

Second Language Acquisition and General Intelligence

Martin B. Bonar

Summary

This paper will address the continuing failure of foreign language teaching to achieve its apparent purposes. It will discuss the viability of teaching foreign languages in an academic setting to all members of the student population. It will argue that the standard IQ test, which measures general intelligence, has overall predictive validity for academic and other kinds of success. It will argue that there is a degree of linkage between general intelligence (the 'g' factor) and first language learning and a much larger connection between 'g' and second language acquisition, particularly in a foreign language environment, and that these connections have largely been ignored for reasons of political philosophy, even though the 'g' factor is as important a problem for language learning as for mathematics and physics. The paper will briefly review the current situation in language acquisition studies vis-à-vis motivation, aptitude and intelligence. The conclusion will be drawn that language learning in an academic setting is the only possible practical setting for a universal education system, but that, owing to time constraints, such a style of learning, if any reasonable level of competence is to be reached, must demand powers of memorisation and processing not available to the average learner. Finally, the paper will make rash proposals for the reform of English education in Japan. IQ tests should be implemented at the pre-junior high school stage in order to select pupils who will potentially benefit from classroom based language education.

Introduction

Foreign language teaching and learning at the university level in Japan is currently facing a crisis. Current students are seen to be unable to benefit from or even gain passing grades in foreign language classes. Both faculty and administrative staff have reached the point of considering the abandonment of a language module (usually English) as a compulsory element of general education programmes that account for up to a quarter of the credits required for graduation at a Japanese college. The quick fix of 'outsourcing' classes to private language schools (a tribute to the power of advertising) is increasingly popular. The crisis is felt to be a product of a perceived and widely anecdotally supported falling off of overall academic standards in primary and secondary schools.

A case can certainly be made for blaming the falling off in levels of English language ability and knowledge on belated attempts by Japanese education authorities to give pupils more free time and to introduce less rigid, more open-ended methodologies, with a view to fostering the growth of creative intelligence and the garnering of a less embarrassingly small share of the Nobel Prizes — this at a time when the education system of England and Wales has for some years been vigorously back-tracking on its influential 1960s primary school reforms. To cite the clearest example, the reform which abolished

Saturday morning school has led directly to a reduction in the raw time available for English instruction in junior and senior high schools. In the area of methodology, the introduction of ‘communicative’ curricula and the increased availability of native English instructors has also bitten into the time formerly available to reading and to rote learning of grammar patterns and vocabulary items.

What has not been openly raised as a major factor in the language teaching crisis, obviously because of its social and political ramifications, is the fact that approximately 50% of Japanese 18-22 and increasingly 23 year olds attend four year or two year college. Assuming that not all high school students above the 50th percentile attend college, this must mean that a good many of today’s college students have IQs hovering around the 100 average, while not a few will have IQs well below that. Such academically less intelligent students are likely to have very quickly fallen behind in their English studies; they will not, for financial and cultural reasons have attended after school evening classes, where rote learning by drill has been the regular teaching approach and which have traditionally compensated for the one size fits all philosophy of Japanese secondary education. They will only have known the back benches of public school classes comprising forty or more students. As such it is only to be expected that they will be ill equipped for anything more than a back to basics approach — a revisiting of the first year of junior high school. Motivation, effort and different teaching methods may produce a greater degree of success the second time round, but can they overcome the initial intelligence handicap that led to failure in the first place? The honest answer to this is that they cannot, which has led to the above mentioned overall pessimism regarding levels of foreign language acquisition and by way of side effect to the boom in the handy escape route and quick fix that is the TOEIC industry. If you have gained 600 or 700 points in a multiple choice examination like the TOEIC, on the preparation for which all your English language experience is based, then you may be presumed by institutions and employers, often wrongly, to have a sound grasp of the language.

Intelligence and the Intelligence Quotient

A pessimistic stance vis-à-vis foreign language learning for all depends on the assumption that ‘intelligence’ is a factor in language acquisition. Is it? Even assuming that IQ measurements do have validity, they are relative not absolute. Is there any justification for saying that a person of average IQ cannot learn a foreign language? And is there any one single ‘intelligence’ that can be reflected with reasonable accuracy by the Intelligence Quotient?

Before addressing these questions, it is necessary to take a very quick look at the recent history of the concept of ‘intelligence’. The first attempts at statistical measurement of intelligence are credited to the Victorian gentleman-scientist, Sir Francis Galton (1822-1911). In 1886, Galton came up with a calculus for quantifying the degree of ‘correlation’ (i.e. the strength of association) between variables. This was developed by his student and colleague, Karl Pearson (1857-1936) and became the well-known correlation statistic r . The work was followed up by the English psychologist Charles Spearman, (1863-1945) who developed a method of finding the ‘true correlation’ between two variables and with it paved the way for his development of the technique of factor analysis.

Roughly contemporaneously with Spearman’s work in England, Alfred Binet in France was producing and implementing the general intelligence tests for children that gave birth to the concept of the Intelligence Quotient (initially defined by the formula $IQ = (MA / CA) \times 100$, where MA means mental age as measured by the test, and CA means chronological age, the Intelligence Quotient is now based on population distribution curves). It should be noted that Binet (1857-1911), avoided breaking down

'intelligence' into categories such as 'understanding', 'judgement', 'reasoning', 'learning', 'memory', 'speed', 'perception', 'concentration' or 'imagination'. Nor did he confine himself to searching for any single measure of intelligence or focus on any one definition. Rather he was impressed by the fact that good intelligence could take different forms and was not simply the equivalent of school examination results.

It took Spearman some time to pay serious attention to Binet's work, mostly because he, like Galton, wanted to discover one underlying form of ability that would provide the psychological basis of all forms of intelligence. When, impressed by their practical merits, he finally did begin to take Binet's tests seriously, and applied his methods to their results, the main focus of his interest became the variables that typically loaded substantially on the first and biggest factor found in mental ability correlations. This first and biggest factor was the one to which Spearman gave the name 'g' — the letter being ambitiously and hopefully linked to the Newtonian constant of gravity.

Binet's testing techniques and Spearman/ Pearson correlation methods were eventually combined in the 1930s, in the work of the American psychometrician-psychologist, David Wechsler (1896-1981). Wechsler's tests,¹⁾ which in one form or another, are still in use today, were aimed at adults, rather than, as were Binet's, at children. Analysis of Wechsler's ten minute tests, which covered general factual knowledge, everyday comprehension of practical matters, memory for short strings of numbers, picture completion, jigsaw puzzles, and re-arranging scrambled, wordless cartoon frames into the right order, showed plainly that, as had happened for Binet, all reliable mental tests, however different their content, apparently had something in common. It might have many components but, to borrow Spearman's analogy, an overall 'engine' of intelligence did exist.

In Britain, Spearman's ideas flowered briefly after the Second World War with the introduction of the now infamous 11 plus examination, a measure designed, as both Galton and Binet would have wished, to distinguish ability from the effects of privilege. Ironically, what in class bound Britain at any rate, had been considered to be progressive thinking of a revolutionary kind, rapidly suffered at the hands of post-war and post-Nazi egalitarianism and of behaviourist theory in psychology. The 'g' factor concept was judged to be too abstract, too Platonic, and too closely associated with the notion of heredity, something which was itself linked with the evil science of eugenics — a science largely initiated, as many were keen to point out, by none other than Francis Galton.

In the 1970s, the scandal of the apparently falsified Cyril Burt twin studies — Burt has been deeply involved in the 11 plus debate — was used as a further reason for abandoning a search for 'g' and for turning toward a concept of intelligence that included many individual factors: the linguistic, the logical-mathematical, the bodily-kinesthetic, the spatial, the musical, the interpersonal, and the intrapersonal. In the 1980s and 90s, only such psychologists as Hans Eysenck and Arthur Jensen, vilified at campuses the world over, continued to defend the 'g' factor. That the whole field is definitely more than just a matter of academic interest is shown by the enormous controversy, caused just ten years ago by the publication of the 'The Bell Curve'²⁾ with its detailed analysis of IQ levels in various areas of American society, and its conclusion that IQ levels for Afro-Americans were lower on average than those of the population as a whole.

Such in brief is the history of attempts over the last hundred years at a definition of and, more controversially, at the objective measurement of intelligence. Our present cultural consensus, while happily stiffening soap opera scripts with what used to be sexual taboos, is unwilling to speak the name IQ. Yet, despite their recent theoretical and political lack of acceptance, IQ tests continue to be the only kind of test that can claim to grade learning capacity and the capacity for growth. Significantly they are widely employed by the military and by potential employers. IQ test results show strong correlations with job skill

levels,³⁾ income,⁴⁾ and educational achievements⁵⁾. General intelligence is said to be ‘no longer just ‘what the tests test’ and can account for fifty percent of the variation in human intelligence. It is said that the fundamental nature of ‘*g*’ is ‘speed-of-intake’ and that although ‘it may itself one day be broken down into sub-components, these sub-components will be systematically *interdependent*, not those of cognitive psychologists who are looking to break up *g* into entirely *independent* processes.’⁶⁾

The concept of general intelligence has been attacked and subsequently neglected on the grounds that its psychological mechanisms cannot be determined. It has or can have unpalatable political overtones. Nevertheless, it has not been overturned. All other measures that have been tried over the years have turned out to correlate well with ‘*g*’ itself.

General Intelligence as a Factor in Foreign Language Learning

Let us return now to the question of whether ‘intelligence’ is a factor in language acquisition. Surrounding the question we see the same social influences at work as those which led to the rejection of Spearman’s theories. These influences take the form of the socially driven need in Western democracies to pretend that people are equal in every aspect, not just morally equal in their entitlement to opportunities. Self-styled democratic societies need the fiction of absolute individual equality to preserve social stability and the rule of the wise. Thus, since the 1960s at least, inquiry into a possible relationship between general intelligence and language ability has become as politically unacceptable as the open advocacy of intelligence quotients themselves. As we have just seen, the latter have suffered particularly after being linked in the USA with a pessimistic rating of the average intelligence of Americans of African origin that seemed to confirm traditional white prejudices.⁷⁾

In the 1960s, the emphasis in education was on a Rousseauite equality of opportunity. Piaget’s theories of a general advancement of all children to an eventual overall standard of achievement were highly influential. ‘Comprehensive’ education was defined as providing every kind of opportunity for everyone, catering to ‘needs’ to use the modern jargon. When it came to language education, the argument was that everyone, after all, quickly becomes fluent in his own tongue, and should therefore be able without too much trouble to master another. Everyone, in principle, was to be given access to foreign language learning; it was good for you and also for world peace and mutual human understanding in a way that nuclear physics was not. That optimism has faded somewhat, although there are still strong advocates of teaching a foreign language to children with special needs, not as therapy but on the grounds of fair and equal treatment, and this has been carried through with a far from contemptible degree of success. (A fresh twist on the ‘good for you’ theme is the recent suggestion that bilingualism may offset Alzheimer’s disease). In 1960s acquisition textbooks any mention of general intelligence being a barrier to second language acquisition was seen as exclusionist and élitist, the modern day equivalent of not translating the Bible.

To implement this philosophy of ‘French or Spanish for all,’ a new teaching approach was strongly advocated, one that would do away with any need to grasp grammatical abstractions, or employ conscious memorization to the task of acquiring vocabulary. A behaviourist approach, based on audio-lingual drills, and aided by the latest high technology, the tape-recorder, was to be applied to language teaching. The Watson/Skinner school of psychology, which had gained ascendance over Spearman, Burt and Wechsler’s ‘*g*’, had moved from rats to humans. Speaking and comprehending language were pronounced to be habits that could be formed with intense repetitive practice. The mother tongue was excluded and so was intelligence.

Amid appeals from pupils for explanations and translations, the audio-lingual movement failed, or at best failed to produce anything more than business as usual. The touted dramatic advances in foreign language mastery did not materialise. The theory had to be wrong. Watson/Skinner went into the dustbin, except among manufacturers of language laboratory equipment, and two new strands of thinking emerged. Both of them sifted the focus from input into the brain to what was already reckoned to be planted there, though both of them ignored any possible role for a factor of 'g'. One of these strands of thought was the nativism of Chomsky, and the other was the differential aptitude theory of cognitive psychology.

Chomsky's mentalist ideas have continued to develop since the early days of the conflict with B. F. Skinner, one which history judges him to have won. The existence of an innate language acquisition device is now widely although not universally accepted. What is increasingly apparent in Chomsky's thinking is a conviction that the language acquisition device has a biological basis that can eventually be pinned down, something inconceivable for a Platonic abstraction like 'g.' Further, it is a necessary corollary of the language acquisition device theory that general intelligence can have little or nothing to do with a child's becoming fluent in its native tongue. Chomsky is said to "conclude that any learning theory must account for the fact that children acquire grammars with 'remarkable rapidity' and "to a large extent independently of intelligence."⁸⁾ It is essential to bear in mind at this point that Chomsky's work has always centred on so-called deep phonology and grammar, in other words on the *potential* of the mind — or brain — for language development. His work has never had anything to do with the acquiring of actual, usable languages in the real world, nor has he claimed otherwise.

Chomsky's nativist and of late biological approach has become more and more influential thanks to recent advances in brain scanning techniques and genetic knowledge. The idea of a 'language organ' that can generate not only an infinite chain of subordinate clauses but also allow the comprehension of original expressions that have never previously been heard, let alone behaviouristically drilled into the psyche, no longer seems as far-fetched as it did when it was first proposed. It is true that virtually every child, even one with definite physical and mental handicaps, deafness for instance, is able to become a fluent speaker of a language by the age of between five and eight, although the separation of the language acquisition device from all environmental stimuli can lead to major difficulties — as the very few 'wild boy' cases demonstrate.⁹⁾

The LAD hypothesis is no longer based only on introspective theorizing. Some pieces of evidence have been gathered in support of the hypothesis of the separate and special nature of a language acquisition device existing independently from other kinds of intelligence. One such piece of evidence is the strange case of the so-called KE family. Members of this family share a genetic variation that correlates directly with various language production impairments, particularly in the area of verb inflections, and 'yet many of the impaired family members have intelligence scores in the normal range, and some test higher than some of their impaired relatives.'¹⁰⁾ One may note in passing that that the concept of general intelligence and the testing of it would seem acceptable to Steven Pinker. General intelligence and grammar ability are also seen to be separate entities in the case of AZ, whose 'nonverbal IQ ranges from 119 to 131, putting him in the top ten percent of the population.'¹¹⁾ Despite these above average IQ estimates, AZ at the age of ten had the syntactical command of a five year old.

The case of 'Christopher' shows the other side of the coin. Christopher's case is cited as demonstrating clearly that 'One thing is certain: second language learning ability is independent of general intellectual ability'¹²⁾. Rather than being impaired, Christopher, who has a non verbal IQ of 60 to 70, and would not make it into the American Army, has a remarkable gift for learning foreign languages.

Physical evidence also is cited. EEG brain scanning experiments are said to be able to see how electrical

signals in the brain react to differing language events. ‘Together these signals show that the difference between words and rules can be read from the electrical startles of the healthy brain.’¹³⁾ The use of the technique of cortical stimulation can even determine in bilingual subjects which part of the brain controls each language. Researchers found a language area where ‘certain points of stimulation disrupted naming in both languages while others were more likely to disrupt naming in one or other language.’¹⁴⁾ Finally, as a further demonstration that various language abilities have a specific location in the brain, there is evidence that some alexic Japanese patients ‘have either syllabic or logographic elements impaired.’¹⁵⁾ In other words, the two Japanese writing systems commonly called ‘kana’ and ‘kanji’ are stored in different places in the brain.

Supposing, however, we do agree that there are particular areas of the brain that in most people and for most of the time contain the neural patterns that constitute the paradigms of the Universal Grammar. Does this get us any further forward in the practical matter teaching and learning language? Remember that Chomsky has repeatedly denied any interest in applied linguistics. And bear in mind that neurolinguists are unlikely to have as a major aim the development of cosmetic surgery or brain stem cell incubation designed to promote bilingualism. The arguments from the KE family, from AZ, and from idiot savant Christopher are fascinating and do seem to point to some genetic basis for language ability, and to a degree of separation of that ability from general intelligence as it is commonly regarded — albeit that ‘common sense’ is seen by at least one influential scholar in the field as an overwhelmingly important human trait.¹⁶⁾ However interesting it may be, the argument from exceptions remains an awkward one. A convincing case can be built for the paranormal, or for that matter for the alien origin of corn circles; the advocates of both of these may even be perfectly correct. It remains impossible to avoid the response that their correctness or otherwise is irrelevant. Aliens and poltergeists do not impinge on our normal daily life. Or rather they are absorbed into and neutralized by the requirements of that daily life. Even that best and driest of inductive predictions, that the sun may not rise tomorrow, is ignored by all but the most fanatical religious believers. And in fact even believers in ‘strong’ theories of universal grammar, even believers in the existence of ‘grammar genes,’ are not extreme fanatics. They accept that the real world has demands, and that those genes must face the sunshine of the environment before they can begin to grow. The huge, if constrained, variedness of human languages, it is conceded, has to derive from somewhere.

Multiple Intelligences

Nevertheless, let us assume that language genes, however irrelevant they may be in practice, do exist. How would they relate to other forms of mental activity? Do they constitute an independent, self-sufficient area of ability similar to that of music, with its readily recognisable child prodigies and concept of perfect pitch. Rejecting Spearman’s ‘g’ hypothesis, cognitive psychology, particularly in the work of Howard Gardner, has put forward the idea that human intelligence consists of a large number of factors — a total of seven intelligences have been proposed: the linguistic, the logical-mathematical, the bodily-kinesthetic, the spatial, the musical, the interpersonal, and the intrapersonal — and has made strenuous efforts at defining them. IQ tests are said by the advocates of this approach to have been devised merely for predicting success in school and not in the world at large, as the dearth of academically intelligent politicians and of politically powerful academics clearly demonstrates. IQ tests are said to measure chiefly *academic intelligence* and should not be thought to tap into many equally valuable abilities such as common sense, organisational skill or creativity. Alfred Binet’s original purpose, we might recall, was to “free a beautiful intelligence from the trammels of school.”¹⁷⁾ His positive educatory instincts led him too toward a

faith in the possible existence of multiple aspects to intelligence: ‘understanding’, ‘judgement’, ‘reasoning’, ‘learning’, ‘memory’, ‘speed’, ‘perception’, ‘concentration’ or ‘imagination’, elements that would be unrelated to upbringing, opportunity and schooling. Unfortunately, however, as his work progressed, he found it difficult to deny that his own measurements ‘were conflating four variables: ‘the intelligence pure and simple’; ‘extra-scholastic (environmental) acquisitions’; ‘scholastic acquisitions’; and ‘acquisitions relative to language.’¹⁸⁾

That difficulty has not gone away over the years. So far no tests have been set up that can successfully separate the various posited arrays of multiple independent abilities.¹⁹⁾ This is said to be because for the moment there does not exist a properly worked-through set of tests to identify and measure the different ‘multiple’ intelligences. It is the case that the measurements that have so far been proposed have turned out to correlate well with ‘g.’ Rather upsettingly from a scientific point of view, Howard Gardner himself has apparently decided no longer to pursue a test development approach, because he feels that tests may lead to labeling and stigmatization. And, presumably, because he wants everyone to be recognized as being good in something. In short, the ‘all shall have prizes’ humanistic Rousseauite doctrine continues to prevail, not so much thanks to evidence of its success, affirmative enabling action, notably in American schools²⁰⁾ having failed to bear fruit, but rather out of a fear that simple general intelligence measurements will turn into wire mesh fences, separating the epsilons from the deltas, the gammas from the betas, and the alphas from the rest, in a realized Brave New World. The existence of a separate language intelligence along with that of all the other proposed intelligences not only remains to be proved, but one is also left with the impression that any discoverable proofs would be suppressed as socially disruptive.

Factors in Language Acquisition

The field of second language acquisition has also sought to avoid sweeping classifications of the Platonic ‘g’ kind. It has followed a similar approach to psychology in general, first by initially searching to identify two main factors in language acquisition: aptitude and motivation, and then by going on to develop a theory of ‘multiple motivations.’ (It can get more complex than this; In the same way that J.P.Guilford²¹⁾ has identified 150 separate intelligences, so Bernard Spolsky, in his book of the same name²²⁾, comes up with a very reasonably argued total of seventy four ‘conditions for language learning,’ including such factors as personality, motivation, and opportunity and even knowledge.)

Language Acquisition Aptitude

Though seldom heard from as a research topic these days, aptitude testing continues to be carried out, away from the world of public education, in the forms of Pimsleur’s Language Aptitude Battery and more frequently of J.B. Carroll’s Modern Language Aptitude Test; it is even undergoing a revival of interest²³⁾. Comprehensive second language acquisition theory reviewer Rod Ellis goes so far as to give it four stars for reliability.²⁴⁾ At one stage, aptitude was not only the great white hope of language placement testing but also seemed to offer a unique insight into the language learning process.

Fatefully and fatally, language aptitude batteries bore what was probably more than a coincidental relationship to the IQ test. They tried to make use of various ‘modules,’ in order to elicit responses that when combined would provide an overall ‘aptitude’ factor correlating with future achievement. The resemblance to an IQ test, particularly the memorization sections, must have rung bells for nineteen sixties educators; they saw aptitude tests as exclusionist at a time, as we have said, when opportunity for all was

the education world's watchword. Paul Pimsleur, the doyen of aptitude test makers, was met with hostility. The story is told that when Pimsleur presented an early version of his test to 1960s guru and drillmaster Nelson Brooks, he was told to 'Take that out into the backyard and burn it!' ²⁵⁾ Pimsleur's reaction was the comment: 'What I presume they meant to censure was the pernicious notion that some children are just not suited for language study.' He went on to add, echoing Binet and many subsequent IQ advocates, that 'Exclusion, however, is only one of the functions an aptitude test may serve, and certainly not the most useful. Our purpose here is to examine its more positive functions. These helpful and fascinating functions may be named in two words: prediction and diagnosis.' ²⁶⁾ Unfortunately for him, as he defined it, Pimsleur's 'prediction' system seemed very like another name for selective streaming. Under it no student was to be excluded from language programmes; instead, less than promising learners were simply to be discouraged from starting, say Esperanto or Spanish, until the eleventh or twelfth grade. Aptitude tests were 'procedures' to determine who might begin a language in the seventh grade and who would have to wait until the eighth or ninth grade, who would be placed in an 'able' class and who in a 'regular' one, who might study French and who Spanish. 'Diagnosis,' for its part, though even milder sounding than 'prediction,' was also perceived as potentially selective. Educators did not care for the rigidity of such an approach. The same kinds of understandable foreboding are recognisable in the current fuss over whether genetic information should be passed to health and life insurance companies. The result, however, of the fluffy toy approach would seem to be a never-ending struggle to fill wide holes with thin pegs, and an optimistic faith in the value of remedial courses at university.

Language aptitude tests and IQ tests look to have similarities in their aims and structures. Are aptitude and 'g' intelligence in fact directly related? Pimsleur said yes, and Carroll said no. Further research has suggested that both were right, depending on the kind of learning involved. Reading comprehension, free writing, and the ability to handle decontextualised language are said to be based on cognitive academic language ability, which in turn is theorized to be related to general intelligence. Oral production and listening comprehension, on the other hand, may have little to do with intelligence. ²⁷⁾ Given this distinction, it is not difficult to see the move toward communicative methods as an attempt to circumvent the IQ level barrier seen to be thrown up when traditional methods are applied across a full ability range of students. With 'communication' as the goal, there is no need to 'know,' the language in the traditional sense, that is to say, no need to be able to manipulate creatively or succinctly a wide range of words and expressions. With 'communication' as the goal all levels can be catered for.

Motivation in Language Acquisition

Aptitude testing, burdened with a discriminatory image, suffocated and then fossilised. From the 1970s, with the work of R. C. Gardner in the forefront, motivation, which was defined as one module of intelligence as a whole, ²⁸⁾ and therefore immune to politically incorrect notions of cleverness and dullness, became the main focus of research into reasons for success or failure on the part of language students, while the need to motivate the uninterested rose to a perhaps higher level of priority for language teachers than the actual content of their courses. ²⁹⁾ Aptitude itself lost independent status and became just one of several 'modes' of motivation. For motivation was said to have a variety of aspects, from the Thomas the Tank Engine 'I think I can, I think I can,' of enforced self-confidence (remember that Rousseau, the champion of human potential, was Calvinist 'school of effort' born and bred) to an urge toward higher social or financial status. Of great importance was negative motivation, which was handily said to explain massive under or non-achievement. The overall philosophy of second language acquisition was and

continues to be that everyone is capable of it, regardless of race, creed or religion.³⁰⁾ If acquisition fails to happen, it is because there is simply insufficient need for it to happen, or else because social pressures override what need there is. Students themselves see things more clearly. It is a now more or less accepted 'truth' that Japanese students will not respond to questions in language class for fear of seeming too 'clever.' Not, we may note, too 'good at foreign languages,' but too 'clever.'

The most interesting aspect of the motivation debate, from an 'intelligence' point of view, is, of course, the insufficiently stressed fact that a significant part of motivation derives from success building on success, with the initial success, the first venture, shall we say, being funded by 'natural ability' a.k.a intelligence.

As we have repeatedly said, the 1960s ideals of education and language education continue to dominate, although cracks are beginning to show in, for example, the UK — current Prime Minister Tony Blair has shown support for 'specialist' schools and this has been seen as a retreat toward hewer or wood and wielder of ink horn thinking rather than a Howard Gardner inspired cultivation of varied talents. The supplying of an equal opportunity stimulating education continues to have top priority in all so-called advanced countries, as may be seen from the forward looking statements of their Ministers of Education. This fostering of a benevolent and positive attitude on the part of society toward self-improvement through education is surely politically acceptable and welcome. It is an unobjectionable attitude inspired both by ethical and by vaguely defined utilitarian considerations. In its latest expansion in developed countries, a fifty percent participation in tertiary education is now seen as 'desirable.' Such high level participation is at once a kind of ideal, a right even, to be viewed in the same way as liberty and equality. It embodies an enlightenment faith in the ever expanding potential of humankind.

But while few would argue with such faith and idealism, with its call to fertilise the soil and of prepare young people for whatever the future may bring, it needs to be pointed out that the said faith and idealism coexists with a lack of political courage to talk openly and realistically at a glossed over problem: the problem of when to start and when to give up on the sowing, or indeed, resowing, of the educational seeds. Some ground is stony and will never bear fruit. Which brings us back to the matter of intelligence.

Intelligence is accepted as a factor in most forms of learning. You would expect your doctor, your lawyer, your banker not only to be in possession of large amounts of specialist knowledge, but also to have put together that knowledge through a speedier than average perception of patterns and connections, with memory power, of course, also having its part to play. The mere possession of a bedside or courtroom manner would hardly suffice in itself to make a career. What about language acquisition, particularly of a second language? Is intelligence a factor? Popular opinion, for what it is worth, has tended to concur with the notion that it takes 'brains' to learn to use a second tongue. Recent expert opinion, on the other hand, clearly influenced by the ostracism of advocates of Spearman's 'g,' has paid very little attention to the importance or otherwise of intelligence. In an eight hundred page overview of second language acquisition, Professor Ellis spares the topic a few paragraphs.³¹⁾ Spolsky gives the topic a little more space, concludes that IQ scores and language learning are clearly related, although this depends on the kind of language learning involved, and leaves it there.³²⁾ Skehan has rather more on the same lines but still sees 'language learning intelligence' as something special.³³⁾ Most language acquisition and language teaching theories do not even mention the topic, focusing solely on finding psycholinguistic breakthroughs that will magically facilitate the learning process for everybody and his Mum, with anything originating in the Carpathians seems to hold a particular attraction. There is one important exception to this trend, a major study by Japanese scholar Miyuki Sasaki.

Dr. Sasaki takes unusual pains in her introduction to emphasise the originality of her work, particularly

in its examination of the relationship between Second Language Proficiency and general intelligence.³⁴⁾ The 1996 study seems to have had little effect on overall avoidance of the topic, and does not appear to have inspired the major effort that would be required for its replication. Its conclusions, while not supporting the idea that Second Language Proficiency is identical with general intelligence, do report a high ($r=0.648$) correlation between the two.³⁵⁾ One might note in passing that Dr. Sasaki chose not to use the Wechsler test as her measure of intelligence but rather the Kyoto University developed New NX-15 Intelligence Test, which measures general verbal intelligence and general reasoning ability, with the emphasis on the verbal side — if the titling of its sub-tests is anything to go by.

Real life education is ignoring the theorists. Despite the experts' evident lack of interest, that there is a relationship between general intelligence and language learning in an academic setting, whatever 'methods' are employed, would seem to have been tacitly admitted. In the United Kingdom university entrance requirements for modern foreign languages, let alone for Latin, have disappeared, presumably as an effect of the move toward mass tertiary education. In a further concession to the realities of mass education, the British Government has also decided to axe compulsory language learning for pupils aged 14 to 16, while the number of 15 year old students currently judged capable of attempting a national examination in a foreign language stands already at just 74%. The United States, for its part, has long abandoned compulsory foreign language education in public schools (high school enrolment in foreign language courses was 38.2% in 2000, with 70% of that being in Spanish, often considered the softest option for an English speaker.) While there is a possible Gardnerian (R.C. not Howard) explanation for this abandonment, in that the subjects of successful imperial nations have no strong incentive to learn the speech of outsiders, it would seem more likely that the root cause of the exemption has been the need to pass less academically able children up through the system.

For its part Japan has not only long realistically and tacitly recognised the connection between the concept of general intelligence and foreign language learning in its more academic form but also made practical use of it. The much abused entrance examination system to Japanese universities exploits the difficulty of grasping such an alien language as English by employing it as a substitute for politically unacceptable IQ tests. Perhaps the most remarkable aspect of foreign language teaching in Japanese secondary education is the almost total neglect of Korean. Korea has a large population, is easily visitable, and its language structure is relatively close to that of Japanese. The neglect of Korean may be said to be politically and culturally motivated, yet England has often been a bitter enemy of Spain, France, and Germany, the three countries whose languages are commonly taught there. English is taught in Japanese secondary schools not because it helps with international communication but for the opposite reason. It throws up barriers to communication that only people with strong powers of memory and mental organization can surmount.

It is important to note that in the Japanese case as in some others, a degree of confusion of thinking does exist. In true enlightenment style, foreign language fluency for the masses is professed to be desirable. This perceived desirability of 'oral communication ability' has led to a realisation that secondary school English teaching in Japan is failing to turn out cohorts of fluent speakers — something which it could hardly be expected to do given the prevailing class sizes and time restrictions. The focus is therefore switching toward younger children — as it is in Britain — in the hope that the pre-pubertal experience will be more fruitful. Hope, as it were, lies in the primary schools. This very adoption of such a strategy, in both countries, is another form of admission that, for the majority, foreign language teaching is not producing any degree of competence. Average folks, that is to say folks of average intelligence, are not learning either to read or speak a foreign tongue.

Competence in First and Second Language Acquisition

Learning a foreign language in the classroom is then a failing proposition for most pupils, the more so to the extent that it relies on time saving formal features such as grammar rule mastery. But is it true that other kinds of second language learning, particularly those that focus on oral communication, are unlinked to general intelligence? Even if we admit the assertion that anyone, having already shown the capability to function in his own language, can also easily learn to function in another, we must not forget that there are degrees of competence and fluency in the native language also. A barrister and a bricklayer operate on different linguistic levels, not only in reading and writing but also in oral fluency. Intelligence expresses itself in complex thought, which requires in turn complex syntax and discriminatory vocabulary. The addition of ‘fucking’ to every noun and verb in an utterance is generally considered a sign of poor language ability, and low intelligence, rather than of eloquence. Given that such differences exist in the native language then, surely one should expect those differences to replicate themselves in the second tongue. An inarticulate native speaker is unlikely to blossom into a Demosthenes in the new language — except perhaps where the native culture discourages easy fluency, as it tends to do for males in Japan, for example, or for blue-collar-workers in the U.K.³⁶⁾ The argument here is not that bricklayers do not speak standard prescribed English, it is that their range of expression is limited, both by what they need to say and by the extent of their ability to connect their utterances coherently. What they *need* to say is, of course crucial, as it leads into the vexed problem of what it means to *know* a language. We should remember though that, while it could be argued that functioning adequately in one’s own immediate environment may be a sufficient description of linguistic competency, entering the world of a new language entails an ejection from the womb and the need to test afresh a number of environments before settling once more into a routine, something clearly illustrated by the anxiety and embarrassment that most beginners feel on launching into a foreign language utterance. The well documented cases of young immigrant children undertaking a long period of observation research before diving into speech highlight the appropriateness of the womb metaphor.

Brain Power and Language Acquisition

Is there anything more objective, anything other than general observation, to link intelligence and the degree of first or second language learning? Are family environment and education, rather than intelligence, the factors which determine the complexity of grammar and range of vocabulary that can be employed and understood?

Even prominent scholars in the field have looked up and noticed that second language acquisition is for most people exceedingly difficult.³⁷⁾ Two ‘fresh’ proposals, aiming to account for this patently obvious fact, but equally applicable to first language acquisition also, are trying to fill the gap here. The first is the idea of processing time, something which is standard for all of the brain’s operations, and must therefore presumably also be applicable to language comprehension and production. No matter how superior it may be to that of contemporary computers the brain’s capacity remains finite — as we all learn to our dismay, even in our first language, when we try to give expression to a complex thought without sufficient rehearsal. Experiments by psychologists have shown that overtasking the brain can reduce language performance. The second and related idea asserts that the language we actually use is, due to the limitations of our processing resources, mostly memorised and regurgitated rather than freshly generated each time from some involved, deeply buried linguistic algorithm. The bulk of the language we produce as

speech is said to consist of routines, standardized lexical phrases, and masses of fixed collocations.³⁸⁾ Without the strategy of retrieval of ‘chunks’ of language, conversations would be as excruciatingly plodding as Ionesco’s renderings of the sort of language produced by people who can control only individual grammar and vocabulary items.³⁹⁾ Ionesco’s speeches sound like extracts from an old fashioned language primer or naturally enough like a speaking robot. This is hardly surprising. When native speakers unerringly distinguish between highly competent foreign learners and the real thing, their decisions are based as much on a lack of lexical phrase use as on alien sounding pronunciation. The grammar/vocabulary foreign speaker seems as stiff as a Lado drill and not only seems longwinded but probably is so.

That foreign speaker is also most likely exhausted, another illustration of the truth of the brain power, processing time hypothesis. Having to concentrate intensely, in other words having to use a huge amount of processing power is very tiring, so much so that focus on the actual content of an exchange is often lost. The foreigner is actually generating from rules in the approved Chomsky manner, reinventing the wheel, while the native speaker sits up front merrily pressing buttons like a Star Trek pilot. Native speakers have had a great deal of time to memorise a store of routines for every occasion they are likely to meet. And this may well be the reason why all native speakers, regardless of their IQ, seem masters of their tongue. It is a deceptive mastery; fluency made up of clichés is not real intelligent communicative fluency and is recognised to be a sign of dullness.⁴⁰⁾ It is no coincidence that popular newspapers in the UK rely on a succession of hackneyed phrases.

In passing one may remark that foreigner speech, of course, is not always stilted and constipated. Generating from a memorised vocabulary and a post-pubertal grammar can produce expressions that are charming in their oddity, expressions that can be oddly telling and poetic. Try getting normally inarticulate Japanese students to write a poem or two. The results can be attractively affective and, of course, original. Sadly, they do not serve the cause of everyday communication.

After the limitations of real time processing speed and our countermeasures to overcome them, a second physiological factor, of direct relevance to second language acquisition and intelligence, is, of course, the probable existence of the ‘critical’ period, that is to say a point, it is usually set at about fourteen years old, after which it is no longer possible to acquire native speaker ability. While it may be argued — once more leaving aside for the moment the problem of defining ‘knowing’ a language — that every normal person can master one language, their native one, the evidence, whether it be based on the study of feral children, on the records of immigrants, or simply on the success rate of language courses in secondary education, points overwhelmingly to the impossibility of gaining native fluency twice. An intriguing Darwinian explanation of this barrier, and one that is highly ironic in an age where a second language is touted as a must, is that in evolutionary terms, a multiplicity of methods of communication — bilingualism, for instance — would have been a disadvantage. The instinct toward group solidarity, toward homogeneity, that is still very much in evidence today, particularly among men, would seem to match this theory very prettily.

Let us sum up. Although it is true that all normally endowed human beings can learn a first language and become sufficiently competent in it, experience and observation and some research⁴¹⁾ suggest that native speakers differ widely in their ability to produce and comprehend both syntax and lexis, even if reading and writing skills are not taken into consideration. And while research, counter instinctively, suggests that general intelligence and first language development are not directly related⁴²⁾ — language ability, like musical ability, for instance, may develop independently from general cognition — there is support for the idea that language aptitude and general intelligence do correlate quite well.⁴³⁾ Research evidence also shows that memory plays a powerful role in second language acquisition. Exceptional learners of foreign

languages demonstrate an exceptional ability to retain and retrieve lexical phrases that are the mark of native speaker competence. Skehan wishes to treat this memory power as something distinct from general intelligence. He also seems to want to see memory for language as distinct from the short term memory measured in standard psychological tests.⁴⁴⁾ This is something which flies in the face of other research opinion and also seems to deny subjective experience.⁴⁵⁾

The Role of Memory

We forget that we need to remember. In other words, there are times when we do not see the once familiar wood for the more complex, more intriguing trees. Practising language teachers, and to an even greater extent theorists of language acquisition, should from time to time attempt the first steps of learning a new language, preferably one from an unfamiliar family. We need to remember, or perhaps, heaven forbid, discover for the first time what a nerve scratching experience it is, a trip through a blacked out hall dotted with shin-barking furniture, where you have to find the light switches one by one, some by fumbling along the walls, some by searching for lamps on tables. The entrance hall traversed, the exit found, and then the key to it, you enter another pitch-black room, and before going on you must have memorised the room behind you. About all you have to help you is an awareness carried over from your native tongue of the existence of certain grammatical categories such as nouns and verbs; take too many preconceptions with you, the need for articles, plurals, tenses, for example, if you are an English speaker, and angry frustration will come swiftly. Every vocabulary item, and many of the sounds that combine to make up those pieces of vocabulary, will be totally new, totally unconnected with anything in the native tongue and only capable of acquisition through passive or active brute memorisation.

Is memory part of general intelligence? In a widely accepted distinction, Cattell has divided intelligence into so-called 'fluid' and 'crystallised' intelligence,⁴⁶⁾ which are said to correlate at a positive 0.70. Some mental tests require mental work on the spot with largely unfamiliar materials and problems. Others require stored knowledge for example of the meanings of words and proverbs, or of simple mental arithmetical operations. Crystallised intelligence refers to the stored knowledge required by the latter kind of test. In other words it means memory, since knowledge is nothing without the means to file and retrieve it. The Wechsler tests include measures of both long term recall and short term memory, the latter measure taking the form of digit span tests. Digit span tests are said to correlate well with language ability.

Conclusion

The second language learning that is the main focus of acquisition theory is the language learning that takes place in classrooms, sponsored and paid for by governments as part of an overall programme of education. The aim of acquisition studies is or should be to build a better mousetrap. What takes place in the wild, away from the confines of blackboard and monitor, is largely irrelevant, since it is free of the ball and chain that inhibits progress in conventional classroom learning, namely a shortage of time. The matter is wreathed about with qualifications but it is surely indisputable that the vast majority of first generation immigrants eventually gain a grasp of the language of their new country, something which is not true for the majority of conventional language learners no matter how they are taught. All human beings have intelligence in some degree. Given enough time even the least gifted can learn difficult processes. With the exception of the special area known as genius, intelligence is a graduated affair. The difference lies, of course, in speed of reaction, speed of recall, and speed of analysis — something recognized in everyday

descriptions of degrees of intelligence such as ‘slow on the uptake’ and ‘quick on the ball.’

Short of organizing a two or three year wholesale transfer of populations there is no escape from the reign of the classroom and its structured teaching and practice. The introduction of foreign language teaching at the primary school level is seen as a possible escape route from the current impasse. The hope is that second language acquisition can make use of the still plastic brains of pre-critical period children and imitate the learning of the mother tongue. This is once again to ignore the time factor with its incessant reception and production of formulaic utterances. Probably the only route to pre-pubertal successful acquisition lies in the Lee Kwan Yew Singapore approach: the teaching of regular subject material in the target foreign language.

Which brings us back again to post-adolescent learners, who have traditionally been expected to be able to overcome the time shortage problem by applying themselves methodically and rationally, and by using rote learning as a substitute for lengthy exposure to the material. In other words through academic cognitive power and ability to memorise, precisely the two areas where those at the lower end of the IQ range are going to be deficient.

In a nutshell, classroom based learning of a second language requires sensitivity to rules, processing speed and considerable powers of memorization in the area of verbal skills. It makes demands that can only be met by those with higher than average levels of ‘academic’ power, in other words of the intelligence that IQ tests aim to measure. What remains to be determined is exactly what level of intelligence is involved and to what degree it needs to be combined with other acquisition factors that are specific to language learning, type of personality for instance. The level of intelligence in question is likely to be higher where the gap between the two language systems is great, as it is between English and Japanese. It is considered to be four or five times more difficult for an English speaker to learn Japanese as it is to learn a cognate language. Presumably the opposite is also true. No wonder that the first thing Japanese students will tell you is that English is ‘muzukashii.’

Are any practical conclusions to be drawn from all of the rhetoric above? Providing that the level of general intelligence needed to make progress in formal language learning can be determined, something which could be done by correlating IQ and language achievement test scores, then the Wechsler tests should be able to provide the initial basis for selecting a certain percentage of pupils, between 30 and 50 percent let us propose, for specialization in language study from the beginning of junior high school. It goes without saying that this would be politically difficult, at first, but, once it was pointed out that the USA and United Kingdom have already given up on the idea of universal foreign language learning, objections might well be dropped. Once the IQ testing approach was in place, more specialized aptitude tests could be developed, ones with more emphasis on memorization of lexical items, something which is now seen as having greater value than a mastery of grammatical intricacies.

In short, there is no real need for the majority of the population of a large country like Japan to acquire competence in a foreign language, anymore than there is for them all to become concert pianists.

Notes

- 1) Eysenck Hans J., *Intelligence A New Look*, Transaction Publishers, 1998, p.25. ‘. . .the Wechsler test, an individually administered test having eleven subtests, and widely regarded as the gold standard of IQ testing.’
- 2) Richard J. Herrnstein, Charles Murray, *The Bell Curve*, The Free Press, 1994.
- 3) Eysenck, *op.cit.*, p.21 for a table of IQ levels and professions.
- 4) Richard Lynn, Tatu VanHanan, *IQ And The Wealth Of Nations*, Praeger. 2002, p.35. ‘In this chapter it is shown that intelligence conceptualized as a single ability is a significant determinant of earnings among individuals . . .

- Intelligence determines earnings because more intelligent people learn more quickly, solve problems more effectively, can be trained to acquire more complex skills, and work more productively and efficiently.'
- 5) Eysenck, *op.cit.*, p.40. 'A recent experiment will illustrate what I mean. Educational achievement, being largely mediated by IQ, of course, also shows a healthy degree of heritability. In Norway the educational system has changed over the past forty years from a privileged, unequal system to a very egalitarian one. It was predicted that comparing the scholastic achievement of twins at the beginning and at the end of that period, heritability would be much higher at the end than at the beginning, and so it turned out. *Changing the degree of inequality in the education system in the direction of greater equality led to a greater influence of heredity on achievement.*'
 - 6) Christopher Brand, *The g Factor – General Intelligence and its Implications*, Chapter 2. To be found at <http://www.douance.org/gi/brandtgf.htm>.
 - 7) Richard J. Herrnstein, Charles Murray, *op.cit.*, p.269. 'The difference in test scores as measured in dozens of reputable studies has converged on approximately a one standard deviation difference for several decades. Translated into centiles, this means that the average white person tests higher than about 84 percent of the population of blacks and that the average black person tests higher than about 16 percent of the population of whites.'
 - 8) Lyle Jenkins, *Biolinguistics*, Cambridge, 2000, p.5.
 - 9) David Crystal, *The Cambridge Encyclopaedia of Language*, Cambridge, 1987, p.289. 'Most attempts to teach them (feral children) to speak failed . . . The two most successful cases on record are Kaspar Hauser, whose speech became quite advanced, and Genie, who learned a few words immediately after discovery, and whose subsequent progress in speech was considerable.' The case of Genie remains controversial owing to its relevance to the critical period hypothesis. One authoritative statement does state, however, that: 'She was a very communicative person. But, despite trying, she never mastered the rules of grammar, never could use the little pieces — the word endings, for instance. She had a clear semantic ability but could not learn syntax.'
 - 10) Steven Pinker, *Words and Rules*, Phoenix, 1999. p.286.
 - 11) Steven Pinker, *op.cit.*, p.288.
 - 12) Loraine K. Obler, Kris Gjerlow, *Language and the Brain*, Cambridge, 1999. p.135.
 - 13) Steven Pinker, *op.cit.*, p.295.
 - 14) Loraine K. Obler, Kris Gjerlow, *op.cit.*, p.139.
 - 15) *Ibid.*, p.154.
 - 16) Steven Pinker, *How the Mind Works*, Norton, 1997, p.63.
 - 17) Alfred Binet and Theodore Simon, *The Development of Intelligence in Children*, Williams and Wilkins, 1916. Quoted on page 130 of *Measuring Minds* by Leila Zenderland, Cambridge, 1998.
 - 18) Leila Zenderland, *Measuring Minds*, Cambridge, 1998, p.130.
 - 19) Eysenck, *op.cit.*, pp.130, 131.
 - 20) Most notable has been the Milwaukee Project of 1966, which made large claims that are now largely disproved. (See 'The Bell Curve' pp.98, 99). Largest and ongoing is Project Head Start begun in 1965 under American President Lyndon Johnson. Although the programme has cost billions of dollars, studies appear to show no reliable differences in IQ between experimental and comparison groups.
 - 21) J.P. Guilford, *The Nature of Human Intelligence*, McGraw Hill, 1967.
 - 22) Bernard Spolsky, *Conditions for Second Language Learning*, Oxford, 1989.
 - 23) Paul Meara, James Milton and Nuria Lorenzo-Dus, *Language Aptitude Tests*, Express Publishing
 - 24) Rod Ellis, *The Study of Second Language Acquisition*, Oxford, 1994, p.498. 'Research makes it clear that in the long run language aptitude is probably the single best predictor of achievement in second language.'
 - 25) Ironically, the American Council on the Teaching of Foreign Languages now sponsors achievement awards named after these two distinguished rivals.
 - 26) Paul Pimsleur, *Testing for Language Learning*. Reprinted in 'Trends in Language Teaching,' ed. Albert Valdman, McGraw Hill, p.175.
 - 27) Ellis, *op.cit.*, pp.497, 498.
 - 28) Spolsky, *op.cit.*, p.154. 'Gardner has expanded on the work he began with Lambert and formalized it into what he now calls a 'socio-educational' model of second language acquisition with four variables summarizing individual

differences: intelligence, language aptitude, motivation, and situational anxiety.'

- 29) Everyone involved in tertiary Japanese education will be familiar with the huge emphasis on motivation. Failure to learn is blamed exclusively on faculty's failure to stimulate their flock. For an overall view see Brian J. McVeigh, *Japanese Higher Education as Myth*, M. E. Sharpe, 2002, p.126. 'there was incessant talk about "making the students experience the fun of studying" (benkyo no omoshirosa wo jikkan saseru koto); how to design "attractive classes" (miryokuteki na jugyo); how to elicit *hanno* (responses, reactions) from students; how to "activate students" (kakki-ka suru); and emergency meetings to "increase the motivation of the student body" (zaigakusei no iyoku o takameru).'
- 30) Spolsky, *op.cit.*, p.104. 'Just as all children, with exceptions in pathological cases, are able to develop functional control of their first language, so it is reasonable to assume that all can acquire a second language.'
- 31) Ellis, *op.cit.*, p.495. 'Caroll argues that aptitude must be found to be distinct from general intelligence . . . Pimsleur considers intelligence an important part of aptitude. Oller and Perkins (1978) have also argued that verbal intelligence is a major factor as it needed to answer tests of the kind used to measure aptitude and language proficiency and thus is a common factor to both. In contrast, although finding significant correlations between scores on a verbal intelligence test and a test of foreign language proficiency, Skehan (1990) argues that there are clear differences between them.'
- Two pages later there is a little more: 'Cognitive academic language proficiency (CALP) . . . concerns a dimension of language proficiency that is strongly related to overall cognitive and academic language skills and can be equated with the global language proficiency factor, which Oller and Perkins (1978: 413) have claimed account for 'the bulk of the reliable variance in a wide range of language proficiency measures,' and is identical with the 'g' factor of intelligence. A number of studies support a connection between CALP and intelligence. Genesee (1976) found that intelligence was strongly related to the development of academic L2 French language skills (reading, grammar, and vocabulary) but was largely unrelated to ratings of oral productive ability. Ekstrand (1977) also found low-level correlations between intelligence and proficiency as measured on tests of listening comprehension and free oral production, but much higher correlations when proficiency was measured by tests of reading comprehension, dictation, and free writing . . . The ability to handle decontextualised language suggests that aptitude is also related to CALP and therefore also involves intelligence. So, in a sense, Caroll and Pimsleur were both right.' i.e. Pimsleur was right to say that language learning aptitude is related to intelligence.
- 32) Spolsky, *op.cit.*, p.102. 'The most that can safely be said is that there is a strong relationship between the scores in intelligence tests and the scores in formal tests of school-related language abilities.'
- 33) Peter Skehan, *A Cognitive Approach to Language Learning*, Oxford, 1998.
- 34) Miyuki Sasaki, *Second Language Proficiency, Foreign Language Aptitude and Intelligence*, Peter Lang, 1996, p.10. ' . . . almost no study has examined the relationship between a general SLP factor and a higher-order general cognitive ability factor.'
- 35) *Ibid.*, p.134. It should be added that another of the study's conclusions states that: 'The G-COG factor accounted for only 42% of the G-SLP factor. This implies that even in a typical EFL situation, a large portion of SLP (58%) cannot be explained by academically oriented cognitive factors.'
- 36) Of interest in this context is the comment of linguist/ politician Koichi Kato on being asked why most Japanese people's English skills are so poor. 'One thing I can say is that a man of few words in Japanese cannot speak fluently in English.' From the *Daily Yomiuri*. Year 2000.
- 37) Skehan, *op.cit.*, p.11. 'In an influential paper which discusses differences between first and second language learning, Bley-Vroman (1989) draws attention to the extent to which second language (L2) often does not lead to success while first language learning, except in unusual cases, does.'
- 38) Michael Lewes, *The Lexical Approach*, Language Teaching Publications, 1993, p.128. 'Most contemporary linguists agree that the basis of native speaker fluency is control of a vast repertoire of formulaic phrases . . . ; research on first language acquisition suggests that the constant repetition of utterances learned as a whole is an intrinsic part of first language acquisition.'
- 39) Eugene Ionesco, *The Bald Soprano*, Grove Press, 1958, p.14. 'I'm the maid. I have spent a very pleasant afternoon. I've been to the cinema with a man and I've seen a film with some women. After the cinema, we went to drink some brandy and milk and then read the newspaper.'

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- 40) British magazine 'Private Eye' has for years derived humour from the thoughtless use and abuse of cliché in its 'Colemanballs' feature. Most of the examples come from soccer commentaries.
- 41) Skehan, *op.cit.*, p.205, 'we have seen that despite the claim that everyone is the same in first language learning ability (Neufeld 1979), there is, in fact, considerable variation in rate of acquisition.'
- 42) *Ibid.*, p.233 on first language development: 'there is . . . a lack of correlation between IQ and first language development, suggesting that language and other cognitive developments take place independently.'
- 43) *Ibid.*, p.209. 'The different studies described in this section are reasonably consistent. All investigators have found significant relationships between aptitude and IQ, but the levels found have varied somewhat, from what might be called a low to moderate level of correlation . . . to a moderate to strong relationship.'
- 44) *Ibid.*, p.213. Commenting on the case of exceptional language learner CJ, Skehan says: 'Interestingly, CJ performed at an average level on the Digit Span test, a test of short-term memory.'
- 45) Alan D. Baddeley, *Essentials of Human Memory*, Psychology Press, 1999, p.57.
- 46) Eysenck, *op.cit.*, p.14.

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