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SELF-REPORTS IN RESEARCH ON HIGH ABILITY

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Abstract

Self-reports are particularly suitable for research with the gifted, who are often self-aware and articulate, enabling important new perspectives to be discovered on influences affecting this exceptionality. By this means, features otherwise missed by standardised tests and observations can add greatly both to the richness of the data and to its validity. However, because of the great variety, unexpectedness and complexity of responses, there are problems of collection and analysis, such as distortion by reporter or researcher. Verbal protocol analysis is suggested as one solution. A 14-year study in Britain using self-reports, along with a battery of standardised tests, compared gifted and (otherwise matched) non-gifted youngsters (N=210). This supplied information, unobtainable by other means, on e.g. the subjective aspects of academic acceleration, teacher-pupil relationships, the effects of labelling, and intellectual strategies of the gifted. These insights are valuable for care of the gifted and policy making.

Around the turn of this century, most psychologists, whether they were experimental like Wundt or phenomenological like Brentano, accepted subjective experience as valid. William James, the author of that famous phrase about the newborn's awareness of the world as - "a blooming buzzing confusion" - was also deeply involved in the richness of consciousness. But, by the 1920s, fear for the scientific standing of psychology influenced Watson's anti-mentalistic line which dismissed reports of inner mental life, which for 'hard-liners' such as Skinner was simply a non-topic. Only what was measurable, such as learning, memory and perception, was then acceptable, together with the belief that with more research, often on simpler animals, a psycho-physiological explanation for all human life was just around the corner. It was around this time that the serious scientific study of intelligence took shape - and we are still trying to overcome that restricting legacy. Although the personal aspects of mental life were never completely lost from view, it is only recently that there has there been a positive resurgence of interest in the way people experience their thoughts and feelings.

Yet defining consciousness is difficult, because it is an awareness of two aspects of a phenomenon at the same time - the process as well as the end-product. Nor are one's reported representations entirely personal: like individual behaviour, consciousness extends beyond the boundary of the individual to include, in Vigotsky's term, the 'socio-historical' make-up of mental life (Kozulin, 1990), as well as biology. There are two ways to study consciousness. The 'easiest' ways would be to find neural mechanisms, such as the suggested 'microtubules' in the cell wall of a neurone (Penrose, 1994), or infer cognitive functioning via experiments such as the discrimination and categorisation of stimuli. However, no philosopher or psychologist has yet offered a convincing explanation as to how conscious experience can emerge from a physical basis, although there are several academic journals devoted to the subject. The 'hardest' way is to find out why and how such processing becomes an experienced inner life. How, for example, does the brain integrate different experiences about the same object? For that, some turn to Buddhism or Hinduism, to mystics, or to psycho-analysis and other kinds of humanistic psychology.

That dominance of scientific measurement, the 'quantitative paradigm' (empiricism), with its refusal to recognise the messy humanity of people, assumes that structures of thought develop from data presented to the individual (eg. Piaget, 1971). This is in contrast with an alternative 'qualitative paradigm', which rests on a rather different epistemological position (constructivism). In this, meanings do not merely reflect the world as it exists, but are produced or constructed by persons within cultural, social and historical relationships (Berger & Luckman, 1967). A concern with personal interpretation, beginning in the 1950s, grew into what Howard Gardner later termed the Cognitive Revolution in Psychology (Gardner, 1985). This

has now been taken further in the development of the child's theory of mind - the understanding of the mental models of others, which allows the child to infer and interpret (Bartch & Wellman, 1995), and in feminist research, which has given particular emphasis to the importance of experience. It is, in effect, a shift from prediction and control to empathy and interpretation.

It is only by self-reporting that it is possible to focus in from broader influences to personal reactions, and so improve validity of evidence. Knowledge of children's perceived environments is vital to understanding their development, yet it is not often considered. It is almost as much a part of them as the working out of their genes.

The problems of using introspection in research

Using self-reports in academic research is still somewhat risky for a respectable psychologist. It is much easier to hide in jargon and statistics and present a facsimile of objectivity, than to run the risk of appearing to be both unscientific and unsophisticated. As in any science, researchers are expected to be able to distinguish their own subjective worlds from those of the people they are trying to understand, and so in all research, the first self-report should be the researcher's. It is important to know about the approach taken to any study, because this 'grounds' the work in a specific epistemological theory (Glaser & Strauss, 1967) in which data are perceived and analysed, and from which conclusions are drawn (Myrdal, 1970; Nicolson, 1991). In large-scale surveys, which are good at identifying how groups of people appear to be affected by wider circumstances, such as gender, race, and social class, the subjective aspects are usually invisible and left to remain so. However, in any interaction, although the observer may try to remain neutral, the process can never be as relatively objective as a laboratory experiment or a test score. In fact, investigating subjective material has much in common with counselling, but therein lies its power.

The flow and content of each personal interview is different, as are the balances of psychodynamic forces between subject and interviewer (Mishler, 1986), and the subject's responses are unpredictable thus (to some extent) escaping the researcher's preconceptions. For example, I know that although I made conscious efforts not to influence the young people I was researching, two of them told me that they were inspired by our interactions to go on to study psychology at university, and who can say what other repercussions there were. There may also be different forms of reporting of the same personal experience, and the thread has to be extracted by the researcher. On occasion, when I have interviewed parents and children separately, the same events sometimes emerged with quite a different slant. Self- reports are much richer in quality than ticking a box on a questionnaire, by e.g. recording the subject's own explanations for events, and perhaps even tone of voice. It is the sense of involvement in the interviews which maintains motivation - a feature which continues for the researcher in the analysis of an often very intricate web of data, for which there is no set method. This is a difficult task, especially after a traditional training in psychology.

Looking into the mind to find out what is going on in there can be a revelation, but trying to describe it is a real problem. The very act of introspection, what David Perkins (1981) called "the vampire act", alters the vision. Simply by taking the streaming out of the stream of consciousness, that consciousness is itself altered. One might then question the reliability of introspective research, especially in children. But there is some evidence that it is worthwhile. For example, long-term studies at Johns Hopkins on self-reported depressive symptoms in first-grade children as well as in the middle to late elementary years was found to be a relatively stable predictor of later symptoms and adaptive functioning (Ialongo, Edelsohn, Werthamer-Larsson, Crockett & Kellam, 1993).

Verbal Protocol Analysis

We may not be able to get perfect reports on introspection, but we can get satisfactory reports by using careful techniques; essentially by encouraging the continuous flow of ideas through paying attention, giving encouragement, and offering suggestions and questions as markers (LaGreca, 1990). There are few standardised measures to help this process. The observer has to be very sensitive to atmosphere and to the emotional meaning of other people's lives, and must pick up and coordinate indirect clues as they emerge. A

major practical problem in this kind of research, though, is how to cope numerically with the infinite variety and quality of the everyday events which impinge on an individual's development. However, verbatim material should have some structure in presentation and interpretation, or it may lose its message in a maze of words.

The technique of Verbal Protocol Analysis provides a method for collecting data from individual reports in a variety of situations where standard statistical techniques cannot be applied (Ericsson & Simon, 1993). In this, the data are coded into individual segments prior to analysis, and statistical techniques can then be applied e.g. to find out the proportion of specific occurrences. This method has been used increasingly in a variety of investigations, such as exploring differences between experts and novices, learning procedures in good and poor learners, representation in mathematical problem solving, or to supplement data from more quantitative analysis (see Green, 1995). It has also been used with the raters themselves to assess their reasoning and level of agreement, as well as on the validity of assessment instruments and methods. It differs somewhat from introspection, in that subjects are encouraged to express their thoughts, but not the processes which produced them. These are inferred by the researcher. It is a very time-consuming and labour intensive procedure, but produces valuable insights. As with all investigatory methods, its validity and reliability depends very much on the care and skill with which it was initially set up.

Introspection and high ability

Research into high ability should be particularly concerned with individual reaction to experiences, in order to find the often subtle influences underlying this exceptionality. Childhood poverty, for example, may present an insuperable barrier to one, but a challenge to reach for excellence by another. However, there are not many occasions when highly able youngsters are asked their opinions (eg. Alexander, 1985; Kerr, Colangelo & Gaeth, 1988; Long, 1993), much less their deeper feelings. Czeschlik & Rost (1988) used self-reports to investigate highly intelligent children, as well as reports from teachers and parents, and concluded that the highly intelligent were at least as well adjusted, socially and emotionally, as their age-peers. So did a Dutch study of adolescents (Monks & van Boxtel, 1985), which noted that the relationships of the gifted with their non-gifted age-peers were not only normal, but could be enhanced when they made their extra intellectual and creative abilities available to their friends. Introspection was involved in the broad scale research including talented teenagers by Csikszentmihalyi, Rathunde & Whalen (1993), which concluded that in order to promote giftedness "Everything depends on the *quality* of experience which is had." (p.222).

The interviewer may require extra qualities in questioning the highly able because they often enjoy using concepts and ideas which are difficult for the less able to understand. And also the other way round, the highly able may not understand why others do not see life as they do. More than one outstanding mathematician, for example, among the young people I have studied found it hard to understand the difficulties other people face in following what was easy for them. I had the impression that one young woman, studying computer science at university, rather enjoyed the difference. She said - "In class, I might suddenly say, `Oh, this is wrong', re-write the programme, churn it through and find it works. Someone will ask, `Why did you do that?' and I reply, `Well, it's obvious. We didn't do this, that and the other', and sometimes they can't follow, because I jump too many steps at once. In the time they've taken to think what they're going to do, I've written down the whole formula, and then the next line".

Some people are better at introspection than others - or at least they produce better-seeming reports. Possibly the ability to introspect is developmental, a form of learning to perceive in another mode, and so one could be a gifted at introspection. I chose to use the method, now termed Verbal Protocol Analysis, as the main structure in my follow-up study of gifted and control groups. I also took the precaution of rating and interpreting the data statistically.

The Freeman Research

There are many accounts of the problems gifted children are supposed to have in normal schools, such as their difficulties in socialising with their age peers, or how academic frustration due to inadequate teaching goads them either to conform to the classroom norm or touch despair. Such problems are even said to follow them at university with risk of suicide (Yewchuck & Jobagy, 1991). But how true has it been for some gifted young people across Britain? This research took a socio-psychological approach to the study of intellectually gifted children, in respect of both social context, the behaviour of children and parents, the way they saw their lives, and how they felt about it (see Freeman, 1991a for details). Parents' and children's self-reports of their ideas and feelings were recorded, along with the class- and head-teacher's opinions.

The First Stage

To begin with, two aspects of giftedness were investigated - manifested parental belief in their child's giftedness and objective measurement of the child's abilities. A major aim was to find out why some children were seen as gifted, while others - of identical measured ability - were not. Children were considered to be gifted who scored at the 99th percentile on the Ravens Matrices non-verbal test of general intelligence.

The Target group of children, aged 5 to 14, had been presented as gifted by their parents, without tests, to the National Association for Gifted Children (UK). This criterion of parental membership was evidence of their belief that their child was gifted. The sample was taken from the records of the association, accumulated since its founding in 1966. There were 5637 children on file, of whom the target sample were chosen by geographical area, whether the parents had joined within the previous four years, and the child was still at school. Parents had to give their full consent to the investigation because of its in-depth, home-based design, as distinct from relatively impersonal classroom-based work.

Each of the resulting 70 children was then matched with two Control children for age and sex, each of the triad being pupils in the same school-class and receiving the same education. Of the two controls, the Control-1 child was also matched exactly for general intelligence (Ravens Matrices), the Control-2 child being taken at random in that respect (N=210). This was achieved by testing many hundreds of children. Hence, the essential difference between the Target and Control-1 children was of the children's label of 'gifted'. The ability matching on the Raven's raw scores was remarkably accurate, and significantly different (1%) from the Control-2's average.

Table 1 The Experimental Groups; Intelligence Measures

		Ravens raw scores		IQ	
Groups	Number	Mean	SD	Mean	SD
T	70	34.53	12.85	147.10	17.41
C1	70	34.60	11.45	134.34	17.13
C2	70	28.75	11.58	119.20	16.094

Gender: Boys - 144 Girls - 66 N = 210

The parents and the children were all interviewed in their homes. The children were also given a wide variety of tests, including IQ (Stanford-Binet), personality (CPQ), musical ability, and general creativity. The class teachers completed a standardised questionnaire on the children's behaviour in class (Stott, 1976), and they and the school principals were interviewed in the schools. The children's environmental circumstances were rated.

This was clearly not an average sample of children, because of the way it had begun, with children presented as gifted by their parents. Consequently, the intelligence scores were very high, 66% at the Ravens 95th percentile, mean IQ 137.36, and 25% were IQ 150 plus. However, scores on the Raven's and Stanford-

Binet were not always at an equivalent level because their different styles tapped different qualities in the children (Freeman, 1983).

Analysis

The resulting matrix involved 210 children, 210 sets of parents, 61 class-teachers and 61 head-teachers, with 207 variables of information about them derived from the battery of test results and the rated environmental influences. All the children were compared across all the variables. Initial Factor Analyses were followed by Analysis of Variance with Orthogonal Comparisons, further refined by F and t-tests, and occasional chi squares.

Two statistical dimensions were used to analyse the data -

1. Constructed variables were made up from clusters of the original data variables, and used for hypothesis testing on children who were measured as gifted.

2. Comparison groups were made up of criterion-based regrouping of the total sample children on which the original data variables were compared for all the ability range.

Results

All the results presented in this paper were found to be significant at $p < 0.01$, when the variables were compared.

The Target children presented as gifted by parents were far more frequently described as difficult by parents as well as teachers, and were found to live in somewhat more emotionally disturbed home circumstances, such as having divorced parents or moving house very frequently. They were clearly aware of their label and said that it made them feel different; some who had few friends blamed this on their superior intelligence. However, the equally-gifted children Control-1 children, who were not labelled with that term, did not have those problems. For all the sample, their school achievements were found to be directly related to their intelligence, educational provision (especially at home), and to the example rather than to the expectations, of their parents.

The Second Stage - the Follow-up

Ten years later, I took this procedure to a very much deeper level in following up the sample (see Freeman, 1991a for details). I was particularly concerned with how the children's abilities had developed in terms of their social and emotional lives. I spent many hours with each of the (by then) young people in deep one-to-one sessions, often late into the night, and also with their parents, each generation by now often living separately. Of the whole sample, 81% had been retrieved after the 10-year gap, making about 350 interviews. Most of their responses were pre-rated, but they were also used as stimuli for more spontaneous thoughts and memories. All the interviewing was audio-taped and transcribed on to computer for analysis, both statistically via ratings, and by many readings of the texts.

The reasons why some had not fulfilled their earlier promise were partly due to their emotional reactions to their circumstances, and partly to inadequate educational provision (Freeman, 1994). Stress usually lowered achievement. But being treated with respect, such as being allowed to make many of their own discoveries and decisions in their educational programmes (reciprocal teaching), produced better results. In their exceptionality and their sensitivity, some of the less happy gifted young people described complex, inhibiting, psychological defences against expected hurt. A common variety was to hide behind studious, intellectual walls of their own making, which severely inhibited their friendship and leisure activities. Quite a few said that our counselling-type sessions had helped them.

The self-reports provided a particularly valuable insight into the emotional effects of accelerating a gifted child to a higher class at school. Research into acceleration (Southern & Jones, 1991, Benbow, 1991,

Prado & Schiebel, 1995), it has been heavily concerned with academic achievement, with relatively little regard for emotional concerns. For the youngsters in this sample, when a decision had been taken to accelerate it was usually initiated by the teachers with the agreement of the parents, although few of the children had been asked what they themselves would have preferred. For 16 of the 17 accelerated children, normal growing-up problems had been decidedly exacerbated by this move. Both children and parents explained, for example, how difficult it was to cope with a typical problem of how late to stay out, as the older ones in the adolescent's class were given more freedom. Some of the accelerated gifted perceived themselves as small as did their friends (although they were normal for their ages), others defended their failure to be chosen for the sports team by saying that they did not like sport anyway. The only boy who was very pleased with the situation was tall and mature for his age: he said he was particularly happy with his acceleration because it enabled him to leave school earlier. One father said of his son in an academic boys' school who has been accelerated by two years, "I felt sorry for him; they were men and he was a boy". Another girl said, " I was two years ahead. I had absolutely no confidence at all, and I didn't have any friends. The others would spend their time teasing me because they said it was fun - nine year-old little girls are so cruel. I don't think it was my fault, or that I was spoilt."

Relationships with teachers in this research were beset with problems of discipline - how much - how little? Even the most brilliant told how they were torn between the firmness they felt they needed to do well in the examination hurdles, and their yearning for concern for their all-round well-being from their teachers. These bright pupils made a clear distinction between teachers who were either easy-going and approachable or easy-going and slapdash. Ideally, there had to be respect flowing both ways, particularly for the older pupils. Some, though, had taken to leaning on the teacher for discipline that they could not or did not want to acquire for themselves. Too strict a discipline was described as actually detracting from a subject, causing loss of interest and producing boredom. According to these young people, teachers of the gifted do have to be of sufficient calibre - expertise in the skills of teaching was very much appreciated - but teachers also have to be in genuine two-way communication with their pupils. The quality most appreciated in teachers was a contagious enthusiasm for their subject.

The most valuable and sophisticated strategy for all mental purposes is metacognition, the overall awareness of one's intellectual assets, such as concentration and memory, as well as how they work best. General strategies include planning, monitoring, and evaluation, but metacognition also includes emotions and attitudes, such as the elements of curiosity, persistence, and confidence. Although each young person was interviewed entirely independently, there were highly significant correlations with regard to the young people's descriptions of their metacognitive processes across the different groupings. This was in accordance with what one might have found using more objective tests across this wide range of IQ scores, but that would have missed the personal aspects.

The gifted young people who were emotionally well-balanced were far more likely to describe efficient methods of thinking and learning, and to make the best use of their personal cognitive styles- a feature which has emerged in other studies of gifted thinking (Span, 1995). Even as children, those of the highest intelligence had described better memory and concentration processes than the others, confirmed by parental reports. Although none of the young people had ever been specifically taught how to do it, the intellectually gifted in my study had a high level of metacognition, and were usually able to function nearer their best for more time than the others. The brightest could sometimes describe in detail how they consciously managed their mental learning resources, and what they did to improve their strategies. They might, for example, study the principles of the subject first using long-term memory, and then fill in the details using short-term memory for the exams. The most successful examinees also knew about the importance of involving the whole self - intellect, emotion and body - in their learning. A gifted medical student said: "The secret of my learning is that I've got to understand what I'm doing. For me, there are two approaches to work. If it's a subject that bores me, or a problem I find difficult to understand, I know I have to plough through it, referring to notes and back, just learning by heart. But if it's something I enjoy, I just sit back, look for the important points, and I can do it".

It was not possible to have planned for or tested the many unexpected outcomes. One highly significant and unexpected correlation, for example, emerged from questions about the future in general and the possibility of nuclear war in particular - the higher the person's IQ score the more likely they were to believe that a nuclear holocaust would take place (Freeman, 1991b). The gifted young people often suggested how this might come about, such as by a hasty finger on the button or worn-out equipment. Many of them expected to be annihilated before they had lived out their natural lives, and all were able to talk about how this idea affected the way they were living in the present. Some were decidedly depressed by the idea. In comparison with the more average ability youngsters, the gifted were far less likely to believe in a last minute intervention by God. Another unexpected finding was the gifted young people's frequent descriptions of themselves as lazy, discovered through transcript readings. The parents almost never agreed with their children on this. The inference was that they found their high level achievements almost too easy, in that they did not have to struggle like their age-peers, and so (in Protestant ethic mode) felt somewhat guilty.

An important aspect of the introspection data also showed that the mental life of the gifted young people was qualitatively different from those of average ability. They were less likely to take a superficial view of events, being more concerned to know why they and others behaved as they did. They appeared to be more empathetic than others, especially the girls, to the extent that significantly more of their friends would turn to them for emotional support. However, in spite of their often advanced thinking and learning skills, not all the gifted had an equivalently high level of emotional maturity. Help to support their exceptionality and consequent vulnerabilities was not always available or adequate for those who needed it, with some unfortunate consequences in failure of self-esteem, underachievement and consequent happiness.

CONCLUSIONS

In this research, carried out in a combined manner using both quantitative and qualitative methods, important aspects of the gifted youngsters' individual perceptions emerged, which could not have been planned for or discovered conventional scientific methodology. This intensive approach to understanding the subjective world of the gifted, particularly in comparing them with non-gifted children, was extremely informative, providing many suggestions towards a policy for the future care of these children which could be pertinent to other cultures. These included the effects of labelling, the prevalence of myths about the gifted, the emotional and achievement effects of academic pressure e.g. on leisure activities, reasons and effects of for boredom, the development and effects of motivation, teacher use of pupils as surrogate teachers, and directives for counselling families with highly able children.

Research can sometimes be overly 'scientific', focused entirely on testing and school achievement with little regard for the overall picture of the subjects' lives, and that into high-level intellectual activity is particularly complicated because of the considerable number of cognitive operations involved in problem-solving, such as the combined use of both convergent and divergent thought processes in creativity. This complexity is probably the major reason why the prediction of high-level adult achievement from childhood giftedness is so unreliable.
Certainly, the gifted children who are the subjects of special education should be involved in the construction of their own educational provision where this is possible, not least as intrinsic motivation is often found to be an important feature of exceptionally high achievement (eg. Gottfried, Gottfried, Bathurst & Guerin, 1994; Renzulli, 1995).

Approaches to the science of the mind must be flexible and interdisciplinary in order to extract the most valuable information (Denzin & Lincoln, 1994). For this, researchers require knowledge and values from a variety of perspectives, whilst maintaining a sense of their own. The social roles which 'we' the researchers and 'they' the researched assume are an integral but often underexposed part of this process, and as a result, researchers are in danger of enacting what we value. The qualitative paradigm links issues of research practice with wider epistemological questions, as well as with the social and political dimensions of scientific enquiry. A new paradigm is needed in gifted research, including a more collaborative and

egalitarian mode of enquiry. The aim is to build a well 'grounded' theory from sets of relevant cases, which are also numerous enough to support quantitative analysis. Yet the example of such a combined approach described here has not been replicated (to the author's knowledge), possibly because of the requirements of heavy time consumption and researcher dedication.

Self-reports are sometimes the only way to find the deeper meanings of life. As seekers after knowledge, let us welcome introspection and insights into the methodologies of research. It is the way to round out those dry lists of conclusions drawn from numbers, and to shape them with what is uniquely and recognisably human.

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