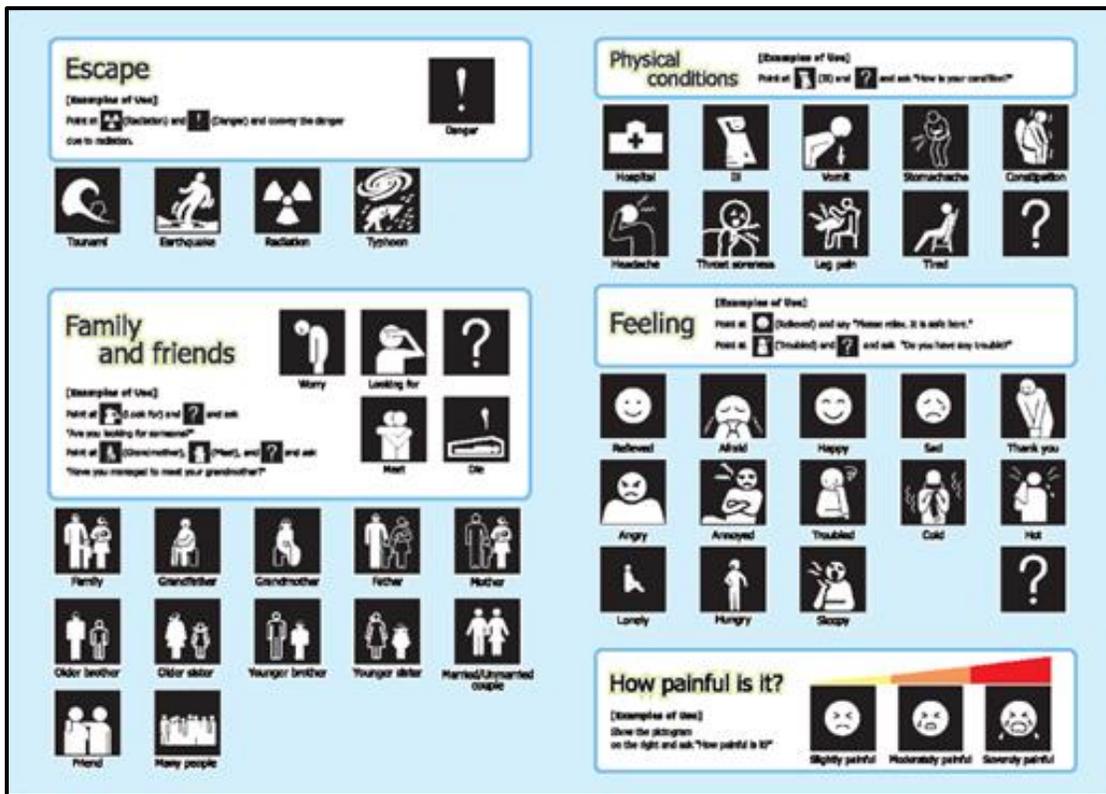
Escape: Pictograms that help individuals recognize the danger.

Family and Friends: Pictograms that help individuals search for and check the safety of their families and friends

Physical Conditions: A list of Pictograms that help individuals communicate their physical conditions and ask about other people's physical conditions

Feeling: Pictograms that help individuals express their feelings and ask about other people's feelings

How painful is it?: A list of pictograms that help in expressing the degree of pain



1. Selecting Pictograms and Text

We adopted Pictograms based on the design principle formulated by the Japan Industrial Standards Committee (JIS) and are widely used in Japan, Europe, and Canada. Symbols that can be readily identified without difficulty or embarrassment even by adults. The text and pictograms were selected according to the suggestions of several individuals and groups.

2. Board Material

To make the board light, portable and stain-resistant for use in disaster-stricken areas it was laminated.

Challenges for the Future

Pictogram Symbols led the way for communication symbols in Japan and became the basis for JIS and the world standard for pictorial symbols. Not only children but people of all ages, as well as foreigners, could communicate using the symbols through its universal design and visual messaging.

I think it is important to establish an environment where the Pictogram Symbols designed in Canada, Sweden, and Japan can be used free of charge all over the world. By doing so it is hoped that Pictograms will be used as a means of communication and for various purposes in society.

Pictogram Symbols have helped many people in Japan receive the communication support they required and promoted research on the use and value of symbols.

CHAPTER NINE



A Clear Recognition

THE STANDARDIZATION OF PICTOGRAM SYMBOLS

1. Establishment of ISO/TC 173/SC 7/WG 4

(TC: Technical Group, SC: Standard Committee, WG: Working Group)

Pictogram Symbols form the essence of a Pictorial Language. The white symbols on a black background are bold, clear and crisp. The symbols provide the strongest visual perception while the black background eliminates figure ground interference. The intent of the symbols is to provide a clear message for inter-personal communication, informational and directional symbols in the environment.

In October 2008 the Japanese Industrial Standards Committee (JISC) proposed the establishment of a new Standards Committee (SC) to the International Standards Organization (ISO) regarding assistive products for persons with disability at the 13th plenary meeting of ISO in Berlin. The statement of fact indicated that there was no Standards Committee that focused on *the standardization of accessible design related to individual products regarding ergonomics including human-ability data and human characteristic data for older persons and persons with disabilities*.

The new Standards Committee was titled "Accessible design" with the mandate to standardize the field of assistive products and related services to assist persons with reduced abilities. Voting began on September 1, 2009 and closed on October 30, 2009. The proposal was approved in March 2010 to establish the new Accessible Design Standards Committee.

According to the establishment of SC 7, the following themes are listed as supposed working groups and new work items to be deliberated because they have been established as Japanese National standards (JIS) based on ISO/IEC Guide 71 and those standards have already been utilized effectively in Japanese market.

The following strategies developed by the Japanese national Standards (JIS) in ISO/IEC Guide 71 had been utilized effectively in the Japanese market.

1. Accessible Design for visual disability

- Using methods of Braille signs in public facilities
- Method of displaying tactile guide maps
- Shape, color, and arrangement of toilet operation equipment and appliance in public rest rooms
- Methods of displaying Braille signs on controls of consumer products

2. Accessible Design for hearing disability

- Design principles of pictorial symbols for communication support

3. Accessible Design for communication disability

- Matters for consideration at Accessible Meeting

On May 23, 2012, Keiichi Koyama, member of the Japanese Industrial Standards Committee (JISC) proposed the necessity of pictorial symbol standardization as a new submission at the second plenary meeting of the International Standards Organization (ISO)TC 173/SC 7 in Tokyo. Mr. Koyama stated that pictorial symbols are used as visual expressions to enhance communication internationally. Pictorial symbols have the potential of removing communication barriers in all aspects of daily life. However, the pictorial symbols needed to be easy to understand and applied regardless of regional and cultural differences.

Mr. Koyama indicated that a communication support board, a tool designed for communication with pictorial symbols needed to be standardized so that it can be understood and used by older persons, persons with disabilities and foreigners with ease.

Prior to the vote, the core members of JIS Committee visited the participating member countries Spain, Denmark and Sweden in January 2013 to explain the contents of New Work Item Proposal to be submitted and asked them to nominate experts to participate in the determination.

On 19, March 2013, 'Design principles for communication support board using pictorial symbols' is circulated to Sub Committee 7 and is approved as a New Project

(NP) ISO/NP 19027 on 3, July 2013 with the agreement from eight countries; Germany, Italy, Sweden, Spain, China, South Korea, Israel and Japan.

The title of TC 173 was changed from 'Assistive products for persons with disability' to 'Assistive products' and the title of SC 7 was changed from 'Accessible design' to 'Assistive products for persons with impaired sensory functions'.

2. Establishing ISO/TC 173/SC 7/WG 4: Communication Support Board

(CD: Committee Draft, DIS: Draft International Standard)

Keiichi Koyama was assigned as a convener on September 13, 2013 and the WG4 first meeting is held at Swedish Institute of Assistive Technology (SAIT) in Stockholm on December 2 and 3, 2013 the participants were from Sweden and Japan.

The members examined the working draft and made several changes to the draft and reached the conclusion that the standard specifies the basic configuration of the Communication Support Board.

A variety of strategies and visual systems have been used to create communication support board for specific needs which can cause confusion misinterpretation of the communication intent. The working draft specified the design principles common to various expressions of pictorial symbols. However, the standard did not regulate design specification and specific pictorial symbols for communication support board.

The members agreed that the revised draft should be completed by the end of January 2014 and circulated to WG members for comments and new samples of communication support boards.

During the meeting members present agree to ask for the participation of Canada, especially Subhas Maharaj because he was the initiator of pictorial symbols. A year later the second WG was held at The Accessible Design Foundation of Japan in Tokyo on November 4 and 5, 2014. Sweden, China and Japan participated at the meeting and Subhas Maharaj of Canada joined as an observer because Canada was not a participating member of the of the Standard Committee at that time.

The members examined CD 19027 and made several changes to the draft in order to proceed it to the DIS stage. The members agree to include more examples of pictorial symbols and other related symbols to make it internationally useful. At this stage there were six countries; Sweden, China, Korea, South Africa, Spain and Japan as Participating Members and Canada is an observer.

3. Standardization

After the second Working Group in Tokyo, the draft DIS19027 is circulated to all Technical Committee 173 member bodies for voting and comment on February 15, 2015. The DIS vote started on June 8, 2015 and closed on September 8, 2015.

Participating Members; Austria, Canada, Chile, Italy, Japan, Korea, Portugal, Spain, Sweden and Uruguay approved the draft document.

China, Denmark, Germany, Ireland, Israel, South Africa, Switzerland, United Kingdom abstained from voting.

4. Contents of ISO19027

There are various formats for the configuration of communication support board and multiple applications where one board is more understandable than another; when a book format is easier to use by turning several sheets like notebooks or when changeable displays through digital media is desirable. This standard specifies the basic configuration of a communication support board and introduces the principles of designing pictorial symbols which are structured on eleven principles.

The standard specifies design principles common to various expressions of pictorial symbols. However, this standard does not regulate specific design and specific pictorial symbols for communication support board.

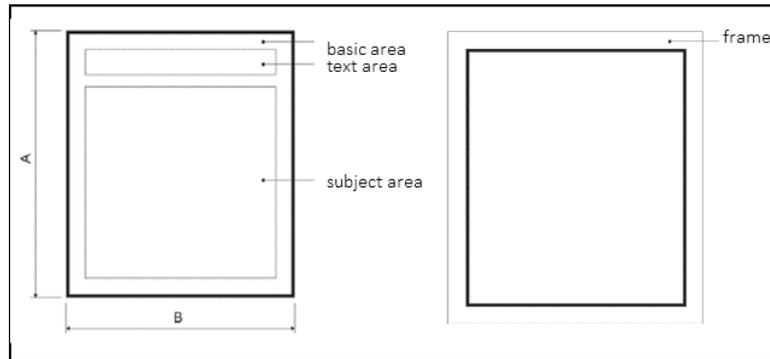
5. Review of International Standards

All International Standards are reviewed at least once every five years by the responsible TCs/SCs.

The vote of the systematic review of ISO 19027 began on January 15, 2021 and closed on June 5, 2021. China, Germany, Ireland, Korea, South Africa, Sweden, UK, Japan and Spain approved the standard with six abstentions. .

Appendix A

Basic patterns used to create pictorial symbols are shown.



Configuration of a Communication Support Board

Left side

Right side

Front page

Left side

Right side

Back page

Combination of pictorial symbols and graphical symbols

Captions to explain the meaning of pictorial symbols

Information about the publisher and where inquiries can be made

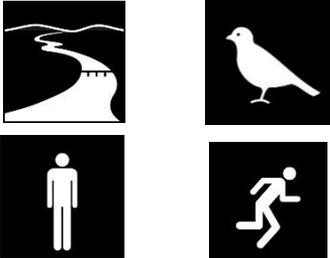
High priority should be arranged in the uppermost section

Blank space to write supplemental issues

Common answers and phrases

Principles of designing pictorial symbols

<p>a) Consistency When creating new pictorial symbols consistency should be maintained with existing pictorial symbols and other symbols of the same category. If the symbol on the right is accepted as an International Standard, special consideration should be made to avoid confusion with the pictorial symbol on the left.</p>	
<p>b) Solid colour or silhouette The symbol should be drawn in white on black background. However, drawing in black on white background can be used, as shown with the symbol for telephone.</p>	
<p>c) Simple expressions The symbol should be drawn simply and clearly. It should express essential characteristics so as to be readily identified by the observer to facilitate communication.</p>	
<p>d) Constant expressions Paired concepts (e.g., big and small) can be illustrated together to enhance comprehension.</p>	
<p>e) Classification of main themes When a part of a group is illustrated in a symbol, the principal object should be the focus in white, while the other objects can be drawn with white lines.</p>	
<p>f) Detailed expressions It is important to pay attention to typical characteristics for communication purposes, such as a pedal of a bicycle, an engine of a motorbike, stems of a persimmon and a tomato when illustrating similar objects in a category.</p>	
<p>g) Thickness of lines For one symbol, preferably no more than two kinds of thickness should be used to draw lines. The basic width</p>	

<p>of the line should be a minimum of 1 mm. For practical purposes to strengthen intelligibility, visibility, readability and processing technology, the line width can be changed.</p>	
<p>h) Natural description The symbols representing living creatures or nature should maintain the essential human and natural characteristics.</p>	
<p>i) Motion expressions As a technique to express motion in pictorial symbols, arrows can be used. Animation features can be used in digital media.</p>	
<p>j) Combination of symbols When designing pictorial symbols, already established symbols can be combined in the same frame, such as "children" combined with "school" means "pre-school", and "friends" combined with "school" means "school-friend".</p>	
<p>k) Identification of locations Drawing symbols of the items or activities within a stylized format of a building helps to identify the location where these items can be obtained and to differentiate the items from these locations.</p>	

Appendix B and C

Communication Support Boards: Public Transportation in Japan



School schedule, Monday and Thursday, in Sweden



Choosing recess activities in Sweden



Support boards in the Community
and in Health Facilities, Canada

PICTOFONE
#1199 Infruits C. Malwarey with additional symbols by 18. Toronto
 #1199 Pictogram - Reception Communication

911   

Contact Person Contact Person

  **127**

  **127**



10:00 **16:00** **17:30**

CHAPTER TEN



Squaring the Circles

THE DESIGN OF PICTOGRAM SYMBOLS FOR VISUAL COMMUNICATION

Fumihiro Hayashi, Speech-Language Pathologist & Pictogram Designer, and the
President of Office SlowLife, Inc. in Fukuoka-pref. in Japan

We have all played with the clouds in the sky as “symbolic play”. This morning I looked at the sky and saw a "person" swimming in the water”. In autumn in Japan, 5:30 in the morning is dim, but the clouds that emerged emitted a pale blue light. Shaped by that light was the pictogram of a person. He was splashing the water with one hand, his legs were the same length and his head was almost round. It was only for a short while but it was a "human pictogram" of a swimming figure in blue and white on a dark gray cloudy background. It looked like a person flying in the sky in Marc Chagall's painting and it made my morning walk more enjoyable.

PIC (Pictogram Ideogram Communication) is a method of visual communication for people with speech disabilities. It was designed and developed by Subhas C. Maharaj in Canada and has since spread all over the world. He realized that pictograms could be used for speech impaired children. It is a simple method, but the understanding of pictograms used here is based solely on the universal recognition of different shapes and patterns, such as the "swimming figure seen in the clouds”. On the other hand, pictograms vary depending on the person who designs them and the culture and society they belong to.

I have been designing pictograms in Japan for the past thirty years. Initially, I worked with a graphic designer to create approximately 600 pictograms. As a speech pathologist I have been using Pictograms as a strategy to communicate and treat clients with speech disorders. In the late 1990's I developed a set of design rules to set a standard for such things as human shape and line thickness in pictograms.

The rules were then standardized by the Japan Industry Standard Committee (JIS) in 2005 under the title "Design Principles for Pictorial Symbols for Communication Support (JIS T 0103)" (JIS-Ekigou - "pictorial symbol,"). It took four years to complete and involved the participation of many, including designers who have been working in pictogram signage for information purposes in Japan, university professors and experts in education for children with disabilities and AAC. Many non-specialists, including officials from the Ministry of Education, Culture, Sports, Science and Technology also participated in the project.

The design rules I proposed were adopted almost as they were. In Japan, “Public information symbols (JIS Z 8210)” had already been standardized based on pictogram design, but I think JIS-Ekigou was ground-breaking and meaningful because a new vocabulary and classification category system from the perspective of developmental

psychology could be included in the standard even as an annex, all because they were designed for all people including those who have a handicap and or disability.

There were some rules that I wanted to add, but I judged that it was too early considering the recognition level of pictograms in Japanese society at that time. They were rules based on human visual perception and cognition which I considered would be a future issue.

For last year of the 4-years I again worked with the same graphic designer who had collaborated with me in the 1990s to create 313 new reference examples as annex based on the completed JIS design rules. In the process, we took into consideration the relationship between our 313 pictograms and Canada's or Sweden's design structure of PIC symbols or Public information symbols (JIS Z 8210) of Japan.

We tried to achieve a maximum level of consistency in design, while also incorporating the opinions of the designers. At the time, It can be said that the new 313 pictograms were an evolutionary group of pictograms based on the category and vocabulary database.

Fig.1 JIS-Ekigou examples



Family Fireman I/me Give me Insects Toilet Typhoon Job

In 2016, thanks to Keiichi Koyama and others, the JIS design rules were incorporated into a global standard (ISO 19027) as "design principals for communication support boards". However, as the title suggests, this standard is focused entirely on support boards. It is regrettable that there is no mention of a vocabulary system.

I traveled to India in 1990. In Japan, India has long been known as the "land of the ages," and many people still continue to live their lives as they did in the past. Like rickshaws, the use of cow dung for fuel and tandoor ovens for baking naan, there is little room for temporary fads in a culture that has remained unchanged since ancient times. I believe that the reason for this is that "simple is strong".

Pictograms are pictures. They are the simplest pictures and that is why they continue to be used all over the world. Complicated designs and symbols that use a lot of colors might be more fashionable and trendier, but their usage is limited and not useful for people of all ages and backgrounds. These images are not self-sustaining.

For example, a pictogram of a restroom can catch the eye of anyone in need of one, or an emergency exit pictogram during a disaster. It is thought to be based on the physiological function of human visual perception. No one sees pictograms as art. It

becomes a symbol because the designer's individuality is eliminated as much as possible. In other words, it is a picture with anonymity.

There are three basic design rules for creating pictograms that produce such simplicity and symbolism, while at the same time aim to be a bilateral communication symbol for humans.

- (1) The background (black) and the figure (white) should be clearly separated in terms of luminance. Inversion is allowed.
- (2) The shape of the background should be a square and the figure should be a full figure (solid image).
- (3) Surface shapes (full figure) can be supplemented with points and lines. The thickness of the lines should be within two types.

These are supplemented below:

- (1) Perceptually, it encourages the differentiation of ground and figure. However, in terms of visual perception, black and yellow are the most effective for differentiating, but since color may have an effect that the creator does not intend, white on black is superior as a practical communication symbol. It is important to use colors purposefully.
- (2) Full figure (solid image) are always used when designing pictograms. For example, when we perceive what we see in the dark, depending on our sensory ability called visual acuity at first, we cannot see the details, but only the overall shade. The first step in visual perception is to identify the shape created by the luminance difference and to identify what it is. The simplified full figure is the basis of the pictogram, and it can be said that it is a structure that brings out the cognitive function.
- (3) Line completion is essential to aid visibility and to increase the number of symbols. Interpersonal communication requires a significant number of symbols that are developmentally appropriate for the user. For example, it is especially necessary to draw similar symbols (e.g., tomato, persimmon) by focusing on areas that stand out or are distinctive. In addition, limiting the line type also gives a sense of uniformity, like font, and leads to consistency in the entire group of pictorial symbols. In other words, it creates the foundation of the system.

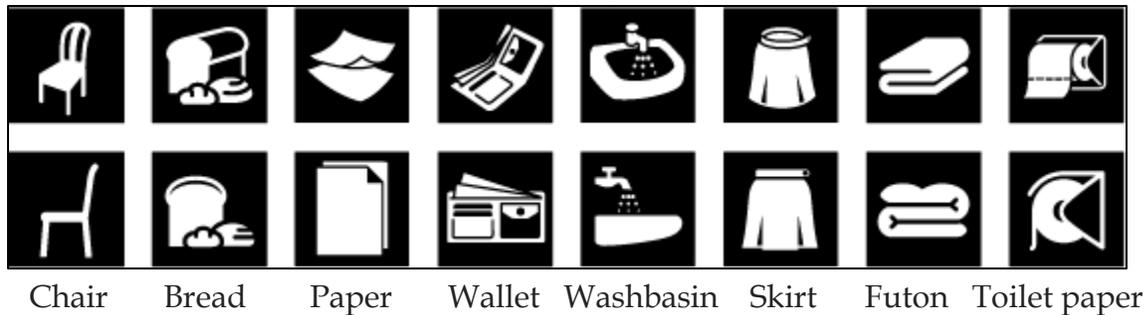
Fig. 2 Distinctive features (stem and a tank or pedals)



In addition to these ideas, there are several other important points to consider, such as composition, i.e., the choice between two- and three-dimensional

representation, viewpoint-independence, and the use of distinctive features. These are things those good designers do unconsciously. However, extreme simplification must be avoided in order to ensure understanding, especially for mentally handicapped or autistic children with cognitive disabilities or those suffering from brain injuries. Also, simplification should be done by using rounded lines whenever possible.

Fig.3 Comparison of 2D-3D pictogram examples



As a result, you have a pictogram that is well symbolized and does not lose its veridicality* while also producing beauty. It can be called functional beauty, a design quality that generates intuitive understanding, that is, a design quality that immediately connects to past visual psychological experiences.

Veridicality*: *It means "its own character or the very nature of it"*.

This same concept applies to the representation of motion. Since we must create a still image from a movement or action, we symbolize the most striking scene or form. I found Sweden had created some well-designed pictograms for the PIC symbols such as "I'm full", "I'm sorry" and "singing".

The Japanese word "絵記号/Ekigou" is approximated in English as "pictorial symbol," meaning that it is located between a picture and a visual symbol (character or written word). But a pictogram is not a letter or a character, it is a picture. However, because the pictures are highly symbolic, they can be used as a written language and if multiple pictograms are used in a row, there is a possibility of creating a language system similar to that of a written language. This is another wonderful thing about PIC and the future that we should promote. Even if each PIC is just a pictogram, symbolism is important when designing them from the viewpoint of a system.

Such a group of symbols can also serve as an alternative to spoken language among people who speak different languages. I have been aiming to create a system for this purpose. In 2010, together with Dr. Tomoyoshi Inoue and others, I proposed a visual language system at the third International Universal Design Conference (IUAD)

in Japan. The system was based on “JIS-Ekigou” using grammar which is based on Esperanto (an artificial language system). We hoped to bridge the gap between handicapped and non-handicapped people.

In my clinical work as a speech-language pathologist, In 2019 I gave a presentation at the 45th Annual Meeting of the Japanese Association for Communication Disorders. My presentation was based on how I helped a 5-year-old, non-verbal child with ASD to understand the instructional behavior of "give and take" using JIS-Ekigou. The behaviors acquired by the 5-years-old child were five-word sentences such as:

“give/red/towel/Dad/ come back” and “Take/green/ball/Mom/come back”.

What I would like to focus on here is the acquisition of the concept of "give and take". JIS-Ekigou (PIC symbols) made this possible.

Fig.4 Give and Take symbols (JIS-Ekigou)

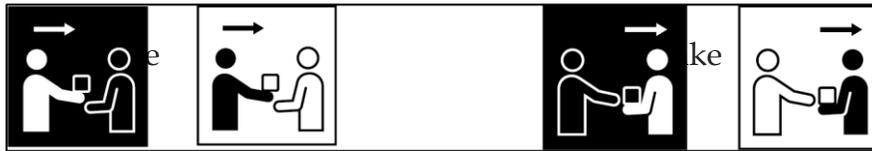
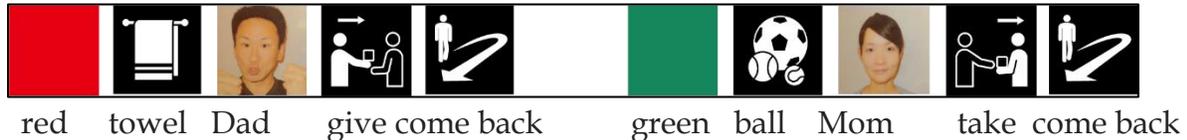


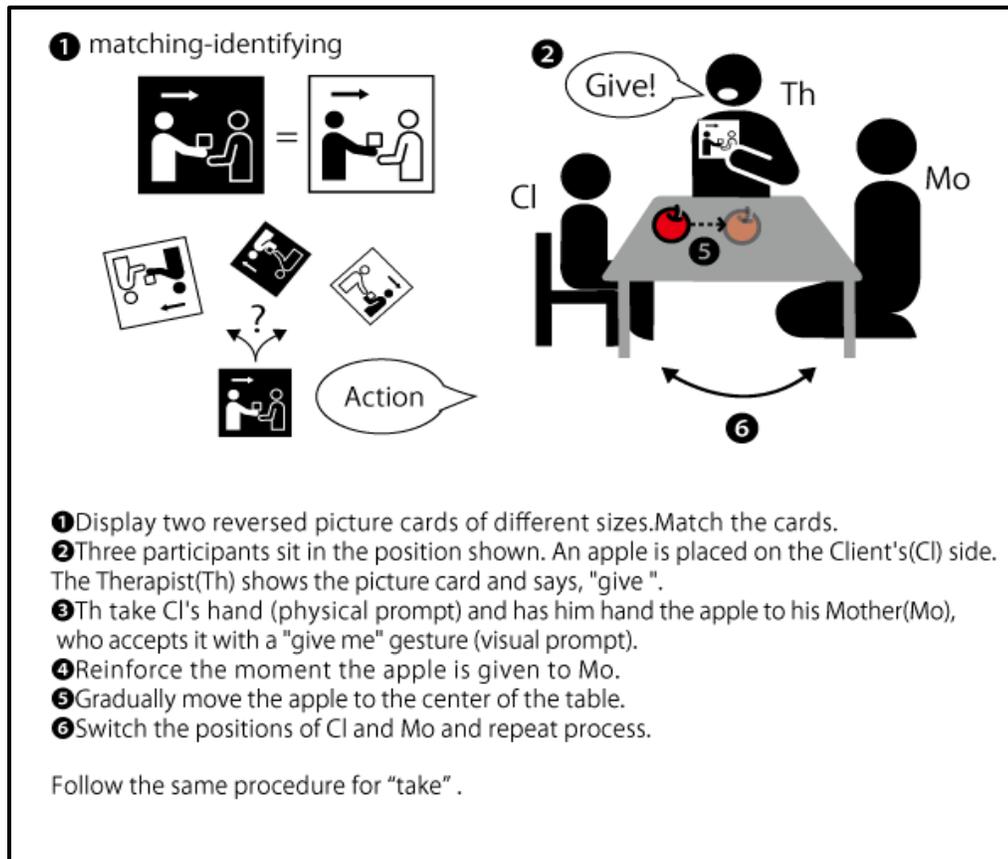
Fig.5 Sentence of direction (The order of symbols is based on Japanese grammar)



The JIS-Ekigou for “give” and “take” are contrasting symbols. Each includes ideograms of an arrow and a small square which represents an object. In addition to that, there are two “people” pictograms, one is the subject full figure (solid image) and the other is the non-subject of line drawing (outlined image). They are symbols of extremely high abstraction. They are also verbs. Even for a healthy child, these can be difficult to understand at first sight.

This particular child could not sit at a table well and did not test well on the Tanaka-Binet (IQ=0). Children with intellectual disabilities and had to be taught the meaning of arrows. I also taught the child that the square ideograms represented objects and that moving it from this person to that person is "giving and taking" as shown in the diagram below.

Figure 6. Therapy to acquire the concept of “Give and Take”



Through this clinical process, the child was able to understand five-word sentences in my clinic and also at his preschool. In addition, this system could be used with the PECS © app. on the iPad.

The key to obtaining this kind of learning behavior is that these are paired symbols, and they are designed from the perspective of a system. Like ⇒ Arrows and the □ object symbol drawings are elemental ideograms that are repeatedly used in JIS-Ekigou. Five-word sentences are much more difficult than single word sentences. The acquisition of the paired verbs "to give" and "to take" and the ability of the ASD patient, who had difficulty forming relationships with others, to discriminate between these two verbs was wonderful. I believe that the design of the PIC symbols or JIS-Ekigou, including its systematicity, supported these achievements.

There is still much room for development in the systematization of symbol groups using pictograms, and I would like to make every effort to ensure that PIC symbols and JIS-Ekigou, which are based on pictograms, will consolidate in this direction as representatives of visual communication using visual symbols.

CHAPTER ELEVEN



Making Symbols Move in a new Dimension

ANIMATED PICTOGRAMS

The animated pictogram software was designed & developed by

Fumihiko Hayashi, Japan



View the animations on a PowerPoint presentation

Two-dimensional printed symbols representing action-words (verbs) do not convey the motion of the concept and become difficult for young children and children with cognitive disabilities to comprehend. The representation of these concepts are difficult to conceptualize and thus, fall in the realm of ideograms which may or may not be meaningful to young children. This may be viewed as a disruption in the learning process and the visual strategy as being unsuccessful.

Besides the aesthetics, cultural disparities and preferential designs the significant deficit of the two-dimensional printed format is that time and motion cannot be represented even if a series of drawings are sequences to create movement. Thus, the attempt to resolve the dilemma was the inclusion of manual signs to compensate and illustrate the static visual cue. In the early 1970's this combination was labeled *Total Communication* and applied with fervour; however, the results did not meet the eagerness of parents and instructors and the application was overshadowed by multiple visual strategies.

The advancement of software created the opportunity to present the flow of movement on a screen to represent the action and bring to life static ideograms. This was

achieved by Fumihiro Hayashi in 2003 who designed and developed one hundred animated verbs based on the Pictogram Symbol design so that the sequenced visuals of verbs represented the actions.

Yamana, Y., Fujisawa, K., Inoue, T. & Hayashi, F. in their report, How young children name ideograms?: Animated ideograms helped them comprehend the abstract meanings of verbs considered the utilization of the technique of simple animations to represent the meaning of verbs which could not be easily understood with a static visual symbol.

The authors identified the research of Fujisawa (2001) who had investigated the comprehension of pictograms and ideograms by young children. The results revealed that the more abstract the meaning was, the more difficult it was for the children to identify the correct pictogram or ideogram. The conclusion was that semantic transparency decreased when the concept became more abstract, and furthermore, it was difficult for a designer to draw a static picture that corresponded to action words, viz., verbs.

Kitagami (2004), in his research demonstrated that the verbal performance of university students increased when presented with corresponding animated visual symbols in stead of static ideograms.

Yamana, et.al. investigated how young children named several animated and analysed certain aspects of their language development. Additionally they explored the changes of verbal responses of children from ages 2 to 5-years old and if they would benefit from the employment of animated ideograms. The results demonstrated older children were more responsive to animated ideograms and produced more correct responses.

The researchers concluded that animated ideograms could provide more concrete visual images in terms of motion which might enhance the average scores for some children. However, a discrepancy was noted regarding age which suggested that certain cues in the animated symbols helped some children comprehend them whereas another types of cues did so for another age group.

The design of the animated ideogram utilized several frames of static pictures in which drawings or models of people and objects are sequenced to move.



Seven picture frames were created to express the concept *think*, and while the animation was reflective of the action, there was an added benefit of attracting the young student and maintaining attention to task. While this was novel, it had a significant benefit in learning and transferring a three-dimensional action to a two-dimensional printed image.

It is notable that in the animated ideogram for *think* there were seven frames in which we can see three different culture-based notations. The question mark appeared in the first two frames suggesting that the agent does not know the necessary information. The next two frames contain the gesture pointing to his head hinting that it might be related to human cognitive activities. The final three frames showed the motion of the agent folding his arms.

This was useful for Japanese children to relate that particular gesture to the concept of “think,” as many Japanese people sometimes fold their arms when they don’t know what to do. This gesture is evidently culture-based because some Westerners probably would take the gesture as rejection or resistance.

The researchers considered this as a speculation but contemplate that *children gradually acquire the meanings of culture-based gestures and that it is not too early for them to do so.*

The animations for *put* and *cut* were clear reflections of the actions and were activated in 4-frames.



Animated PIC software was packaged by Godai Embody, Kyoto, Japan

PICシンボルが動画になりました

PIC 動画集
 価格：10,500円(税込)

これまでのPICシンボルはすべて静止画でしたが、動きや様子は静止画ではなかなか伝わりません。『PIC動画集』には、簡単なアニメーションを利用した100種類の動画PICが収録されており、より理解を高めます。
 (GIFアニメーション形式)
 制作：林文博

76 PictoAction Symbols can be accessed through the www.pictoworld.com website for FREE by clicking on the icon



CHAPTER TWELVE



Breaking Borders

PICTOGRAM SOFTWARE EVOLUTION

The access to personal computers and symbol-based software changed the manner of cutting and pasting from printed materials to create communication boards to the rapid access of picture images from a symbol library to created communication formats and designs for interaction.

The personal computer and printer was the technological Heidelberg Press of the 21st Century; a dramatic evolution from Gutenberg's genius to the inspirations of Steve Jobs, Wozniak; Bill Gates and others.

Technological advancements have impacted the field of communication and this has benefitted the creation of speech generated devices for non-verbal individuals and persons limited in verbal expression. The visual display has included drawings with stick-figure representations to coloured pictures and photographs. This explosion of devices and the potential of future devices is the result of creativity on the one hand and the deep consideration of the value of human communication and interaction.

Speech generating devices are closing the communication gap and promoting inclusion. Although the output mode may be different; the intent of verbal expression and verbal identity is premier. The non-verbal and limited-verbal individual is shifted into the third dimension of human identity and is a person with ideas and desires.

The potential for human ingenuity will be restrained only by our complacency and it is imperative that we continue to utilize the potential of technology to enhance the *Quality of Communication* and the *Quality of Life* of the non-verbal and limited-verbal individual.

SWEDEN

In the early 1990's Sweden designed and implemented PICTOGRAM Manager and this was the beginning of the advancement of the design model, the application, the number of symbols and the translation of the symbols into multiple languages with the design of the **PICTOONLINE** software.

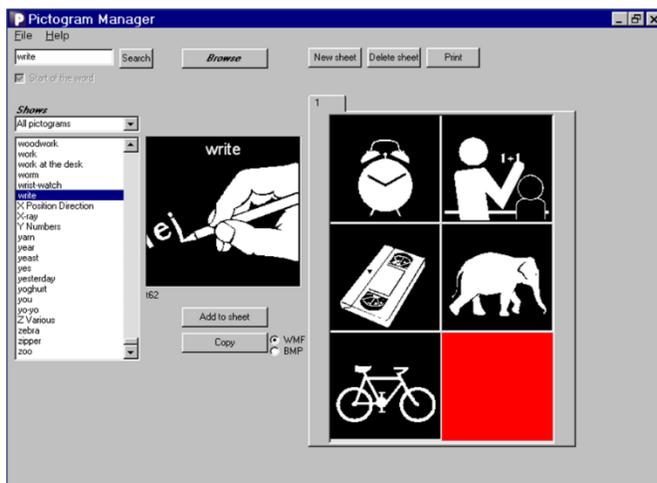
The format was changed to facilitate the preparation of printed templates with a variety of sizes that considered the ability of the individual to use the symbols for communication.

Specialpedagogiska skolmyndigheten (SPSM) – *National Agency for Special Needs Education and Schools* is preparing the new software, Bildsprak, which will add the speech component to the image and this will have a significant advantage in the flow-time for interaction.

It is notable that the Swedish Program has advanced the use of Pictogram Symbols internationally since its inclusion of the symbols within its Education Policy and Program. The new software will continue to expand in terms of usage, the addition of new symbols and languages and cross the boundaries on many continents.

P Pictogram Manager

The Symbol Library was expanded to over 1500 symbols and the symbol-text was translated into multiple languages



PICTOGRAM

- start page
- about pictogram
- pictogram for accessibility
- products/downloads
- retailers
- contact/about us
- go to picto online ▶

Login to Picto Online

Username:

Password:

Login

[Lost password?](#)

PICTOONLINE Pictogram – a language in pictures

Picto Online – new smart Internet service. Collect the Picto images directly from Picto Online. Easy, virus-free, PC/Mac.
[Go to Picto online](#) (opens in new window)

Welcome to the international website for Pictogram, a visual language developed for people with limited or no ability to speak, read and write.

- You can understand and make yourself understood
- You can ask questions and get replies
- You gain support for your thoughts and memory
- You can formulate feelings and wishes
- You can communicate!

Pictogram in your own language

With its 1,500 picto-images, Pictogram is an international visual language which has been translated into Danish, English, Finnish, French, Icelandic, Italian, Latvian, Lithuanian, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish and German. To experience Pictogram in your language, click the appropriate flag. This will take you to Picto Online, where you can test the web service at no charge. You can then order a subscription and gain immediate access to Pictogram.

[> To Picto Online](#)

Good contrast and readability even when small make Picto images perfect for communication via computers and mobile phones

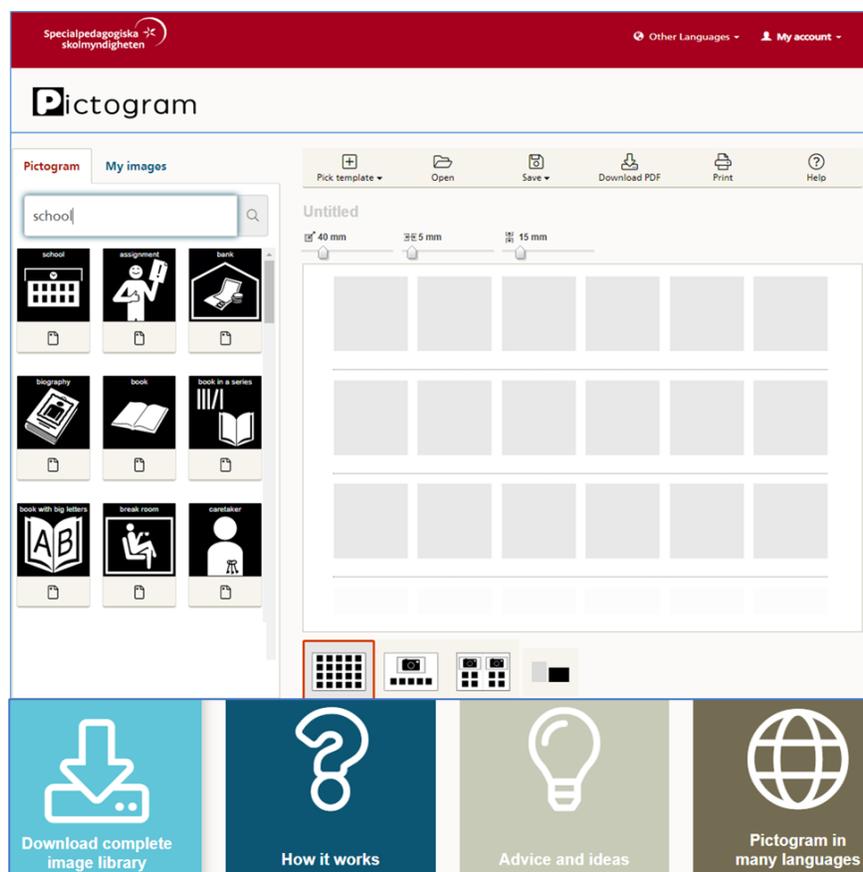
	DENMARK
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	FINLAND
	FRANCE
	GERMANY
	GREAT BRITAIN
	ICELAND
	ITALY
	LATVIA
	LITHUANIA
	NORWAY
	POLAND
	PORTUGAL
	SPAIN
	SWEDEN
	UNITED STATES

National Agency for Special Needs Education and Schools

<http://pictoonline.pictogram.se>

Pictogram

The present software included a library of over 2,400 symbols and symbols are added or revised biannually. SPSM invites users to suggest ideas for new symbols and on the basis of application and functionality the symbols are created.



Swedish	English	Danish
Dari	German	Estonian
Spanish	French	Italian
Kiswahili	Latvian	Lithuanian
Norwegian	Polish	Portuguese
Somali	Finnish	Icelandic
Greek	Russian	Arabic
Sinhalese		

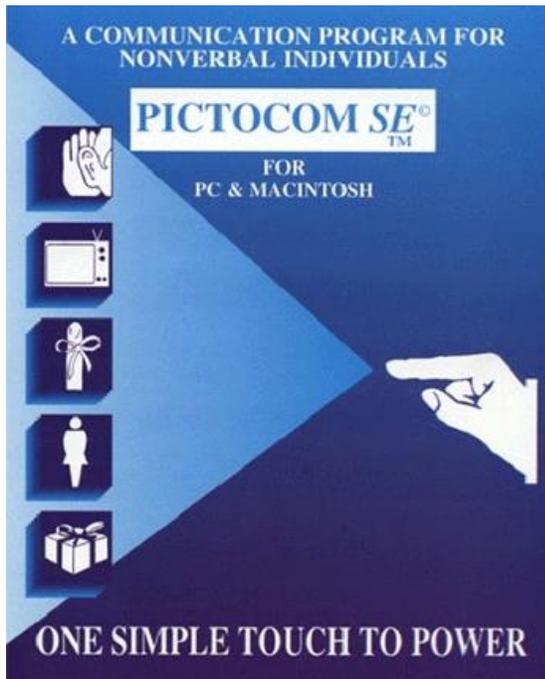
Download Picto images in any language from Pictogram



This visual language allows those with cognitive difficulties to more easily interact with people in other countries. Pictogram is cross-border communication.

The anticipation of the new **Bildsprak** software with a speech application on the new website: www.bildsprak.spsm.se will continue the advancement and evolution of technology for non-verbal and limited verbal individuals.

CANADA

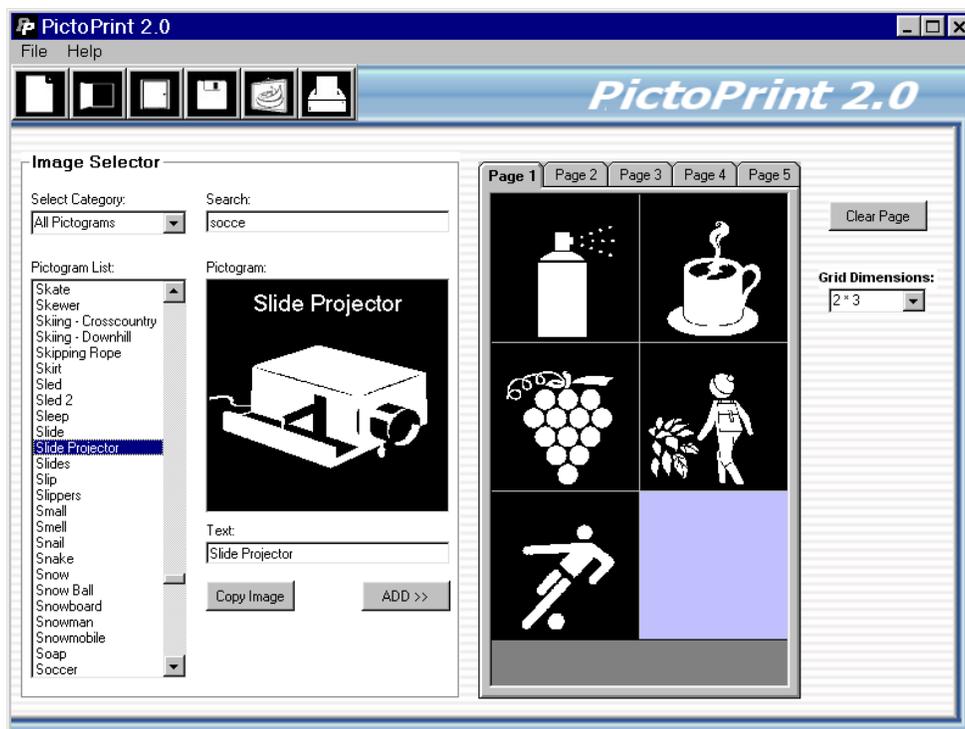


PICTOCOM SYMBOL EXPRESSION
(SE) - Creating communication flow
through human voice output.

ONE SIMPLE TOUCH TO POWER

Lead statements are pre-recorded and
the required or desired symbol/s is/are
selected to generate a need or intent.

PICTOCOM SYMBOL EXPRESSION © 1995 Subhas
C. Maharaj



Versatile Software for School, Clinic & Home.

Easy to Use... Easy to Print



76 animated Pictogram Symbols

PictoAction © 2008 Fumihiro Hayashi & Godai Embody, Kyoto, Japan



The

- An online Pictogram Library of over 2,000 symbols arranged in 24 categories.
- The option of importing photographs and pictures to enhance customized communication.
- Customized text and human voice recording.
- Printing and sharing information via email

JAPAN



コミュニケーションのトレーニング学習用ソフト

PICTOCOM-SE ver 1.0

価格：18,900円(税込)

●よく使う日本版PIC 421種が収録されており、必要なシンボルが



1071種類のPICシンボルを収録した多機能辞書ソフト

PIC-DIC ver3.0

価格：35,700円(税込)

- 1071種収録されたPICシンボルのなかから、必要なシンボルをカテゴリー別・名称別に検索できる他、割当てのPICO番号でも呼び出せます。

- 日・英のバイリンガル読み上げができます。





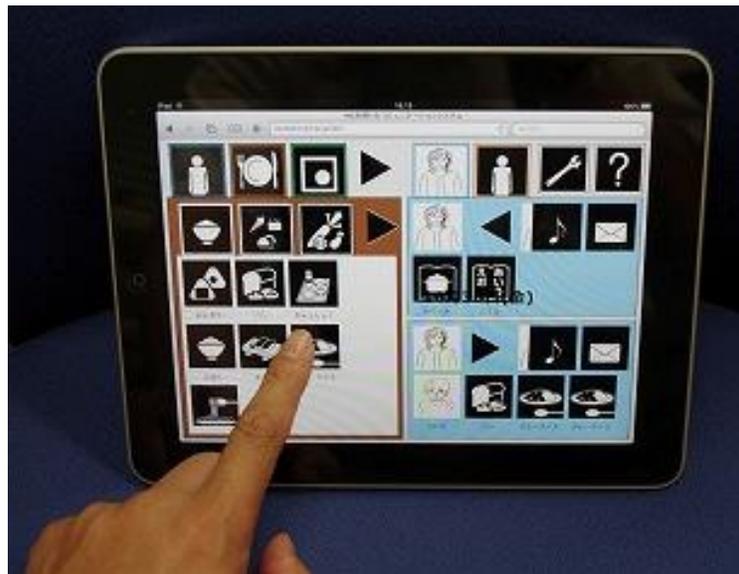
PICシンボルが動画になりました

PIC 動画集

価格：10,500円(税込)

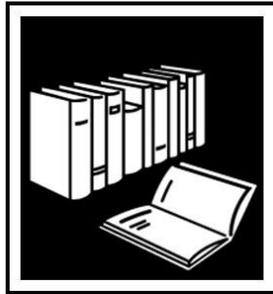
これまでのPICシンボルはすべて静止画でしたが、動きや様子は静止画ではなかなか伝わりま





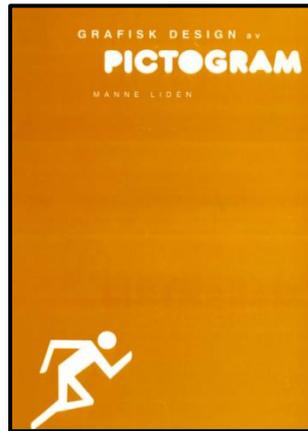
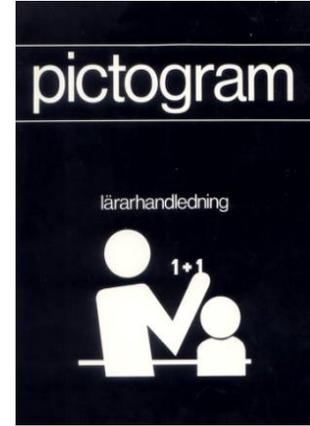
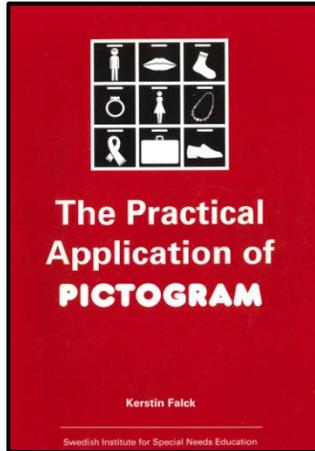
Professor Kimiyasu KIYOTA
Department of Human-Oriented Information Systems Engineering
Kumamoto National College of Technology,
JAPAN

CHAPTER THIRTEEN

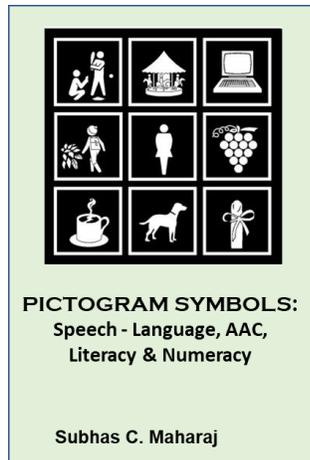


Recordings for History

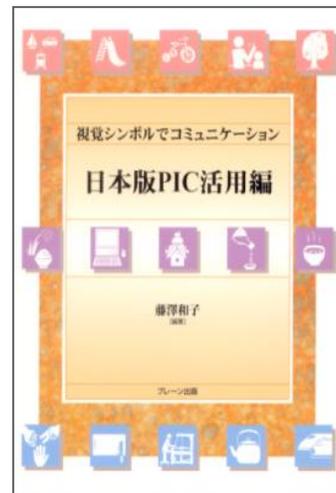
SWEDEN



CANADA



JAPAN



BRAIN SHUPPAN
Tokyo, Japan

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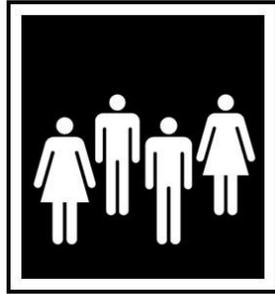
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CHAPTER FOURTEEN



Communication is the Essence of Humanity

THE JOURNEY FOR A LIFETIME

