ently than they speak spontaneously, because the written word cues their speech. Others find the written word no help; they may understand it but are still unable to say it, and either say nothing or say inappropriate words.

Echolalia is a specific word-finding problem in which the sufferer repeats the last word or words their communication partner says. Correspondingly responses to questions are unreliable, and will depend on how the question is asked. An echolalic conversation might go, for example,

Q: Is the capital of Australia Canberra or Melbourne?
A: Melbourne.
Q: Is the capital of Australia Melbourne or Canberra?
A: Canberra.
Q: What is the capital? Do you know?
A: No (know!)

Pointing Responses

Nonspeech tests (such as Raven's Matrices and the Peabody Picture Vocabulary Test) and the performance items of tests like the WAIS require pointing or manipulative responses. Obviously these cannot be used with people who have severe physical impairments precluding hand use (at least not without significant adaptation of the test presentation). Unfortunately, many people with severe communication impairments who can use their hands for gross motor activities still have neuromotor impairments that affect their pointing abilities.

Nonspeech and multiple choice tests are reliable only if it has been ascertained that the person with severe communication impairments has the neuromotor skills needed to make controlled responses. If there is any doubt, or if an individual does badly on a performance test, an occupational therapy assessment should be sought. It is entirely possible for individuals who have acquired quite good daily living skills with careful teaching to have motor problems that will effect their performance on test items. In fact, the block design tests that are included in the performance scales of the WAIS and Stanford-Binet had their origin in tests for apraxia, a neuromotor disorder that is not uncommon in people with severe communication impairments. Obviously, if an individual performs badly on a block design test, this may be caused by apraxia as much as by any problems of understanding or reason-

ing. Only a neuromotor assessment will disclose where the difficulty lies.

In addition to requiring hand skills, nonspeech assessments also have visual requirements that should be kept in mind when ascertaining whether a particular test is going to provide an appropriate means of assessment for a particular individual. In addition to the visual acuity or color discrimination required—the person must be able to see well enough to distinguish clearly the items from which the answer has to be chosen—all such tests require scanning skills. The person being tested must look at each of the alternatives in order to select the correct answer. A person who only sees half the answers, either because of hemianopia or because of poor scanning techniques, is obviously disadvantaged. Poor scanning techniques are usually remediable, either permanently through training, or temporarily, by taking steps to ensure that the person looks at each alternative—for instance, each option could be lit up in turn.

Problems with initiation, impulsivity, perseveration, and eye-hand coordination will also affect the reliability of pointing responses, as will fatigue.

Unfortunately, even when every precaution has been taken and the test has been administered fairly the fact remains that the standardized nonspeech tests only give limited information, and do not provide much guidance in planning an educational program. Results on the Peabody Picture Vocabulary Test, in particular, are likely to be affected by a person's previous environmental experiences and educational background.

Written or Typed Responses

Some people with severe communication impairments can write or type, either independently or with facilitation. Potentially this provides a powerful means of assessment; however, similar reliability checks need to be made as for spoken communication or pointing.

HANDWRITING

Handwriting needs to be automatic and reasonably effortless before it is an appropriate means of response. A person who has to devote an inordinate amount of attention just to getting letters on the page is not going to be able to simultaneously monitor the content and spelling of the output.

Spontaneous writing uses motor memory—we have to recall the shapes of the letters or words wanted and reproduce them on

paper. Copy writing does not make the same demands on motor memory, and some individuals with severe communication impairments can copy though they cannot write without a model. These people may have speech problems such as word-finding difficulties that may also involve difficulties in recalling motor patterns.

Low muscle tone may also produce handwriting problems—the person starts well but does not have the endurance to maintain quality and clarity, and often spelling tapers off as they tire.

Writing problems such as these may have no connection with the individual's actual literacy level—like the better known speech impairments, they merely affect the ability to express this knowledge.

TYPING

Perseveration, impulsivity, and other fine motor problems may interfere with the provision of correct typed responses—the person may type the same word or letter again and again, or they may start to type the correct answer but be locked into an "automatic" stereotyped response. For example, when asked the capital of Queensland—Brisbane—Phil typed BREAD. When asked the present tense of "brought" he also typed BREAD. He typed BREAD, in fact, when asked any question to which the correct answer started with BR.

WRITTEN LANGUAGE

A word-finding problem may extend to written language. If this is so, the ability to answer questions (especially those involving names of people or things) is quite likely to be affected. This gives rise to the situation where even if the individual being tested " knows" the answer he is only able to retrieve the right words if given a cue—that is, he can only give correct answers to those questions where he is cued by the communication partner either saying the initial sound or by assisting or reinforcing his movement toward the initial letter on a keyboard. (This often leads to communication with facilitation being questioned because the person with the severe communication impairments only answers correctly those questions to which the facilitator knows the answer).

TESTS OF COMMUNICATION COMPETENCE

Tests of communication skills fall into two categories. Firstly, there are the routine tests that therapists and teachers use to ascertain the

appropriate starting place for therapy or to review a training program. Providing the obvious general precautions are applied, such as a picture-based test is not given to someone with a severe visual impairment, these are generally very useful.

Secondly, there are tests devised to ascertain whether an individual is communicating in particular circumstances, or with specific individuals, or whether a specific communication is valid. As there are no standard tests for this purpose, procedures have to be devised on an ad hoc basis. The basic rules for testing still apply: be sure of what (and whom) you are testing, and make sure the person with severe communication impairments has the equipment, training, and motor and sensory skills necessary to undertake the test.

Possible issues and examples for examination by such testing include the following:

1. *Environmental Is* Joe using his communication book appropriately when he travels on public transport?
2. *Personnel Do* Mary and Fred have the skills necessary to receive and relay Joe's communication accurately?
3. *Authenticity Did* Joe really say Bill stole his watch?
4. *Veracity Was* Joe right when he said Bill stole his watch?
5. *Ability Can* Joe communicate in a particular mode or at a particular level?

To Joe, the fifth question is obviously most important. It is equally important to note that on any particular occasion the answers to questions 1,2,3, and 4 could all be "no" without affecting the answer to question 5. Joe can be using his aid wrong, and Mary and Fred could be poor facilitators, and they could have gotten Joe's message wrong, or Joe could be lying, and it could still be true that in the right circumstances with a good facilitator Joe could spell out exactly what he wanted. In particular, it's important not to confuse authenticity and veracity. People with severe communication impairments, just like the rest of us, give incorrect information for a wide variety of reasons—love of invention, malice, poor pragmatics—but, unlike the rest of us, people sometimes assume that if what people with severe communication impairments are saying isn't true then it can't have been them saying it.

Strategies for obtaining answers to each of the questions will vary. How much effort is devoted to answering such questions should depend on circumstances. If an 8-year-old's integration aide

helps her with her spelling test this is not a major issue—in fact, it might be excellent educational practice. In grades 11 and 12, it becomes more important to know who is doing the work, the student or the aide, and it may be necessary to validate the student's work with the particular partner or partners who are going to assist in exams.

Specific circumstances may require special tests. Joe may have to prove that he has the ability to make and communicate decisions. Whatever procedures used should take into account specific problems Joe may have—if he has a word-finding problem, even a simple test like being asked the names of family members may not be appropriate. If Joe requires a communication partner with specific skills—a sign interpreter, say, or a facilitator—every effort should be made to use the person with whom Joe is believed to communicate most competently (ideally, of course, the partner should be Joe's own choice). Otherwise the outcome may be affected by the ineptitude of an unskilled or unfamiliar partner. Finally, Joe should be told the general nature of the test procedure, so he can practice any specific skills required, such as using headphones or passing messages.'

On another occasion—if Joe is making a will, for example—it may be necessary to verify Joe's communication through a particular communication partner. Ideally, in such a case more than one partner would be involved—two sign language interpreters could be used simultaneously, or two facilitators could be used sequentially, with Joe repeating his wishes.

If any of the questions **1-5** are answered negatively it is importa nt to take remedial action, as would be taken with a person who fails a conventional assessment. Learning communication skills is like learning to drive—there is a continuum of skill and skills that can be improved. If we fail a driving test we take more lessons and practice, then we have another go. We are not stopped from driving altogether.

LEARNED HELPLESSNESS

The effect on an individual of having a long-term, unremedied communication impairment needs to be taken into account in any assessment. Such individuals are unlikely to be confident in everyday interactions. They are likely to have experienced much failure and frustration. They may have negative attitudes to assessment as

the result of past experiences with inappropriate testing strategies and are unlikely to have the communication skills or assertiveness to make their concerns known to the examiner. Without a great deal of encouragement they may be unwilling even to try at the test and may just answer at random in order to get the procedure over with as quickly and painlessly as possible.

ASSESSMENT AT DEAL

Whatever we feel about testing, we do have to find out information about what people do and do not know, and can and cannot do, so we can make worthwhile suggestions about future programs. The assessment that follows is merely an attempt to generate the maximum relevant information in the minimum time. It is by no means the perfect solution to assessment problems. It is included here as an example of an alternative approach, that has proved effective with some people.

The standard assessment used at DEAL for children whose speech clearly needs augmentation is based around an educa - tional toy with voice output called My Talking Computer. The toy has two booklets associated with it. When a page of a booklet is keyed up a pleasant (American) female voice asks a random set of five questions about whatever is represented on the page. The questions are answered by pressing the appropriate item on the page (and consequently the test is unsuitable for children who cannot use their hands, with whom other strategies are used). After five questions a score is given, and if all questions have been answered correctly music is played. By selecting appropriate pages it is possible to check picture recognition, knowledge of concepts such as shape, size, and color, and, word and letter recognition. One sheet allows the user to compose their own sentence or story from written words and have it spoken by the toy. While the information about specific knowledge is interesting, really only picture and word recognition and the ability to compose a sentence are important in terms of future communication intervention.

The observational data generated by the student's interaction with the toy are at least as important as the information obtained about their knowledge of concepts. The initial responses of students confronted both by the toy and my expectation of task completion were variable. My Talking Computer was chosen as an assessment

tool because it does not look at all like a standard, test, it is easily portable (so can be administered on the floor if the student refuses to sit at a table), and most children find the voice output very motivating. Most importantly, no speech is required to respond to the questions, and no complex motor skills are needed—simple pointing is all that is required. Many autistic children respond to this assessment more positively than they have been reported as responding to any structured task previously. Some attempt to reject it in the same way as they have been reported as rejecting any structured task. Most students maintain concentration for longer periods than has been reported previously.

The most useful information gained from the assessment is generated by the student's attempts) to respond to the first question on the first page of pictures. That is, information on how the student uses his/her hands and eyes. If the student points with a whole hand, without isolating an index finger, that will be corrected, either by an oral prompt or by the tester shaping the student's hand with her hand. If the student uses two hands and hits two answers at once one hand will be restrained. A student who points without looking will be restrained from pointing until his or her eyes are on task. Any other hand function problems will also be remedied if observed at this stage, generally by the tester using her hands to facilitate the student in the production of purposeful responses.

As the assessment proceeds other information will be generated about hearing, auditory discrimination, receptive language, visual acuity and scanning, perseveration, impulsivity, concentration, auditory memory (one sheet asks the user to find "the small red triangle"), and sequencing (in the sentence composition task). Every effort is made to enable the student to achieve "success," especially on the earlier sheets, as this may encourage the student to try harder when they reach the later word recognition tasks. A student who clearly does not know the correct answer to a question will be assisted to find it by the tester. The toy will then give the student positive feedback "You're right!" although the response will be recorded by the tester as not being the student's.

In testing it is important to differentiate between facilitation, which allows the student to make the choice, and assistance or direction which leads the student to make a response chosen by the tester. A student whose hand is molded by the tester in order to achieve index finger isolation may make clear purposeful choices, that will be recorded as the student's own. Another student may not need any hands-on facilitation but may need oral cueing to

achieve success. These cued responses will not be recorded as the student's own choices, even though the student pointed without any physical assistance.

The assessment is not scored—its use is the information that it generates, which is recorded as comments on the record sheet. This assessment does not terminate if a student does not show some of the early skills. A student may have no knowledge of shape names and therefore be unable to succeed on the three sheets that include shapes. Indeed, if the ignorance was obvious on the first shape sheet, the next two sheets would be omitted. That does not mean that the same student may not have word recognition skills. In fact, sometimes students who have performed reluctantly, with ambiguous results, on earlier sheets. improve concentration and performance markedly on sheets containing written words. If the student shows no sign of word recognition skills by the end of the sheet containing twelve written words then the Talking Computer assessment would be terminated, and other tasks would be substituted.

All students who show word recognition skills will be given a chance to use a keyboard, regardless of whether they appear to recognize the names of upper case letters. Any students who are so uncooperative as to make it hard to be sure what they do know are also given access to a keyboard. On several notable occasions students who refused even to sit on a chair to work with My Talking Computer have become perfectly cooperative when given a chance to type, and have shown functional spelling skills. Access to the keyboard is given using whatever level of facilitation has been determined to be necessary during the earlier part of the assessment. Most commonly the Canon Communicator is used in the initial assessment because it is durable, easily portable and has a keyguard to stop the typist's finger from hitting more than one key at a time. Output consists of large upper case letters printed on thin strips of paper tape.

A student who shows functional spelling skills at this stage, that is, the ability to spell a recognizable sentence without a model, will probably be able to augment speech with typing. If they are unable to type without facilitation they are then candidates for facilitated communication training. Facilitated communication training may also be used with students who do not show any literacy skills but who require facilitation to point to pictures or symbols in order to augment their speech. Students who plan to augment their speech with typing will undertake formal and informal reading assessments. A selection of *expressive* and receptive language assess-

ments is available and will be administered as appropriate by a speech pathologist or teacher if the information generated is judged necessary for future intervention. No one is tested simply for the sake of testing—there is no point in giving a girl with an oral vocabulary of five words a word-finding test that exposes her to unnecessary failure and generates no useful information. However, a test of receptive language, such as the Peabody Picture Vocabulary Test, may be relevant for this girl (if she can point reliably) as it could enable her to demonstrate that her comprehension of oral language is well in excess of her spoken language, and could give an indication of the appropriate level for communication augmentation.

CONCLUSION

All this may make it seem that accurate assessment of people with severe communication impairments is impossible. It is not impossible—it just requires time and patience (even the fastest typist types at a quarter the speed of a speaker) and a willingness to depart from standardized tests that are not standardized on this population. The goal of assessment is always to find out what individuals can do, not what they can't. It is especially important to keep that in mind when assessing people with severe communication impairments.

As Heisenberg said, "What we observe is not nature itself but nature exposed to our method of questioning." For anyone to be justly labeled as intellectually impaired we must know enough about brain function to be able to examine "intelligence" unaffected by input restrictions caused by impairment or nurture and to assess intellectual functioning uninfluenced by expressive impairments. If we are unable to do so, we should not label people who cannot answer our questions as intellectually impaired.

ENDNOTES

I Message passing always seems straightforward to people who can talk, who have passed on messages since preschool. An adult who has just started to use nonspeech communication may never have passed on a message before and may feel quite unsure about what he or she should do. Message passing will be impossible if the person with severe communication impairments has short-term memory impairments. It should always be checked that the person can repeat a message after a short time lag before using this as a testing strategy.

10

Who Said That?

There are many systems of communication that don't involve speech. All of them have problems of interpretation.

The most widely used substitute for speech is deaf sign. People who use deaf sign are comparatively lucky. Signing is the oldest and best-known nonspeech system. Translation and checking procedures acceptable to users have been developed, and there is a large number of potential interpreters available. Despite these advantages, even fluent sign users have problems being understood by most speakers.

People who use other modes of nonspeech communication have even more problems in getting their words accepted. In part this is because these methods are relatively new (communication boards with pictures and symbols have been used for only 20 years, deaf sign for 200) and in part it is because of the wide variability between users and systems. Sign users may share little more than their deafness, but at least they share that. People who use other nonspeech communication strategies do not even share a common diagnosis—they may have cerebral palsy, for example, Down syndrome, autism, motor neuron disease, intellectual impairments, or acquired brain damage.

The communication strategies used by nonspeakers are as varied as their diagnoses. At the easy end of the scale, a relatively small number of individuals can communicate by writing or typing without any assistance other than provision of appropriate equipment. These people have relatively little difficulty in getting their messages across, although there may still be problems caused by the comparative slowness of written communication and its lack of intonation.

All nonspeech communication is very laborious compared with speech. A speaker may talk at a rate of **150** words per minute. The fastest nonspeaker is unlikely to achieve 30 words per minute and few would achieve more than 10. The physical effort and concentration involved in generating those words is many times greater than that involved in speech, and consequently nonspeech communication cannot be sustained for lengthy periods.

If the communication is typed it can be exact but will suffer from lack of intonation—the added meaning speakers give by tone of voice and facial expression, and that signers emulate with vivid hand movements. It may also suffer from being taken too seriously and "over-interpreted," because in our culture written communication is always given heavier weight than spoken, and what in speech would be a throw-away line or a slip of the tongue may, if typed, be subject to detailed, analysis.

More problems occur when individuals use systems with limited vocabularies and/or require the assistance of communication partners to get out their messages. John uses a VOCA (voice output communication aid) independently; however, the aid only contains 32 utterances, and if John wants to communicate about anything not covered in those 32 utterances he has to use approximations or answer yes/no questions. John, like other users of limited vocabulary systems, requires a questioner with the skill to elucidate the meaning of his selection. A symbol board, for example, is likely to have one symbol for all the tenses of a verb. If a user points to RUN, does he mean "I ran," "I was running," or "**1** wanted to run" or "Run!"?

If nonspeaking people require some form of physical assistance or facilitation in order to use a communication aid the question often arises as to whether the words are theirs.

Facilitated communication *training* is a teaching strategy used to help people with severe communication impairments develop the hand skills needed to use communication aids independently. The ultimate validation of the technique is to bring people to the stage where they can use their aids without facilitation.

WHEN TO VERIFY COMMUNICATION

Most individuals with severe communication impairments will never need the consistency of individual communications to be validated formally (informal validation will take place, as it does for speaking individuals, in everyday interactions). The most obvious

way to check the consistency of communication is to have the individual discuss the same topic on different occasions and/or with different partners. If they do so, and what they communicate is similar on each occasion, that means they are consistent, and the partners did not imagine or misinterpret the communication (although it still does not mean the communication is correct—the individual may just be consistently wrong).

There are, however, certain situations where it is important to investigate the skills of users of nonspeech communication or their communication partners:

1. There may be some dispute about a person's communication skills in relation to a serious matter.
   Joe, who has cerebral palsy, needs surgery, and it is doubtful whether his communication through his symbol board is adequate for him to give informed consent.
2. There may be some dispute about the influence of a particular facilitator or communication partner on a person's communication in relation to a serious matter.
   It's accepted that Mary, who has motor neuron disease, can communicate using a Canon Communicator with arm support. Mary is very fond of her brother John. John says that Mary wants to give him a large sum of money. There is concern that when Mary is typing with John as her facilitator he influences the communication.
3. In a particular situation there may be a need for a particular communication partner to establish that they have the skills needed to enable a person to communicate without help or hindrance.
   George is studying for his final school exams. He usually communicates with little or no facilitation by typing on an adapted keyboard; however, the mathematics he is studying cannot be done on a typewriter keyboard, and he will have to use a special communication board with facilitation. It is thus important to ascertain that his facilitator does not influence his answers, and that, on the other hand, his facilitator has enough mathematical knowledge to be able to transcribe his answers in the appropriate format.

These three needs for verification are all noncontroversial, and all clearly benefit the communication aid user. A dispute about whether the individual can communicate at all is adversarial, and different considerations apply.

The best way of establishing the level of receptive and expres-

sive language available to the individual is a detailed speech-language assessment by a therapist with experience in both nonspeech communication and the individual's disability. The role of such an assessment is to establish levels of communication. It starts with a presumption that the individual is able to communicate, and endeavors to establish the extent of that communication.

Occasionally a speech-language assessment will show that an individual's skills have been overestimated—it is possible to interpret randomly hit symbols or letters as a meaningful utterance, or to "improve" someone's communication. More often, such an assessment will show that the nonspeaker's skills have been underestimated or underused. Though the last decade has seen enormous advances in the techniques and technology used to assist individuals with severe communication impairments, these have not yet come into widespread use. The large majority of nonspeakers are not receiving specialist intervention and are likely to have undeveloped communication potential.

No one should be blamed for overestimating or underestimating the nonspeaker's skills—but every effort should be made to find strategies that do enable the individual to communicate and participate in decision making to the best of his or her capacity.

Excluding the possibility of partner influence is difficult and time consuming. It is only necessary if the communication aid user is going to take an exam or give evidence and needs an accredited communication partner. Other statements can be checked more satisfactorily by using multiple partners than by accrediting one partner. The problem of verification in such cases is obviously reduced if the nonspeaking person can hear or read and can unambiguously signal yes and no, in that then they can be asked whether the utterance produced is indeed what they wanted to say.' Unfortunately, while most people using facilitated communication can read or hear, many do not have clear and unambiguous ways of indicating yes and no without using their communication aids.

In serious matters an independent facilitator or interpreter should be involved as early as possible (with the permission of the nonspeaking person):

1. in order to validate the original facilitation or translation (a check on accuracy and replicability)
2. to ensure the nonspeaking person has an opportunity to communicate via someone with no interest in the case (a check on undue influence)

3. to assess the practical and legal problems involved in the person giving evidence if court proceedings are involved.

In some instances it will be discovered that there is no communication partner available who is not involved in the matter at issue. What to do in this situation is a matter of judgment. If the matter is important, or court proceedings are likely, the only solution may be to train another communication partner (again, with the nonspeaker's consent).

No qualification such as an interpreter's certificate exists in nonspeech communication, and even if it did, the range of communication systems and individual variations is so great that it is difficult to imagine that one individual could hope to have the skills to assist all nonspeakers. Because a common system of nonspeech communication does not and cannot exist, most nonspeaking people who do not type or write have a relatively small number of people to whom they can communicate freely. People who are deaf have gained the right to use the interpreter of their choice in court, and this precedent should be applied to the situation of people without speech; everyone has his or her own communication style, and it is easier to get your message across to, or via, some people than others. If the impartiality of the chosen communication partner is an issue, other strategies for checking the communication aid user's output may need to be used.

The most common reason to try and ensure that communication partners are not affecting the student's output (for better or for worsen) is of course the needs of the classroom. If the partner needs specialist knowledge, such as the ability to set out math problems, then that should be checked by the math teacher or some other appropriate specialist. If the concern is to ensure that the student is able to do the work various strategies may be used.

May took her final economics exam with a communication partner who had left school at age 15 and never studied economics. Tina, who types *very* slowly and laboriously without facilitation, did one exam question without facilitation and the rest with facilitation; all her answers were of a similar standard and it was accepted that this did represent Tina's real level of achievement. Marc needs facilitation to type but can point to multiple choice answers without facilitation—his exam answers were checked by the administration of a multiple choice test. Bob typed his history essays with different facilitators; however, the standard and style of all the essays were consistent, and were different from the styles of his facilitators.

Strategies such as these may help convince other people that the work is the student's own, but in the end the issue is likely to come down to the integrity of the facilitators, as it does in any situation where a student is working closely with another person—an amanuensis, for example, or a deaf interpreter. It is important to ensure that the student is not further disadvantaged in the search for verification. May passed her exams and applied for university entrance, but one university said they would accept her only if she did, an additional test, devised by a psychologist, to prove she could type. At the other end of the scale, when Sam, aged 6, was using a typewriter for the first time his integration aide was not allowed to facilitate him for fear she might help him! In both cases the compulsion to test outweighed the central purpose of education, which is to teach.

ADVERSARIAL TESTING

The fourth situation in which verification of communication is required comes about when someone is affronted by something the communication aid user has said, or, indeed, affronted by the very suggestion that they can communicate anything at all. Anne McDonald was admitted to an institution at the age of 3 and labeled as profoundly retarded. When she turned 18 and said she wanted to leave, the Health Commission opposed her departure on the grounds she could not communicate. Anne's application for Habeas Corpus was heard in the Supreme Court; the presumption. of competence applied, and she was released without special testing. She is now in the process of completing a degree in humanities. " Carla" was labeled as severely intellectually impaired. In her 20s, she alleged that family members had mistreated her. She was given elaborate validation tests. The results of these tests were presented to the Guardianship Board, which decided that she was unable to communicate. After the case her family withdrew Carla from her day program, and she lost her means of communication.

The cases of Anne and Carla have several elements in common; neither woman can speak, both used communication aids to say things that their caregivers did not want to hear, and in both cases the caregivers responded by denying that the women had any ability to communicate. Each case was adversarial, in that there were individuals involved who hoped or believed that Anne/Carla could not communicate. Anne could do nothing independently, and was

totally dependent on testing to demonstrate her capacity. Eventually, she passed a validation test and a reading test (the Health Commission tried to hide the test results, but they came out in court). Carla was also given tests, and failed them. She could have demonstrated her capacity by using a communication aid independently, but the Guardianship Board refused to see her do so. At the end of the day the common law served Anne well, and the special system devised for people with disabilities served Carla badly. If Anne had been ssubjected to the same tests as Carla, would she have been released? If Carla had not been tested, would any harm have been done[3]—any harm, at least, comparable to what has occurred to Carla as the result of her test failure?

In adversarial validation only one question is being asked: Can the person use his/her communication aid or strategy effectively? There will be a number of people involved who hope he or she cannot. Tests may be administered or suggested by people who hope the aid user will fail. Hostile observers may be present at testing sessions. In most cases[4] the aid user has everything to lose and nothing to gain from test participation. If they pass, nothing will change. If they fail, they may lose what little in the way of communication they have.

Testing performed incompetently can have tragic effects. A test that does not take into account the life experience of the people being tested, however objective it may look, will still be unfair. Seventy years ago the Australian Immigration Department enforced a discriminatory policy of excluding certain racial groups. It did this through a simple objective measure—the dictation test. Under the Immigration Act any potential migrant could be asked to undertake a dictation test. This was, on the face of it, a measure designed to guard against the admission of illiterates. However, the Act didn't specify the language of the test. People whose skin wasn't the right color were given tests in languages they didn't know, and when they failed the test they were excluded. Indian professors educated at Oxford failed tests in Gaelic. For every one of us, there are more tests we will fail than tests we can pass.

If this is true for people without disabilities, it is much more true for people with disabilities. Whether people with disabilities are able to demonstrate their skills will to a large extent depend on the type of tests they are given. Anne, a quadriplegic, was assessed as profoundly intellectually impaired on a test that required her to build a 3-block tower. Karen, a schoolgirl with cerebral palsy, failed

the end-of-year tests because her teacher refused to let her use a typewriter on the grounds that it would give her an unfair advantage. An unfair disadvantage, apparently, was no problem.

Because you haven't seen something doesn't mean it doesn't exist. That oyster doesn't look like the kind that has pearls, most oysters don't have pearls, I've never seen an oyster with a pearl in it; all of these statements may be true, but they still do not prove that there *isn't a* pearl in *this* oyster or that this oyster could not produce a pearl in the future. It is vital to remember this when testing someone's ability to communicate. The aid user may not have proved that he or she can communicate. You certainly have not proved that they cannot ever communicate.

The issues of consent and cooperation are central in adversarial testing. As a general rule people should not be tested without their consent. Every effort should be made to obtain informed consent before testing. Obviously there will be problems if consent can only -be given or withheld by using the contested communication strategy. However, if an individual is held not to be competent to *refuse* consent, he or she is correspondingly incompetent to *give* consent. Whatever the consent situation, it must be recognized that testing undertaken without cooperation is valueless.

Because of these considerations, and because validation testing is complex, time consuming, and stressful, it is advisable to Iook for evidence of communication in everyday interactions before resorting to formal tests. The individual's everyday communication may be examined for evidence that indicates that the words are theirs. Does the person always talk about certain topics, or use specific idioms, or misspell certain words regardless of who is facilitating? Prue has a very individualistic style, starting a high proportion of sentences with adverbs and using certain favorite idioms and words such as. "weird," frequently, regardless of who her communication partner is. Does the person tell his facilitators things they could not know otherwise, things that have happened when they weren't around? When Joe told me that they'd had a bad trip down because they'd nearly hit a car, and his driver said that was true, this validated Joe's communication.

Too often this form of validation is overlooked. This is unfortunate because a few instances of successful communication are much more significant than many "failures." If Joe hadn't told me about the near-accident there would have been many possible explanations—he'd forgotten, he didn't want to embarrass the driver, he didn't think it important, he couldn't find the right

words, etc. But when Joe *did* tell me about it there was only *one* possible explanation; he was communicating, and I was receiving the communication.

If such instances of incidental validation do not occur spontaneously it may be possible to structure a situation to make them more likely. Gina was being asked to name pictures not seen by her facilitator and was not doing very well. An hour and a half after testing had started, she spontaneously typed something about wanting ANOTHER PRESENT. She went on to tell her facilitator that the psychologists undertaking the testing had given her a candy before the testing started. This was confirmed, and provided much better evidence of her ability to convey information unknown to her facilitator than her performance on the confrontational naming task.

If the aid used is a typewriter or alphabet board, the basic skills involved are reading and spelling. Reading skills may be demonstrated by administering standard assessments that do not involve use of a communication aid or facilitation—the administration, for example, of multiple choice reading tests such as the Reading Comprehension Battery for Aphasia (LaPointe, 1984).

If a demonstration of spelling skills is necessary, and the person is not able to select letters without facilitation, then there are informal procedures available that may be appropriate in some cases—answering a question or passing a message not known to the facilitator, for example, or describing items that are out of sight of the facilitator. These strategies can also be used with symbol or sign based communication. If the issue is relatively straightforward—Ben's father does not believe he can really be typing, say, because his hand is being held—then successful use of such a strategy may well defuse the issue before it becomes a major concern. Before testing, especially in the early stages of a communication training program, it is important to explain that failing such a test does not mean that people cannot or will not be able to use that communication strategy. What it shows is that they or their facilitators do not currently have the skills necessary to pass that test.

Choosing the appropriate verification strategy will depend on factors such as visual and auditory memory, maturity, and language skills. The skills needed can be developed in regular teaching sessions and the procedures administered quickly, with minimal stress and no requirements for specialized settings or equipment. Facilitator competence will be a significant variable, as will the length of time the individual has been in the training program. Failures

should be investigated and the tests repeated after further training, possibly in a different form or with a different facilitator.

Informal questioning can also be used to provide a useful indication of a facilitator's skills—I play "Telephone" with communication aid users who are known to have good skills, whispering messages for them to relay to their facilitators. Success boosts the confidence of the facilitator and failure indicates a need for more training before that facilitator is used for any important communication tasks. It is important that tests of student facilitators not be combined with tests of student aid, users, because if the outcome is a "fail" it will not be clear who has failed, the user or the facilitator. Any testing for facilitator influence should only be undertaken after a user has demonstrated his or her basic capacity to use the communication system. Any facilitator used in formal validation testing should have previously demonstrated the ability to facilitate by successfully facilitating an aid user during informal testing.

WHEN TO VALIDATE

No communication partner or person with severe communication impairments should be asked to undergo formal validation testing until they have completed basic communication training as assessed, by the agency overseeing the communication program); otherwise all that negative results will show is that the person has not learned what they haven't been taught. Similarly, validation testing is completely inappropriate until the communication aid user is communicating freely and fluently with at least one partner. Facilitated communication training is, as its name implies, a *training* method. Training in nonspeech communication strategies takes time—therapists suggest that it can take 6 years for *basic* competence to be achieved in the use of communication aids without facilitation (Haney, 1988).

HOW TO VALIDATE

Validation Protocols

The assessment of communication, in any mode, is not normally the job of psychologists—certainly not of psychologists working in isolation. Any protocols for validation assessment of nonspeech

communication should be developed by a multidisciplinary team with expertise in the various communication strategies to be assessed. Once developed the protocols should be circulated to relevant professional and consumer bodies for comment, and then amended if necessary. In Australia relevant bodies include AGOSCI (the Australian Group on Severe Communication Impairment), AASH (the Australian Association for Speech and Hearing), and CAUS (the Communication Aid User's Society). More than one validation strategy should be accredited, to cater for the different abilities and disabilities of people with severe communication impairments (some people cannot wear headphones, for example, and some people have short-term memory problems).

Preliminary Screening

Several assessments should be made before formal validation testing is undertaken:

- An assessment of hand function by an occupational therapist.
- A literacy assessment using a multiple-choice test.[5] The results of such a test would certainly have bearing on the future use **of** spelled communication, regardless of any negative results on validation testing.
- A speech/language assessment. If speech/language assessments are not made prior to testing it's impossible to know whether it would *ever* be possible for a given person to do the tests you are devising.

Preliminary Training

Trials at DEAL have shown that, with practice, most clients improve their performance on validation tasks. Performance improves, despite different questions each time, presumably because the clients become more at ease in the test situation and develop whatever skills are necessary to succeed. Practice of this nature is especially important if the chosen validation strategy involves significant interference with the procedures of everyday communication. For example, before anyone is given any test involving headphones, they need to practice receiving instructions through headphones. *If a person does not respond to everyday instructions given via headphones they should not be given test questions via headphones.* (Also, if they do not respond to everyday instructions given by a particu-

lar examiner they should not be given test questions by that examiner.) If the receiver only is to wear headphones, the receiver should practice wearing headphones in regular communication sessions with, the person and observe what effect, if any, this has on communication.

Environment

The aid user should **also be** familiar with the environment in which the test will be conducted. Testing will ideally take place in the aid user's regular setting—school, day center, or residence.

The effects of environment were demonstrated in an Australian court case (Police v. Williams, 1990) when a witness who typed with facilitation was brought into court to show how she communicated. The prosecutor had previously seen the aid user type successfully while her facilitator looked, away, but he had overlooked the influence of the courtroom and the presence of the accused on his witness. Her facilitator was asked to look away from. the keyboard while the witness was typing. The witness also looked away from the keyboard (at the accused) and, not surprisingly, the result was rubbish.

People with severe communication impairments often have associated or secondary impairments that make them especially vulnerable in testing situations. The most obvious problem is lack of self-confidence together with lack of social experience—many people who can speak can be rendered mute by aggressive questioning. Anyone with spasticity could be rendered so tense as to preclude communication altogether. People with less well known problems may also have their ability to communicate accidentally or deliberately sabotaged. Some people with neurological damage have hyperactive startle reflexes—they go rigid (and some may actually convulse) when there is **a** sudden noise, such as the click of the switch on a tape recorder. Others are visually disinhibited; that is, they cannot stop themselves from looking toward anything that moves within their field of vision. Their communication would be affected if the observers kept shuffling their papers while they were trying to type or point.

Formal Validation Testing

The special needs of each person must be taken into consideration when devising validation testing. The person who does not have

word-finding or recall problems may be able to respond to message passing as a method of validation, but not everyone can handle this particular test. Anne could, Carla could not. Some people require a cue to be constantly present; in these cases a tray of objects may be presented and one singled out for the person to point to or spell with the communication partner when he/she comes into the room. Others, who have difficulty with specificity, may be able to recount the general theme of a story that is read and visually tracked with them while their partners are out of the room. Or, they may be able to type a variety of words associated with a given theme such as "holiday" or answer questions about the attributes of pictures that their partners cannot see. Because word-finding problems are common, every effort should be made to avoid questions answered with names or nouns—"What can you do with it?" is a better question than "What is it?"

One frequent assumption, based on ignorance, is that if an aid user cannot pass messages they cannot communicate. That is a total absurdity. There are many people who can speak and/or type totally independently who cannot pass messages, or who can only pass messages after many rehearsals.

"Carla," who has major word-finding problems, was tested by three psychologists for 11 hours. The most significant test involved Carla answering 40 questions. The answer to every question was a noun. What are the hardest words for people with word-finding problems to retrieve? Nouns. When is it hardest for people with word-finding problems to retrieve nouns? When they are placed on the spot, and have to give a specific answer quickly. Carla failed the test. It might as well have been in Gaelic.[6]

It is vital when seeking validation of communication that several requirements be met:

1. The partner is trained and experienced with the facilitated communication method.
2. The aid user has previously communicated fluently with that partner.
3. The aid user is satisfied that there is a genuine reason for the validation being sought and gives consent to the procedure.
4. The aid user has experience with the validation task required and has demonstrated the skills required by the testing procedure.

Whatever the strategy used, arrangements must be made for frequent repetition of questions. This is vital because the process of

spelling an answer is lengthy, and the short-term memory status of most people with severe communication impairments is unknown.

It must be emphasized that no one test can be given a special privileged status. If evidence is presented that purports to show that a person can communicate, there must be valid reasons given for disregarding it. It is not enough to say that any tests other than tests approved and administered by one team are invalid—evidence must be produced as to why they are invalid. Some tests, such as answering a question, naming a picture, or typing a given word completely unknown to the facilitator, have such a low probability of chance success that a single correct performance is enough to validate the person's ability to use his/her communication aid. Bruce was asked to tell his facilitator, who was out of hearing, the name of his house. The facilitator had no knowledge of the question, so when Bruce typed "I always have difficulty remembering the name of my house." that validated his ability to type with facilitation, as well as confirming that he had a word-finding problem.

The importance of one success needs to be emphasized, and may need careful explanation to people unfamiliar with testing null hypotheses. In adversarial, situations there is a tendency to set arbitrary levels of performance that have nothing to do with the central question which is "Can this person prove he or she can use this communication aid by communicating one thing unknown to his or her communication partner?" Bruce was tested repeatedly—sometimes he answered questions correctly and sometimes he didn't. The people testing him seemed to be operating on the basis that a score of 50% was necessary for a pass. On his last test Bruce scored very badly. This score was seen as outweighing his earlier successes and he was judged to have failed validation.

VALIDATION—WHAT DO YOU DO WHEN SOMEONE FAILS A TEST?

One aspect of facilitated communication that causes concern is that of facilitator influence or cueing. To say that *all* of an individual's communication is tainted by facilitator influence it is necessary to test every facilitator that the individual has communicated with—it is not scientific to say that because it was shown that facilitator A cued the client's communication, therefore facilitators B, C, and D also cued communication. Even facilitator A may not be providing cues all the time.

test failure, he could not have made his Bar Mitzvah or undertaken the regular high school syllabus.

A psychologist asked me why Gina was in the facilitated communication training program. "She's talking pretty clearly and she points beautifully" he said. Yes, she does (though her speech is still not adequate for her to tell her facilitator that she'd been given a present, much less what it was). But she didn't when she started in the program 4 years ago! If she had been tested at the start of the program and failed what would it have proved—that she didn't have the skills that we were about to start teaching her? The answer to the question of what to do if someone fails should be to give them more training. This is an educational program. People won't have the skills at the start that we hope they will have at the end. The goal of facilitated communication training is independent use of a communication aid. The facilitation is used to remedy hand function impairments. These will not be remedied by withdrawing people from the program. The issue should not be the facilitation (though obviously that needs regular review, to ascertain whether users are improving) but the choice of communication aid/strategy.

It is absurd and unjust to deny someone access to communication training on the basis of failure on a given test. It is the equivalent of banning 18-year-olds from driving for life if they failed their first driving test. The communication program may have validity completely separate from the validation of a person's communication. Gina learned to point and her speech increased. Doron benefited by the increase in his attention span from a minute to an hour and the improvement in his eye/hand coordination. Maria started to initiate interactions for the first time.

We are just learning about the *real* language, memory, neuromotor, and concentration impairments of people with severe communication impairments. These certainly affect their ability to undertake various kinds of tests. What we need to work toward is a situation where people take a rational attitude to people starting to communicate with facilitation and are prepared to work through the various problems that occur.

The content of specific communications may have to be treated with caution, pending proof that they did come from the aid user, but lack of proof is no reason to prevent the person continuing to use nonspeech communication. A variety of communication strategies may be used in the hope that the user will find one easier to confirm or to use independently than others. However, initial failure to validate communication using a particular strategy is no rea-

son to drop that strategy from the list of options, especially if that strategy offers more communication potential in the long term. For instance, spelling is the only way in which people with severe communication impairments can say exactly what they want to say. Consequently, it is reasonable to expend considerable effort in developing spelling and typing skills in people with severe communication impairments—as much effort, at least, as is devoted to developing literacy skills in nondisabled children.

Because communication is so important—the most important need for humans after food, shelter, and love—the benefit of the doubt must always apply. Many speech impaired people spend a life time being tested and asked to comply with the wishes/instructions of speaking people. Validation testing can be intimidating, stressful, and counterproductive—use it cautiously and sympathetically!

ENDNOTES

I This would in fact provide more verification than is usually available with foreign language or deaf sign interpretation, where in the nature of things there is no way to confirm with the speaker or signer that the translation is correct.

It is most common for people to worry about the facilitator giving assistance, but the fact that facilitators can also *hinder* communication is often overlooked.

[3] Carla's allegations would have been left in the hands of the police, who would have been unlikely to proceed given the lack of confirmatory evidence.

[4] Anne McDonald was obviously an exception; she had more to gain than to lose. Interestingly, during a later Supreme Court case she objected strenuously to being tested, despite having everything to gain from completing tests that were far less arduous than Carla's.

[5] Print size and multiple choice presentation may need to be varied to cater for visual impairments and to allow for specific selection problems as shown in the OT assessment.

[6] To compound Carla's problems, 20 of the questions were asked via earphone, with no check that Carla could hear, and her facilitator was untrained and had no test experience.

11

Who Did What and to Whom Limitations of Communication Without Speech

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We all know the story of the boy who cried wolf—the shepherd boy who, bored with looking at nothing but a flock of the same old sheep, created a bit of drama and got some attention by pretending that there was a wolf attacking the flock. lie tried it a couple of times and had everybody running in all directions very satisfactorily until the villagers eventually got wise and decided to ignore him. Unfortunately, the next time he cried "WOLF!" there really was a wolf, and the boy (and the villagers' sheep) were killed.

When children or people with disabilities say things we don't want to hear our problem as caregivers, teachers, and therapists is to sort out the real wolves from the pretend wolves. If real wolves are ignored, damage is done. If imaginary wolves are treated as real wolves, damage is done.

If we want to be able to distinguish between real and imaginary dangers we must understand the causes, the nature, and the consequences of severe communication impairments.

DISABILITY

The speech impaired person who uses augmentative (nonspeech) communication has an underlying disability such as autism, cerebral palsy, or Down syndrome. The use of augmentative communication may help the person to communicate more effectively but it does not cure the underlying disability.

The nature of the damage that caused their speech impairments means that some people with severe communication impairments have greater difficulty with some language tasks in all modalities than do speaking people. The ability to recall specific words—especially proper names—is impaired in many individuals. This difficulty may be due to word finding problems or to short-term memory loss. Some individuals with severe communication impairments appear to have problems attending to the detail of what they see in text or what they hear in conversation; thus they may get the general idea, but not the fine details of what they see or hear (not the first time round, at least).

COMMUNICATION SKILLS

Communication competence is not achieved simply through uttering sounds and words. It took us years to acquire this competence through daily activities that we took for granted but that helped to develop and strengthen our communication abilities. Our memory skills, for instance, were developed as children through activities such as getting things for other people ("John, can you get me two blue towels from the cupboard?"), relaying messages ("Tell daddy that dinner is ready"), and preparing for special events ("You'll need to pack your swim suit, zinc cream, and sunglasses for the picnic."). Nonspeaking children often do not have the means or the opportunity to practice these skills. Similarly, they do not experience the fun of participating with others in games and activities that test and challenge communication such as spelling bees, Chinese whispers (telephone), word-games, reciting rhymes, and singing songs, etc.

At the same time as we developed our skills in using words, we also developed our pragmatic skills—all the other skills, that is, associated with communication competence. We learned to look at the person we were talking to, or who was talking to us. We learned when to raise and lower our voices. We learned to be tactful. We learned to expand or change topics. We learned to reflect the content of our conversations in our facial expressions. We learned how to interrupt and when not to interrupt. We learned the consequences of exaggerating or telling lies. The list of pragmatic communication skills goes on and on.

Some of the skills on that list are difficult for people with specific disabilities—people who have difficulty controlling their facial muscles, for example, will not necessarily match their expressions

with what they are saying. Other skills are impossible for communication aid users, regardless of their disability. A communication board cannot shout or whisper. You cannot look at the person you are talking to if you have to keep your eyes on a keyboard. Other skills are not impossible, but are acquired by experience. A novice communication aid user will, not have that experience, and may take years to acquire it. The realities of nonspeech communication are that few communication aid users have the chance to communicate more than a few hundred words *a* day; the equivalent, that is, of 2 or 3 *minutes* of normal speech. Consequently, the usual time taken to acquire communication competence will be extended.

We tend to view everyone through the glass of our own experience, and we assume that an 18-year-old who has never spoken is the same as an 18-year-old who has lost his voice. This is quite incorrect. Whatever the primary disability, it is highly likely that the teenager with severe communication impairments will have learned and experienced language very differently from a nondisabled speaking person. Besides affecting the development of pragmatic skills, this also affects the development of specific communication skills. For example, a teenager or adult with severe communication impairments may never have been able to pass messages, or to give explanations, and these communication skills may have to be learned by the novice communication aid user at a relatively advanced age. The teenager may never have had. a means of asking or answering questions, and so is likely to have gone through childhood without the numerous rehearsals of basic information to which questioning gives access.

It is obvious that asking questions is an enormously powerful means of acquiring information. Young children without speech impairments produce an almost continuous stream of questions, which not only gives them access to information and vocabulary, but an opportunity to practice initiation, clarification, interaction, and listening skills. The ability to answer questions is equally as important. Firstly, it is empowering, enabling the child to make choices in response to questions such as "What would you like to drink?" Secondly, answering questions provides an opportunity to rehearse and review information, and to use attention, listening, and recall skills. How many times does a speaking child answer questions like "How old are you?" "When's your birthday?" and " Where do you live?" before they turn 6? Nonspeaking adolescents who never have been asked any such questions may have difficulty retrieving information never previously required (or possibly not

acquired because of the difficulty of asking for it). The whole concept of providing accurate information to virtually anyone who asks for it, which was drummed into us as children "Speak when you're spoken to!" "Answer Mrs. Smith, now," may be completely foreign to them.

Communication is a sharing process of questioning, making statements, offering suggestions, and giving feedback. People who do not have speech or have limited speech are less able to initiate conversations, ask questions, reveal their personalities, and control social situations. Speech impaired people are often forced to take a submissive role in communication exchanges. Self-esteem and confidence can be affected markedly!

ALLEGATIONS—HANDLE WITH CARE

People with undeveloped or impaired communication skills, whether they are children or adults, often have difficulty getting their messages across. This is frustrating for them, and may irritate those around them, but generally it is no more than an annoyance; however, when the issue is important, the minor annoyance can become a major problem. One issue that seems to cause a disproportionate share of problems for communication aid users and their partners is mistreatment. The problem starts when an aid user apparently alleges that someone has done him wrong.

Such allegations may result from

1. real abuse
2. imagined abuse
3. fabricated abuse:
    a. fabricated by communication aid user
    b. fabricated by partner:
        i. accidentally
        ii. deliberately
4. misunderstanding.

In fact, many "allegations" probably result from misunderstanding.

When we think of the number of times each day we have to ask for more information or explain or confirm utterances, and how often we still misunderstand or are misunderstood, it should be no surprise to learn that any form of nonspeech communication is vulnerable to misunderstanding. Misunderstanding is especially likely

when novice aid users are communicating to novice partners. We can say "That's not what I meant" and "I beg your pardon." but the nonspeaking individual often can't. They may not have the skills, vocabulary, or confidence to do so. The balance of power in non-speech interactions is very much with the speaking partner and it is generally not easy for the nonspeaker to correct a misunderstanding. Individuals who are especially powerless are those who depend on the direct participation of the speaker to get a message out. Mike used an eye-pointing board. He wanted to tell the nurse he would like to go swimming tomorrow. He got as far as I WANT TO GO SWIMMING when the nurse, thinking she had the message, walked away taking the eye-pointing board with her.

The types of misunderstanding possible are many and various. If an individual is using a communication system with a limited vocabulary, the misunderstanding may occur because the user has to make one symbol stand for many concepts, and may only be able to utter black and white opinions, such as "I hate swimming" as opposed to qualified opinions "I don't like swimming if the water is cold." The limited vocabulary may not allow the composition of grammatically accurate sentences. Teresa's mother was worried after a party when 17-year-old. Teresa pointed to "boy bad night dance." She would not have worried in the same way if Teresa had had the vocabulary to say exactly what she meant which. was "The boys were mean last night and wouldn't dance with us."

Spelling is not restricted in the same way; spellers can "say" anything they can spell recognizably. Nonetheless, there are still problems of interpretation. Many of these occur because written language comes without intonation and, body language. A transcript of an everyday spoken conversation is often hard to understand, because it only contains part of the information transferred. It doesn't include intonation, volume, or body language, or the nod of comprehension that led to a sentence being abbreviated. Like the transcript, all nonspeech communication (except manual signing) is bereft of emphasis.

When we read written language we impose our emphasis. Think of the simple sentence "I had some cake." It has four words and you can read it four ways:

I had some cake (but Mary didn't).
I *had* some cake (so don't bother offering me any more)
. I had *some* cake (but I wouldn't mind some more).
I had some *rake* (but I wouldn't mind a biscuit).

If a communication aid user spells it to you, context and facial expression may make the meaning clear. If not, you either impose your interpretation or ask questions to elucidate the message. Misinterpretation in relation to a slice of cake is a minor annoyance; however, virtually every communication using graphic symbols or spelling is vulnerable to similar misinterpretation. It is very important for communication partners to read each message back and check that the interpretation they have placed on the message is the one the communication aid user intended.

Written communication is vulnerable in other ways. Speech disappears. Say something and it's gone. Unless someone records it, it can't come back to haunt you. Unfortunately that's not true of written communication. Tapes can be passed around, mulled over, taken completely out of context, when, because written language does not have facial expression, it is especially easy to misinterpret. (At least if speech was recorded it would still have intonation, and you could gather the surrounding context.) Liz takes the last cake. I say "I hate Liz"—no problem, especially if I smile. However, I type I HATE LIZ and the tape can be passed round, read hours or days after the original incident, and interpreted to mean that I don't want to live with Liz any more. Many people take typing at face value, without questioning the typist about what they mean. The fewer words the person has typed the more dangerous this is. If I

type I HATE LIZ BECAUSE SHE TOOK THE LAST CREAMPUFF WHICH I HAD BEEN SAVING TO HAVE WITH MY COFFEE it doesn't matter if the tape is passed around, because the nature and triviality of the interaction are apparent.

The tendency to take everything that is typed too seriously also causes problems. At my suggestion Sal was given an 18-inch plastic rod by her day center, with the idea that she could hold it in her palm while she typed. I thought that this would help her isolate her index finger and perhaps avoid the need for a facilitator to hold her hand. At her residential unit the supervisor found the rod in Sal's bag and asked her what it was for. Sal made the mistake of making a joke. She typed that she had got the rod to bash the supervisor and another resident. The supervisor took Sal's typing to her superior and Sal was thrown out of the house on the grounds that she had threatened staff and residents!

This leads to another obvious limitation. Typing is slow. People often confuse the length of the message with the length of time it took to produce. A beginning typist may type fewer than 150 words in an hour. Because it took an hour, inexperienced professionals,

who tend to be busy people (teachers, doctors, social workers, police, lawyers, etc.), tend to equate the output with what *we* would say in an hour. in fact, 150 words is the equivalent of only a minute's speech, and you wouldn't find police taking a case to court on the basis of a minute's speech. When considering whether further questioning is warranted before taking any action on an allegation, it is important to consider the quantity of material on which the supposed allegation rests rather than the time it took to obtain it.

People may be naive about the amount of time even a routine conversation can take. Pam, who is autistic, was admitted to a psychiatric unit when her behavior went out of control. The doctor wanted her consent to a medication change. He was appalled to discover that it took him 2 hours to get it, not because Pam was uncooperative, but because she had some questions she wanted to ask about the new medication. As he said later, the whole procedure would not have taken more than a few minutes if Pam had been. able to speak. Questioning a communication aid user about a serious allegation may take considerably longer. Everyone involved needs to be aware of this and the necessary time needs to be provided if injustices are to be avoided.

Unfortunately speaking people are often diffident about questioning individuals with severe communication impairments, possibly because they feel sorry for the individuals and feel that to question them is unfair, that it suggests disbelief. Some of this diffidence probably relates to the pragmatic issues mentioned above. People find it difficult to conduct a conversation with someone who doesn't make eye contact or display the appropriate body language or throw the conversational ball back in the ordinary way.

Before acting on any allegation, it is important to have the answers to a lot of questions, like "Is that what you meant to say?" " What do you mean by that?" "Is this true?" as well as the obvious questions as to who, what, when, and where. Some individuals relate dreams or fantasies, either because they think them to be true, or think them interesting. The fantasy aspect may only come out during detailed questioning when for example the question " Who was there?" might be followed by the response "Hannibal Lecter!" Until such details are obtained, it is absurd to proceed on an allegation. Unfortunately, the problems of severe communication impairment combined with the impatience or inexperience of interviewers means that any such information may be obtained by leading questions or, even worse, questions just requiring a "yes" or "no" response. This is very dangerous, as many people with life-

long disabilities have learned compliance, and may tend to agree with whatever is put to them.

In interpreting output, people often overlook the skewed experiences of many people with severe communication impairments. Unable ever to ask questions or take part in peer-group conversations they may have a pretty funny idea of what the world is all about. Lyn, a young adult, typed that a policeman had raped her mother. Fortunately her partner did not react immediately, but questioned her further. It turned out that Lyn thought "raped" meant the same as "flirted with!" Many "allegations" may be the result of imperfect understanding of the meaning of the words used.

Some misunderstandings occur because partners arbitrarily decide when a communication is complete. I was rung recently by a teacher who said he thought he had a case of sexual abuse on his hands. A student had just typed to him that "Dad is fucking me." I suggested he go back and ask her if that was all she wanted to say. He rang back to say she had added "around" and gone on to complain about her father telling her off for inappropriate screaming!

There is another problem related to allegations that has nothing to do with nonspeech communication, but a lot to do with the society we live in. Currently there appears to be a heightened awareness of the possibility of sexual assault, especially sexual assault by caregivers. Many individuals working with people with disabilities appear to be very sensitive to any language of a sexual nature, possibly because they don't expect this language to be used by people who live "protected" lives. Mary wanted to try out some of the words she'd heard in the high school playground at recess, so she typed PRICK FUCK CUNT. Her integration teacher called the school counselor, who assumed the worst after asking "clarifying" questions such as "Whose was the cunt?" and "Whose was the prick?" produced the answers MARY and DAD. Later the speech pathologist ascertained that Mary understood the question structure " Whose was the . . ?" to mean "Who has a . . . ?"

Unfortunately, people's responses to nonspeech communication in any form are often irrational, Many people seem to believe that because something was typed it is true, and that if it is shown to be untrue then that means the person can't type. The third option, that the person can type, but tells lies or makes mistakes just like other people, is frequently overlooked. Bound up with this is our society's attitude to written language, which is generally taken as more serious, more considered than speech. Australian

and American police have acted on typed material that they would have dismissed out of hand if it had been spoken.

READING HANDS, NOT MINDS

Another example of willingness to give more credence to something if it's typed is the belief in telepathy that has recently appeared in a few centers where facilitated communication is used. Typically one or more facilitators believe that one or more aid users are reading their thoughts. Sometimes the facilitators have asked the aid users if they are telepathic and have been told "yes."

A similar incident involving a DEAL client, "Jill," arose some years ago. Jilt was attending a regular secondary school when some of the facilitators who worked with her in class said she was "getting into their thoughts." Jill's mother also thought she was telepathic and gave examples of situations in which Jill had typed out information that was only known to her. At this stage Jill was receiving only minimal facilitation from her mother, generally typing just with her mother's hand on her knee. When I asked Jill and her mother to demonstrate Jill's "telepathy" it became clear that Jill was picking up physical cues from her mother. Unconsciously Jill's mother was moving her hand toward the next letter she expected Jill to hit in an effort to speed up her typing, in the same way as a passenger may press a nonexistent accelerator or brake to speed up or slow down an incompetent driver. As she thought Jill was telepathic she expected Jill to type what she was thinking, so the process became self-reinforcing.

Jill admitted that she had been trying to get cues from her school facilitators, who held her wrist, initially so she could get the answers to school work, and then, once she discovered that it was possible, for fun. Jill knew a fair bit about her facilitators. She would introduce a likely topic into her typing—if they jumped to attention she would continue exploring it, if not she would erase the typing and it would just seem like a loss of concentration.

Jill's mother was quite distraught by this stage. She was worried that all the typing Jill had ever done had been cued, and that Jill had never been communicating. I knew this wasn't so, both because Jill had certainly never typed my thoughts and because of the development in her spelling and grammar over the years. To show her mother that she really could type Jill did some message-passing tests before going on to type completely independently,

with no physical contact at all from her communication partners. The reports of Jill being telepathic stopped at this point.

Jill's story is instructive for several reasons. It shows how stories of telepathy can arise as the result of transmission of information from facilitator to aid user by subtle physical signals. Second, it was clear that Jill was far from a passive participant in the process—she actively sought cues and used her considerable literacy skills to capitalize on the cues she did pick up by using sophisticated ward and sentence completion strategies. Third, "hand-reading" was a very rewarding activity for Jill—not only did she get excellent marks in school but her "paranormal" powers made her the center of attention. She happily went along with the story that she was telepathic until the school moved to disallow her exam results on the grounds that she had picked up the answers from her facilitators, and most facilitators refused to work with, her because she was invading their privacy. Finally, the "hand-reading" was possible only because Jill was getting more support than she needed from her facilitators.

To date I have not heard of any examples of "telepathy" in facilitated communication training that cannot be explained, by the processes that operated with Jill. in any instance where paranormal abilities are suggested for or by a communication aid user the first step should be to examine the facilitation process closely, both to see if a mechanism for transmission of information can be discerned and to see if the level of facilitation can be reduced. All facilitators involved should review their practices, referring back to the basic principles of facilitation, especially monitoring eye contact, pulling back, and reducing support. It is also important that new facilitators are not told to expect "telepathic" communication, because this expectation may lead them, as it did Jill's mother, to create it unconsciously.

DON'T THROW OUT THE BABY WITH THE BATHWATER

Nonspeech communication, in any mode, is limited and error prone when compared with speech. Very restricted communication is just as likely to produce problems as more fluent communication, but the problems will be different. Imperfect communication certainly produces problems for the person with communication impairments, but, unlike silence, it also produces problems for the rest of us. There is a real risk that our failure to handle the

of imperfect communication may result in us imposing sanctions on people with severe communication impairments and disposing of our problems by shutting them up.

Facilitated communication training is a strategy for teaching people how to use communication aids. It does not cure anything. It is not a particularly good method of communication. However, it has allowed many individuals to communicate verbally for the first time in their lives. Communication involving facilitation is imperfect, but, for some people, right now it's the best option. Until we can find a better alternative, it is up to us to make facilitated communication work as well as possible.

Some basic principles for facilitators to follow are set out in Appendix C.

12

Case Studies

CASE STUDY 1—IAN

Ian was almost 12 when his mother brought him to DEAL. He wore a number of labels. He had been assessed as having cerebral palsy, and attended the cerebral palsy clinic at the Children's Hospital, but had been rejected as a student by the cerebral patsy school on the grounds that he didn't have it. Whether or not he had cerebral palsy, it was obvious that he had significant neuromotor impairments—he had difficulty walking, and an unusual gait. He had also been assessed as severely intellectually impaired, and was attending a special school for children with IQs under 50. He had not been formally diagnosed as autistic, but he had a number of autistic traits—he was obsessed by electric lights, gazing at them and making stereotypic movements with his fingers, he rocked back and forth, and his attempts at speech were unclear but very repetitive. Ian's noises and rocking were certainly not the behavior of a typical 11-year-old and contributed to an impression of retardation, but these behaviors were offset by his sense of humor and his response to social situations. He was often the first person in the room to laugh at a joke.

Ian had very little functional speech. Very occasionally he was able to get out a clear sentence, but most of the time his speech was unintelligible, only the odd phrase or single word coming through. He had been involved in a manual signing program and could recognize 50 or more signs, but he did not produce anything like this many himself. He had been working with a speech therapist on word recognition, and over the years his mother had done much work with flash cards.

My notes from his first session in May 1986, read

> Ian is very distractible. He was fascinated by the light shade, which was the same as one he had at home, and in consequence we worked most of the time with the light off. Once having made eye contact, my eyes and face engrossed and amused him and it was often necessary for me to avert my eyes to get him back on task. Unless major efforts are made to get and keep Ian on task he will point randomly without looking, leading to a high error rate. If Ian is prevented from pointing until he is on task, his error rate drops markedly.

Ian had a habit of forcing eye contact—he would make a noise, you'd look, he'd push his face up to yours and almost grab your eyes with his. It was a mistake, I found, to turn to him when he vocalized, and I found that deliberate eye avoidance until he was back on task worked much better. Ian used this strategy very effectively to avoid tasks and to get attention. His concentration was also interrupted by his frequent attempts to speak, which generally consisted of the same phrases—"I will . . ." or "I would like .. ." tapering off into incomprehensibility.

Ian demonstrated the use of his wordbook with his speech therapist without much enthusiasm. The wordbook had five words to a page, and if Ian was asked to point to a named word he did so correctly 50% of the time. I put some word cards out in pairs. When I held Ian's left wrist to keep him on task and to prevent his stereotypic hand movements he used his right hand to point to the nominated word from each pair with 100% success.

Ian's performance on word recognition was pleasing—for a person assessed as having severe mental retardation, he was doing very well—but it did not lead me to question his diagnosis. Up to this time DEAL had been working largely with people with severe physical impairments, and Ian was one of the first children we had seen who was able to walk. His physical skills seemed relatively well developed—well developed, at least, for a child diagnosed as having cerebral palsy—and if he was intellectually able to do something, such as recognize signs, then there appeared to be no physical reason why he could not make use of that knowledge. We had not yet appreciated the significant effect motor planning problems could have on the performance of people with developmental disabilities. My comments at the end of his first session were

> Ian's present communication program seems most appropriate. . . In addition to direct communication benefits it may provide motivation for Ian to come to grips with some of his unproductive behavior and show more of his abilities, which may be greater than those he is using currently.

Ian did not come back to DEAL for 6 months. During that time, we had seen many more people like him—people with little or no functional speech who had been diagnosed as having significant intellectual impairments, who could walk, but who nonetheless had hand function impairments that prevented them from demonstrating all their skills. We were thinking about apraxia, and we were learning not to restrict the options offered to individuals because of the labels they wore. As a result, we had developed a different and more open-ended assessment strategy. It was based around a children's toy, a talking computer. The therapist presented a series of questions, spoken by the machine, which the student could answer by pressing the correct item on the display. On this session I supported Ian's right wrist. His index-finger pointing was fine, and in fact once his wrist was supported he had excellent hand and finger movement. You could hold him in one position and if the area to be covered was small he would swing his whole hand or finger to the key or item that he wanted. He completed the color sheet on the Talking Computer, where the machine asked him "Show me the word blue" or " Show me brown," and the picture sheet, where it asked "Show me the car" or "Show me the word house." On the sheet that had letters of the alphabet he was able to point correctly to the letters that I named. I asked him if he had anything he wanted to try and spell. He spelled I CANT FIND LETTERS—which wasn't really true, although he had had to peer down and hunt around a bit to find them. He then spelled. IL WRITE and IM IDIOTICK.

I then brought over a Canon Communicator, a mini-typewriter, which had a plastic guard over the letters that made it impossible to hit two letters at once, helping Ian to be both more accurate and more independent. I asked Ian about the way he kept saying "I will . . ." or "I would like . ." and asked him to type what he wanted. He didn't, and, the repeated phrases did not appear to indicate an actual need. I asked him why he was saying this if he didn't in fact want anything, and he typed I SPEAK SO YOU DON' T.

On his next visit Ian spelled with a volunteer holding his wrist, and on the visit after that, a speech therapist. Some of his spelling

was phonetic, particularly of unusual words he may not have seen written down—rhinoceros, for example, was RINCEROS, which was a good attempt. His mother asked him to tell the therapist the name of a friend's dog, which was a check both on his memory and his ability to get out something that the therapist didn't know. Ian spelled BO: the dog's name was Beau. Shortly afterwards Ian started spelling to his mother, communicating with her as fluently as he did with any of the DEAL staff.

Ian's mother was frustrated with Ian's situation at the special school, where the staff appeared unwilling to undertake any communication programs, and had applied for him to attend a regular primary school for a couple of half-days a week in 1987. If he went to a regular school not only would, he have the other children to model his language on, but while he was there he would have a one-on-one integration aid to work on his signing and his communication. This had all been set up before there was any thought of Ian communicating by spelling, and he spelled his first words just before he was due to start at his new school. At the beginning Ian was very noisy in the regular classroom, it was difficult to get him to do things, people really didn't know what level to address him at, and he was initially perceived very negatively. In particular, Ian had a problem with bursts of laughter. They were quite disruptive at DEAL, and must have been very disruptive in the classroom. I was never sure if they were involuntary or whether they were intentionally attention-seeking or disruptive.

Ian had been placed in fifth grade, and so was about 2 years older than the other children, but because of his relatively slight build didn't stand out as significantly different. His classroom behavior was a major problem and at first led to his being given very simple activities that were well below the level of the activities being done by the other children and well below his own ability level. He badly needed to communicate.

Six weeks after he had started at primary school his teacher and his integration aide came to DEAL and we arranged to teach the aide Ian's communication strategies. In a few weeks Ian had achieved fluency in spelling with his aide providing wrist support. It was soon possible to start fading support, and shortly he was able to spell with his facilitator's hand under his elbow. A speech therapist asked Ian what should be done about the noisy laughing. He spelled IF I KEEP LAUGHING TELL ME "KEEP QUIET"--VERY POLITELY . Laughter continued to be an issue for a while yet, and a month or so later Ian spelled out I AM A FOOL SO I DONT HAVE

TO DO ANY WORK . As Ian started demonstrating his real ability level his behavior in the classroom began to improve, and the amount of time that he was attending regular school was increased.

Many of DEAL's clients had neuromotor problems that were not necessarily apparent to the untrained eye, but in Ian's case his difficulties in walking had at]least alerted everyone to the fact that he did have a genuine neuromotor problem and there was acceptance of the fact that he would need continuing physical and occupational therapy help. In June the school physiotherapist came and compared notes with our physiotherapist. Our physiotherapist hypothesized that some of Ian's rocking or stereotyped behaviors might be an attempt to achieve more proprioceptive feedback, and she tried standing behind Ian and pressing down firmly with her hands on his shoulders while he was typing. While he didn't like it, he spelled more fluently and quickly when given this strong proprioceptive input. The physiotherapist also commented on his poor eye fixation and tracking, his undeveloped hand function, and his general apraxia. It was decided to incorporate coactive bilateral or unilateral hand function tasks and more proprioceptive stimulus into his ongoing physiotherapy program, which would have been fine if Ian had been cooperative, which most of the time he wasn't.

By this time Ian was attending the primary school for five mornings and one afternoon a week. He was doing regular classroom work, and had reached this standard in ten weeks. He did have catch-up lessons in math twice a week, but obviously it wasn't a matter of him learning everything as he went; what was happening was that Ian's new ability to use a keyboard was allowing him to demonstrate language and reading skills that he already had.

While other DEAL staff continued to work with Ian I didn't see him again until September 1987, when I was brought in to read him the riot act because he wasn't doing much work at school. He was quite sensible throughout the session—no giggling or laughing, and only a couple of attempts at irrelevant speech. His eye contact was normal. Increasing Ian's independence was a priority; I found that Ian was able to do some spelling on the communicator without arm support but with firm pressure from my hands on his shoulders to provide proprioceptive input. This was successful for a short time, but three problems were obvious. First, he had difficulties lifting his arm against gravity and maintaining it in position against gravity, as he needed to do if he was to access the keyboard with one finger. Second, his forearm tended to roll outward leading to his thumb and index finger swinging up and away from the keyboard, so he might

be pointing at a key but not be able to apply any pressure to it. This external rotation had been corrected by Ian's facilitators without the facilitators even realizing that they were doing this. Third, his wrist tended to bend, resulting in his hand dropping and his forefinger bending and, again, a difficulty in applying pressure, so that he might be hitting the right keys but not hard enough and his typing would come out with every second letter missing. When Ian's arm was supported, either at the elbow or by holding on to his sleeve, his forearm and wrist position normalized. This gave him stronger and easier finger movement. I tried sitting next to Ian and raising my knee so he could rest his arm across my knee as he was typing. That was quite effective, but there were going to be obvious difficulties using this method in the classroom. There didn't seem to be an immediate simple answer. We suggested various activities, such as poking holes in lumps of clay, that Ian could do to improve muscle tone in his finger, and others, such as lifting weights, that he could do to improve his overall arm and shoulder strength. These, and continued typing practice, produced some improvement.

By the end of his first year of spelling and, typing Ian could type with just the touch of the facilitator's finger on his shoulder (and it wasn't clear why he even needed that) providing his communication aid was on a table that was lower than the armrest on his chair so he didn't have to lift his arm against gravity. When he had this little support, however, he was slower, and he couldn't sustain the effort for very long. Furthermore, independence reduced the accuracy of his pointing, and that meant he had to use larger squares for the letters. The only portable aid we had with letters this size was an early speech synthesizer, the Vocaid, which had letters about 2 cm square but had no written output and so while perfectly adequate for social conversations was useless for producing schoolwork. Ian himself said that he preferred being held—LESS ARM SUPPORT IS HARD WITH ARM SUPPORT I FEEL BETTER.

In 1988 Ian was a full-time student in Grade 6 in a regular primary school. DEAL continued to work with him and to provide information and training to his teachers and aides. He was seen by our occupational therapist to assess his hand function and to advise him on the best keyboard for him to use. She commented on the difficulty that Ian had with praxis—with getting the correct movement to happen. The attempt was clearly there, but the execution was flawed. Ian scored 37/75 on the Upper Extremity Function Test with his right hand (his dominant hand). Our technician started to design a chair especially for him with an adjustable arm-

rest for arm support and a stand for the communication aid.

By this time there was disquiet among some professionals in Victoria at the results that were being achieved by Ian and other people with similar diagnoses who were attending DEAL. As a result a government agency, the Intellectual Disability Review Panel (IDRP), was asked to conduct an official inquiry into what they called "assisted communication." Ian was concerned that DEAL was under threat, and in August he typed a message for the DEAL Annual General Meeting.

> A chance to communicate is ever so important. You should never deny someone the opportunity to talk. I think that my life is just starting to come together now. I hate having people doubt that I can understand, but it is so hard not to behave as if I was stupid.

The Panel tested 6 DEAL clients in the latter part of 1988. Ian was one of them. By this stage Ian had been facilitated by numerous staff, aides, and family members, and he typed successfully with one of the investigators facilitating him. The test he was given to confirm that he rather than his facilitator originated the typing was simple, quick and straightforward. The investigators gave Ian a present while his regular facilitator was absent—a book called *The Man From Snowy River* containing a well known nineteenth-century Australian poem about a stockman rounding up wild horses. When the facilitator was called back into the room he had to tell her what he had been given. Ian typed "BOOK." Asked what the book was about, he typed "EARLY DAYS ." The investigators' conclusion was that

> It is clear from the above message passing exercise that this client's communication whilst using assisted communication has been confirmed. *(Intellectual Disability Review Panel,* 1989, p.38)

Overall, four of the six DEAL clients tested by the IDRP validated their communication using facilitation.

With increased typing fluency Ian's sense of humor started showing itself in creative writing. Near the end of 1988 he entered a competition conducted by Telecom, the Australian Government telephone company, for a piece of writing about telephones. The competition was open to anyone, adult or child, and Ian won a prize with a quirky poem that satisfied Telecom's needs perfectly.

```
I'm in the bath midst clouds of steam
enveloped in a rosy dream.
Ring! Ring! 0 dreaded sound I hear
And dripping wet, a towel I wear.
"Do you know the price of gold?"
Wrong number! Now the water's cold.
```

Ironically, because of Ian's speech impairments he himself had never been able to use a telephone.

In 1989 our technician completed Ian's specially adapted chair. It certainly worked in one way—using it Ian was able to type more independently, needing only his facilitator's hand on his shoulder—but in that year Ian started secondary school, and instead of being in the same classroom all day he had to move between classrooms. Ian's weak shoulders and poor balance precluded him from carrying anything substantial; his aide already had to carry a bag of books and a typewriter between classes, and carrying a chair as well was obviously impractical. We tried a detachable armrest, to be used with the school chairs, but even that was too much. In any case, secondary school demanded such quantities of written work that to some extent independence had to be sacrificed to speed. Provided the keyboard was low enough Ian could by this stage type with just a facilitator's touch on his head; indeed, he could type briefly with no contact at all. However, this was very slow. If he had support at the elbow his output was much faster. Ian not only had to do the same amount of homework as the other children, only more slowly, but also had to catch up after school on any work he hadn't completed in the classroom. Greater independence with less speed could mean he would have 4 hours work every evening, and he was only in seventh grade.

When Ian first started at secondary school all the students were asked to draw pictures of themselves. Because Ian didn't have the hand skills to draw a picture, he wrote it.

ME

```
This is a portrait of strange me.
I cannot draw, so you can see
I'll have to paint it all in words.
My eyes are blue, my hair is fair,
My type of speaking is quite rare,
A skinny weed I seem to be.
Inside I am a man of dreams -
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```
Of fearless deeds and cunning schemes,
A handsome superman
In fact, when in a pensive mood,
I'm better far than Robin Hood
Or even Sherlock Holmes. I'm
Liberace on the keys And white
Shark Norman on the tees,
Jack Brabham in the car.
So when you meet me at the school
I may be Armstrong in the pool -
So look out for the
                        SPLASH!
```

Norman, Brabham, and Armstrong are Australian sporting heroes.

By this stage DEAL's involvement with Ian was limited to training his new integration teacher and integration aides, and occasional troubleshooting. Ian had gradually become quieter in the primary school classroom, but his noises and inappropriate laughter reappeared when he started secondary school. While he was able to type quite fluently to his new aides, Ian was not doing much work in the classroom, and one of our speech therapists went down to his school to observe him. She felt that one of the reasons for his lack of . cooperation was that he couldn't do some of the work, and she instituted detailed language testing. It appeared that Ian had some difficulty with reading, in part relating to visual coordination problems and in part to visual acuity. Ian got glasses shortly afterwards and his problems improved significantly. He also showed some minor difficulties with short-term memory and word retrieval, and some difficulties with decoding some complex language structures. These problems had affected Ian's ability to perform in the classroom. The speech therapist asked Ian about it. He said there had been a problem, that he hadn't told anyone about it because he felt he would be excluded from the school, and he didn't want her telling anyone either. There was in fact no risk of exclusion and Ian was doing well with the work that he did do. DEAL recommended some changes in the way work was presented to Ian—that printed material be enlarged on the photocopier, that distracting peripheral material be removed, that he be given help in following along the line when reading either by having other lines screened or by having a ruler below the line he was looking at. The problems gradually resolved, or perhaps more accurately accommodations were found.

In 1990 Ian won a certificate of distinction in a schools science

competition for eighth grade students all over Australia. His academic work was perfectly satisfactory, but other problems were pushing themselves to the fore. Ian was older than the other students in the class, because he'd started at regular school much later. His classmates were 13 going on 14, hitting puberty and becoming very conscious of Ian's differences, and Ian, now 16, was also increasingly aware of the things that the other students were doing and he was missing out on. At the end of the year Ian wrote a follow-up to his earlier self-portrait.

Daydreaming

Sixteen years of super dreams
Have faded to reality -
No longer images of fame
Drift through my personality.
Once I loved to sit alone,
Dreaming I was flying high
Taking capsules to the moon,
Fighting Rambo! Now I sigh.
Each day I was like a super scout,
Making the world a better place,
Playing tennis just like Cash
In every game I held the ace.
Cached in my mind, a mighty fund
Of stories with myself as hero -
Now at last the sad truth dawns;
Down my hopes have gone to zero.
Here I am, a weakling lad.
What replaces all my dreams?
Earthbound, speechless, without friends,
A teenage misfit in blue jeans.

At around this time his diagnoses were reviewed. His pediatrician diagnosed him as autistic, and the label of intellectual impairment was removed. People with autism are sometimes said to be unable to understand human relationships, but Ian seems to have a grasp of them at about the level of his peers. In 1992 he wrote about his very nice sister.

My sister broke up with her boyfriend last week and she is a real pain since then. I like Tommy living with us, sometimes he would play

ball with me and I sit and watch him do his drawings. My sister is a fool and lazy, all she cares about is herself and her ugly dogs. I wish she would like me better, she hates me I think. I wish she would take me out for a drive sometimes in her nice car and meet her friends.

My Sister

My sister is a fool.
Just as silly as her dogs.
Poor old Tommy got thrown out the other day
  to his dismay.
I miss him terribly. At least he was sane.
As for the dogs they could have gone too.
Oh listen to Lisa weep.
But why? She threw him out.
Oh God I wish she'd get married and move
  away.
That's my sister. Crazy —
Doesn't even know when she had it good.

The Victorian Certificate of Education, the final assessment for secondary school students, extends over 2 years, and Ian will take at least 3 years. He is about to conclude his 1st year (1993). Because of the quantity of work involved, he is able to do only a small number of subjects, but his results to date are quite satisfactory, despite some difficulty in getting up to speed with a new aide.

As speed is of paramount importance at this level, independent typing is again taking a back seat. Despite having a lot of occupational therapy input over the past few years, Ian is still very significantly slower if he types alone or with less than elbow support. Perhaps if he had started working on typing and arm and hand function much younger, he would now be able to type independently at a reasonable speed.

Subjectively there appears to have been an increase in the number of appropriate spoken responses Ian makes. Certainly there has been a significant diminution of inappropriate speech, noises, and giggling, though all can still recur, along with his stereotyped hand flapping, if Ian is excited or tense. Ian's eye contact is good, and he uses nonspeech gestures such as shaking hands or giving five appropriately.

Ian's story illustrates the value of a multidisciplinary approach to nonspeech communication. He required input from almost every team member and from every discipline. His development parallels the development of facilitated communication training at DEAL, in that Ian was one of the clients we learnt from and practiced on. The challenges for the future are for Ian to find a satisfying role after he finishes school, and for us to find a way for him to access an appropriate communication aid quickly and independently. A small laptop with word completion and prediction strategies and voice output may offer him most in terms of empowerment.

CASE STUDY 2—PAUL

Paul was 12 years old and in sixth grade at his neighborhood school when he was brought to the communication center by his parents in September 1989. His parents were in their 40s and had professional qualifications. Paul was the second of their three children. He has Down syndrome.

Paul's gross motor development was only mildly delayed and he walked alone at 18 months. He said his first word at 18 months and his first two and three word utterances at 24 months. As a toddler, Paul's speech varied from day to day, and this pattern continued through his primary school years. Sometimes he spoke in sentences and initiated conversations. On other occasions he seemed to have difficulty giving one word answers to questions. Paul had speech/language therapy for an hour a week for 2 years between the ages of 6 and 8, when all therapy was discontinued because of lack of progress. At age 12, Paul would occasionally utter a complex sentence; more commonly he would use two or three word utterances, and sometimes he wouldn't even manage that, responding to questions not at all or with gestures. While Paul had some articulation problems his speech was generally intelligible. To some extent his speech appeared to reflect his muscle tone, which was variable. On days when Paul's body almost seemed too heavy for him to move, his speech was more limited and, less clear, and he didn't initiate conversation or movement. On days when he was full of energy, his muscle tone was higher and he spoke far more. While his oral language still wasn't normal, and he still couldn't say everything he wanted to say, which frustrated him, he could speak when he was spoken to and he would spontaneously ask questions and make comments, displaying a wicked sense of humor. How-

ever, even when he was at his most vocal, his responses to complex instructions and to jokes on subjects such as politics indicated that his comprehension was well in advance of his speech production

One extra problem plagued Paul and his family. He would perseverate and say the same word again and again. "Banana" had been the first word he'd said at kindergarten, and had been much praised. Encouraged, he said it so often that it became automatic and came out at all kinds of inappropriate moments. Paul was not beyond using "banana" deliberately to stir his parents; unfortunately, every time he did so made it more likely that it would come out when not wanted.

Paul had done a modified school curriculum at the local primary school. He sat in with the class, but he wasn't expected to do everything they did. At age 12 he had writing skills at about a 6- or 7-year-old level. His writing showed motor planning and perseveration problems. He could not read aloud but he spent a lot of time turning the pages of age-appropriate books. His family watched him with amusement and thought that he was imitating his sisters. His mother said that he could play the piano a little as a result of long-term teaching, but had difficulty tying his shoelaces. He was independent and walked to and from school by himself.

Paul was due to start at secondary school in February of 1990. His parents and teachers were concerned as to how he would cope both socially and academically in his new school and were seeking help with his communication. At this stage, his parents were looking for augmentative strategies that could help Paul make himself understood. It had been suggested that Paul use Australasian Deaf Sign. (In Victoria the Makaton sign vocabulary [Grove & Walker, 1990] is probably the augmentative strategy most commonly used with people with Down syndrome **[Iacono** & Parsons, 1986]). However, several important considerations had been overlooked. Communication partners fluent in sign were not available in a regular secondary school. While it is possible in a primary school to teach sign to the signing student's class and teacher this is more difficult at secondary level, where the student moves from class to class. Also, it was difficult to answer schoolwork-related questions in a restricted sign vocabulary, and the signing required certain motor skills (Klein, 1982). When asked to imitate a simple hand posture, holding up both hands with the index fingers extended and the other fingers flexed, Paul was unable to do so and had to use his left hand to hold down the fingers of his right hand to achieve index finger isolation. This did not mean sign acquisition would be impos-

sible, but it did raise significant questions about the ease with which Paul would be able to learn sign shapes.

Like most older children and adults I have seen with severe communication impairments associated with a diagnosis of intellectual impairment, Paul appeared to suffer from a lack of self-confidence. When spoken to, he hung his head and "went blank" or feigned deafness. Initially he made no apparent effort to do anything I asked. He was sullen and uncooperative until offered a toy, My Talking Computer, which had a voice. My initial assessment was based around this toy, which can be used to ask questions that explore the student's knowledge of concepts from picture recognition to composing sentences by selecting written words. After successfully completing all the assigned tasks Paul typed his name, and typed I CAN READ I GET SILLY I CANT STOP SOMETIMES SCHOOL THINK I'M STUPID on a Communicator. He had considerable difficulty isolating an index finger to hit the letters. This was remedied by having him hold a rod in his palm with his other fingers. Paul's communication partner held the other end of the rod to compensate for his low muscle tone and endurance (and to stop him from fooling around). Testing showed reading comprehension appropriate for his age. This is not exceptional; Buckley (1985) cites a number of examples of children with Down syndrome who had reading comprehension skills equal to or in advance of their age peers. Paul's spelling was poor but his vocabulary appeared to be above average and he used standard syntax.

Paul had a bad habit of regressing to immature behavior whenever he felt anxious. Whether he felt anxious because he was in a new situation or because people were in fact babying him, the behavior was unproductive. Toward the end of 1989 Paul paid a number of visits to his future secondary school. His behavior was inappropriate. When asked to do things he laid down on the floor and refused to budge, he said "banana" a lot, and he demonstrated few skills.

Over the 6 weeks of the Christmas holidays Paul communicated fluently with all of his immediate family by typing on a Communicator. In that time he used the Communicator everywhere he went, with his extended family, with neighbors, and with friends. He was reported as walking taller, looking people in the face, and responding, orally or on the Communicator, when spoken to. Paul attributed the change to his new means of communication. His family reported that they started to interact with him differently as he showed them unexpected capabilities and understanding through his typing.

By July, 1990 Paul's new teacher, who had been dreading his arrival, was able to say, "Now he's just another kid." His contact with the communication center was limited to monthly communication groups in which he had no hesitation in expressing his opinion: "I INSIST ON ACADEMIC [WORK] ON THE NEXT SESSION BEING HELD HERE AND AM I DAMN WELL GOING TO GET IT." He no longer had a modified syllabus. In December 1990 his best examination result was 90% in German, which was a new subject for all the students. He could type short answers without any facilitation, but he tired quickly. in most classes he was accompanied by an integration aide. If she was not there and he needed someone to hold the end of the rod when he was typing longer answers, he just asked one of the other students to help. In 1991 his mother and teacher reported that Paul was speaking more and that his spoken vocabulary had increased. Clunies-Ross (1990) found that the reading skills of young children with Down syndrome could be used to improve their understanding and use of spoken language. Paul generally introduced new words into his oral system after he had typed them, though he certainly has not said every word he has typed, and he still has problems reading aloud. A speech/language pathologist has recently suggested that he has significant oral, dyspraxia.

By 1991 Paul no longer had problems with index finger isolation and his tendency to perseverate on selections had abated. Consequently it was possible to administer a Peabody Picture Vocabulary Test—Form M (Dunn Er Dunn, 1981) with no facilitation. To ensure scanning, each of the four plates was indicated by the examiner before the question was asked, and Paul was encouraged to pause before responding. His score was above the 99th percentile, confirming the initial impression that Paul had an excellent vocabulary.

Paul's communication training continues in 1993. He needs to become fully independent in typing, to augment both his speech and his handwriting. He also needs quick ways of getting across • routine messages such as lunch orders on days when his speech lets him down. Communication wallets containing words and phrases specific to different situations need to be developed. Paul also has to learn to select the appropriate communication strategy for each situation, out of speech, gesture, communication wallet, and typing. The need to select the appropriate mode became obvious when Paul, in midadolescence, started swearing at his aides on the Communicator. As the evidence was incontrovertible, he was frequently suspended from school. If he had sworn in speech, he might have gotten away with it.

THE CHALLENGE

Ian and Paul are two individuals with severe communication impairments who had been judged to be respectively severely and moderately intellectually impaired. Training in nonspeech communication has enabled both of them to challenge the labels they had been given. Each had different hand function impairments that affected his ability to use augmentative communication, and each used facilitation to circumvent these impairments. For communication training to be successful it was as necessary to examine and treat hand function as it was to assess speech/language. Their experiences suggest that individuals who have both severely impaired oral language and impaired hand function are especially vulnerable to misassessment of their intellectual functioning.

The achievements of Paul and other students with Down syndrome who have been given alternatives to speech and writing add to the considerable body of literature drawing attention to "unexpected" achievements by individuals with Down syndrome.(Clunies-Ross, 1986). To date, it has been assumed that, while there may have been an overall underestimation of the potential of individuals with Down syndrome, only a small group of "higher functioning" individuals have normal, or borderline, intelligence. This small group may consist of those individuals who have unimpaired, or less severely affected, speech and fine motor skills, thus enabling them to attack standardized tests more successfully. This could parallel the earlier experience of another diagnostic group, individuals with cerebral palsy.

Sixty years ago the received wisdom was that the severity of the physical impairment in cerebral palsy mirrored the severity of the intellectual impairment. Now, with the advent of electronic communication and mobility aids, it has become clear that there is no necessary correlation between the severity of the physical impairment and intellectual status. Many individuals with cerebral palsy without intelligible speech or functional hand skills have successfully completed college. Whether such academic achievements are possible for any individuals with Down syndrome cannot be known with, certainty until the first group of students who have had their expressive impairments addressed from infancy has proceeded through the regular school system.

Because Ian and Paul are ambulatory, they needed easily portable communication aids that they could access with their hands. Facilitated communication training has provided them with

a means of communication while they develop the necessary accessing skills. Other DEAL clients who initially required similar levels of facilitation are now typing independently, and this remains the goal for Ian and Paul. Until they are independent their ability to communicate, and the influence exerted by their facilitators, may be questioned (IDRP, 1989).

Johnson (1989) and Biklen and Schubert (1991) describe the use of similar facilitation techniques for similar reasons by children and adults assessed as intellectually impaired and/or autistic in Denmark and the United States. The incidence of treatable fine motor problems and speech/language impairments in older children and adults will presumably be less in localities where all preschoolers with development disabilities are given thorough neuromotor screening and have access to remedial programs. Even with the best of early intervention programs there will still be children with severe communication impairments requiring augmentative communication; however, concentration on the preliminary skills needed for manual signing and aid access, together with a positive attitude toward the potential of children with severe communication impairments, would significantly reduce the need for facilitated communication training.

The outcomes of individuals using facilitated communication suggest that further research is needed in many areas: the nature of the association between impairments of oral language and fine motor skills; the adequacy of the intellectual assessment of children with severe communication impairments; the incidence of remediable neuromotor problems in individuals assessed as intellectually impaired, and the informal acquisition of literacy skills through environmental exposure. Lastly, many questions directly concerned with the facilitation process need investigation.

Ian and Paul had one thing in common. Their lives were at stages where it was impossible to put their communication on hold while lengthy training programs were implemented, even if the resources had been available to mount such programs (Beukelman, 1991). Haney (1988) proposes a 5- to 6-year time frame, starting from the initial augmentative communication intervention, for the achievement of communication competence, with aid use *commencing* in the 3rd and 4th years. Facilitated communication training is not an ideal solution to severe communication problems, but these individuals do not present ideal problems. Despite its obvious limitations and disadvantages facilitated communication training did enable these individuals to achieve goals previously thought to be

impossible. It is a teaching strategy that should be considered for individuals with severe communication impairments whose hand skills limit their ability to use communication aids successfully. As Anne McDonald said (Crossley & McDonald, 1984, p. 76), "Unless someone makes a jump by going outside the handicapped person's previous stage of communication, there is no way the speechless person can do so. Failure is no crime. Failure to give someone the benefit of the doubt is."

Appendix A
Terminology

COMMUNICATION

COMMUNICATION: Sharing of ideas and information using a mutually known system. For example, you can communicate with a deaf person who uses sign language if you also know sign language.

AIDED COMMUNICATION: Any communication strategy requiring the use of a communication aid. Speech, gesture and manual sign are all **UNAIDED** communication strategies.

ALTERNATIVE COMMUNICATION: Forms of communication (such **as** signing, using communication boards or devices) used instead of speech when speech is nonexistent or unintelligible.

ASSISTED COMMUNICATION: Communication by a person in which the response of that person is expressed through the use of equipment and is dependent upon the assistance of another person, e.g., a person using an eye-pointing board needs the assistance of a partner, who has to observe and translate the user's eye movements.

AUGMENTATIVE COMMUNICATION: Forms of communication that augment, or add to speech, e.g., Jane's speech is understood by her family but not by strangers so when she is out and about she augments her speech by using a communication book.

COMMUNICATION FRUSTRATION: Negative behavior arising from an inability to communicate or an inability to communicate as one would wish, e.g., when the word required cannot be found on a communication display.

FACILITATED COMMUNICATION: An assistive communication technique in which the primary message receiver makes physical contact with the sender to help them overcome motor or emotional problems, e.g., poor muscle tone, lack of confidence. It

differs from coactive movement in that the direction of movement and intention to complete an action are solely the responsibility of the message sender. Facilitation is mainly used when training people to use communication aids.

NONVERBAL COMMUNICATION: Nonverbal means not involving words, e.g., gesture. It is often incorrectly used as meaning without speech, for which the appropriate terms are nonspeech or nonoral. People who type but do not talk are not nonverbal, but nonspeaking.

COMMUNICATION AID USE

ACCESS: Means of using a communication aid, e.g., finger pointing, head pointing. Access is split into two types:

DIRECT ACCESS: Includes any aid usage in which the communication aid user directly indicates the items they want, e.g., by eye pointing, fist pointing, and so forth.

INDIRECT ACCESS: Involves scanning. Items on a communication display are indicated in turn, either manually by a partner or electronically by a light or a cursor. The communication aid user stops the scanner when the item they want is reached, either by signalling or by hitting a switch.

DEDICATED DEVICE: A piece of communication equipment designed for use by people with severe communication impairments, and not used by people without disabilities, e.g., Canon Communicator, Wolf, All-talk. Typewriters, pocket computers, and regular computers are not dedicated devices; they are used in many ways by the community at large.

DISPLAY: Any set of items from which a communication aid user chooses, e.g., a communication board with 6 pictures on it, a combined symbol/word board, or *a* computer screen with words and letters.

FADING: Gradually reducing the amount of facilitation provided to a communication aid user, e.g., support may be faded from wrist to elbow to shoulder before being withdrawn entirely.

PHONETIC SPELLING: Spelling words as they sound, for example:

ornj = orange.
jon u shood cum to skooi = John you should come to school.

Sometimes aid users use letters to represent similar sounding words, for example:

RUOK = are you okay

WORD PREDICTION: **On** Tuesd I wa ver sa becau my pet do die ." Often when a communication aid user is spelling you can fill in the whole word. Many computerized communication aids use similar word prediction strategies to speed up message production. Most aid users appreciate it if their partners say the whole word when the ending is obvious, thus saving time and allowing the aid user to go on to the next word. If your guess is wrong, the aid user will continue spelling the word, ignoring your wrong attempt.

NEUROMOTOR IMPAIRMENTS

NEUROMOTEOR IMPAIRMENTS: Problems with producing desired movement patterns (e.g., speech) due to neurological dysfunction (e.g., brain damage).

EYE/HAND COORDINATION: The ability to coordinate eye and hand movements. In the simplest sense, the ability to keep your eyes on what you're doing. More complex aspects include correlating perception of depth and strength of movement.

INHIBITION: Stopping unnecessary or inappropriate movements, e.g., we inhibit ourselves from scratching our noses when being photographed. To make controlled, voluntary, movements it is necessary to inhibit involuntary movement.

DISINHIBITION: Is the opposite of inhibition. Many people with poor eye/hand coordination are visually disinhibited—that is, they are unable to inhibit the automatic movement of their eyes to anything in their environment that moves or makes a noise.

INITIATION PROBLEMS: Difficulty in starting a movement, even though the person wants to move. People with initiation problems may need a spoken or physical prompt to start moving, e.g., a tap on the elbow to start typing.

MUSCLE TONE: The state of the muscle that allows natural movement. Some people's muscle tone is too low **(HYPOTONIA):** their limbs feel floppy and heavy. Some people's muscle tone is too high **(HYPERTONIA):** their muscles feel tight and their limbs feel stiff.

PERSEVERATION: Movements or actions are repeated more than is necessary or appropriate. There can be perseveration in speech "1 went to the shops, shops, went to the shops to shops to buy shops." There can be perseveration in written words am in in inside in my class." Sometimes perseveration of a sequence will cue another unwanted word as in the above example of *in* and *inside.* Sometimes a typist cannot get as far as a word—they get stuck on the first letter and, hit it again and again, or they hit the correct letter then every other letter in the row.

SPEECH IMPAIRMENTS

APHASIA: Loss or impairment of the ability to use words or sounds.

RECEPTIVE (WERNICKE'S) APHASIA: Affects the ability to decode spoken and/or written language. It is less common than expressive aphasia (which it may accompany).

EXPRESSIVE (BROCA'S) APHASIA: Affects the ability to speak and/or write. There may be problems with recall of words, confusion between words with similar sounds (e.g., saying "knife" for " life"), or difficulty in repeating something just heard.

APRAXIA (ALSO REFERRED TO AS **DYSPRAXIA):** A neurological condition that prevents a person from routinely reproducing voluntary muscle movements. A person who has this condition may be able to reproduce the same movements spontaneously or involuntarily. (This distinguishes oral dyspraxia from dysarthria, as in the latter there is a motor deficit in *both* voluntary and involuntary speech.) A person with severe oral apraxia is often said, quite incorrectly, to be able to "speak when he wants to" because he has been heard to speak in the past_ In fact, what he said may have been **INVOLUNTARY** (e.g., swear words), **AUTOMATIC** (e.g., completions, such as "Shut the—"), or **SPONTANEOUS** (e.g., greetings) and it's precisely **VOLUNTARY SPEECH** that he is unable to produce, that is, he *cannot* talk when he wants to.

DYSARTHRIA: An impairment in the functioning of the musculature of respiration, phonation and articulation due to a lesion in the peripheral nervous system, central nervous system or both. Involvement of muscle groups controlling the tongue, the palate, the vocal cords, and breathing can seriously affect the intelligibility of speech. Total lack of speech for this reason is called anarthria.

ECHOLALIA: The repetition of previously heard utterances exactly as heard. Echolalic speech is fairly commonly associated with other word-finding problems. Individuals with echolalia are often diagnosed as autistic.

WORD-FINDING PROBLEM: Frequent inability to find the correct word. We all experience occasional word finding difficulties: " Can you bring me the whatsit from the whosits?" For some individuals the problem is very severe and prevents functional communication. The effect is similar to expressive aphasia.

Appendix B
Common Hand Function Problems

POOR EYE-HAND COORDINATION: The student makes selections without looking, or without allowing enough time between movements to scan the display and locate the target.

Low MUSCLE TONE: The student's arm and hand are "floppy" or " heavy," There is difficulty raising the arm against gravity and muscles fatigue quickly.

HIGH MUSCLE TONE: The student's arm feels tense, and their movements are often too forceful, either over-reaching the target or , pushing the aid away.

INDEX FINGER ISOLATION AND EXTENSION PROBLEMS: The student has difficulty in extending a first finger while holding back the other fingers. Users with this problem either point with all fingers extended or use the middle finger which is the longest). Either method makes accurate selection difficult.

PERSEVERATION: The student makes a selection and continues hitting either that selection or adjacent selections inappropriately.

USING BOTH HANDS FOR A TASK ONLY REQUIRING ONE: If a student points to two items simultaneously it is hard to be sure which item (if either) was actually desired.

TREMOR: Tremor can either be a continuous tremor or an. intention tremor, where the hand is stable while at rest but trembles when the person tries to do something (such as point).

RADIAL/ULNAR MUSCLE INSTABILITY: The muscles of forearm, wrist, and hand exert unequal pull on the hand or fingers. Sometimes the index finger swerves to one side as the student goes to point, leading to unwanted selections. The most common problem is for the aid user's index finger to move across in front of

the other fingers. Often the hand also drops down from the wrist thus making the tip of the index finger invisible to its owner, who is then pointing blind.

INITIATION PROBLEMS: The student does not spontaneously reach out to the communication display.

IMPULSIVITY: The student moves too fast to produce considered responses—starts pointing at the answer before you've finished the question, or points quickly all over the board so that you don't know which item was meant. .

PROXIMAL INSTABILITY: The person's whole arm moves from side to side. Often an overarm pointing action, rather than the more controlled underarm action, is used.

REDUCED PROPRIOCEPTION: The aid user has a reduced sense of body and arm position, affecting the accuracy of responses.

LACK OF CONFIDENCE: While not itself a physical problem, nervousness certainly affects physical performance.

Appendix C
Basic Principles of Facilitation

1. **MONITOR EYE CONTACT:** Check that the individual you are facilitating is looking at the communication display or keyboard. Developing eye-hand coordination and self-monitoring skills is essential if support is to be reduced.
2. **MONITOR OUTPUT:** Let the communication aid user know if you are not getting the message. If someone types a string of consonants with no vowels, encourage them to erase it and . start over from the last intelligible item. Sometimes individuals produce rubbish when they are not sure what to say—perhaps the question needs clarification 'or the conversation needs more structure.
3. PULL BACK: Not one of the hand function problems listed above is assisted by pushing the aid user's hand forward. Many are helped by providing resistance, pulling back, or slowing down the aid user. A habit of pulling back or providing resistance protects facilitators against accidentally leading the aid user to an answer.
4. **REDUCE SUPPORT:** The aim of facilitated communication training is independent aid use. The amount of facilitation used should be reviewed frequently. It should always be the minimum needed for successful aid use.
5. **DON'T OVER-INTERPRET:** Be aware that any meaning you place on a string of consonants without a vowel or a string of nouns without a verb is your interpretation. "Mummy milk" may be easy to interpret accurately; "Man knife" is not.
6. **DON'T BELIEVE EVERYTHING YOU'RE TOLD:** People with disabilities are just as prone to exaggerate, fantasize, and lie as the rest of us. An inherently improbable statement does not become true just because it is typed.

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About the Author

Rosemary Crossley has worked with people with severe communication impairments since the early 1970's. In 1977, while working at St. Nicholas Hospital (a state institution for children diagnosed as severely and profoundly retarded) she taught a group of teenagers with cerebral palsy to communicate through spelling using a technique which has since become known as facilitated communication. In 1979 Anne McDonald, her first student, went to the Supreme Court of Victoria to win her freedom from the hospital, and Anne and Rosemary later coauthored a book, *Annie's Coming Out.* The film based on the book was released in the U.S. under the title *Test of Love.*

In 1985 Federal and State governments jointly funded the establishment of DEAL, the first center in Australia devoted solely to the needs of people with severe communication impairments, and Rosemary became its first Director. The Centre employs a multidisciplinary team who provide augmentative communication assessment and training to anyone with a severe expressive communication impairment. Clients include individuals with developmental disabilities such as cerebral palsy and, autism, and acquired conditions such as traumatic brain damage, cerebrovascular accidents, and amyotrophic lateral sclerosis.

Rosemary writes and makes conference presentations on aspects of augmentative and facilitated communication. In second semester 1992 she was a visiting scholar at Syracuse University, teaching a course in augmentative communication. She was awarded the Order of Australia in 1986 for services to people with communication impairments.

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